

WOODWORKERS RALLY TO NORM'S DEFENSE

WOODWORKER'S JOURNAL

October 2000
Volume 24
Number 5

**Belt sander
heavyweights**

We test the best!

**Simple
Gifts**

**The Shaker
legacy**

**Ian
Kirby**

**takes the
mystery out
of design**

PLUS PLANS
Heirloom desk
Holiday gifts

\$4.95US \$5.95CAN



10>

7 25274 02123 9

www.woodworkersjournal.com

**2 H.P.
12" Planer**



**FREE STAND
700 LB. CAPACITY!**

Grizzly

Industrial, Inc.®

The Preferred Choice of Woodworkers Since 1983

2 H.P. 12" Planer

- MAX. CUTTING WIDTH: 12" • MAX CUTTING HEIGHT: 6" • MAX. CUTTING DEPTH: 1/8"
- MIN. BOARD THICKNESS: 1/4"
- FEED RATE: 26 FPM • 2 H.S.S. KNIFE CUTTERHEAD
- CUTTERHEAD RPM: 8,500 • FEED RATE: 26 RPM
- 55 CUTS PER INCH • HEAVY STEEL COLUMNS
- 2 H.P., SINGLE PHASE MOTOR, 110V, 16 AMPS
- APPROX. SHIPPING WEIGHT: 85 LBS.

G1017 WITH STAND

REG. \$399⁰⁰
\$369⁰⁰
\$20⁰⁰
ANYWHERE IN LOWER 48 STATES



6" x 47" HEAVY-DUTY JOINTER

- TABLE SIZE: 6" x 47"
- HEAVY-DUTY ONE PIECE STEEL STAND w/BUILT IN CHIP CHUTE
- RE-DESIGNED FENCE SYSTEM - POSITIVE STOPS @ 45° & 90°
- 1/2" RABBETING CAPACITY
- 3-KNIFE BALL BEARING CUTTERHEAD
- MOTOR: 1 H.P., SINGLE PHASE, 110/220V
- APPROX. SHIPPING WEIGHT: 235 LBS.

G1182ZX
INTRODUCTORY PRICE!
\$445⁰⁰



HOLLOW CHISEL MORTISER

- 30 1/4" OVERALL HEIGHT
- ADJUSTABLE DEPTH STOP
- 1/2 H.P. MOTOR, 110 V ONLY
- 6 AMPS, 3400 R.P.M.
- APPROX. SHIPPING WEIGHT: 50 LBS

Rated "Best Instruction Manual" in a Hollow Chisel comparison by American Woodworker - February 1998



AMERICAN WOODWORKER BEST BUY
G3183
\$225⁰⁰

NEW! 12 1/2" PORTABLE PLANER

- MAX. CUTTING WIDTH: 12 1/2" • MAX CUTTING HEIGHT: 6"
- MAX. CUTTING DEPTH: 1/8" • MIN. BOARD THICKNESS: 3/16"
- H.S.S. KNIFE CUTTERHEAD
- CUTTERHEAD RPM: 8,540
- FEED RATE: 25 FPM
- 57 CUTS PER INCH
- ON/OFF TOGGLE SWITCH
- 2 H.P., SINGLE PHASE MOTOR, 110V, 15 AMPS
- APPROX. SHIPPING WT: 85 LBS.
- **FREE STAND!**



G8794 WITH STAND
\$279⁹⁵
\$20⁰⁰
ANYWHERE IN LOWER 48 STATES



NEW! 15" PLANER w/CABINET STAND

- MAX. CUTTING WIDTH: 14 1/4"
- MAX CUTTING HEIGHT: 6 1/8"
- MAX. CUTTING DEPTH: 1/8"
- CUTTERHEAD RPM: 5,000
- 3 H.S.S. KNIFE CUTTERHEAD
- FEED RATE: 16 FPM & 20 FPM
- INCLUDES JACKSCREW & SPRING LOADED KNIFE SETTING
- 3 H.P., SINGLE PHASE MOTOR, 220V
- APPROX. SHIPPING WEIGHT: 540 LBS.



G1021Z
\$995⁰⁰
\$105⁰⁰
ANYWHERE IN LOWER 48 STATES

1 1/2 H.P. SHAPER

- TABLE SIZE: 20 1/4" x 18"
- 1/2" & 3/4" INTERCHANGEABLE SPINDLES
- 3" SPINDLE TRAVEL
- 1 1/4", 3 1/4" & 5" SPINDLE OPENINGS
- 5" MAXIMUM CUTTER DIAMETER
- MOTOR: HEAVY-DUTY 1 1/2 H.P., 110/220V
- TWO SPEEDS: 7000 & 10000 RPM
- SHOWN WITH OPTIONAL WING
- APPROX. SHIPPING WEIGHT: 220 LBS.



G1035
REG. \$449⁰⁰
\$395⁰⁰
\$42⁰⁰
ANYWHERE IN LOWER 48 STATES

1 H.P. DUST COLLECTOR

Voted Best New Tool for 1999 in the single-stage dust collector category by Popular Woodworking Magazine!

- PORTABLE BASE SIZE: 15" x 25 1/2"
- NUMBER OF 4" INTAKE PORTS: 1
- MOTOR SIZE: 1 H.P., SINGLE PHASE
- MOTOR AMP DRAW: 14 AMPS (AT 110V)
- AIR SUCTION CAPACITY: 500 CFM
- APPROX. SHIPPING WEIGHT: 79 LBS.

G8027
\$129⁹⁵
\$20⁰⁰
ANYWHERE IN LOWER 48 STATES



2 H.P. DUST COLLECTOR

- PORTABLE BASE SIZE: 21 1/4" x 33 1/2"
- (2) 4" INTAKE PORTS
- 1550 CUBIC FEET/MIN. AIR SUCTION
- 30 MICRON BAG FILTRATION
- MOTOR: 2 H.P. SINGLE PHASE, 220V
- APPROX. SHIPPING WEIGHT: 130 LBS.
- INCLUDES A FREE 2-STAGE CYCLONE SEPARATOR (A \$34.95 VALUE!)



G1029
REG. \$279⁹⁵
\$249⁹⁵
\$42⁰⁰
ANYWHERE IN LOWER 48 STATES



**CALL FOR A
FREE**
356 PAGE FULL COLOR
CATALOG TODAY!

1(800)523-4777

Customer Service: (570) 326-3806 FAX: (800) 438-5901

BUY DIRECT & SAVE!

- FRIENDLY SERVICE
- 2 QUALITY CONTROL OFFICES OVERSEAS
- FAST SHIPPING! TRAINED ENGINEERS ON STAFF
- OVER ONE MILLION PARTS IN STOCK AT ALL TIMES!



VISIT THE LARGEST WOODWORKING & METALWORKING SHOWROOM IN THE UNITED STATES
Located in Springfield, Missouri - Near Branson

12" Disc Sander

- 1 H.P. MOTOR, 110V
- SAFETY TOGGLE ON/OFF SWITCH
- 17 1/4" x 8 1/4" ALUMINUM TABLE
- CAST IRON BASE WITH BUILT-IN DUST PORT



Table tilts from 0° - 45°!

This is really a super deal!

G7297 REG. \$149⁰⁰

SPECIAL \$129⁹⁵



GRIZZLY POWER TOOLS

NEW!



18V 5 1/2"

CORDLESS
SAW KIT

G8598 **\$79⁹⁵**

You can't find better cordless power tools for a lower price!
BEAUTIFUL HARD CASE INCLUDED!



14.4 V, 3/8"

CORDLESS DRILL KIT

G8595 **\$54⁹⁵**



18 V, 3/8"

CORDLESS DRILL KIT

G8596 **\$69⁹⁵**



18 V, 1/2"

CORDLESS DRILL KIT

G8597 **\$89⁹⁵**

OUR DRILLS ARE BUILT WITH JOHNSON MOTORS, JACOBS® CHUCKS & PANASONIC® BATTERIES

5 SPEED BENCH-TOP RADIAL DRILL PRESSES

- 34" MAX. SWING • DRILL CHUCK: 3/4"
- SPINDLE TAPER (EXTERNAL): JT #33
- SPINDLE TRAVEL: 3 1/4" • NO. OF SPEEDS: 5
- RANGE OF SPEEDS: 550, 880, 1520, 2490, 3470 RPM
- TABLE SIZE: 8 3/8" • TABLE TILT: 90° IN BOTH DIRECTIONS
- MOTOR SIZE: 1/2 H.P., 110V
- APPROX. SHIPPING WEIGHT: 100 LBS.



Head Pivots at just about any angle.
Truly Versatile!

G7945

\$149⁹⁵

\$42⁹⁵
ANYWHERE IN LOWER 48 STATES



NEW! MINI MILLING MACHINE

- TABLE SIZE: 3 3/8" x 15 1/4"
- TABLE TRAVEL (LONGITUDINAL): 9 1/4"
- TABLE TRAVEL (CROSS): 4"
- HEAD TRAVEL: 9 1/8" • HEAD TILT: 45° L/R
- SPINDLE TAPER: MT #3
- MAX. DIST. FROM SPINDLE TO TABLE: 11 1/2"
- VARIABLE SPEED: 0-2500 RPM
- MOTOR: 1/4 HP, SINGLE-PHASE, 110V
- APPROX. SHIPPING WEIGHT: 153 LBS.



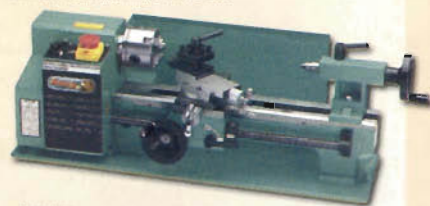
G8689

\$495⁰⁰

\$42⁹⁵
ANYWHERE IN LOWER 48 STATES

NEW! 7" x 12" MINI METAL LATHE

- SWING OVER BED: 7" • DISTANCE BETWEEN CENTERS: 12"
- HOLE THROUGH SPINDLE: 3/8" • TAILSTOCK TAPER: MT #2
- TAILSTOCK TRAVEL: 2 1/2" • CROSS-SLIDE TRAVEL: 2 1/4"
- SPEEDS: LOW 0-1100 RPM - HIGH 0-2500 RPM
- 3/4 H.P. MOTOR, 110V AC
- APPROX. SHIPPING WEIGHT: 85 LBS.



G8688

\$495⁰⁰

\$20⁹⁵
ANYWHERE IN LOWER 48 STATES

A PERFECT MACHINE FOR
HOBBY & SMALL JOBS!

14" BANDSAW

- CUTTING CAPACITY / THROAT: 14 1/2"
- MAXIMUM CUTTING HEIGHT: 6 3/8"
- TABLE TILT: 45° RIGHT, 15° LEFT
- BLADE SPEEDS: 2500 AND 3350 F.P.M.
- BLADE SIZE: 98" (3/4" to 3/4" WIDE)
- MOTOR: 1 H.P., TEFC, 110V/220V, SINGLE PHASE
- APPROX. SHIPPING WEIGHT: 165 LBS.

COMES COMPLETE WITH A
1/2" BLADE, RIP FENCE
AND MITER GAUGE!

G1019Z

\$325⁰⁰

\$42⁹⁵
ANYWHERE IN LOWER 48 STATES



NEW! 10" HEAVY-DUTY TABLE SAW

- TABLE SIZE w/ EXTENSION WINGS: 27 1/4" x 40 1/4"
- RAIL DIMENSIONS: 44" x 1 1/8" • MAXIMUM RIPPING CAPACITY: 24"
- CUTTING CAPACITY AT 90°: 3 1/4" • CUTTING CAPACITY AT 45°: 2 1/4"
- MOTOR: 1 1/2 H.P., SINGLE-PHASE, 110/220V (PRE-WIRED TO 110V) • APPROX. SHIPPING WEIGHT: 220 LBS.



G1022SM

REG. \$375⁰⁰

\$299⁹⁵

\$42⁹⁵
ANYWHERE IN LOWER 48 STATES

NEW! 10" TILTING ARBOR SUPER HEAVY-DUTY TABLE SAW

- TABLE SIZE w/ EXTENSION WINGS: 36 1/4" x 27 1/8"
- CUTTING CAPACITY: 8" LEFT AND 25" RIGHT OF BLADE
- MOTOR: 3 H.P., SINGLE-PHASE, 220V
- ALL SEALED BALL BEARINGS • MAGNETIC SAFETY SWITCH
- COMES WITH SHOP FOX® CLASSIC FENCE
- APPROX. SHIPPING WEIGHT: 360 LBS.



G1023S

REG. \$895⁰⁰

\$775⁰⁰

\$65⁹⁵
ANYWHERE IN LOWER 48 STATES

Visit our website with OVER 8,000 TOOLS!
RECEIVE A FREE GIFT WITH EVERY ONLINE ORDER

(LIMITED TIME OFFER)

94F

VISA

MasterCard

Discover

MEDIA CODE

284800658

BELLINGHAM, WA • SPRINGFIELD, MO • WILLIAMSPORT, PA

grizzly.com



(Circle No. 89 on PRODUCT INFORMATION form)

TABLE OF CONTENTS

Projects



34 Greene & Greene Desk

By Mike McGlynn

The fourth in a series of Greene & Greene projects from a true master of the style.



42 Designing With Full-size Mock-ups

By Ian Kirby

How to use full-size mock-ups: Ian Kirby leads you into the world of project design.



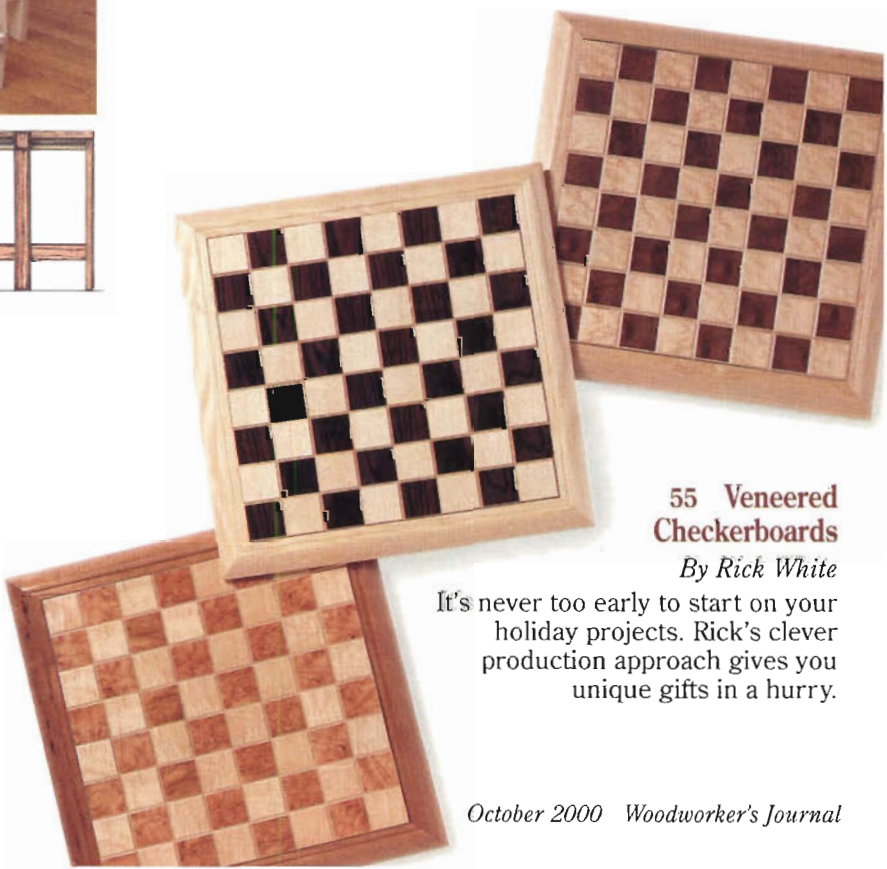
*Courtesy Shaker Museum,
Souda Union, Kentucky*

*photo by P. Rothblatt, courtesy Hancock
Shaker Village, Pittsford, MA*

55 Veneered Checkerboards

By Rick White

It's never too early to start on your holiday projects. Rick's clever production approach gives you unique gifts in a hurry.

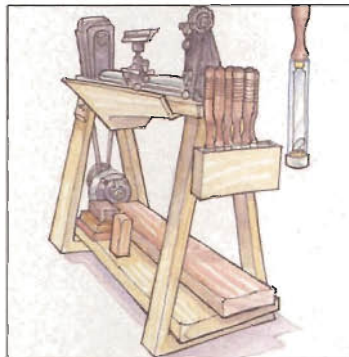


Woodworkers

- 6 **On the Level**
Sandor, Ian, Michael, Silas, Rick ...
America's top woodworkers are back!
- 8 **Letters**
Norm Abram's fans strike back.
- 12 **Tricks of the Trade**
Fellow readers share their ideas.
- 16 **Hardware Hints**
Installing European hinges.
- 20 **Shop Talk**
Carving ponies and helping our disadvantaged youth.
- 78 **Today's Woodworker**
Mr. Trout's fine young woodworkers.
- 84 **Stumpers**
Another mystery tool revealed.
- 98 **End Grain**
Beauty is in the eyes of the receiver.



Page 20



Page 12



Page 26

Tools

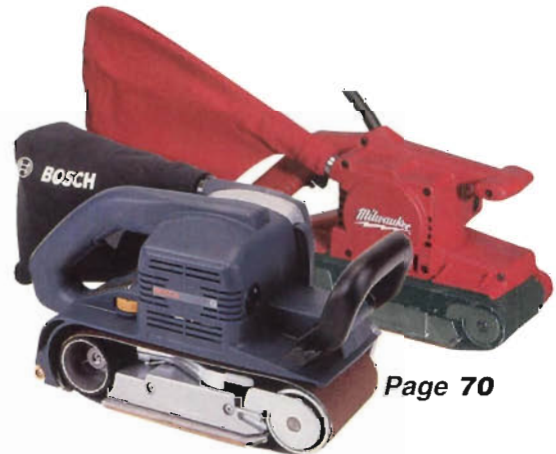
- 60 **Tool Preview**
Two great tools, DeWalt's table saw and Kreg's little jig, get the once-over.
- 70 **Shop Test**
Sandor Nagyszalanczy takes five large belt sanders for a ride.
- 92 **What's in Store**
The latest and greatest from manufacturers and suppliers.



Page 78



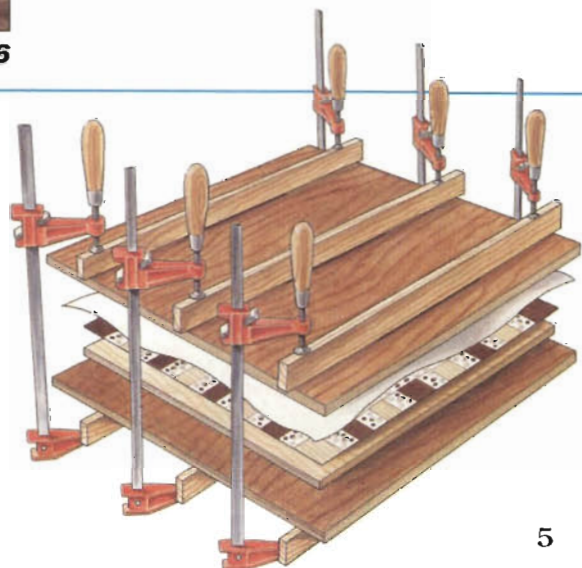
Page 22



Page 70

Techniques

- How to Sharpen a Scraper* **Silas Kopf** 26
- Secrets of Shellac* **Michael Dresdner** 80
- Pocket Hole Joinery* **Mike McGlynn** 34
- Working with Aniline Dye* 34
- Build a Simple Veneer Press* **Rick White** 58



Coming to Norm's Defense

Boy, did one of our readers open a can of worms when he went after **Norm Abram** in our June *Letters* department. **Alfred Petersen** told us that Norm, "if rated from 1 - 10," would be, "maybe a 2." In Mr. Petersen's defense, he was comparing Norm to some pretty lofty company, but that didn't slow down the barrage of letters. At last count we had over 100 responses to Mr. Petersen's comment, every single one of them supporting Norm. I won't even try to summarize, because they make such enjoyable reading (see page 8). Whatever else you may think of Norm, you can't deny the huge impact he is having on our favorite hobby. My hat's off to you, Norm. When it comes to educating and entertaining woodworkers, you're setting the bar high!



Speaking of educating, a couple of stories in this issue of *Woodworker's Journal* offer hope for the future of woodworking. In *Shop Talk* (page 20), associate editor **Joanna Werch Takes** uncovers an inspiring story about young Latinos, including former gang members, becoming woodworkers with the help of a group called



Norm Abram and editor Rob Johnstone spent a day in the shop together last year. Rob found Norm to be as delightful away from the camera as in front of it.

Taller San Jose. We were impressed to hear one of our advertisers, **Laguna Tools**, is a major supporter of the group. Further on in this issue (page 78), you'll enjoy the subjects of *Today's Woodworker*. The only thing that annoyed me about **George Trout's** dedicated woodworking students was how talented they are at such a young age. Somehow it just doesn't seem fair.

Rounding out this issue (along with two great projects from **Rick White** and **Mike McGlynn**) are Joanna's definitive article on the Shakers (page 28) and master woodworker **Ian Kirby's** designing with mock-up pieces (page 42). World renowned marquetarian **Silas Kopf** presents an education in the fine art of sharpening a scraper (page 26), and well-known author and

woodworker **Sandor Nagyszalanczy** offers up the results of his 4" x 24" belt sander test (page 70). Of course, if you really pay attention to Silas' advice, you may decide you don't have proper cause to read Sandor's piece. All kidding aside, on behalf of our readers, I'd like to welcome Silas and Sandor to the pages of *Woodworker's Journal*. Hurry back.

Larry N. Stoiaken

NEXT ISSUE: Our 2nd Annual Resource Digest

The next issue will include our 2nd annual Resource Digest. This workshop companion is a one-stop source of information on new tools, supplies, finishes and woodworking accessories — everything you need to start and complete your next project.

SEPTEMBER/OCTOBER 2000
Volume 24, Number 5

LARRY N. STOIAKEN *Editor in Chief*

JOHN KELLIHER *Art Director*

ROB JOHNSTONE *Editor*

JEFF JACOBSON *Associate Art Director*

JOANNA WERCH TAKES *Associate Editor*

BOB FILIPCZAK *Online Editor*

STEVE HINDERAKER *Photographer*

KRIS KAISER *Graphic Designer*

ANN ROCKLER JACKSON *Publisher*

MICHELLE SCRIBNER *Circulation Coordinator*

JILL ARENS *Fulfillment Coordinator*

SARAH M. GREER *Advertising Director*

NANCY A. AMMEND *Newsstand Director*

LINDA SCHIMKE *Advertising Assistant*

Editorial Advisors

NORTON ROCKLER

STEVE KROHMER

AL WOLFORD

Contributing Editors

RICK WHITE

MIKE MCGLYNN

JOHN ENGLISH

ADVERTISING SALES

J.F. Van Gilder Co.

P.O. BOX 802405, Dallas Texas 75001

DAVID BECKLER *david@jvgco.com*

MIKE HILL *mike@jvgco.com*

JIM VAN GILDER *jim@jvgco.com*

PHONE: (972) 392-1892

FAX: (972) 392-1893

BACK ISSUES & REPRINTS

Woodworker's Journal or Today's Woodworker

CALL: (800) 610-0883

www.woodworkersjournal.com

Woodworker's Journal (ISSN: 0199-1892), is published in February, April, June, August, October and December by Rockler Press, 4365 Willow Dr., Medina, MN 55340. Periodical postage paid at Medina, Minnesota and additional mailing offices.

Postmaster: Send all address changes to Woodworker's Journal, P.O. Box 56585, Boulder, CO 80322-6585.

Subscription Rates: One-year, \$21.98 (U.S. and possessions); \$27.98 U.S. funds (Canada and other countries). Single copy price, \$4.95 (U.S. and possessions); \$5.95 (Canada/other countries).

SUBSCRIPTION RELATED INQUIRIES:

Write: Woodworker's Journal, P.O. Box 56585, Boulder, CO 80322-6585. Include mailing label for renewals and address changes. For gift subscriptions, include your name and address and your gift recipient's, or call 800-765-4119. Reproduction without permission prohibited. Publications Mail Agreement Number 0861065. Canadian mail distributor info: Express Messenger International; P.O. Box 25058; London B7C, ON; Canada N6C 6A8. Printed in the USA.

E-MAIL: editor@woodworkersjournal.com

WEB SITE: <http://woodworkersjournal.com>

©2000, Rockler Press, Printed in USA.

Beauty is only a few layers deep.

Get to it three times faster.

That's because new 3M™ SandBlaster™ Sanding Sponges cut three times faster and last three times longer.* The packaging is color coded so you can easily pick the right sponge for the right job. SandBlaster sanding sponges make any job easy and beautiful.



**3M SandBlaster Sanding Sponges.
For a Fast Finish.**

© 2000, 3M.

*Than 3M's conventional sponges of comparable grits.

For more information on where to find this product call: 1-800-494-3552

3M Innovation

(Circle No. 69 on PRODUCT INFORMATION form)



Norm, You Are the Man

I am rarely inspired to write letters to editors, but the letter from Mr. [Alfred] Petersen of Fremont, Nebraska in the June 2000 issue has given me more than sufficient cause. I take great umbrage with Mr. Petersen's cavalier remark that "Norm's No Ten."

Mr. Petersen should try to understand that this is woodworking, not a cure for cancer. All of the woodworkers that he listed, including Norm Abram, are excellent, highly skilled craftsmen! What the craftsmen on that list are not are "icons."

At one end of the spectrum woodworking is simply a pastime; at the other end it is a source of income. At times, it will deliver frustration akin to trying to teach the family cat to fetch, but when it all comes together as you had envisioned it ... joy, pure joy. And no small part of my "joy" is watching *The New*

Yankee Workshop and seeing Norm giving it his best shot, tool belt, plaid shirt and all.

*Bruce Thompson
Port Angeles, Washington*

Oh, Mr. Petersen, you have upset many a woodworker across the country!

I read your letter and could not disagree with you more. Norm Abram has done so much for woodworking in the last few years and *does* belong up there with Gustav Stickley, Tage Frid and Sam Maloof. In an age where many schools are discontinuing shop classes and many adults don't have basic manual skills, Norm is doing a great service to spread the word and educate us all.

What Norm has done in his books and television shows is brought woodworking education to a new level and to the masses. The other woodworkers that you say are true craftsmen are probably gifted. But what have they done for woodworking and educating the common man besides selling their work?

No, Norm isn't Gustav, Tage or Sam. None of us are; none of us will ever be; that is why they are great. Norm *does* belong right up there with them.

*Steve Wojtak
San Marcos, California*

If Norm only rates a 2 according to your Nebraska reader who obviously

comports only with the gods, where does that leave the rest of us poor, ordinary mortals?

This individual failed to understand the purpose of your survey, which was to name the most influential woodworker of the 20th century. Instead he interpreted your survey to mean the best woodworker of the 20th century, which it clearly was not. Your editors courageously named Mr. Abram the most influential woodworker of the 21st century, and rightly so. Mr. Abram has probably had more influence on all of us little people than any 10 other people, combined.

*Thomas E. Jordan
Newton Highlands,
Massachusetts*

Comparing Norm to Tage Frid is like comparing Norman Rockwell to Rembrandt; however, while maybe 1 in 5,000 people have seen a Rembrandt,



millions have seen Norman Rockwell's work and can appreciate the craftsmanship involved. Norm has popularized woodworking,

Mail Call! Contact us by writing to "Letters", Woodworker's Journal, 4365 Willow Drive, Medina, Minnesota 55340, by fax at (612) 478-8396 or by e-mail: letters@woodworkersjournal.com. We ask that all letters, including e-mails, include a mailing address and phone number. We reserve the right to edit for length and clarity.

using the tools that come out of the local hardware store and home center. He has given confidence to many a beginner and intermediate woodworker. I don't believe you put Norm above the list of "great craftspeople" in the letter. You recognized that he has, as Gustav Stickley did, popularized woodworking for the masses, not for the geniuses.

*Paul Jacobs
Manns Choice,
Pennsylvania*

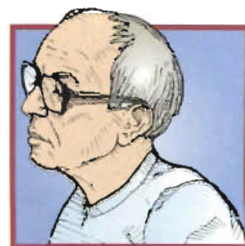
Many in that "amateur" group are grateful to Norm Abram and appreciate your including him in a list of great woodworkers. Norm Abram stands out for what he has done to promote the love and enjoyment of woodworking as a hobby, just as Sam Maloof builds an incredibly beautiful rocking chair.

*Mike Ball
Fishers, Indiana*

Norm may not be in the same league as Gustav Stickley or any of the others

that Mr. Petersen noted (who are those folks, anyway?) in the sense of being a hand crafter and/or furniture designer, but he absolutely fills the bill of being a teacher through his PBS *New Yankee Workshop* and *This Old House* programs.

To many of us who "dabble" in this endeavor that your magazine focuses on, Norm is a sort of "hero": he's the guy we watch each week on our PBS television stations doing things we may have only dreamed



Sam Maloof



Tage Frid

Continues on page 10 ...

TOOL TOOL FESTO TOOL

For the toughest demands

Come see us at the
IWF show
(Booth #1 West 198)

DIRECT CONNECT
888-337-8600
www.toolguide.net

- Uniquely Quiet
- Dust Extractable
- 1+2 Year Warranty

Ask About Our New Tools for 2000

- Support 1000 lockable and height is adjustable to match systemers
- patented guide rail system
- Multifunction Table portable with foldaway legs
- Syn-Block flat surface with latches to secure a Systainer
- new CT series dust extractor

TOOLGUIDE
div. of Tooltechnic Systems

Sole Distributor for **FESTO**

MOBILIZE WITH THE ORIGINAL

- Premium mobile bases in Over 1000 Custom-fit sizes
- Capacities to 1,500 lbs.
- Exclusive 3-point self-leveling design
- Seamless welding with all-steel tubular construction
- Lifetime warranty

FREE Color Catalog
Call: 1-800-624-2027

"We'll put these bases under our machines anyday"
—Wood Magazine, Dec 1998

HTC PRODUCTS, INC., ROYAL OAK, MI 48068-0839

(Circle No. 144 on PRODUCT INFORMATION form)

(Circle No. 170 on PRODUCT INFORMATION form)



about previously. Norm's the influence that gets us out into the garage, barn or shop making sawdust and spending money buying materials, tools and other products that support the woodworking industry.

*John W. Romig
St. Petersburg, Florida*

I am not taking away from the other craftsmen such as Ian Kirby and Frank Klaus. I can only dream that I can one day craft items of beauty. But, when I am stuck on a project, trying to fit a whirligig into a whosiwatsis, I ask myself, "What would Norm do?"

*Chip Marshall
El Cajon, California*

Even Maloof started by nailing two pieces of wood together.

*Ron Popp
Belgrade, Montana*

To rate Norm as a 2 would be similar to rating all our schoolteachers K-12 as 2s. We all had to learn the basics before we went on to college and higher education. Norm has filled that space for thousands of woodworking wannabes.

Mr. Petersen, you and your self-serving ilk can go about with your sawdust-

covered noses in the air, but I and thousands like me will always hold Norm Abram in great esteem for all his basic training, without which I could never have made the things I have.

*Bill Wise
Clancy, Montana*

Surely all of Mr. Petersen's "heroes" learned their craft from someone who had the ability to teach a skill so that the difficult seemed achievable. Teachers possessing this ability are, without a doubt, masters of their trade.

I believe there are many novice woodworkers watching the *New Yankee Workshop* who may become just as "famous" as Klaus, Kirby or Krenov. One day maybe they'll be able to say, "Thanks, Norm," for helping me get started.

*Lewis D. Kauffman
Chambersburg, Pennsylvania*

Norm's greatness stands out in that he inspires others to take up the woodworking craft. Norm inspires us to strive to be the craftsman that we know hides in the depths of all of us. There is no elitism in woodworking, only the striving to do the absolute best you can. Some of us are greater craftsmen,

some are lesser craftsmen, but some of us are an inspiration for others to pick up tools and strive, and Norm is one of those.

*Rich Haas
Manteca, California*

Norm, keep up the great work, you are the man!

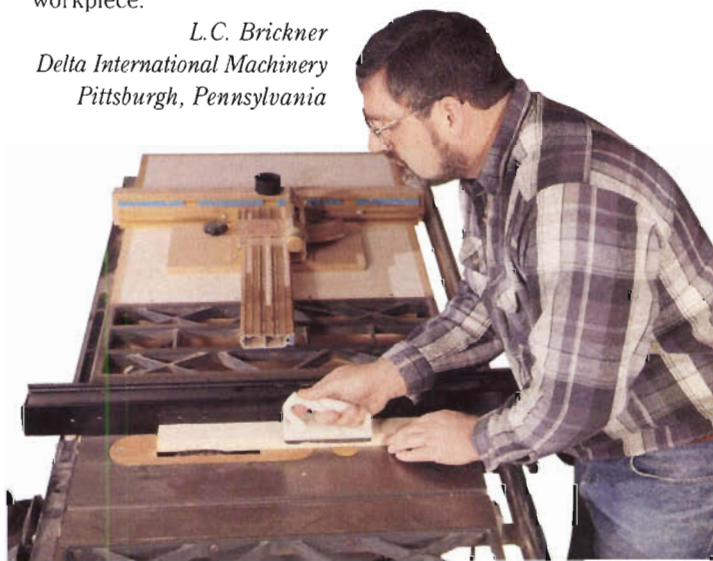
*Jeff Petty
Powell, Ohio*

Ouch!

The Apothecary CD Cabinet article (*June 2000*) by John English is excellent, but it includes a photograph of a fairly dangerous table saw operation. On page 50, top center, you show a photo of a grooving operation that puts two thumbs and four fingers in harm's way (see photo above). A sudden kickback or slip would result in direct hand contact with the dado head and serious lacerations, or worse. You should have taken a hint from the larger photo (shown below) at the bottom of the same page, where a jointer-type push block is being used to feed a rabbet cut on a narrow workpiece.

*L.C. Brickner
Delta International Machinery
Pittsburgh, Pennsylvania*

Safety First: Learning how to operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary guards have been removed from equipment shown in our magazine. We in no way recommend using this equipment without safety guards and urge readers to strictly follow manufacturers' instructions and safety precautions.



Woodshops. (delivered for \$4.99.)



MAKITA
12" SLIDE DUAL COMPOUND MITER SAW
model no. LS1212
\$699.99



PERFORMAX
16-32® PLUS DRUM SANDER WITH INFEED/OUTFEED TABLES
model no. 16-32PLUSK
\$869.99
Sander with optional stand & casters



JDS
VARIABLE-SPEED AIR FILTRATION SYSTEM
model no. 750J
\$259.99

PROFESSIONAL WOODWORKING TOOLS ARE
AVAILABLE AT TOOLCRIB.AMAZON.COM



JET
14" MINI-LATHE
model no. JML-1014
\$329.99



DELTA
20" VARIABLE-SPEED SCROLL SAW W/STAND
model no. 40-680
\$479.99



DeWALT
10" TABLE SAW W/30" FENCE
model no. DW746X
\$899.99

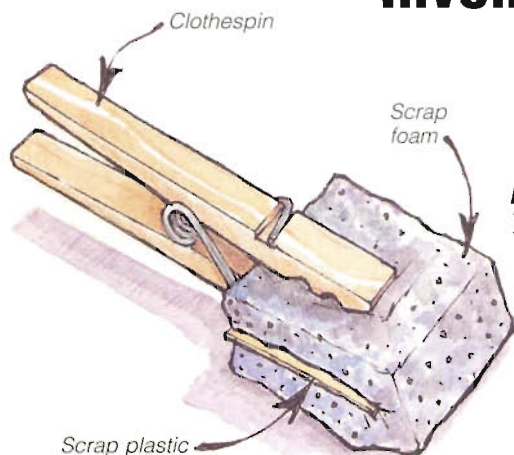


Thanks to our powerful selection of tools and equipment, you'll find everything you need to get the job done right. And, we'll ship them to your home, shop or job site for just \$4.99, so you'll never have to stop working. Okay, maybe for lunch. For a free Tool Crib catalog of our best sellers, call **1-800-635-5140**.

corded & cordless power tools measuring instruments lighting hand tools
job site office tool storage heaters & fans power supplies the pro tool store
safety equipment ladders & scaffolding gas-powered equipment work wear

earth's biggest selection
amazon.com

Invented Tools and Quick Fixes



Allen Wrenches Go Straight

I like to cut the "L" off some of my spare Allen wrenches and leave a straight wrench that can be chucked into a drill. That way, when I have lots of Allen bolts to work with, I save a lot of time.

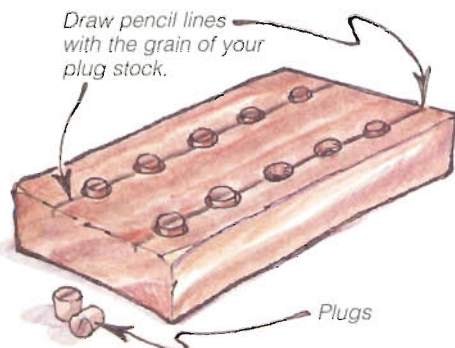
Roger Berg

East Farmington, Wisconsin

Improved Throwaway Brush

Every year or so, I see a tip that suggests cutting the foam padding used in packages into pieces that can be held in clothespins and used as throwaway paint brushes. But these brushes don't brush; they daub. My new and improved version uses a lid from the ubiquitous soft margarine tubs stored in most kitchens. Cut a piece to the profile of the foam blank you intend to use. Bevel the business end and cut a longitudinal slit in the foam. Slip the stiffener in place, clamp on a clothespin, and you have a tool that will actually brush.

Barnett C. Howard
Sisters, Oregon



Grain Guides

If the grain pattern on the wood you're cutting plugs from isn't real apparent, draw some lines down the grain and cut your plugs with the line included. You can sand the line off later.

Richard Benner
Camden, Maine

Manual Air Compressor

I use flexible (elbow) soda straws to direct air into, and blow out wood dust from pre-drilled screw and dowel holes. This keeps the dust out of my eyes and nose.

Arthur Mendel

Vadnais Heights, Minnesota

Nailing a Sticky Situation

After discarding half-full "skimmed-over" bottles of glue time after time, I came up with the following method of extending my glue's life. I simply insert a tight fitting nail in the spout and slowly turn it upside down, sealing the air out of the area of the spout inside the bottle. Then I store my bottle upside-down in a coffee can.

I periodically test the glue and have had great success. Using this method I still have unbreakable bonds going on a year and a half later and haven't experienced the pain of "skim-over" since.

Ronald R. Bolton

Middlefield, Connecticut

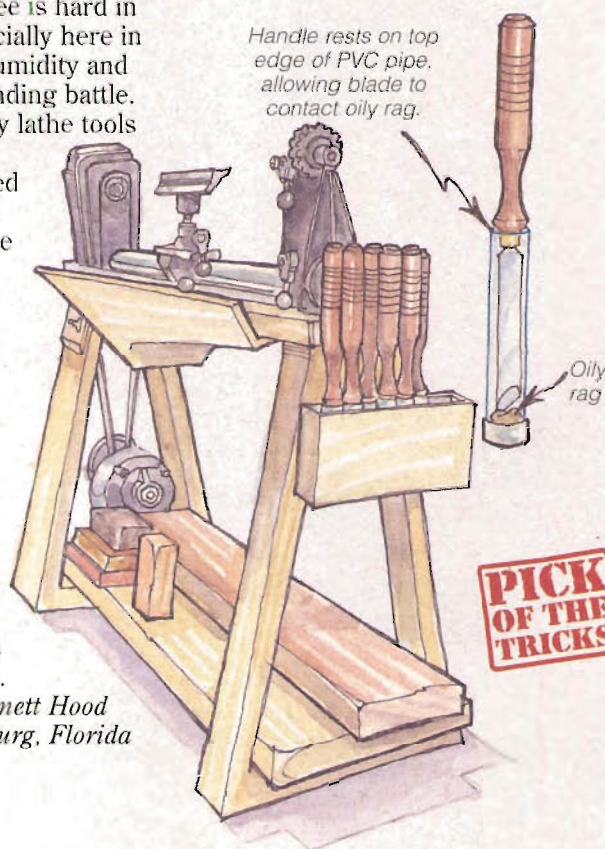
Florida Turner Keeps His Turning Tools Handy and Rust-free

Keeping tools rust-free is hard in most areas, but especially here in Florida. With high humidity and salt air, it's a never ending battle. Here's how I keep my lathe tools rust-free and handy.

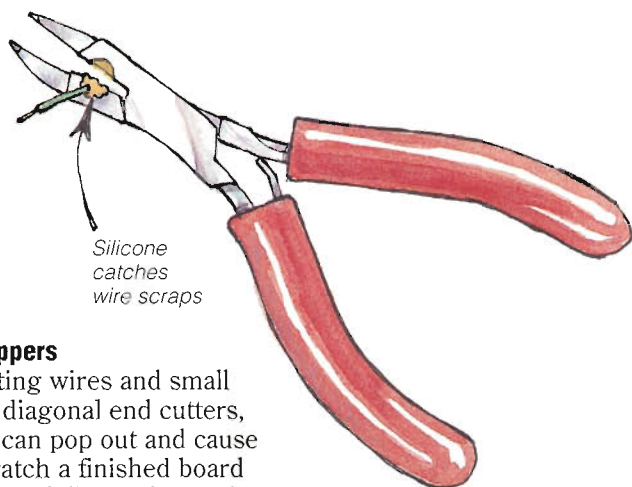
I made a box and filled it with 1" PVC pipes. They're glued in place to keep them upright. Cut each one just long enough so that the tool is about one inch off of the end of the pipe. Glue a cap to the bottom of each pipe and stuff an oil-soaked rag in. The cutting edge of the tool will rest on the oily cloth. No more rust, and handy tools when you need them.

Emmett Hood

St. Petersburg, Florida



PICK OF THE TRICKS



Safety Snippers

When cutting wires and small nails with diagonal end cutters, the waste can pop out and cause injury, scratch a finished board or get lost in delicate electronic equipment. To prevent that from happening, fill the round cavity of one of your cutters with silicone rubber and let it cure overnight. A razor can be used to cut the silicone in half once it's dry. Be sure to clean the cavity area before starting and use a rubber band to hold the cutter shut as the silicone dries. Now when you cut off a small piece of wire, it will stay in place until you grab it.

*William T. Brown
Fairfax, South Carolina*

Stripping with Magnets

Here's a tip for when you're stripping old finish or paint from wood on your next project. If you use steel wool to remove the old finish, you are often left with tiny bits of wool that don't wipe off easily. Next time, try running a magnet 1/4" above the pesky bits of "wool." A few passes will pick up any remaining bits of steel on the wood.

*Craig Kimpston
Grimes, Iowa*



Winner! Emmett Hood will receive this Porter Cable hand-held spindle sander for submitting this month's Pick of the Tricks. **Woodworker's Journal** will pay from \$50 to \$150 for all Tricks of the Trade published. In addition, the reader whose trick is selected as our "Pick of the Tricks" will receive a free tool. To join in the fun, submit your original, unpublished trick to the editor. Include photos or drawings needed to explain your idea. Send all tricks to **Woodworker's Journal**, Dept. T/T, P.O. Box 261, Medina, Minnesota 55340. Or send us an e-mail: rjohnstone@woodworkersjournal.com

New! All ProTM Professional Series Band Saw Blades

Heavy duty, commercial grade band saw blades.

For use by professional woodworkers and craftsmen in industrial, woodworking, and furniture manufacturing applications.

The most efficient, long lasting blades with induction hardened teeth for cutting wood, plastic, and non-ferrous metal.

Visit Your Olson Dealer and Ask for the New All Pro Blades.

OLSON[®]
THE OLSON SAW CO.

16 Stony Hill Road, Bethel, CT 06801
Manufacturers of Fine Quality Saw Blades Since 1918



- Turns on the vacuum only to machines in use
- Shuts dust collector down (& regulates power)
- Saves energy (industrial users up to 70% !)
- Motorized 4" - 12" blast gates and controller
- Your shop is cleaner, and noise is reduced

For home & commercial shops and industrial producers. Visit us at the Atlanta IWF 2000 show, August 24 to 27, booth 26421.

Call 1-888-ECOGATE for a free brochure. www.ecogate.com

ECOGATE[®]

(Circle No. 20 on PRODUCT INFORMATION form)

(Circle No. 102 on PRODUCT INFORMATION form)

Got a heavy load?

Accuride's 9301 is the strong, silent type . . . a heavy duty drawer slide designed to carry the most demanding loads, up to 500 lbs.

From 12" to 60" long, the 9301 can be flat- or side-mounted in a variety of applications:

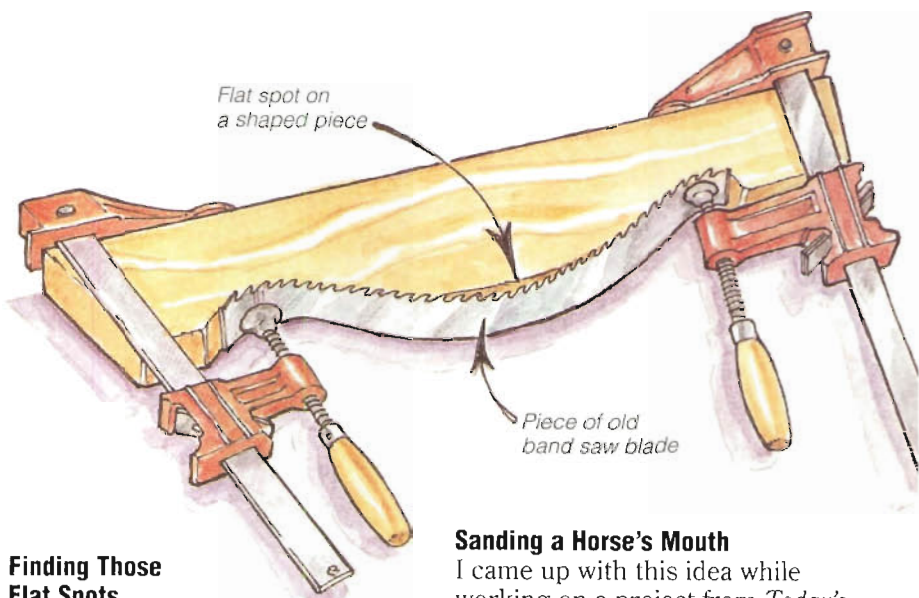
- pantry pullouts
- modular drawer storage
- entertainment centers
- retractable workspaces

Accuride

For a list of retail distributors, visit our web site.

www.accuride.com/retail/

(Circle No. 68 on PRODUCT INFORMATION form)



Finding Those Flat Spots

It's sometimes difficult to cut a curved line perfectly. And if you manage to cut away your mark, it's even harder to find exactly where the irregularities are.

Try stretching a piece of band steel or even a piece of old band saw blade over the curve. The exact position and severity of any irregularities will become immediately apparent. You can mark the offending area or areas, trim your piece and re-test the curve until it's perfect.

*Michael Burton
Ogden, Utah*

Shaft Collar Saves Your Band Saw

I recommend installing a shaft collar around the top of the guide post of your band saw. No longer will you accidentally loosen the thumb screw and watch the guide post drop against the tabletop, cracking or breaking the fragile cast guide bracket. The collar will contact the upper arm frame before the bracket hits the tabletop. A shaft collar is inexpensive, takes but a few seconds to place on the guide post, and doesn't impede the function of a band saw.

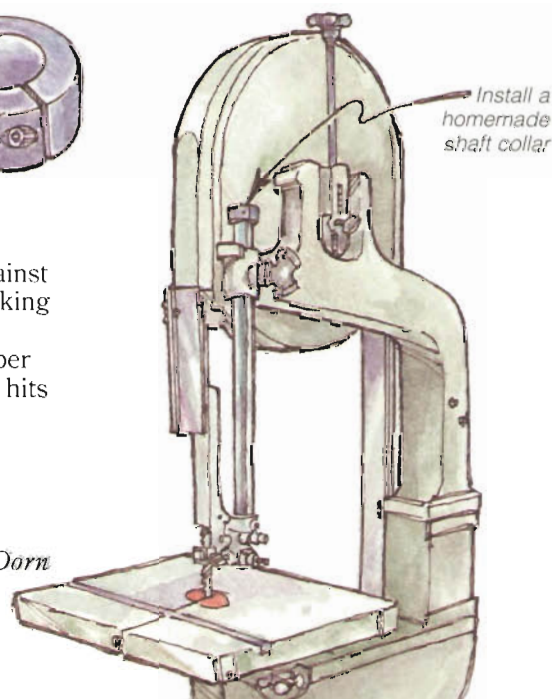
*Richard Dorn
Oelwein, Iowa*



Sanding a Horse's Mouth

I came up with this idea while working on a project from *Today's Woodworker* magazine, which I hear was incorporated into your *Woodworker's Journal*. The Rocking Horse in the Nov/Dec '89 issue was one of the most handsome and well constructed rocking horses I've ever seen. However, the head offered a real challenge when I had to sand tight areas like the eye socket, mouth and throat. That's when I came up with the idea of putting carpet tape on my stiff 2" putty knife. I use two grades of sandpaper, one on each side, and it works like a charm.

*Joe Cormier
Peabody, Massachusetts*



WOODWORKERS' SWEEPSTAKES!

GRAND PRIZE
DELTA
SPECIAL EDITION
UNISAW

PLUS!
GRAND PRIZE
ANDERSON
RANCH
TRIP

SECOND PRIZE
DELTA
MITERSAW

FIRST PRIZE
DELTA
BANDSAW

THIRD PRIZE
DELTA
PLANER

 **DELTA**

and

**WOODWORKER'S
JOURNAL**

together with the
Anderson Ranch,
present the

WOODWORKERS' SWEEPSTAKES!

Grand Prize

Limited Edition Unisaw
and a trip to the world
famous *Anderson Ranch.*

1st PRIZE

Delta Band Saw

2nd PRIZE

Delta Miter Saw

3rd PRIZE

Delta 12 1/2" Planer



Picture yourself spending two weeks at the world famous Anderson Ranch, honing your woodworking skills with the experts.

Subscribe to
**WOODWORKER'S
JOURNAL ...**

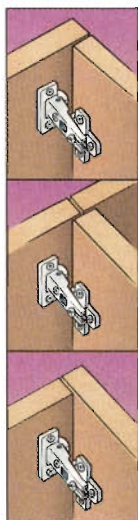
Get a year of great projects, techniques and tool reviews **and** enter our exciting new **SWEEPSTAKES.** Use the sweepstakes card at left to start your subscription.

Official Rules: Names automatically entered with receipt of your sweepstakes/subscription card. **No purchase necessary. Purchase will not improve your chances of winning.** To enter without trying a free issue, print your name and address on a 3 x 5 postcard. Send to: WOODWORKER'S JOURNAL Delta Sweepstakes, P.O. Box 261, Medina MN, 55340. One entry per household. Entries must be postmarked by 3/15/01. No responsibility is assumed for lost, late, incomplete, illegible or misdirected entries. The Delta Sweepstakes is open to all legal residents of the United States 18 years of age or older at time of entry. Winners will be selected in a random drawing and will be notified within 30 days from deadline and may be required to complete an affidavit of eligibility and release, allowing Woodworker's Journal to use the winners' names for publicity, except where prohibited. Prize winners must respond within 30 days of notification or the prize will be forfeited and an alternate winner selected. All decisions are final. All prizes will be awarded. No duplicate prizes and no substitutions other than as necessary due to availability. Prizes may not be redeemed for cash or other consideration. All taxes are responsibility of the winner. Odds of winning are dependent on total entries received. The combined value of prizes is \$7166.00. Sweepstakes open to residents of the U.S. only. All federal, state and local laws and regulations apply. Void where prohibited or restricted by law. Employees (and their families) of Rockler Companies Inc., Delta International Machinery Corp. and the Anderson Ranch Arts Center, and their affiliates are not eligible. For winners' names send a self-addressed, stamped envelope (residents of VT and WA may omit postage) to WOODWORKER'S JOURNAL Delta Winners, 4365 Willow Drive, Medina MN 55340 by June 1, 2001.

Eurostyle Hinges

By Al Wolford

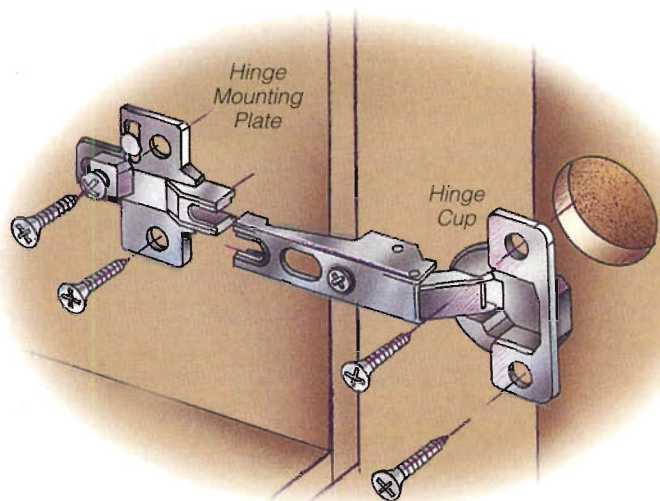
European concealed hinges are designed for easy installation and maximum adjustability. The fact that they're concealed means they're apt to work with virtually any style of cabinet. Like all the hardware I write about, the installation of these hinges must begin during the design stage. Review the specs of the brand you'd like to use and decide how many hinges you'll need to hang the doors in your project. Generally, if your door is under 40" high, two hinges will be adequate. You'll also want to think about inherent limitations on thickness or clearance. Finally, decide whether to go with "free swing" or "self-close" hinges and the appropriate degree of opening, ranging from 100° and 170°. Keep in mind that the greater the opening the larger the price tag. The final thing you need to consider at this early stage is which of the overlay designs your doors will require; full, half, or inset. A full overlay hinge will overlay the side of the cabinet by up to 3/4", a half overlay by up to 3/8" and a full inset will set the door flush with the front of the verticals and sides.



If you're using an overlay design, select full overlay hinges for the end and half overlay for the middle cabinets. European hinges for inset doors (left), aren't as common, but are available.

Layout and Drilling

When you're ready to start hanging doors with European hinges you have to think about the two different parts on the hinge, the mounting plate and the hinge assembly. The mounting plate is attached to the inside of the cabinet side or vertical and the hinge assembly is mounted to the back side of the door. To ensure proper alignment, always measure from a common point for both the door and cabinet. In most cases this is the bottom of the door and the bottom of the cabinet. On the back of the door, measure from the bottom and



mark the centers for each hinge. Likewise, measure up from the bottom of the cabinet and mark off the location of each mounting plate, then transfer the mark inside, as shown in Figure 1. Once the centers are located, the hinge assembly will need to be installed on the back of the door by drilling a 35 mm hole about 13 mm deep. Bore these holes on a drill press if possible, as shown in Figure 2. The final step is to drill the screw holes for the mounting plate, using the reference line you made earlier, as shown in Figure 3. There are plenty of jigs available for this purpose or you can design your own. Following these basic steps, you'll be in good shape, since you can adjust for height, depth or side to side alignment after you install all your doors.

Editorial advisor Al Wolford has been addressing reader hardware quandaries for over ten years.

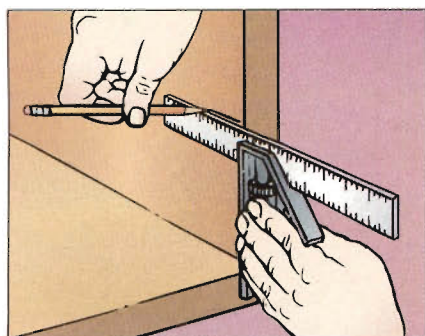


Figure 1: Use a square to extend your center mark to the inside of the cabinet wall, giving you a reference line for the mounting plate.

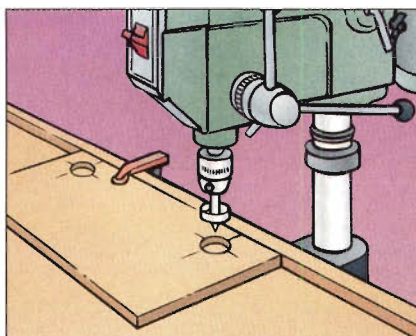


Figure 2: A 35 mm boring bit chucked in your drill press is the best bet for drilling the cup hole for the hinge assembly.

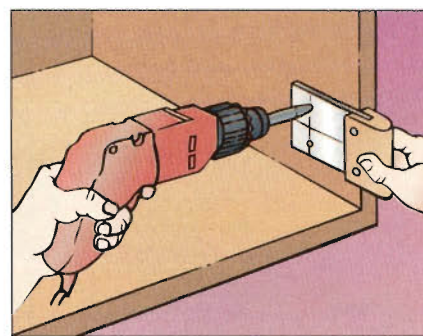
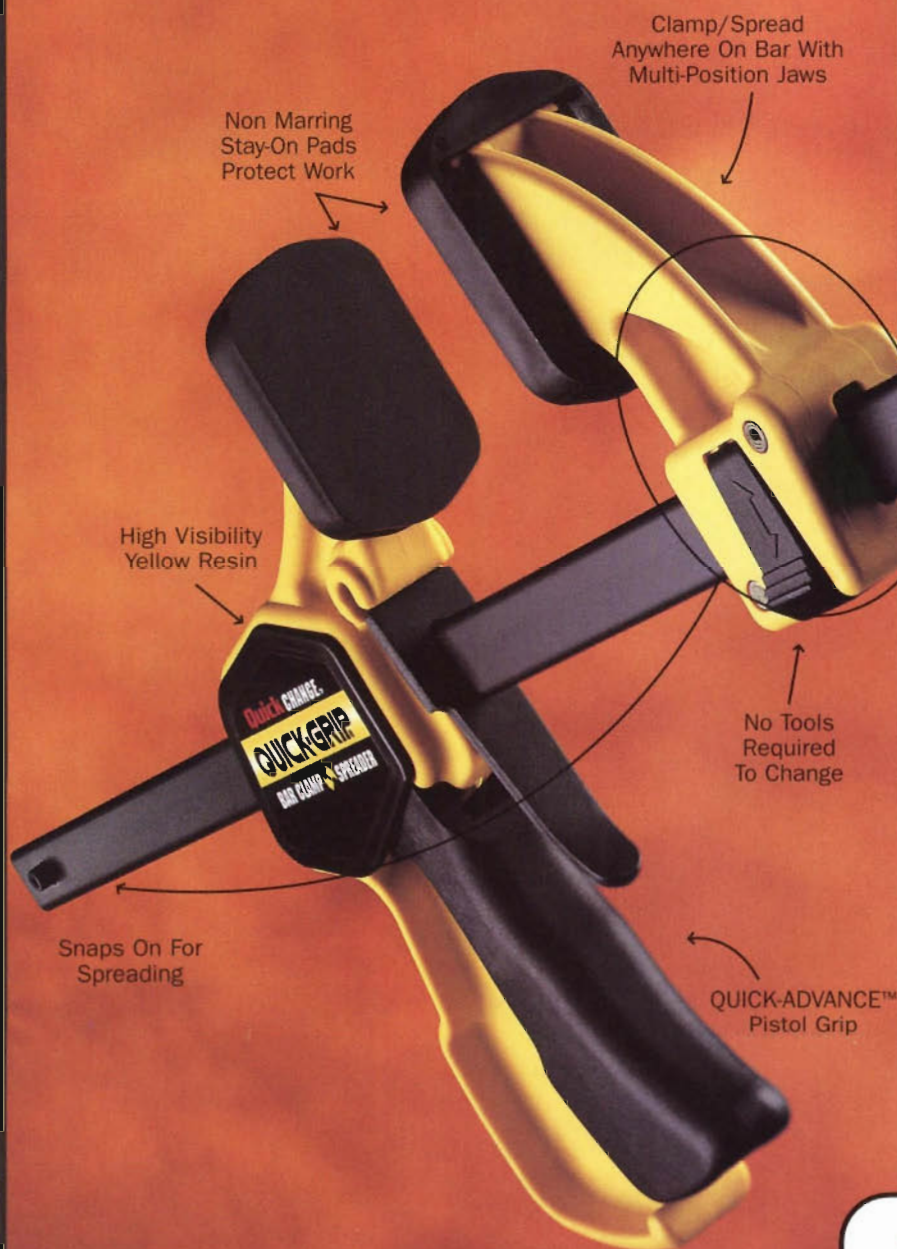


Figure 3: Use a predrilled jig with a center line to drill the holes for the mounting plate, using the reference lines you made earlier.

Q: IS THIS OUR NEW BAR CLAMP OR IS THIS OUR NEW SPREADER?

A: YES.



The QUICK-GRIP® QUICK CHANGE™

Bar Clamp/Spreader – the new and improved clamp that easily

changes to

a spreader

without the



use of tools. Simply unsnap the

multi-position jaw,

slide it off, turn it

around, slide it on

and voilà, it's a spreader. No

kidding, it's that fast. And with

the QUICK-ADVANCE™ trigger, you

can clamp or spread faster. Which

means you can turn most any task



into half

the work

because you

hold twice the tool. So, get the

clamp that's a spreader from the

company that has just re-invented

the bar clamp, again.

Quick CHANGE.
QUICK-GRIP®
BAR CLAMP & SPREADER

www.quick-gripclamp.com

Some dovetail jigs promise you everything...

The Keller Dovetail System only promises what it can deliver.

Fast setup. No test cuts. Precision joinery. Unlimited widths. Classic and variable spacing. Compound, acute and obtuse angles. Curved dovetails. Box joints. Made in USA since 1976. 20-yr. warranty. 30-day money-back guarantee.

"Your best choice. It's the easiest of all the jigs to use and great for production use."

—Woodworker's Journal

VIDEO: \$8.95 + \$2 P/H



KELLER & CO.
1327 T Street, Dept. J70
Petaluma, CA 94952
1-800-995-2456
707-763-9336

Keller Dovetail System
Simple. Fast. Accurate. Enjoyable!

(Circle No. 14 on PRODUCT INFORMATION form)

BONUS:
Free 50" 120G Abrasive Roll
(a \$32.00 value)
#CAB 250120

FREE SHIPPING!

DELTA

18/36" DRUM SANDER

- Cast iron table
- 1-1/2 HP motor
- Motor is located underneath unit which provides better protection from damage & saw dust
- Stand is standard with machine
- Stationary drum (eliminates loose head movement)
- 4" dust port
- S.W. 215 lbs.

#DEL 31-250
SALE.....\$788.00

DELTA

1 1/2 HP 1200 CFM DUST COLLECTOR

BONUS BUY!

Includes over \$42.00 Value Free

- FREE 1-Delta 4"x10' Dust Hose
- FREE 2-Delta Alum. Blast Gates
- FREE 4-Delta 4" Hose Clamps

FREE SHIPPING!

#DEL 50-850P
SALE.....\$298.90

We accept all major credit cards

A&I Supply 1-800-260-2647

GET MORE DEALS! GET OUR CATALOG!
Shop A&I Online at: ai-supply.com

(Circle No. 203 on PRODUCT INFORMATION form)

SUPER PRICES

BY OLYMPIA STEEL BUILDINGS!!

FACTORY DIRECT

CALL TOLL FREE 1-888-781-6629

EXT# 973

- Easy Bolt-Up Rigid Frame Design
- Industry, Office, Shop, Farm, Mini Storage

INCLUDES COLORED WALLS, TRIM & BOLTS

30 x 40 x 10	was \$7,200	now \$4,689
40 x 60 x 12	was \$11,500	now \$7,395
50 x 75 x 14	was \$15,600	now \$11,495
60 x 100 x 16	was \$25,000	now \$17,900
80 x 100 x 16	was \$39,800	now \$21,795
(w/columns)		
100 x 200 x 16	was \$63,250	now \$48,788
(w/columns)		OTHER SIZES AVAILABLE

CALL FOR FREE LITERATURE PACKAGE
www.mastercraftbuildings.com

(Circle No. 171 on PRODUCT INFORMATION form)

WELCOME to SHIPBOARD.COM

MANY SPECIES, MANY SELECTIONS, ALL HARDWOOD
THIS IS WHAT YOU'VE BEEN WAITING FOR!!!

Welcome to Hardwoods of Michigan's ONLINE Distribution Warehouse. We have a selection of boards ready to ship to you. **SHIPBOARD.COM** has been developed to supply you with specific width stock. **YOU CAN ORDER ONE (1) OR MANY BOARDS** at any time. Our site is available 24/7, that's 24 hours a day, 7 days a week. Follow the instructions and have your boards shipped within 24 hours of your order. (Shipping takes place Monday thru Friday). It's as easy as select, click, and ship. You will be able to see all charges applicable before you finalize the order.

ABOUT US

PRODUCTS

SHIPPING INFO

ORDER

CONTACT US



HMI's predryer

<http://www.shipboard.com/>
No Internet Connection? - Call 517-456-7431

(Circle No. 200 on PRODUCT INFORMATION form)

Dust free woodworking

Oneida Air 1.5 hp

Clean Air

1 Micron
Filtration

Filter Inside



FOR ONLY \$659⁰⁰

FOB
Syracuse
New York

Flex Hose & 35 gal. Barrel \$29⁹⁹
Optional mount wall brackets \$28⁹⁹

- Collects all dust.
- 1400 cfm fan/blower.
- 700 cfm@8" W/C system.
- Industrial construction.
- U.S. TEFC motor.

**Free
Ductwork
Design**

**Let us quote your
dust collection system.**
Call 1-800-732-4065



www.oneida-air.com

1001 W. Fayette St. Syracuse, NY 13204 Phone (315) 476-5151 Fax (315) 476-5044

(Circle No. 202 on PRODUCT INFORMATION form)



We take the guesswork out of starting your own business.

Guardsman WoodPro® can help you turn your hobby into a profitable business. We're a franchise group that specializes in on-site furniture repair, refinishing, cabinet refurbishing, and other furniture-related services for commercial and residential customers.

When you partner with Guardsman WoodPro, you're backed by the largest producer of furniture finishes in North America, and more than 130 years of experience. And, your customers will like knowing the same company that made the finish on their furniture is now repairing and restoring it.

**GUARDSMAN
WOODPRO®**

The most trusted name in furniture repair™

For our complete Information Kit

Call: 800.496.6377

www.guardsmanwoodpro.com

Investment range: \$15,000 - \$10,000. • Offer by Prospectus only • Unit and Master Franchises available worldwide

The Specialty Business Unit of  Lilly Industries, Inc.



Guardsman WoodPro
provides you with:



• a home-based
mobile business,



• step-by-step business
and marketing
programs,



• extensive training
and national
service accounts.



Historical Sights



Photo courtesy of Winterthur

Woodworkers in 18th century America built furniture in cramped shops like the Dominy family's, now at the Winterthur Museum.

Through the Centuries Furniture's Past and Present

The history which rings out around Philadelphia isn't just political. As woodworkers who attended this year's Furniture and Furnishings Show know, the area also offers some rich glimpses into American furniture's past — and present. Attendees who visited the venues on the show's self-guided study tour could follow American furniture from its outset.

"We begin at the beginning," says Mike Podmaniczky, senior conservator, furniture, at the Winterthur Museum. Winterthur's collection includes heavy oak furniture from the Pilgrims' era and continues through the rococo revival of the mid 19th century.

At first, "The approach to everything was to get as close as possible to what was going on in

Mira Nakashima put together the Michener Museum's reading room with designs from her father, George.

London," Mike said. By the 18th century, however, you can see American work becoming more distinctive.

At the Wharton Esherick Museum, it's the woodworker who's distinctive. Esherick (1887 - 1970) worked his way through 19th and 20th century

periods like Arts and Crafts, Bauhaus and expressionistic designs. Part of his influence came from displaying his work at the 1940 New York World's Fair.

Also influential in the 1900s' changing attitude toward wood was Pennsylvania woodworker George Nakashima. "The whole notion of not imposing a rectangle, but using the shapes of the wood, is his," said Bruce Katziff, director of the James A. Michener Art Museum. The Michener commissioned a Nakashima room from George's daughter after his death. For most of the collection, though, "We like the idea of buying work from artists

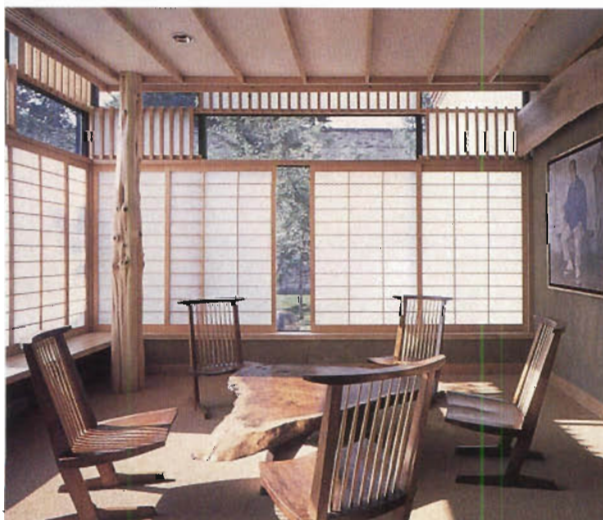


Photo courtesy of Michener Art Museum



Ball and claw feet on rococo high chests were a distinctly American addition.

Photo courtesy of Winterthur

while they're still alive," Bruce said. "There are woodworkers in your community, and you need to support their work."

The furniture of today's Pennsylvania woodworkers has something in common with their predecessors. From the 1700s cabinetmakers who copied furniture from Pompeii, to today's designers who borrow inspiration from antiques, Mike of Winterthur said, "It's all just fashion."

For your own history tour, contact Winterthur at 302-888-4600; the Wharton Esherick Museum at 610-644-5822; and the Michener at 215-340-9800.

Wood Works Good

Program Serves Latinos

"When Laguna Tools was a fledgling company, my husband had a dream," said vice president Catherine Helshoj of the president, Torben Helshoj. "He wanted to start an inner city workshop."

The Helshoj's didn't start the workshop — but they found the next best thing in helping Taller (Tie-yair) San Jose of Santa Ana, California. "It was as if fate brought us together," Catherine said.

The woodshop at Taller San Jose (the name is Spanish for St. Joseph's Workshop) is both a classroom and a job for young Latinos who are, on average, 10th grade dropouts with few good



model FL200
(pair of featherboards)

FEATHER-LOC™



Introducing Feather-Loc™, our revolutionary 4-in-1 featherboard, fence stop, table stop, and starting pin. Give us a call, or click over to our web site for all the latest info on our complete line of router tables and accessories.

1-800-786-8902 www.benchdog.com

(Circle No. 194 on PRODUCT INFORMATION form)

options before them. So far, said coordinator Shawna Smith, enrollment's been limited to those the nonprofit organization can afford to hire. The partnership with Laguna, however, is helping develop an apprenticeship curriculum that would expand the number of students who benefit.

At first, those students tried to build tables with wood donated by the convent of the program's founder, Sister Eileen McNerney of the Sisters of St. Joseph. Then they settled on the Taller San Jose trademark: benches. "You can't build nice, refined furniture with convent doors," Shawna explained.

Lately, they've added custom work, like entertainment centers. Their shop is comprised of old handball courts; the tools, they've acquired piecemeal. Most of the new ones — a jointer/planer, combination machine, blades — came from Laguna's donations. "If they need something and we have it, they'll get it," Catherine said.

Laguna will continue that attitude as Taller San Jose moves to larger quarters this year. "You have to give back," Catherine said. They've devoted a section to Taller San Jose at www.lagunatools.com; or you can call 714-543-5105 for more info.



Former gang members are among the students Laguna Tools commissioned for this bench.

Shop Talk continues on page 22 ...

Prototype



ARROW®
ELECTRO-MATIC

New!

Finished Product



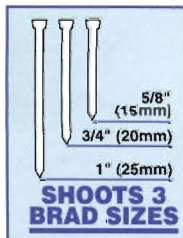
HEAVY DUTY ET100™
Nail Master™
ELECTRIC BRAD GUN

Grab hold of the all-new ARROW ET100™ and experience the beauty of ergonomically designed comfort. Its non-slip cushioned grip and superb balance assures effortless work, even during long jobs.

In addition to performing routine nailing jobs, this powerful 10 amp brad nailer is specially angled to handle difficult corner, edging and framing jobs. No scratched or damaged surfaces.

The ET100™ provides nail driving muscle without the burden of an air compressor. It shoots 3 different size brads.

Solid state circuitry, a hardened carbon steel delivery system for jam-proof performance, and both trigger and surface contact safety locks combine to offer increased years of safe, accurate, trouble-free service.



The ET100™ is available wherever fine tools are sold.

Arrow Fastener Co., Inc., 271 Mayhill Street, Saddle Brook, New Jersey 07663
Canada: Jardel Distributors, Inc., 6505 Metropolitan Blvd. East, Montreal, Quebec H1P 1X9
United Kingdom: Arrow Fastener (U.K.) Ltd., 14 Barclay Road, Croydon, Surrey CR0 1JN
www.arrowfastener.com © 1999 Arrow Fastener Company, Inc.

(Circle No. 80 on PRODUCT INFORMATION form)

Rob's Tool Travels

Our editor hits the road to talk tools with the folks who make them.

Just before the summer trade show season got started, I went on a tool tour of Argonaut-like proportions. It started out innocently enough: my daughter (and her belongings) needed a ride home from Florida. Driving from Minnesota to Florida would take me right past (well, almost) some of my favorite woodworking manufacturers — and give me a chance to be the first to see some new tools and prototypes. What tool geek could pass on an opportunity like that?

The final itinerary for my road trip was St. Louis to visit the folks at Ridgid Tools; on to Cincinnati to talk with Senco (the nail and staple people); back around to Jackson,

Tennessee, to tour the new Porter-Cable and Delta facilities; and on to Jesada Tools in Tampa, Florida ... where I would also hook up with my daughter (remember her?). It all added up to a lot of miles and one seriously flat behind.

But the results of the meetings were well worth the driving callouses. At Ridgid, Dave Hazelwood and Brian Sponsler showed off their new offices and gave me a sneak peak at their new Work-N-Haul It™ Rolling Stand, designed to work with their TS2400



Ridgid Tools' AC9930 Work-N-Haul It™ cart and Dimple Technology™ saw blades were revealed to the public a couple of weeks after my visit.



benchtop table saw. Unveiled to the public a couple of weeks later at their tool conference, along with their new carbide saw blades, these tools are serious examples of Ridgid's dedication to engineering and design.

THE ORIGINAL CONTRACTOR DUTY SERIES
Model 3512-01, 3512-03

Specifications
3hp 1ph 220V
3hp 3ph 230/460V
12"/13" Blade Capacity
Automatic Brake
24" Crosscut Capacity
Auto Return Device
Complete Guarding
Table, Frame Legs

Come see us at IWF in The Dome at Booth #7438

The Original Saw Company
465 3rd Ave. SE • P.O. Box 331
Britt, Iowa 50423
www.originalsaw.com
800-733-4063 • (515) 843-3868
FAX (515) 843-3869

Call for a distributor nearest you

(Circle No. 30 on PRODUCT INFORMATION form)

JOINTTECH
Ultra Precision Woodworking Systems

COVERED BY 5 PATENTS
With Jointtech's CabinetMaker's System™ you can make every kind of joinery for boxes or drawers, even make your own raised panel doors. Systems include Clincher Machine which uses joint making templates and the Award Winning SmartFence for all shaping & jointing operations.

CabinetMaker's System™ can adapt to any standard router table in minutes, or with our **NEW Saw Train** rails you can now bring incredible precision to any Cabinet, Bench or Contractors saw... With Jointtech all you need is **ONE FENCE** to do it all... NOT THREE!

PRECISION LEADSCREW
Only JOINTTECH uses a Stainless Steel Threaded Leadscrew for accuracy and repeatability just like precision machinery. Suspended Leadscrew will put .001" micro-adjustability and phenomenal repeatability into your hands.

- 5-Pt Locking System
- Absolute Parallelism
- Large Rip Capacity
- Vacuum Fence
- Micro-Adjustable
- Reversible
- .001" Repeatability

To request a catalog call
1-800-619-1288
or go to: www.jointtech.com

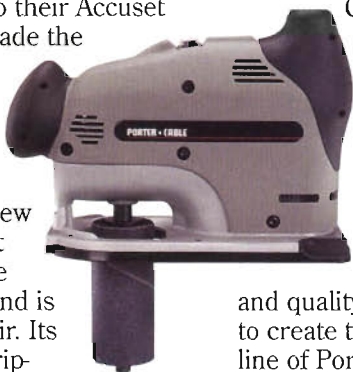
(Circle No. 163 on PRODUCT INFORMATION form)

Senco showed me their new DuraSpin screw driving gun — their first entry into the battery powered tool market and first significant departure from pneumatic tools. Their Accuset 2 in 1 (below) is also a new offering this year.



Jim Taylor at Senco Tools really threw me a curve when I asked what was new in their world. Not only have they added a new 2-in-1 combination stapler and nailer (model A2N125) to their Accuset line, but they've made the leap into battery-powered hand tools with their DuraSpin gun-type screw driver. This dedicated screw gun is Senco's first departure from the pneumatic world and is likely to cause a stir. Its unique bits and strip-loading screw system worked well as I drove dozens of sheetrock screws into 2 X 6 fir.

From Cincinnati I took a beautiful drive through the center of Kentucky and ended up in



I got a sneak preview of a hand-held oscillating spindle sander — a unique new offering from Porter-Cable. Look for more details in our next issue.

and quality work force combine to create their "made in the U.S.A." line of Porter-Cable tools.

From Tennessee it was on to Tampa, Florida, and my last stop, Jesada Tools. The tour of Jesada's router bit manufacturing plant was revealing. Carlo Venditto's Jesada is a family business, and I got the impression, as I watched their people making various sorts of router bits, that family values are part of the company culture.

It was a good place to finish my odyssey and go on to pick up my daughter. All in all, it was a fine adventure. Nothing the Argonauts couldn't have handled, and nothing a few days of standing as I worked wouldn't cure.



At Jesada Tools, I observed the machining of their various router bits. Above (left) are roughed out large diameter router bits. A finished bit is shown in the router.



Shop Talk continues on page 25 ...

Free Catalog 177011 Garrett Wade

- Great Prices
- Finest Tools
- Free Catalog Code #4450



Call Toll-Free 800-221-2942
www.garrettwade.com

(Circle No. 176 on PRODUCT INFORMATION form)

Turn to quality.

FREE Catalog: 800-684-9371

- High-quality pen, project & duckcall kits
- Largest selection of pen blanks
- HUT wood finishes & polishes
- Sherline lathe systems & accessories
- Innovation, not imitation

Amazing New Finish!

Beautiful glass like finish in seconds. The final finish you have been waiting for! Try it on all of your wood turnings! Easy, no-mess, application. 6oz. bottle.



#104 Crystal Coat
\$8.99

Order Today!
800-547-5461

Online Ordering!

HUT
Products, Inc.

www.hutproducts.com hutpfw@aol.com

(Circle No. 106 on PRODUCT INFORMATION form)

AIRY®

NAIL and STAPLE TOOLS

From start to finish ... we've got it nailed!

Introducing AIRY's AMB 0564 CRE nailer. It's an 15-gauge angle finish nailer which uses 1 1/4" to 2 1/2" brads.



AMB 0564 CRE

AIRY makes a complete line of nailers and staplers for use in a variety of woodworking & building applications.

- *Cabinets *Framing *Fencing
- *Upholstery *Roofing *Finish Molding

And many more...

For nearest dealer call
888-835-2479

www.airy.com

1425 S Allec Street, Anaheim CA 92805

COME VISIT US!

Nat'l Hardware Show, Chicago Booth #13573
Int'l Woodworking Fair, Atlanta, Booth #1W142

(Circle No. 2 on PRODUCT INFORMATION form)

FREE Booklet!

Get the Facts on Drying Your Own Lumber



Find out more about affordable, quality lumber drying with this free booklet!

We're the world leader in dehumidification drying. Producing

quality dried lumber is easy with one of our energy-efficient kilns.

And this free booklet can help you get started.

Call today for your free copy:



MADE IN USA

800-777-NYLE

(207)989-4335 • FAX (207)989-1101
<http://www.nyle.com>

- ▢ Kilns from 300 Board Feet
- ▢ Precise & Easy to Operate
- ▢ Outstanding Drying Power

nyle
DRY KILN SYSTEMS

PO Box 1107 Bangor ME 04402-1107



(Circle No. 55 on PRODUCT INFORMATION form)

SHOP TALK

Creating a Carousel

Carvers Grab the Brass Ring

What's remarkable about the 70 volunteers in the Salem [Oregon] Riverfront Carousel project is that most of them had little or no wood-working experience when they began carving an authentic full-size wooden carousel.

It all started in 1996, when Dave Walker called his former carving students after seeing a carousel on a trip. Today, "We have people from all over the place. They didn't know that this is their destiny," laughs Dave.

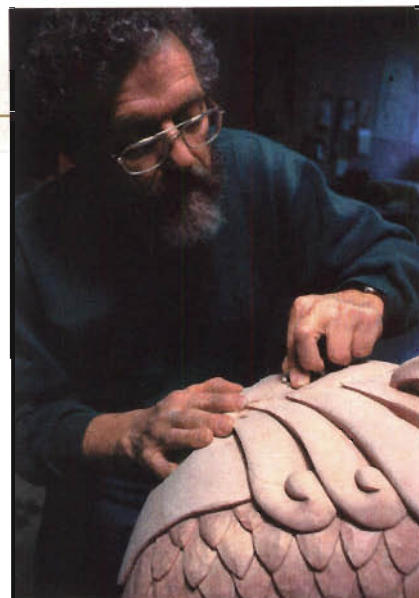
Modern carousels are made of plastic instead of wood, which in many ways gives the volunteers the tough assignment of reviving a lost art form. The volunteers rely on a variety of draw knives, chisels, mallets, and gouges instead of power tools. In fact, a band saw is the only power tool on site, used to rough cut a hewn block of wood into the basic shape of a horse. Each step is a piece of a



Painting is the final touch on the horses, which are hollow to decrease stress and weight.



photos by Alan Hicks



Dave Walker says the heads, manes — and saddles — are the hardest to carve.

puzzle, where attention to detail is key. "We've only got one shot at this, and we want to do it the best that we can," says Dave.

Getting 70 creative types in sync is difficult enough, but it's even more astounding when you realize that many of them needed basic training just to volunteer. Fritz Geiling, the former owner of an auto parts store, didn't know how to carve a few years ago. But with time and lessons, he's working on more intricate projects, using a small gouge to shave detail into a horse's head. "You can see the progress with each horse," says Christine Spencer, the group's marketing director.

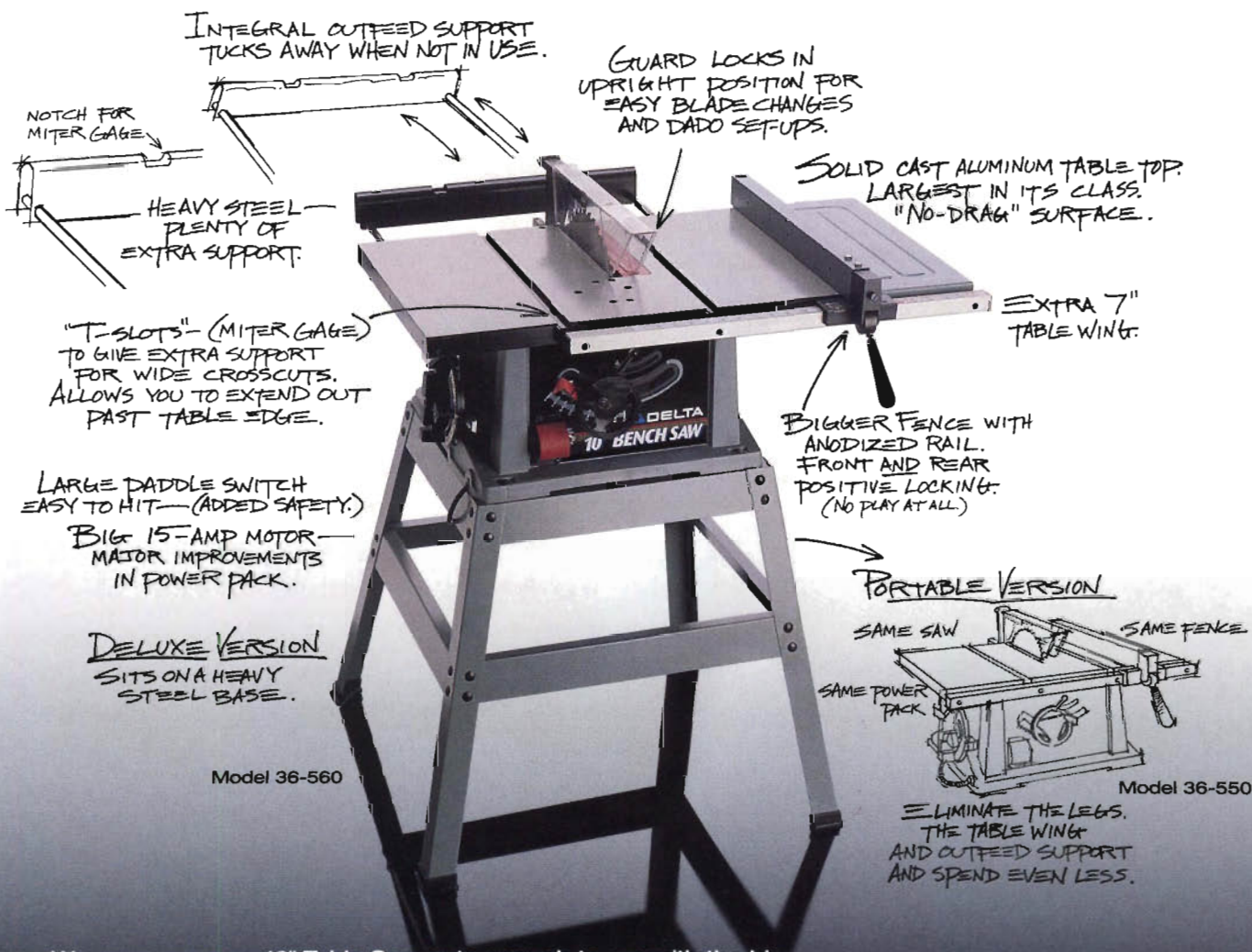
Besides the basswood horses, the group will carve Oregon scenes like salmon and mountain scenes on the rounding boards. They're working toward a July 4, 2001, deadline, to dedicate the carousel in a riverfront park. You can reach the project at 503-377-6766.

— by Chris Penttila

Making Anna Wiles' ride took 800 hours and 120 board feet.

DELTA TAKES A SERIOUS LOOK AT TABLE SAW VALUE.

The new 10" Table Saw: Big time performance. Small time price.



We gave our new 10" Table Saw guts enough to run with the big saws and loaded it with features that'll blow away anything in its price range. A price range that'll let you take the money you didn't spend on the saw and put it into a tenoning jig or dado blade set. So you can be cutting precision joints with the best of them. For the name of your nearest dealer, call Delta Machinery at 800-438-2486. In Canada, call 519-836-2840. www.deltawoodworking.com



Delta is a proud sponsor of *The New Yankee Workshop* with Norm Abram on PBS.

(Circle No. 40 on PRODUCT INFORMATION form)

SERIOUS
WOODWORKING TOOLS
SINCE 1919.

DELTA
MACHINERY

A Pentair Company

When I got my first job in the woodworking world, I was handed a flat rectangle of steel and shown how to use it to shave off very fine ribbons of wood. The demonstration produced a clean surface ready for finish. It was so simple that it appeared almost magical. No adjustments like a plane. Just grab ahold and push the tool across the board. My initial experience with the scraper went well, until the edge got dull enough that it was no longer cutting neatly. I returned to the boss and asked how to get the thing sharp again. The accompanying lesson looked like nothing was happening, but again the steel produced those fine shavings. At least until I tried to duplicate the sharpening.

The problem with sharpening the scraper is similar to the problem with sharpening so many woodworking tools. Things happen at the microscopic level, and you just can't see what is going on. You need an understanding of what is supposed to be happening to the edge of the tool. And a lot of it is the touch that is applied. I made many attempts to get a scraper sharp before I was able to try it and have it work like it did when the boss had done it. But finally, with success comes the revelation, "So, that's how you do it." The scraper has four corners, and these can all be made sharp. Therefore, it makes sense to do all four edges while you've got your files, stones and burnishers out on the workbench. The key to getting the scraper sharp is to get the edges filed perpendicular to the face.

I've demonstrated how to accomplish this task in the photo sequences shown on the next page. First, use the mill file and stone to get your scraper clean, with all edges



Scraper Basics: The Subtle Art of Sharpening a Small Steel Square

By Silas Kopf



perpendicular. Once you're satisfied you've accomplished that, reach for a burnisher. Don't be afraid to use a fair amount of force and strop the burnisher back and forth (at about a 5° angle) on the flat side of the scraper about 15 or 20 times. What you're attempting to do is push that edge out from the flat plane. This step should make clear the importance of preparing the four edges so they are perpendicular: you will not be able to force an edge out of an obtuse angle. In the final set of

Start by getting your scraper square



Clamp the scraper in a vise with an inch and a half of steel sticking out. Use a fine mill file to file the edge smooth. It's crucial to hold the file very close to perpendicular to get all

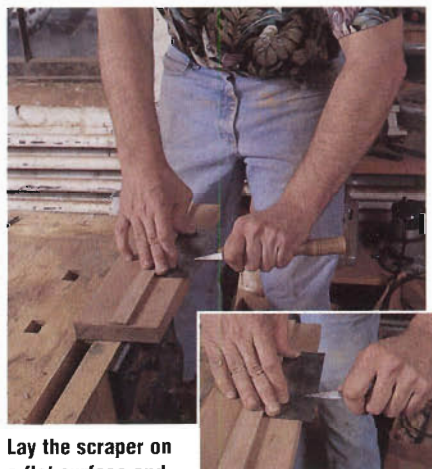


the edges sharp. Place your fingers on the scraper blade's sides to help keep the angle steady. Next, take a stone and polish the face of the blade, as shown above. This will remove



any burr left from the filing. Rub the stone on the filed edge of the blade (again making sure it's perpendicular to the face). This will clean up the file marks and leave the edge smooth.

Finish by creating your scraper's hook



Lay the scraper on a flat surface and hold your burnisher at a slight angle (about 5°) as you strop across the face of the scraper as shown above. Next, pull the burnisher along



the edge to curl the steel back at an angle to the face of the blade (see photo sequence above). Tilt the burnisher about 85 degrees and hold it at an angle away from you. Start with the end of the burnisher touching the end of the scraper edge farthest from you. With a continuous motion, pull the burnisher toward you, drawing it up to its end as you finish the stroke. What you are attempting to do is curl the edge over. This becomes the cutting edge of the scraper.

passes you'll angle your burnisher to about 85° and, even though you can't see it happening, curl the edge over to create the scraper's cutting edge. After you've done one edge, flip the steel over; give all four edges the same treatment.

I use a burnisher with a triangular profile, and I personally like the way it feels. Other woodworkers I know get good results from a round profile. The key is that the tool needs to be made from a very hard steel to successfully push the scraper edge.

It's also important for the burnisher to be smooth without any nicks or dings that would potentially catch on the scraper.

To use the scraper, hold the tool in your hands with your thumbs in the middle of the back. Bend the steel slightly so that only part of the scraper is in contact with the wood. Push forward, and you should see fine shavings coming off the tool. As parts of the tool get dull, you can shift your thumbs to the right or left to get more of the tool into play.

The scraper can also be used on shaped parts. It can be pulled or pushed. It can be used to clean up interior corners. And after you have mastered sharpening the straight scraper, try the same basic technique on a swan's neck scraper.

Silas Kopf is a graduate of l'École Boulle marquetry program in Paris and is well-known for his stunning works of marquetry. His work was featured in "Today's Woodworker" in our October 1999 issue.

Simple Pleasures

By Joanna Werch Takes

 *Even before entering the world of woodworking, I knew what I liked: clean lines, blonde woods and simple, yet elegant pieces. When I discovered that so many pieces which fit this description fell into the category of "Shaker," I wanted to know more: when we say something is Shaker, what history and meaning does that tap into?*

The Shakers themselves, in the 1823 "Summary View of the Millennial Church" wrote that, "True gospel simplicity [is reflected in] thoughts, words and works [that] are plain and simple." Despite such strong links to simplicity, however, the Shaker people themselves offer a study in contrasts. Their religion called for celibacy, but some New England neighbors interpreted certain of their religious practices as overtly sexual in nature. Long believed to have died out, they're still functioning as a vital community. And, perhaps most important for woodworkers, the style of furniture and design they created through their desire to separate themselves from worldly influences has permeated mainstream American culture.

Immigrant Founders

Like many American traditions, Shakerism has its roots in England. Founder Ann Lee was born in Manchester in 1736 and worshipped with the Quakers there. Due to the movements in their form of worship, she and some others became known as "shaking Quakers": Shakers.

Religious commitment was how Ann dealt with an unhappy marriage and the early deaths of all four of her children.

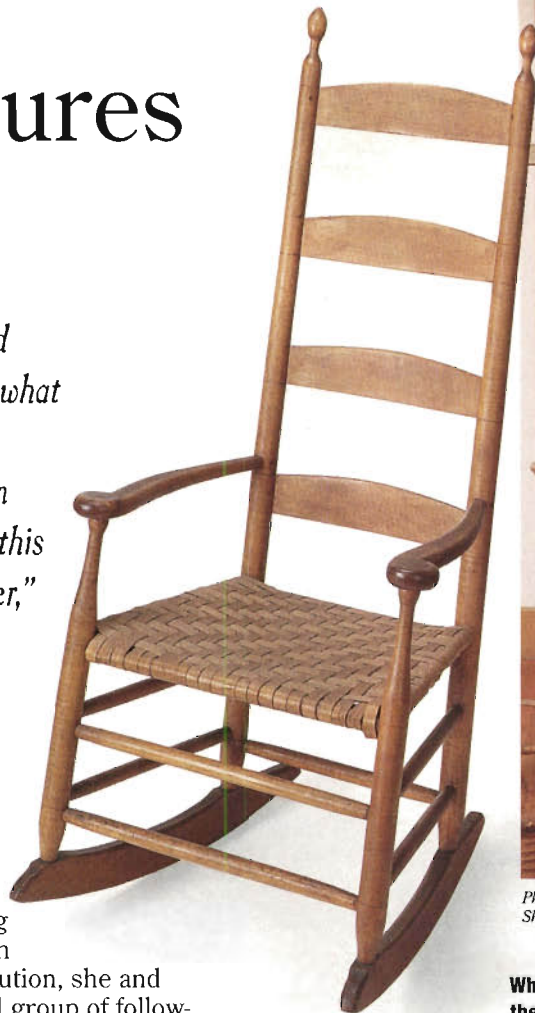
Fleeing English persecution, she and a small group of followers emigrated in 1774 to America — where the pacifist group faced imprisonment as suspected British sympathizers in the Revolutionary War.

Despite such setbacks, the group managed to acquire property in Niskeyuna (now Watervliet), New York that became the home base for the society they were founding. The imprisonment of "Mother" Ann, as she came to be called, actually enhanced her saintly standing among her followers and other 18th century spiritual

seekers. The most prominent of these was Joseph Meacham, a Baptist minister who joined the Shakers after New England's "Dark Day" of 1780, when the sun didn't appear to rise.

For the Shakers, another spiritual turning point had already occurred. Early members thought that Mother Ann was the second coming of Christ, a female form of God on earth. Her life, they believed, ushered in a millennium of peace — which is why they needed to build furniture that could last a thousand years. Mother Ann's comment, "Work as if you had 1,000 years to live, and as if you knew you would die tomorrow," encouraged this practice.

Other tenets crucial to the newly formed Shaker communities, officially known as the United Society of Believers in Christ's Second Appearing,



Photos by P. Rochleau; courtesy Hancock Shaker Village, Pittsfield, Massachusetts

Whether they sold it through their chair factory or used it in their homes, Shaker woodworkers built furniture that was simple, functional and — most of the time — adhered to their religious rules.

"Regularity is beautiful. There is great beauty in harmony. Beauty rests on utility."
— Shaker philosophy

Courtesy of Shaker Museum and Library, Old Chatham, New York



Drawers, doors and other openings in Shaker storage pieces, like this pine and maple tailor's counter, fit the items stored in them — not a specific design principle.

were communal property, regular confession and celibacy. The later years of the 18th century and the early part of the 19th saw the formation of several communities based on these

principles. At the height of the Shaker movement, 18 communities existed.

Simplified Neoclassical

The furniture in the earliest communities was what members brought with them from "the world" — anything outside of Shaker life. As such, it reflected rural versions of the neoclassical style of the day. As the Shakers started building furniture, they followed the influence of these pieces, employing the slab construction seen in other American furniture of the time.

During the period of 1820 - 1860, when a Shaker religious revival led

to increased isolation from the world, it was this simplified neoclassical style that Shaker woodworkers built upon. The plain, tapered legs and simple tops were easy to produce in quantity — necessary for a community which lived in large groups — and fit in well with their philosophy. They pushed the rectilinear and oval units to a uniform simplicity, took off unnecessary ornaments like tall bedposts and emphasized rectangular and horizontal shapes.

Although they liked to use the concept of the "golden mean" (a proportion of 1:1.68) when possible, the Shakers didn't hesitate to violate it, creating both long, low counters and high, thin cupboards. Practicality was the basis for their projects, with drawers and compartments designed to fit the items they would store, as shown in the tailor's counter pictured above. An 18th century statement summarized their design philosophy: "Regularity is beautiful. There is great beauty in harmony. Beauty rests on utility."

Photos courtesy Hancock Shaker Village, Pittsfield, Massachusetts



Regularity and efficiency were important in Shaker architecture, too. They built the country's first round barn, at Hancock, Massachusetts, to allow continuous unloading. In their dwellings and meeting houses symmetry was important: men lived on one side, women on the other.



Courtesy of Hancock Shaker Village, Pittsfield, Massachusetts; photo: M. Fredericks

A typical Shaker cabinetmaker's shop would likely contain numerous planes, useful for various edge profiles. Although religious rules forbade embellishments like moldings, Shaker woodworkers cited safety, splinter prevention and protecting the furniture as reasons to use them anyway, as shown below.

Dulled



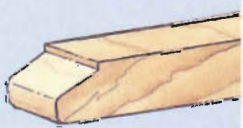
Slightly Rounded



Roundnose



Thumbnose-beveled



Thumbnose-rounded



"Beatings, moldings and cornices, which are merely for fancy, may not be made by Believers."
— 1845 Millennial Laws



Courtesy Shaker Museum and Library, Old Chatham, New York

Shakers in different communities used different woods, but the design similarities among pieces from different regions are remarkable. You can see the relationship in the arched feet of this Massachusetts table and Kentucky candle stand

Courtesy Shaker Museum at South Union, Kentucky

Since the Shaker communities were scattered from Maine to Kentucky, the woods they used varied, including pine, maple, walnut and others. No specific joinery marks Shaker work, either. Several of the woodworkers, however, traveled between the communities, bringing the designs for various pieces of furniture with them. Due to the self-effacing nature of the Shaker religion, we didn't know the names of many of these woodworkers for a long time, but current research is producing more information.

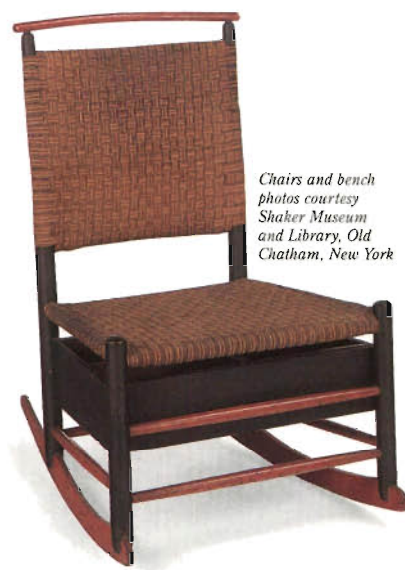
Some of the stereotypically "Shaker" pieces they worked on included trestle tables, oval boxes and, of course, ladder-back chairs. They placed the tables' stretchers directly under the tabletop to make sweeping easier; employed bevel-edged swallowtails which let their oval boxes expand and contract with humidity; and put a slight angle in the back of the chairs so they'd be comfortable to sit on.

Features which helped maintain cleanliness, one of the communal values, were very popular on Shaker furni-

ture. After 1820, for example, their raised panels flattened out, with a quarter inch round thumbnail around the frame: they were easier to dust that way.

Religious Regulations

Shaker ingenuity wasn't limited to furniture — members also invented the circular saw and the chair tilter. The communities believed that patents were monopolistic and un-Christian, but Shaker archives mention Tabitha Babbitt of the



Chairs and bench photos courtesy Shaker Museum and Library, Old Chatham, New York



In 1876, the Philadelphia Centennial Exhibition awarded a medal which recognized Shaker chairs' "strength, sprightliness and modest beauty."

Harvard community developing a circular saw blade and water-powered machine in 1813, three years before others filed for the U.S. patent on a circular saw.

The chair tilter, flat-based balls held to rounded hollows in the rear legs with leather thongs, came about despite an 1815 Millennial Law — a basic code of Shaker conduct — which stated, "It is not right to lean our chairs back against the wall in our dwelling houses ... it is also wrong to sit with our feet on the rounds of our chairs."

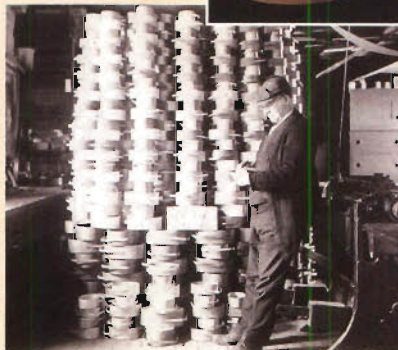
Such directives came from the religious basis on which all Shaker life was founded. Shakers, including the woodworkers, regarded their tasks as a form of worship. When I asked Sister Frances Carr of the Sabbathday Lake, Maine, community to elaborate on

Oval Boxes

A metaphor for Shaker design, oval boxes are a product today's Shakers, in the tradition of Brother Delmar Wilson, still make.



Photo courtesy of Hancock Shaker Village, Pittsfield, Massachusetts



Collection of the United Society of Shakers, Sabbathday Lake, Maine

this idea, she explained, "For us, worship and work blend into one; we are called to put the best we have into everything we do or make."

Shaker woodworkers put their heart into their work, making objects that were useful — but they didn't hesitate to make those objects beautiful, too.

Since their society operated under religious law, however, the craftspeople sometimes found their designs disallowed. Isaac Newton Youngs, a Shaker craftsman particularly known for his clocks, painted some milking stools in 1820 — only to have them confiscated by the ministry, who soon issued an edict forbidding Shakers to paint their milk stools.

The strongly religious period of the "Era of Manifestations" (1837 -50) both produced new rules which impacted the Shaker woodworkers and increased their isolation from worldly influences. Prior to this time, outsiders had been allowed to attend the worship; during the Era, woodworkers had to rely on what they learned about furniture style from others members of the Shaker communities.

During the Era of Manifestations, several Shakers received visitations from earlier Shakers or others in the spirit world, who frequently offered them "gifts" — such as new hymns or worship dances — or directives for the community. Among these directives was the instruction to remove brass hardware and replace it with wooden pulls.

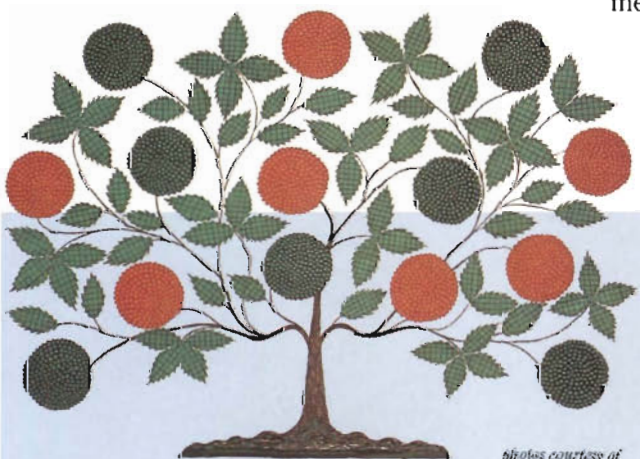
Within this period, the Millennial Laws of 1845 clearly stated what kind of furniture Shakers could possess — and, by extension, what kind of furniture their woodworkers could make. "The furniture of the dwelling rooms, among Believers, should be plain in style," these rules read; "Beadings, moldings and cornices, which are merely for fancy, may not be made by Believers."

Shakers who thought their companions' furniture had become too fancy



Courtesy Hancock Shaker Village, Pittsfield, Massachusetts; photo: P. Rochleau

Cleanliness and practicality were among the Shaker's goals. Built-in storage, above, was convenient and didn't collect dust. Peg rails kept clothes hangers, pipe racks, boot jacks and chairs out of the way when someone swept the floor.



photos courtesy of Hancock Shaker Village, Pittsfield, Massachusetts

Gift Drawings

During an intensely religious era, young Shakers received visual images as spiritual "gifts." Trees were important symbols in these visions. Hannah Cohoon's "Tree of Life" may represent bearing spiritual fruit. The family tree in Polly Collins' "Emblem of the Heavenly Sphere" depicts generations of Shakers sharing a spiritual heritage.



Courtesy Shaker Museum & Library, Old Chatham, New York



Engravings like "The Whirling Gift" demonstrated 19th century worship practices like whirling in circles to reach a point of religious ecstasy.



Photos Courtesy of Shaker Village of Pleasant Hill, Harrodsburg, Kentucky

Instructions like those telling Shaker woodworkers to paint all the beds green often came from spiritual visions. At times, their religious life also forbade rocking chairs — except for the aged.

weren't shy about expressing it in religious terms, either. One visitor to the Harvard community commented, "I think they have ... too much furniture which belongs to Babylon! Mother [Ann] used to say, 'You may give such things to the moles and the bats; that is, the children of this world.'"

Despite comments like this, however, not all the laws covering finishes, joinery, or structure were strictly obeyed. An 1845 Millennial Law required all Shaker beds to be painted green, as in the photo above — but the communities in Maine apparently never got around to doing it. Modern researchers

have discovered metal rods in Shaker chair finials: a practice that didn't fit with most Shaker design philosophies, but which did allow thin turnings. Even cornices and moldings appear on Shaker pieces. Frequent rationales for these embellishments were that they stopped splintering, cushioned heads against sharp corners, or protected the furniture against feet and brooms. By the late 19th century, the Shakers were even making furniture that included

Victorian elements, like dark brown stains, porcelain hardware and scrollwork with no functional purpose.

Shaker Commerce

Even before the late 19th century relaxation of standards, Shaker craftspeople sometimes got more leniency in pieces they made to sell for use outside their communities. For example, pieces made for the world sometimes

had hidden dovetails — forbidden within the Shaker societies because they violated the principle of openly displaying an object's features.

Selling furniture to the world — along with other commercial ventures like selling seeds — was an important means of support for the Shaker communities. In 1872, the Mt. Lebanon, New York, community capitalized on their reputation for quality furniture by opening a commercial chair factory. Competitors who tried to sell their own ladder-back chairs as Shaker-made forced the



Shaker Industries

Although we think of them as furnituremakers, Shakers have supported themselves through a variety of industries. They invented the flat broom (previous versions had been a round bundle of broom corn tied to a stick); they were among the first to sell seeds; and they even sold clothing and toys.

believers to bend to the ways of the world and develop a trademark between 1874 and 1875.

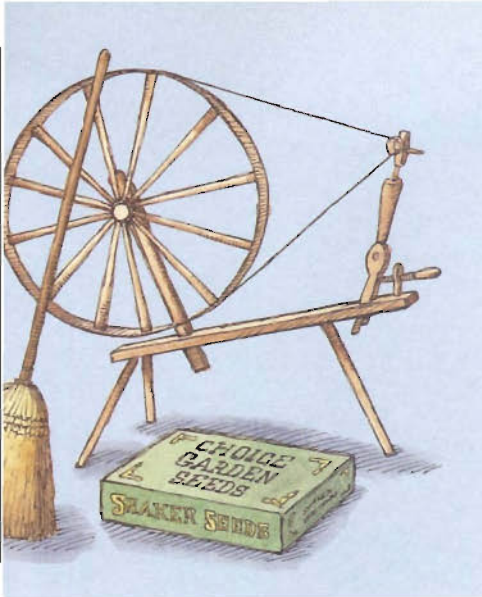
Although increasing industrialization presented more options to people who might previously have joined the Shakers, contributing to the decline of the communities, they managed to keep their chair factory going well into the 20th century. They rebuilt after a 1923 fire destroyed the earlier buildings, although chairs made after this time incorporated more pre-turned stock. The last Shaker man to make chairs, William Perkins, died in 1934. The last Shaker chairmaker, Lillian Barlow, died in 1942.

A few years before, the early 20th century Shakers had stripped the paint from their old pieces to fit in with the popular colonial revival and Arts and Crafts styles — and make it easier to sell pieces during the Depression. Until about 1860,

Courtesy of Shaker Museum and Library, Old Chatham, New York



Letter and number labels identified Shaker items according to the room and building where they belonged.



almost all Shaker furniture had a colored surface.

By the mid-20th century, the Shakers had become known for — and identified with — their furniture. In 1974, Sister Mildred Barker at Sabbathday Lake was quoted as saying, “I don’t want to be remembered as a piece of furniture!” Today’s Shakers, Sister Frances Carr told me, are disappointed that people overlook other aspects of Shaker life, especially since only a small number of the community ever made furniture.

Searching for Simplicity

Sister Frances heads the only currently functioning Shaker community. Sabbathday’s members

do not manufacture furniture, but are surrounded by the objects of previous generations. She thinks it is more important, however, to focus on the Shakers’s lives. “Our furniture designs were not given to the world, although the world has adopted them,” she said. “We feel our greater contributions have been the true works of the people; i.e., the values of peace, love and justice.”

Her definition of “Shaker style” is: “a piece that is made the very best it can be made; stripped of the superfluous so that the object speaks for itself in its practical use and therefore natural beauty.”

Over the years, others have appreciated that style as well. Before going his own stylistic way, Gustav Stickley started in the furniture world by making Shaker style ladder-back chairs. Kaare Klint, founder of the Danish Modern style, ordered measured drawings of a Shaker chair in a Copenhagen museum and used it as a teaching aid. He also owned a copy of the first influential book on the subject, the early 20th century *Shaker Furniture* by Edward Deming Andrews.

As modern Americans search for ways to slow down their 56K modern-paced lives, they’re looking for simplicity wherever they can find it. The search, according to a recent *New York Times* article, has become “a secular religion for affluent Americans ... best described as vicarious Shakerism.”

“For us, worship and work blend into one; we are called to put the best we have into everything we make.”

— Sister Frances Carr

Woodworkers have the opportunity to experience a more direct link with their Shaker counterparts. Recreating the clean, simple lines found in Shaker furniture appeals to both beginners and experts, and it’s no wonder that, in shops around the country, the Shaker style is still popular.

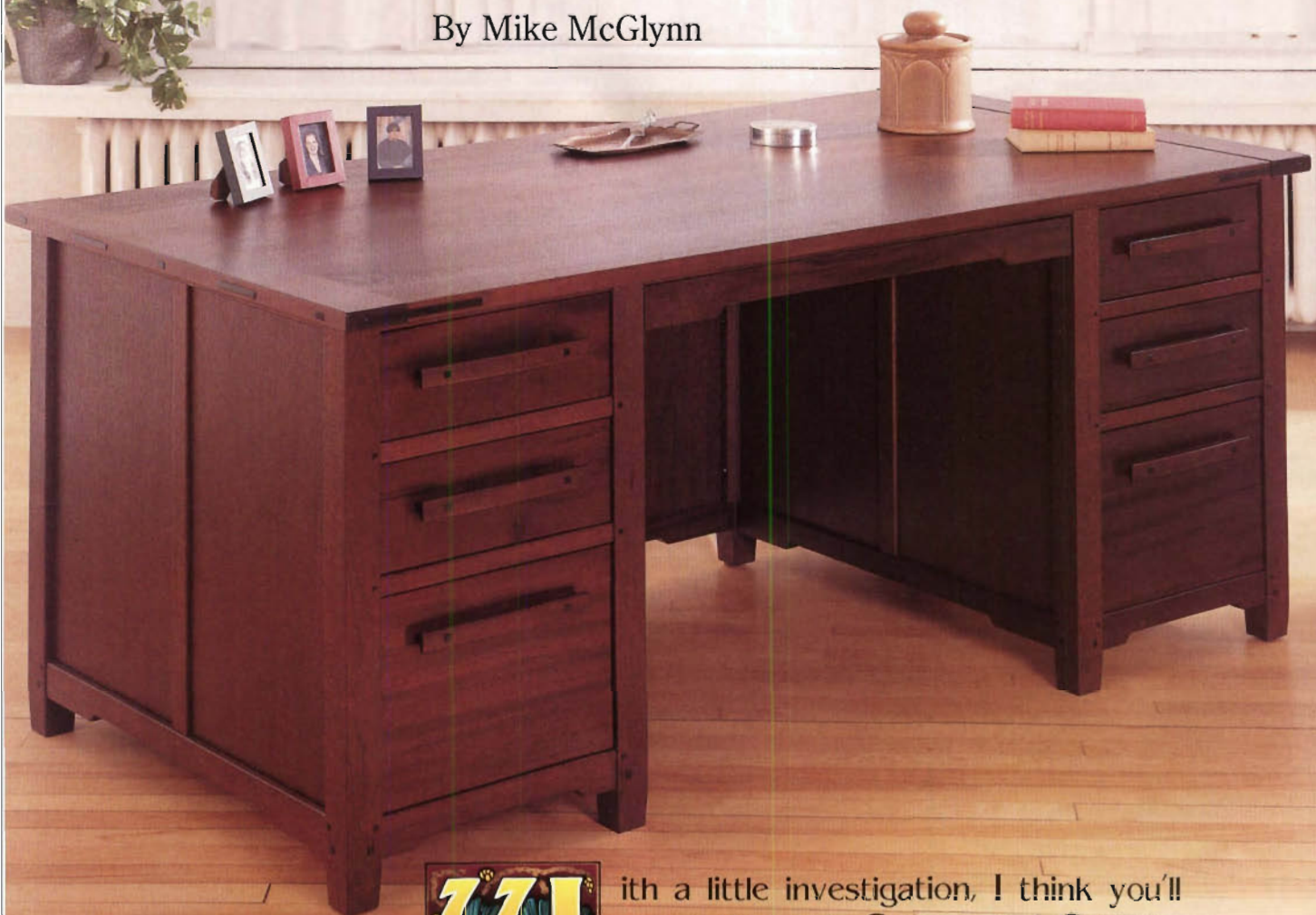
In the 20th century, Shaker community members have been predominantly women. Traditionally, Shaker life and tasks had been segregated by gender, with the brothers doing most of the woodworking in the winter, when they weren’t busy with farm chores. The last Shaker chairmaker, however, was Lillian Barlow, pictured at right working on her lathe.



Courtesy of the New York State Museum, Albany, New York

Greene & Greene Inspired Desk

By Mike McGlynn



With a little investigation, I think you'll agree that this Greene and Greene inspired desk is one of those rare woodworking projects: It manages to be an impressive piece on many levels, yet it's very straightforward to build. For many years now, I have been tremendously fond of the Greene brothers' style. I recently toured the Gamble house, their California masterpiece, and viewed even more examples of their furniture in both the Los Angeles County museum and the Huntington Museum. Seeing the Greenes' (more accurately their builders, the Hall brothers') work up close was inspiring and taught me some new tricks. I put this newfound knowledge into the design of this desk.

Getting Started

With the exception of the many decorative details, this desk's construction is true bread and butter woodworking: mortise and tenon joinery, frame and panel construction, pocket hole joints and breadboard ends.

One nice aspect of Greene and Greene furniture is its mahogany construction. In addition to looking nice, it makes wood selection easier, due to the availability of clear, large dimension boards. To construct this desk, you'll need some 10/4 stock for the legs and 5/4 for all the other solid parts. In addition, you will need a sheet of 3/4" mahogany plywood. You'll also need 1/2" Baltic birch plywood for the drawer boxes and a small amount of ebony for the accent plugs and top splines.

Constructing the Drawer Pedestals

The first step to building the drawer pedestals is to mill all of their solid wood parts (Pieces 1 through 7) to the dimensions in the **Material List** on page 37.

After you have your parts dimensioned, but before you taper the feet and profile the bottom rails, cut all of the joints and panel grooves. There are essentially two types of joints in these drawer pedestals: mortise and tenon and pocket screw. I use pocket screws in certain areas because I feel they are an excellent joint as created by my Castle® pocket hole machine.

I cut my mortises and tenons on a Multi-router, but as all of the mortises and tenons are at right angles, they can be readily cut with a variety of methods. Before you start to cut, make sure you match up your legs into groups of four and

Charles and Henry Greene were architects who excelled at designing homes and furniture. Born in St. Louis, educated on the east coast, they rose to prominence in southern California.



If you would like to learn more about the Greene brothers' lives and designs, several good books are available from Cambium Press:
800-238-7724



mark which faces go together; there is nothing worse than completing your mortises and realizing you chopped a set on the outside face of one of your perfectly grain-matched legs.

After matching up your legs completely, lay out the mortises on one front (panel end) leg. (See the **Pinup Shop Drawings** on the pullout located in the center of the magazine for construction details.) By drawing centerlines through these mortises and transferring just the centerlines to the other legs you will have your mortise index line without having to completely draw out all the mortises.

Once you've cut the leg mortises, lay out and chop the mortises in the top and bottom side rails. These are quite shallow mortises and are used more for positioning than for strength.

When you have finished all of the mortises, lay out all of the tenons and cut them with your preferred method. To make this project simpler, something I'm always in favor of, all of the mortises and tenons are the same size (with the exception of the side panel stiles).

Panel Grooves

Once your mortises and tenons are cut, get ready to cut the panel retaining grooves in all of the appropriate legs, rails and stiles.

You could use solid wood panels in this desk, but I prefer to use 1/4" plywood for its lightness and for its book-matched figure. If possible, go to a yard where they will allow you to look through the plywood. Carefully examine the veneer seams and choose sheets from which you'll be able to cut balanced



The author chops his mortises with a Multi-router. This project's mortises are all straightforward mortises which can be formed just as easily in the traditional manner.

looking panels. When you get the plywood to your shop, you'll notice the 1/4" plywood is more like 7/32" or 3/16" thick. It's for this reason you don't want to plow the panel grooves before you have your plywood in hand. I cut my grooves on a router table with a fence. You might have to take two passes with a smaller bit to make a properly sized groove, which should be a nice slip fit — not too tight or too loose. (NOTE: set aside the top and bottom rails on the drawer side: these don't need grooves.) Start by grooving the central panel stile, then the top and bottom rails, and finally the legs. This way, you can slip the piece into its mortise and match up the groove in the receiving piece perfectly. Now is the time to cut your plywood panels (pieces 8 and 9) to size, testing their fit as you go,

Before proceeding to the detailing, we need to cut the square mortises for the ebony plugs.



Tenons on the panel dividers are shorter than those on the bottom rails. Test fit the tenons in their mortises as you make them.

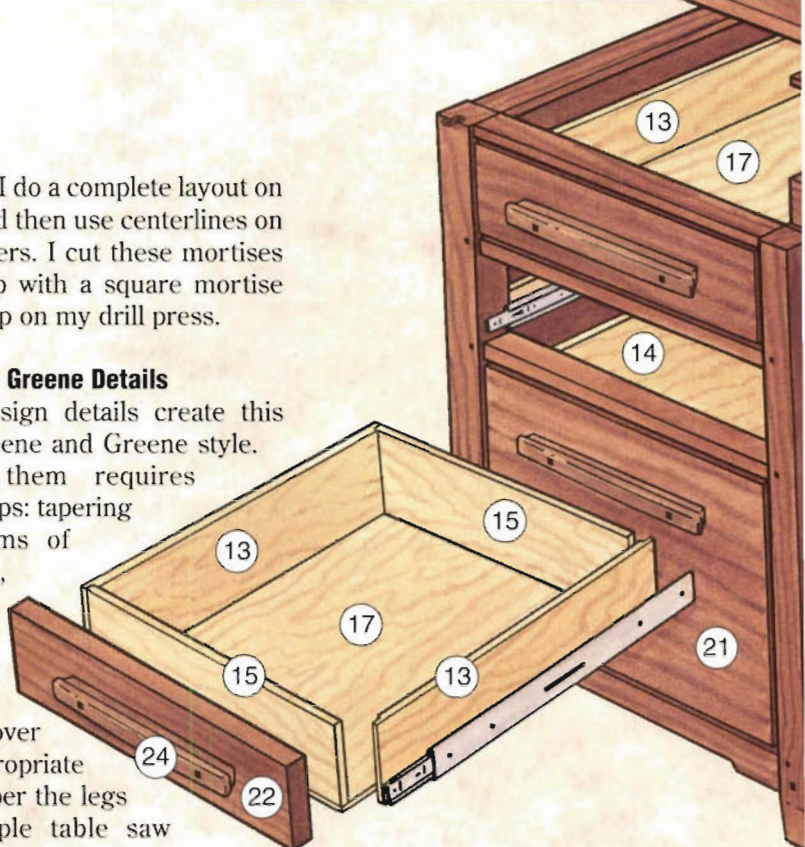
As before, I do a complete layout on one leg and then use centerlines on all the others. I cut these mortises 3/16" deep with a square mortise chisel setup on my drill press.

Greene and Greene Details

Special design details create this desk's Greene and Greene style.

Creating them requires several steps: tapering the bottoms of the legs, cutting the "cloud lifts" in the rails, and rounding over all the appropriate edges. Taper the legs on a simple table saw taper jig and clean them up with a block plane and sandpaper.

The "cloud lifts" are best made by template shaping on a router table. I usually make a template from 1/4" material, draw the pattern on the desk component, cut it out to within 1/16", then double-faced tape the template to the part and template shape it with a 1/2" bearing guided



straight bit in a router table. After routing, the inside corners are squared out with a sharp chisel.

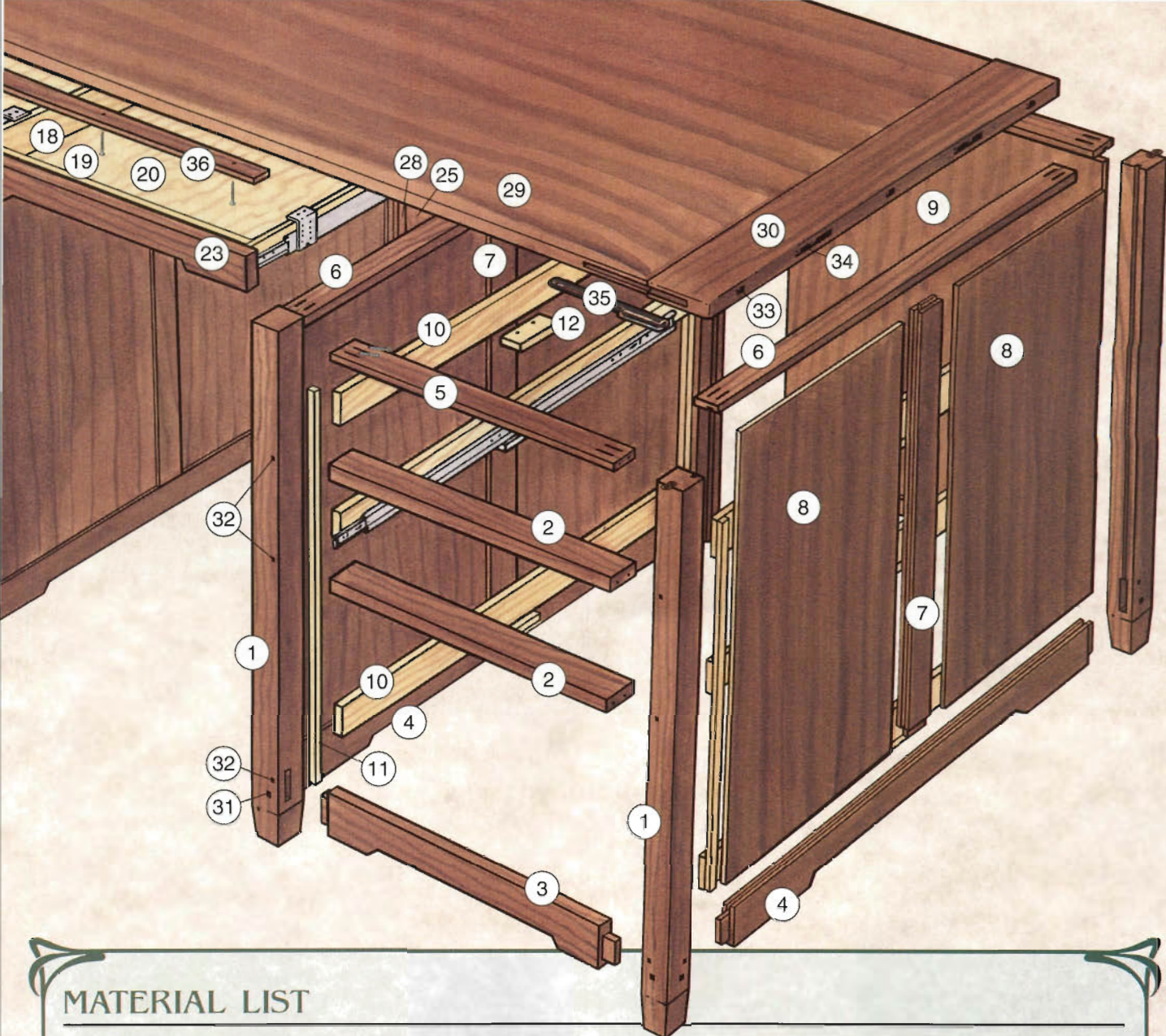
You also need to ease the outside corner of the cloud lift to a slight curve. The last step before the roundovers is to cut pocket holes in the top rails and the drawer dividers.



The author used a mortising attachment on his drill press to create the square mortise for the leg's decorative ebony plugs.

"Even from where I'm sitting, I can see the purists cringe at this bottom attachment method, but I'll challenge any 'bottom in a groove' to a strength and longevity test. I know from experience mine will come out ahead."

To do my roundovers, I use my laminate trimming router with a 1/8" roundover bit. You will be rounding over the appropriate edges of the legs (see the **Pinup Shop Drawing**), the bottom rails, the top rails, the panel stile and the drawer dividers. Be very careful not



MATERIAL LIST

	T x W x L
1 Legs (8)	2" x 2" x 28"
2 Drawer Dividers (4)	1" x 1 ⁷ / ₈ " x 14 ⁵ / ₁₆ "
3 Short Bottom Rails (4)	1" x 2" x 16 ⁵ / ₁₆ "
4 Long Bottom Rails (4)	1" x 2" x 31"
5 Short Top Rails (4)	1/2" x 1 ⁷ / ₈ " x 14 ⁵ / ₁₆ "
6 Long Top Rails (4)	1/2" x 1 ⁷ / ₈ " x 29"
7 Panel Stiles (4)	3/4" x 1 1/2" x 23 ⁷ / ₈ "
8 Pedestal Side Panels (8)	1/4" x 14 1/8" x 23 ³ / ₄ "
9 Pedestal End Panels (2)	1/4" x 14 3/4" x 23 ³ / ₄ "
10 Drawer Slide Supports (12)	3/4" x 3" x 29"
11 Drawer Slide Spacers (8)	3/4" x 1/2" x 20"
12 Drawer Support Tabs (12)	3/4" x 1 1/2" x 5"
13 Small Drawer Sides (8)	1/2" x 4 ⁵ / ₈ " x 22"
14 Large Drawer Sides (4)	1/2" x 9 1/8" x 22"
15 Small Drawer Fronts & Backs (8)	1/2" x 4 ⁵ / ₈ " x 12 ⁹ / ₁₆ "
16 Large Drawer Fronts & Backs (4)	1/2" x 4 ⁵ / ₈ " x 12 ⁹ / ₁₆ "
17 Drawer Bottoms (6)	1/4" x 13 ⁵ / ₁₆ " x 22"
18 Pencil Drawer Sides (2)	1/2" x 1 ³ / ₈ " x 22"

	T x W x L
19 Pencil Drawer Front & Back (2)	1/2" x 1 ³ / ₈ " x 28 ¹ / ₄ "
20 Pencil Drawer Bottom (1)	1/4" x 22" x 29"
21 Large Drawer Faces (2)	1" x 10 ³ / ₈ " x 14 ³ / ₁₆ "
22 Small Drawer Faces (4)	1" x 5 1/4" x 14 ³ / ₁₆ "
23 Pencil Drawer Face (1)	1" x 2 1/4" x 31 1/4"
24 Drawer Pulls (6)	1" x 1" x 10"
25 Modesty Panel (1)	3/4" x 23 1/4" x 30 ⁷ / ₈ "
26 Modesty Panel Lower Rail (1)	1 1/4" x 2" x 31 ³ / ₈ "
27 Modesty Panel Upper Rail (1)	1/2" x 1 ⁷ / ₈ " x 31 ³ / ₈ "
28 Modesty Panel End Stiles (2)	1/2" x 1 ³ / ₄ " x 23 ¹ / ₄ "
29 Top (1)	15/16" x 35 ³ / ₄ " x 64"
30 Breadboard Endcaps (2)	1" x 3 1/2" x 36"
31 Leg and Drawer Ebony Plugs (22)	3/8" x 3/8" x 9/32"
32 Small Ebony Plugs (18)	1/4" x 1/4" x 9/32"
33 Large End Cap Ebony Plugs (6)	3/4" x 3/8" x 9/32"
34 Long End Cap Ebony Plugs (4)	9/32" x 3/8" x 3 ³ / ₄ "
35 Ebony Splines (4)	3/8" x 11/16" x 7"
36 Pencil Drawer Trim (1)	1/2" x 1 ⁷ / ₈ " x 31 ³ / ₈ "

to round over the ends of any part other than the leg bottoms.

To prepare for staining, sand all pieces, including the panels, to 120 grit. Raise the grain with a damp cloth and then sand to 220. I prefer to stain the pieces apart because it results in a more even stain job and less time in purgatory for swearing. The stain I use for Greene and Green mahogany pieces is a water based aniline dye. It is easily applied, colorfast and doesn't muddy the surface. It's best to experiment a bit and get your technique down as opposed to experimenting with the parts you have so much time invested in.

After the stained pieces are dry, there is one final step before assembly: buff all the surfaces with

a fine Scotchbrite® pad. This buffing smoothes out any raised grain and will provide you with a much better finish. At this stage of the game, be sure to wear rubber gloves when handling the parts so that skin moisture doesn't lift or mark the water-soluble dye.

Assembling the Pedestals

The first stage of assembly is to assemble the side subassemblies. In the interest of longevity, I always use the West system epoxy for my furniture as it is bombproof and has a long setup time. Before starting your assembly, gather everything you'll need and be sure the tenon ends and panel edges are slightly eased to aid assembly. Assemble the bottom rail to the legs, then the panel stile to the bottom rail, slip the panels into place — in their correct orientation. Clamp everything together and drive home the top rail pocket screws. Although it probably isn't necessary, I also add a screw through the top rail into the end of the panel stile tenon.

Once you have the four side subassemblies done, assemble them to each other with the top and bottom rails and allow the epoxy to cure. The installation of the drawer dividers is accomplished with the use of two spacer blocks the size of the drawer opening. Being that the pocket holes are on the bottom side

"Cutting the tongues on the top and the matching spline grooves is the first real opportunity you have to completely screw up the top — one false move and you have a lot of nice mahogany for a smaller project."

of the dividers, turn the units upside down and put the top divider in first, resting the spacers on the underside of the top rail. Install the remaining dividers in turn.

The last step in the pedestal assembly is installing the drawer slide supports (pieces 10). They're made of 3/4" ply and are screwed in place onto spacers (pieces 11). To ease drawer slide installation, glue small support tabs (pieces 12) to the bottom edge of the slide supports, prior to installing these pieces. When you install the slide supports, use a large combination square to make sure the top face of this tab is in-line and square to the top edge of the drawer dividers.



Elegant handle design ...

While visiting the Huntington Museum, I was powerfully impressed with the level of detail the Greeses

included in their furniture pieces. These drawer handles were inspired by observing furniture at the museum. To make the handles, first cut the blanks to size and then create a template to form the handle's subtle curve. Find the template's shape on the Full-size Pattern. After you have shaped the curve and relieved the finger-grip cove, step to the table saw and trim the handle's base to match the depth of the cove cut. This creates a base that flows gently into the front aspect of the handle.



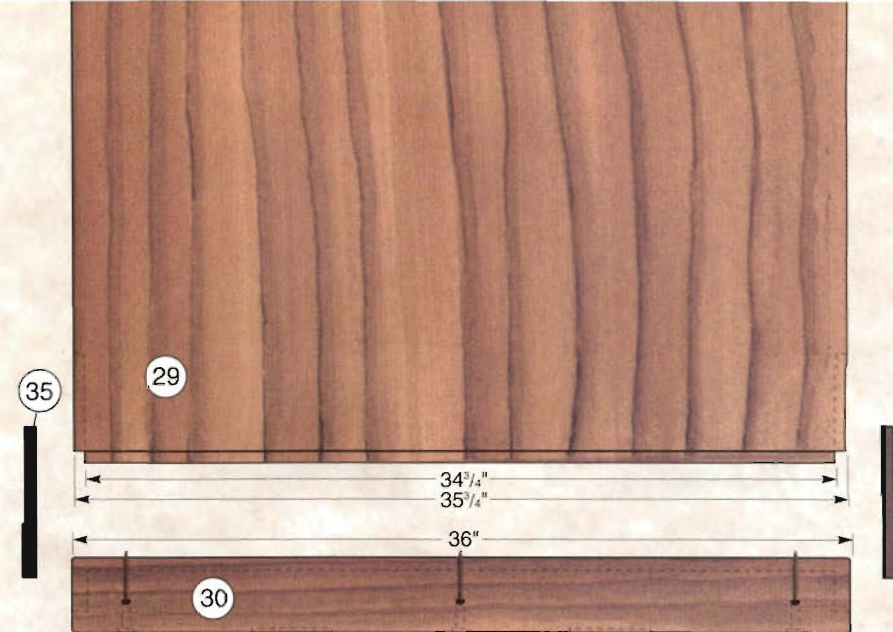
Template routing a subtle curve is the first step in making the desk's drawer handles. Use double-sided tape to attach the template.

Making the Drawers

Now you need to build the drawers, drawer faces and drawer pulls (pieces 13 through 24). As I'm more interested in utility than purism, I build my drawers out of 1/2" Baltic birch plywood with rabbeted corners, with a 1/4" mahogany veneered MDF core bottom, nailed directly to the bottom of the drawer box. Even from where I'm sitting, I can see the purists cringe at this bottom attachment method, but I will challenge any "bottom in a groove" to a strength and longevity test. I know from experience mine will come out ahead. If you plan to use hanging files in the file drawers, add 1/8" x 1" aluminum rails (see the **Pinup Shop Drawings**).

The drawer faces are made of carefully selected 1" thick solid wood. For appearance's sake, it is best to get all of the drawer fronts — including the pencil drawer — out of one 11"-plus wide board of slightly ribbon striped material. With pieces as wide as the file drawer fronts, be sure to allow them to adjust to equilibrium before their final milling. The pencil drawer front with its cloud lift is machined in the same manner as the bottom rails.

The drawer pulls on this desk were a direct inspiration from some Greene and Greene pieces I viewed



The end caps are attached with screws but no adhesive. Machine the groove for the top's tongue 1/16" deeper than the tongue itself. The mortises for the ebony spines must allow the spines to float, to accommodate seasonal wood movement.

at the Huntington Museum this spring. Only up close do you notice the subtle curves of these pulls, but it really adds a delightful touch. See the sidebar below for instructions. One important thing to note is that you should put in plenty of time sanding these to make sure they are smooth, fair and nicely tactile. Stain the pulls and fronts in the same manner as the cabinet.

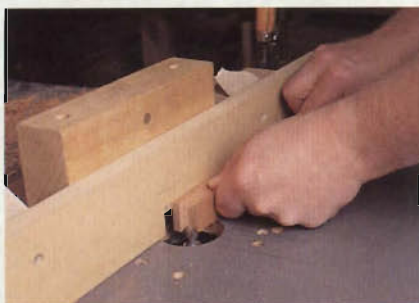
Modesty's Sake

The next subassembly to tackle is the modesty panel. This is quite simple, as it consists of only five parts. I used 3/4" plywood for the

center panel (piece 25) and while this may seem like an odd choice, I knew 1/4" was too thin, and 1/2" is hard to find. It would be possible to glue up 1/4" material to a 1/2" piece, but it's hardly worth it.

As with the other panels, cut a piece that has a nicely center-balanced veneer pattern. Once you have the panel in hand, mill up your four surround pieces (pieces 26 through 28) with the appropriately sized grooves in them to receive the panel. Using the same method employed in the bottom rails, form

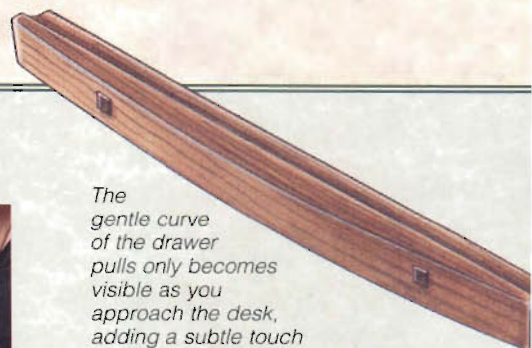
a classic Greene and Greene detail



With the base to the fence, use a cove bit to relieve a finger grip on the handle. Then step to the table saw to trim the base's footprint.



Substance and style create the Greene and Greene look. The final step in making the handle is boring mortises for the ebony plug accents.



The gentle curve of the drawer pulls only becomes visible as you approach the desk, adding a subtle touch of elegance to a beautiful piece.



Trim the remaining stock away on your table saw to form the drawer pull's final footprint.

the cloud lift in the bottom rail. After drilling the attachment holes in the side and top rails, round over the edges and stain the parts. Then, using glue, nails and screws, assemble the panel.

Topping It Off

Construction of the top is the last major subassembly. Quite frankly, if the other subassemblies were fairly easy, the top (piece 29) looks deceptively simple, but is in fact quite difficult, especially the floating ebony splines. Because the top is the most visible part of the desk, carefully select the wood with the most pleasing grain match possible. Also, make sure the top boards are milled perfectly flat. Again, I use epoxy to glue up the top. One quick point: an epoxy glue line will not react with the aniline dye as regular glue will. Once the top is glued up, square it up and cut it to size.

Cutting the tongues on the end of the top and their matching spline grooves is the first real opportunity you have to completely screw up the top — one false move and you have a lot of nice mahogany for some smaller project. I cut the tongue with a three-wing slot cutter in a hand-held router. Make two to three passes on each side to make the tongue; this will result in a much smoother job. (Clamp a piece of waste stock on each side to prevent blowout.) Now, lay out the spline-mortise (for the ebony spline). Using the same router and bit (reset to the correct depth), rout it and then clean up the ends of these slots with a chisel.

The end caps (pieces 30) for the top are also fairly tricky. After milling your parts, plow a groove to match the tongue so the cap and the top are flush on the bottom, but the cap is 1/16" proud of the top (see the

"I used a water based aniline dye for this project. I prefer to stain the pieces apart because it results in a more even stain job and less time in purgatory for swearing."



Pinup Shop Drawings). It's important to take this slowly and get a nice slip fit — not too tight, not too loose. Form the groove 1/16" deeper than the tongue to allow for a year-round tight fit. After cutting the groove, mark out the spline slots and chop them out with a chisel. You'll notice this slot is 5/16" deeper than the mortise in the top's edge. This allows the end cap to be 1/8" proud of the top and creates 3/16" of spline-float room, accommodating seasonal expansion and contraction due to humidity.

The rectangular plug mortises (see the **Pinup Shop Drawings**) in the cap are cut with a combination of router table and chisels.



Begin assembling the pedestal's side subassemblies as shown above. Note the top rails' orientation and pocket screw joints.

Under the three 3/8" x 3/4" mortises there are countersunk holes for attachment screws. These holes and their oversized pilot holes should be drilled on a drill press as they must be very accurate.

At this point, you can do the round over, sand, stain routine for the top and cap. Be very careful of the inboard top cap edge, as it needs only a slight roundover — best done by hand. Once you have the parts stained, you can slip the caps in place and, through the attachment holes, mark the tongue, drill it and screw the caps in place.

Durable Finish and Ebony Plugs

When you have all your subassemblies stained and ready, it is time for finishing. I spray three to four coats of medium rubbed effect catalyzed lacquer, but you can achieve just as good of a finish by hand with a semigloss varnish and patience.

The final construction step, before assembly, is to make all of the ebony plugs and splines (pieces 31 through 35). For the 1/4" x 1/4" plugs and the 3/8" x 3/8" plugs, I generally mill up a stick of that dimension, sand and polish the end to a slight dome, and cut it off to the proper length. I repeat this until I have enough plugs. After easing the inside corners a bit to facilitate insertion, these plugs can be driven home with a touch of silicone caulk on their back sides to hold them if the wood should ever shrink enough to loosen them. The splines are a bit time-consuming because of their shape. I cut them out on a band saw and complete them with a combination of files, sandpaper and buffing. You must make sure that they are a slightly loose slip fit so the cap can expand and contract

past them freely. They are glued to the top only. The last ebony parts are the rectangular plugs in the end cap. They are again sawn, sanded and polished to size. The plugs covering the attachment screws are glued in place with silicone adhesive to facilitate possible future removal, and the others are simply glued in place.

Final Assembly

Before starting the assembly, it's best to turn the top upside down, on a padded surface, and lay out the positions of the base pedestals, pencil drawer side mounting and modesty panel. By doing this, you can accurately position the small recesses you have to rout for the tabletop fasteners. While you've got the top turned upside down, attach the trim strip (piece 36) just above the pencil drawer and the pencil drawer slides. It's also a good time to set the modesty panel in place and mark its mounting holes on the underside of the top.

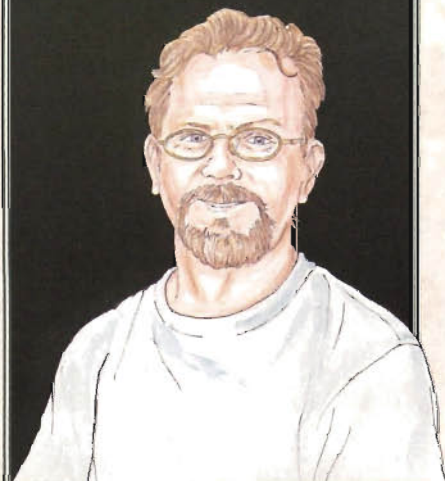
The drawer, drawer front and pull installation is very

straightforward, if tedious. For the top drawers, I use K.V. 8500 slides and for the file drawers, K.V. 8505, 22". The pulls are screwed to the drawer faces from inside, and then the faces are attached to the drawer boxes with washer-head screws and oversize holes to allow for final adjustment.

With this, your four subassemblies are complete and can be put together. This is done by attaching the top to the drawer pedestals with the tabletop fasteners and then attaching the modesty panel to the top, drilling the side pilot holes, and screwing the modesty panel to the legs. It should be noted that this assembly must take place wherever you want the desk, because it will need to be taken apart to move.

Well, that's it! Now sit back, enjoy your new desk, and dream about your hostile takeover of Microsoft. Well, at least you have the desk for it.

"The Greene brothers' attention to detail, which the Hall brothers expressed as builders, evolved into a tradition we now revere and emulate."



Mike McGlynn, our contributing editor and Greene and Greene devotee, built the coffee table shown above for the June 1997 issue of Today's Woodworker. His plans for a Greene and Greene server table and mirror appeared in the August 1998 Woodworker's Journal and April 1996 issues of Today's Woodworker, respectively.

It's all in the details

Cloud lift horizontal elements, plugs of contrasting colors and accentuating shapes. Simple lines repeated and amplified ... strong Asian influences creating subtle yet striking visual effects. The Greene brothers succeeded in developing a recognizable yet fresh style. Their plugs are especially easy to make; just cut a stick to size, round over the top, buff and trim.

It takes a little longer, but getting done in a hurry wasn't one of the Greene brothers' design goals.



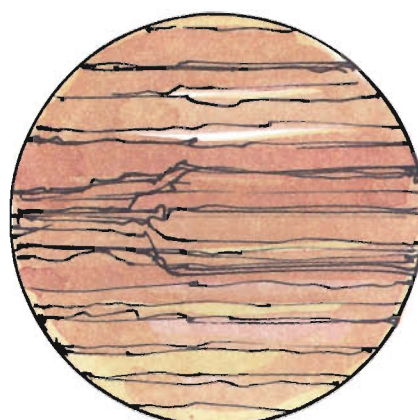
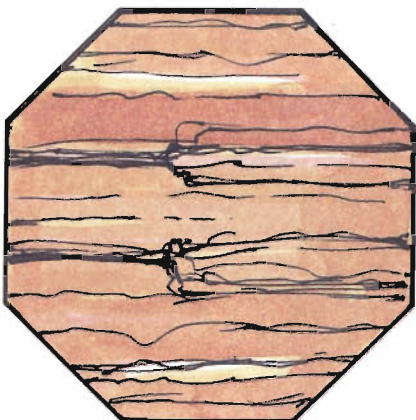
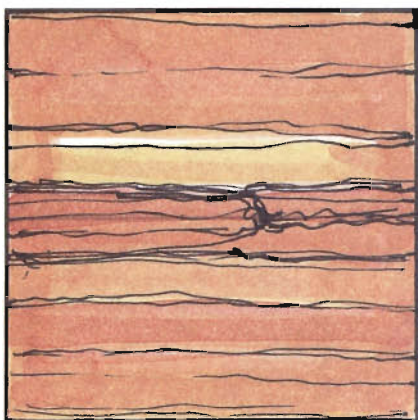


Designing with Full-size Mock-ups

By Ian Kirby

Moving from builder to designer can be a bit intimidating. The fact is, everyone can design, and everyone does design.

Recently I wanted to make a little end table to go alongside the overstuffed chair in my friend's living room. Every design project has to start someplace, so I began with an Arts & Crafts favorite, a little octagonal table with tapered, sloping legs (the bottom photo at left). Though a classic, this design would not fit the existing decor, so I decided to make it more contemporary. Right here I crossed the line from the comfortable world of making furniture to the frightening territory of designing it.



Options abound as you begin to design any piece of furniture. Compose the top around a center line. This strategy helps you match ordinary wood. When the top is octagonal, make the center board the width of one side.

Many woodworkers, though comfortable with working from published plans, stay away from designing. Yet the fact is that everyone can design, and everyone does design. There's no mystery to it. It's what we do whenever we solve problems — finding the best way to get from one place to another, stretching a budget, updating a little table. Here I'll discuss four aspects to resolve: functional design, spatial design, structural design and detail design. And since you already know how to build furniture, I'll show you the value of making a full-size mock-up as the bridge between a simple sketch or a three-view set of orthographic drawings, and the final design. In my example, by the time I had resolved the design, I had created four full-size mock-ups.

To build a mock-up, use the least expensive, most readily available materials and join the parts in the simplest way you know. Common methods include screws, hot-melt or cyanoacrylate glue, and glue-with-staples. The rules are simple: make the parts dimensionally accurate with reasonably smooth surfaces, plug the screw holes, and paint the whole thing white. A mock-up like this will give you the best possible view of the relationship between the form and the

space. Equally important, it's easy to see where dimensions need adjustment and shapes need to be changed. The mock-up makes the transition from what you thought might be a well proportioned piece to knowing that the real thing will be well proportioned.

When you make a good mock-up, another interesting thing can happen: you might not need to build the actual furniture. Screws do make a strong joint, and white paint does make a good undercoat. Fill any remaining blemishes, sand smooth, and paint the mock-up a nice color. Then sit back and relax.

Functional Design

The broad idea of function has two aspects: the job of the furniture in the room (that is, its context) and how it performs its job.



Design education, because it emphasizes industry, often downplays the importance of context: who is the furniture for, where is it going to go? While an industrial designer can't get beyond the broadest answer, you are under no such limitation. You can make a piece tailored to your needs.

Oddly enough, we rarely get to deal with new functional furniture design problems. While you might discover something new about the functional aspect of small tables, it's not likely: people have been making them for the last 500 years, and the parameters are rather well understood.

For example, take a table's height. The industry uses these rough divisions: coffee tables, 14" to 18"; end tables, 20" to 24"; dining tables, 28" to 31"; and buffet tables, 36" to 40".

My table is to sit alongside an overstuffed chair in a living room, to catch drinks, TV clickers, and books. The context has physical limits: the chair is really huge, and there's

Functional design: you can begin to investigate form and function with a couple of cardboard boxes and a particleboard top. Be sure to pay attention to context: set up the test in your project's actual location.



no surplus of space around it. Right away I suspect the corners of a square tabletop will stick out too far, and I confirm this in a couple of minutes by cutting some cardboard into square, octagonal and round tops. As for the size of the top, it's strictly a matter of context: mock up the top, and take a look. You'll probably find that what looks right in the workshop is too big in the house. While I'm looking I also consider the sloping legs: interesting, but rails with sloping shoulders are out of character in this setting.

You can see that I'm rapidly moving away from the original design, toward vertical legs with a top that isn't square. It only took a few minutes to saw and screw a base with straight, vertical legs, and right away I see that it's working much better alongside that big, squishy chair.

Structural Design

In terms of structure, the fundamental design decision is whether to make the tabletop of solid wood, or of a man-made material such as plywood or MDF. This matters

because solid wood moves, so it can't be a structural element. You have to make the base as a separate structure, then plant the top on it with some allowance for movement. As a consequence, you are going to need rails to make the structure rigid. With a man-made top, which won't move in response to changes in atmospheric moisture, you can make the top be a part of the structure by screwing it directly to the legs, and you'll probably be able to do away with one set of rails.

Structural considerations also include the size and location of the

Structural design: the rails of the original Arts and Crafts table (not shown here) required tenons with angled shoulders. One way around this issue is the base at far right, which has interrupted top rails and through tusk tenons on the bottom rails. The center mock-up was another step along the way, removing the through tenons but adding a lap jointed top rail joint. The author's solution (below left) combines straight legs, straight shoulders, and a top rail joint that is assembled, not cut.



Once the base design is selected (see sequence below), move on to the tabletop. You'll find changing its shape (left) changes the space around it, as well as the view of the rail intersection.

rails, and of the joint that connects them to the legs. However, these decisions are so minor compared to your choice of material for the top that they can be considered mere design details.

Detail Design

The final aspect of design is in the details — the shapes of the individual parts, the treatment of edges, the size of exposed joints. After settling the larger questions of function, structure and space, these final details will tie the design together.

Composing the top. The top will always consist of a number of boards glued on edge. Make them symmetrical around a center line, so you will either have a glue line on center, or a board on center. Try to match the color, but if it's very awkward, insert a couple of dark



Creating the perfect edge for your table's design

You can leave the edge the same thickness as the top, make it thinner, or make it thicker. Then you can mold it, carve it, or inlay it.

A square edge gives a crisp, hard and minimalist look. Dub off the sharp corners with a swipe of worn sandpaper.



Rout or plane this edge, and be sure to keep the line where the curve meets the flat top, because it makes a defining highlight.



The radiused edges have no defining boundary; the curve melts right into the tabletop. You see this soft treatment a lot.



The top chamfer creates two defining edges, which play with light and shadow. The chamfers look different at various eye levels.



This bullnose molding feels commercial. It softens the edge but leaves you not knowing where the top ends and the edge begins.



This simple groove creates a second set of highlights and shadows in the edge. Its effect is to powerfully delineate the top edge.



An inlay planed flush or left slightly proud gives the work a crafted look. The inlay often is of a dark wood, but it doesn't have to be.



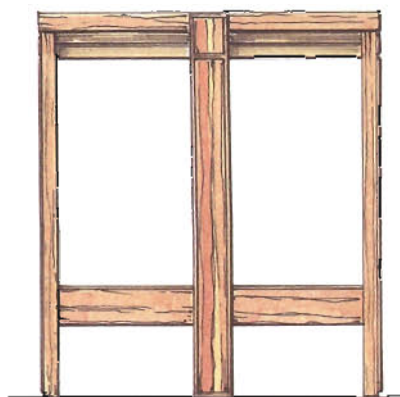
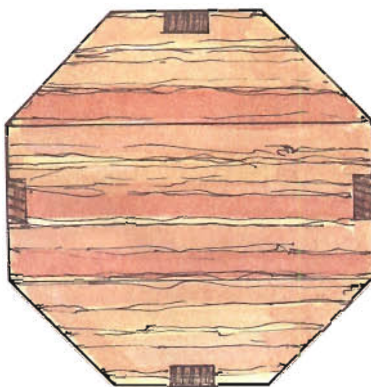
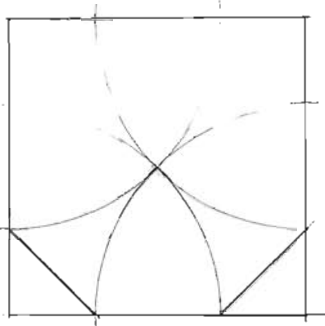
To make the tabletop look thinner, simply plane a wider chamfer.



For a very dramatic look, bring the edge down to about 1/8" thick and radius it. Don't worry about dings — it'll survive.



Create a perfectly octagonal shape by bisecting the center of the tabletop with arcs.



veneers in the glue line to ease the transition from one board to the next. Over time oxidation and daylight will blend the colors. On the octagonal top, make the width of the center board match the side of the octagon, as shown on page 43.

Edges. You can leave the edge the same thickness as the top, make it thinner, or make it thicker. Then you can mold it, carve it, or inlay it. The sketches on the previous page aren't exhaustive, but will help get you started on an edge selection.

Legs. The legs on this table are made from flat stock. You can use 3/4" or 1" wood. I made the legs come through notches in the top, so they're uninterrupted from floor to the surface of the table.

Rails. The most important thing to get right about a rail is the relationship between its width and thickness – that is, its section. Being low to the ground, foreshortening has the effect of making it seem too

"You don't have to make a detail to see it ... draw it directly on the mock-up."



Try different details by drawing them on the mock-up or machining them into the stock. The center detail looks good and it's easy to make: saw a narrow rebate all around the wood.

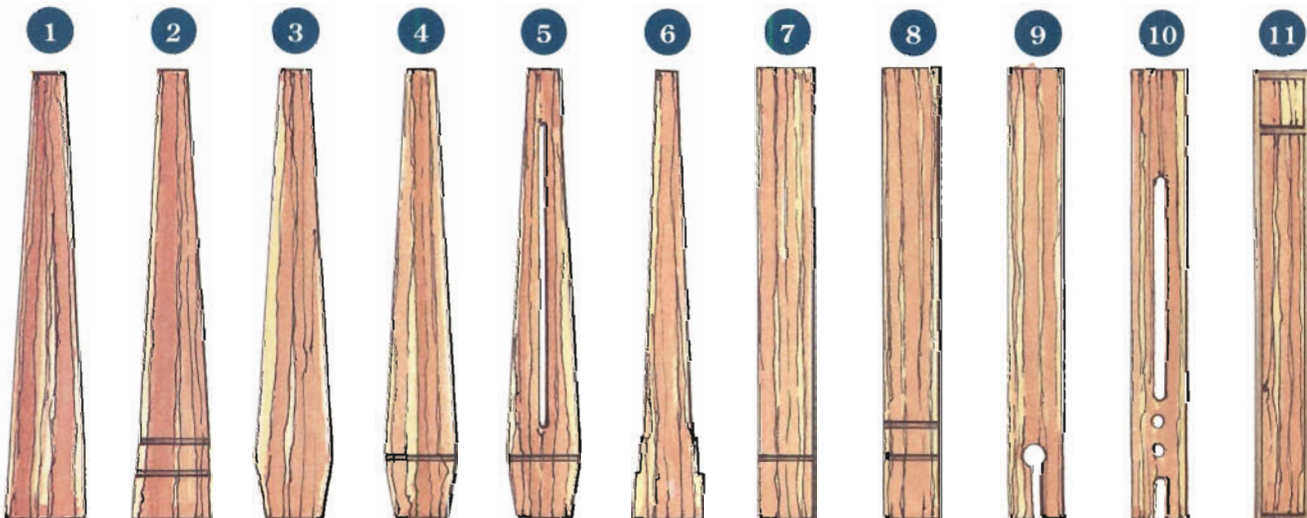
The final table drawing fused the functional, spatial, structural and detail design aspects into a harmonious whole. The leg options, shown below, were numerous.

narrow in width when seen from above, but not the same when seen from a distance. There seems to be a temptation to make curvy rails, which introduces a new shape into the architecture. I wouldn't do it, because it's very hard to get right, and the rail isn't that important in the total composition.

Joints. A lot of Arts and Crafts furniture relies on exposed joints. The tusk tenon shown on the preceding page has a very strong presence, which probably is best left alone and not hindered by other design details, lest the whole thing become overdone. To go to the other extreme, the rail joint could be a stopped mortise and tenon, in which case no joint is visible.

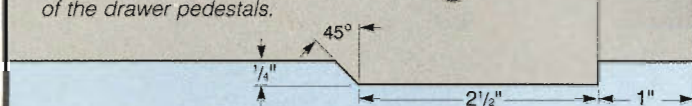
The taper to a wide bottom edge (#1 & #2) was a common Arts & Crafts device. If the proportions are right, the look will be OK. In #2, one or two saw kerfs define the foot. In #3, #4, #5 you see the same inverted taper, though with these, the foot is defined by a reverse taper. Mock it up to get the tapers just right, and to locate the point where the tapers change direction. With #6 the foot is defined by a change in "level." The smallest change — 1/16" to 3/32" — is all it takes. Bigger dimensions quickly look crude and clumsy. A leg with parallel sides looks just fine if you get the proportions right (as in #7 through #11). It's easy to introduce interesting details.

Ian Kirby, a master of the British Arts & Crafts tradition, is a woodworker, designer and wood scientist. Ian will be building this Arts and Crafts table in the next issue of Woodworker's Journal.

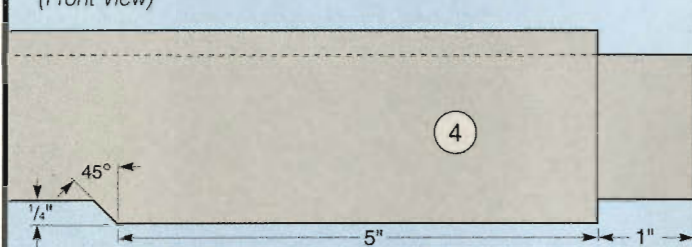


Short Bottom Rail
(Front View)

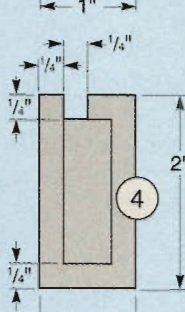
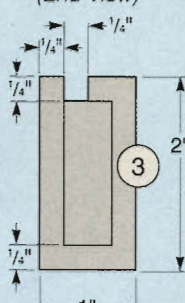
Note: There are no panel grooves in the two short rails which are mounted at the front of the drawer pedestals.



Long Bottom Rail
(Front View)

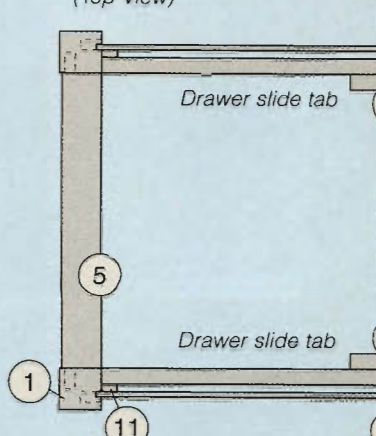


Short Bottom Rail
(End View)



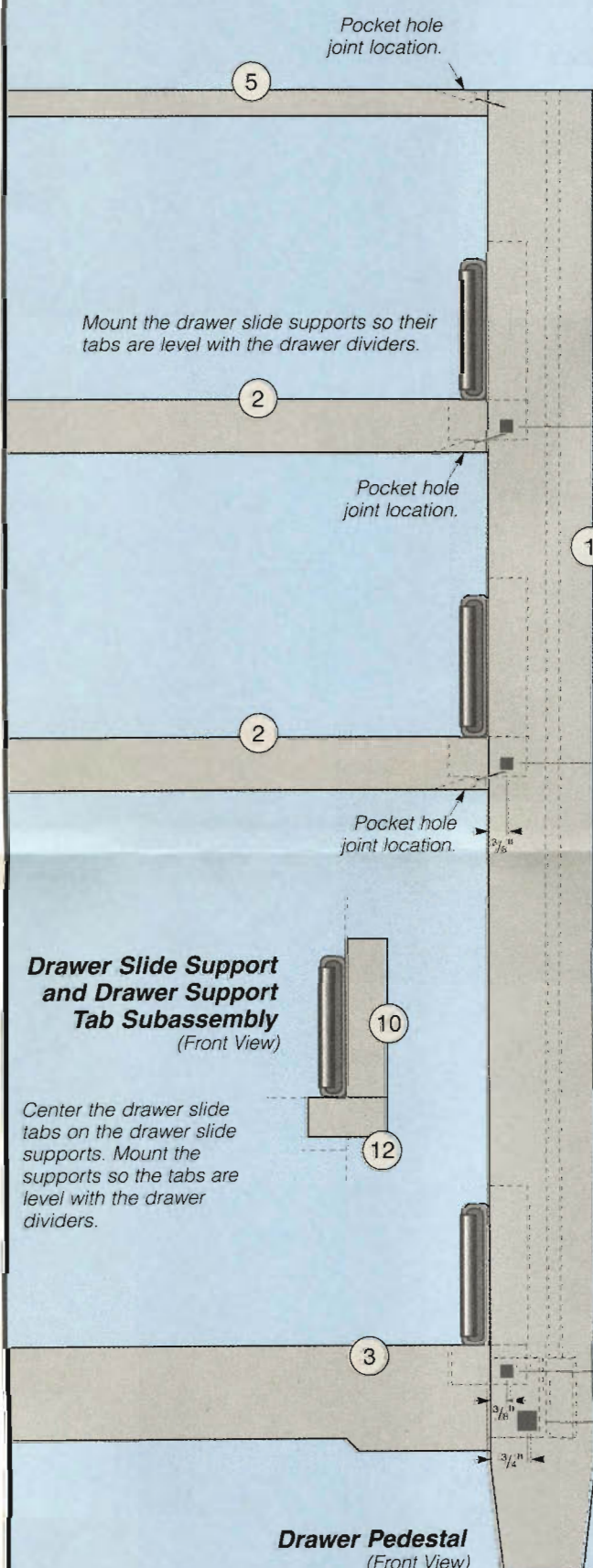
Long Bottom Rail
(End View)

Drawer Pedestal
(Top View)



NOTE: The drawer slide spacers (pieces 11) are 1/8" oversized on the material list. Test fit the pieces before you mount them in place. It is important the spacers hold the drawer slide supports exactly flush to the inside face of the legs.

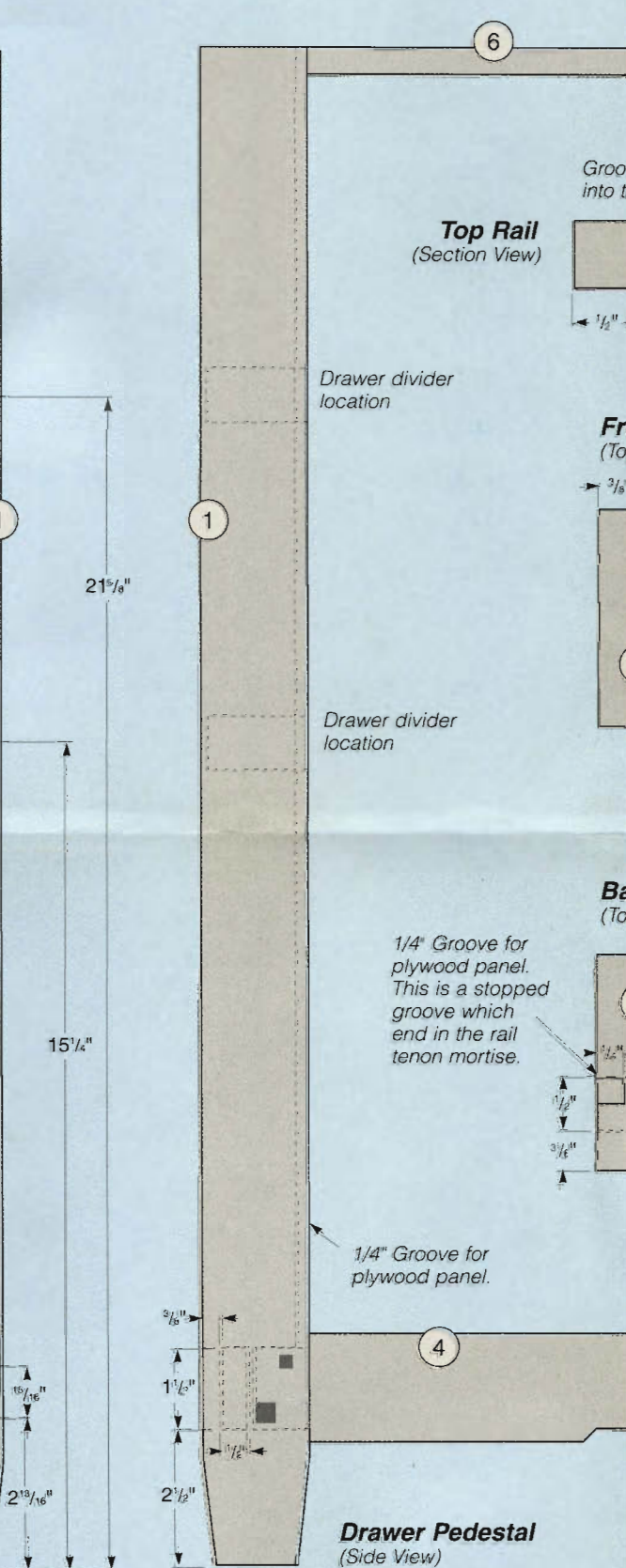
Leg, Panel, Spacer and Support Joinery Detail
(Top View)



Drawer Slide Support and Drawer Support Tab Subassembly
(Front View)

Center the drawer slide tabs on the drawer slide supports. Mount the supports so the tabs are level with the drawer dividers.

Drawer Pedestal
(Front View)



Top Rail
(Section View)



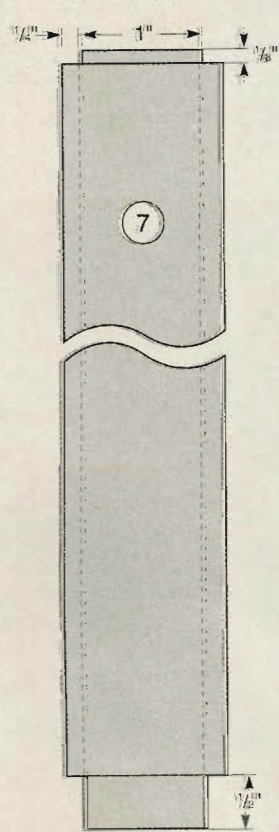
1/4" Groove for plywood panel. This is a stopped groove which end in the rail tenon mortise.

1/4" Groove for plywood panel.

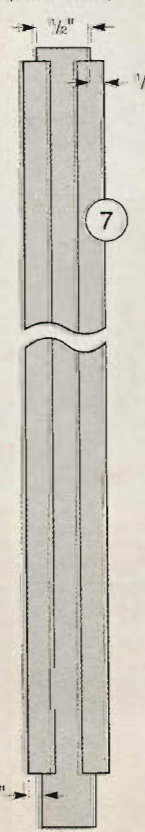
Drawer Pedestal
(Side View)

Panel Stile Details

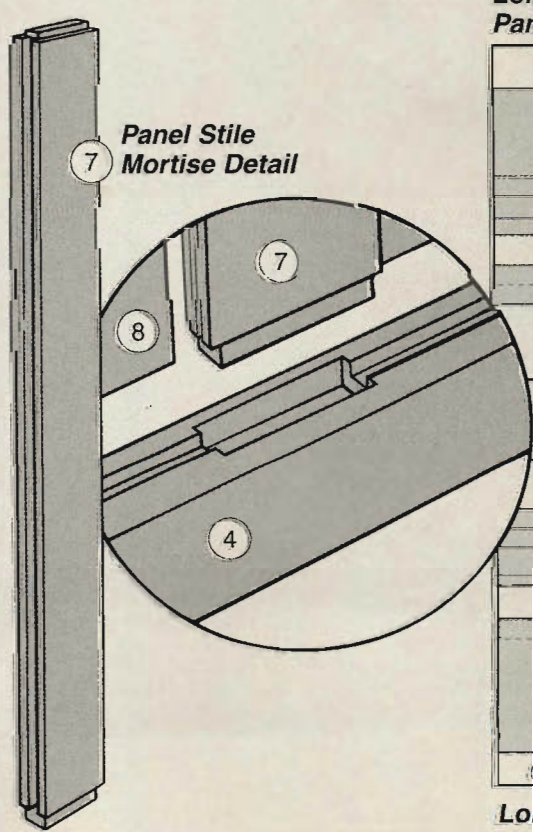
Panel Stile
(Front View)



Panel Stile
(Side View)



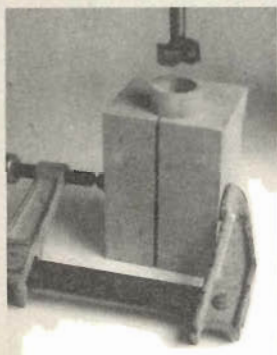
Panel Stile Mortise Detail



Full-Size Patterns

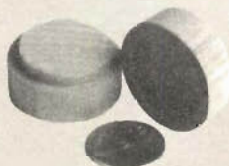
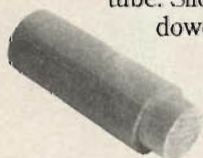
Making your own checkers

Here's a quick and easy way to make a set of checkers to go with your veneered checker board. Use 1 1/2" dowel and a smaller 1" or 1 1/4" diameter dowel for the inside piece. Please note that dowels do vary a bit in their actual diameter, so you may need to vary the speed of the drill press to accommodate variations in the individual dowels. (A slower bit speed will increase the hole's diameter ... go faster and its smaller.)



Start by drilling a hole through a block of wood and slice a kerf intersecting that hole as shown in the photo at left. Use a piece of notched plywood to locate your block's hole perfectly centered under the bit.

Insert the larger diameter dowel into the block of wood, clamp it tightly in place and, with a very sharp Forstner bit (the same diameter as your smaller dowel), bore out the center of the large dowel, creating a hollow tube. Slide a length of the smaller dowel into the larger dowel (left) and, with the aid of a miter gauge, cross cut disks about 3/8" thick. Use a nickel as a spacer to raise the center of the checker just a bit as you glue it in place. Gently sand the checkers smooth and stain them to achieve two different groups of twelve.



PINUP SHOP DRAWINGS

- Open staples carefully, remove pattern and fold staples back in place.
- Use graphite paper (available at art supply stores) or cut and trace full-size patterns onto your stock.
- Cut out the elevation drawings and pin them to your shop wall.



Greene and Greene Inspired Desk

All the elevations. Cloud lift dimensions and joinery information you need to construct this modern classic.

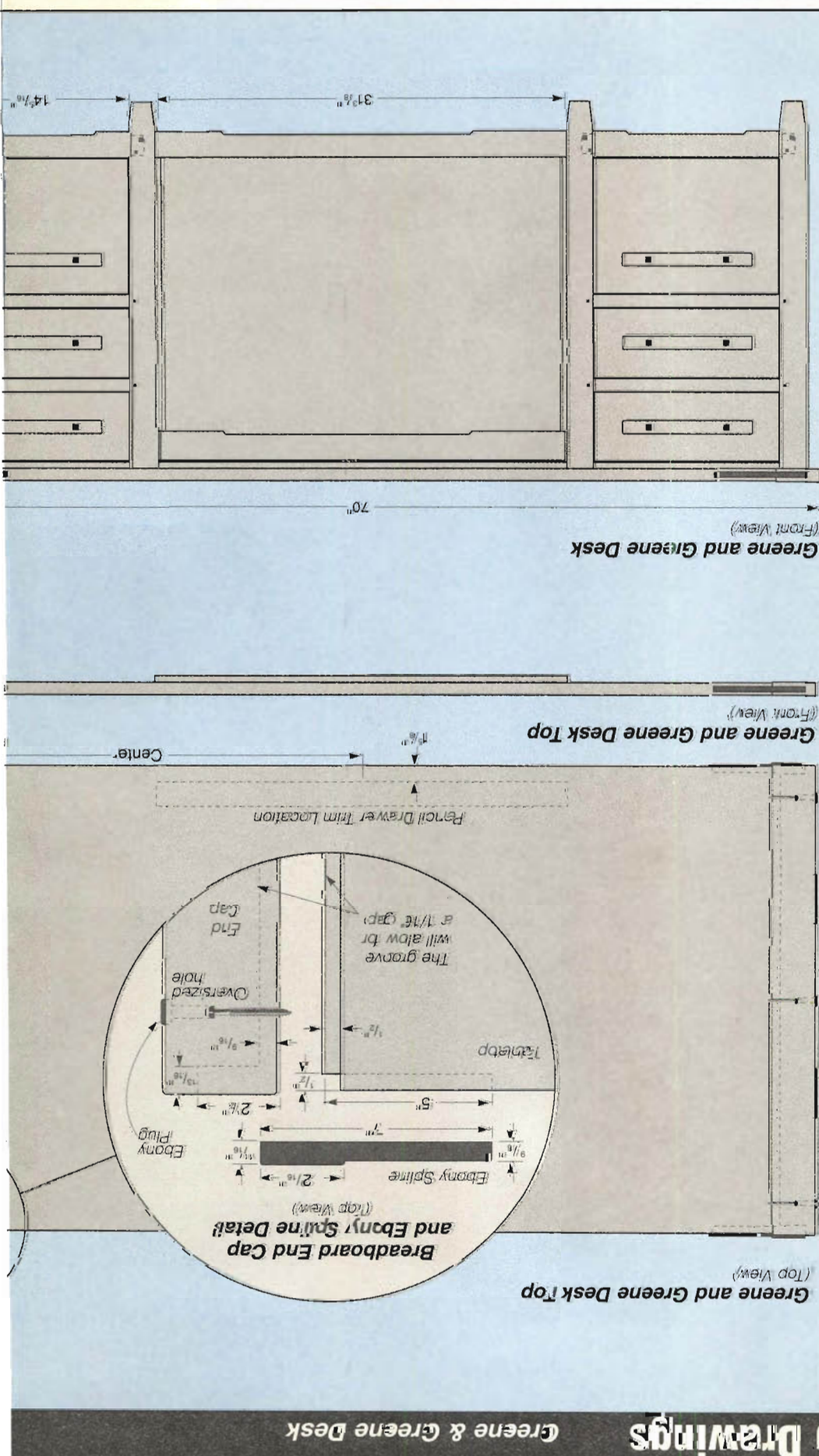
Veneered Checkerboard

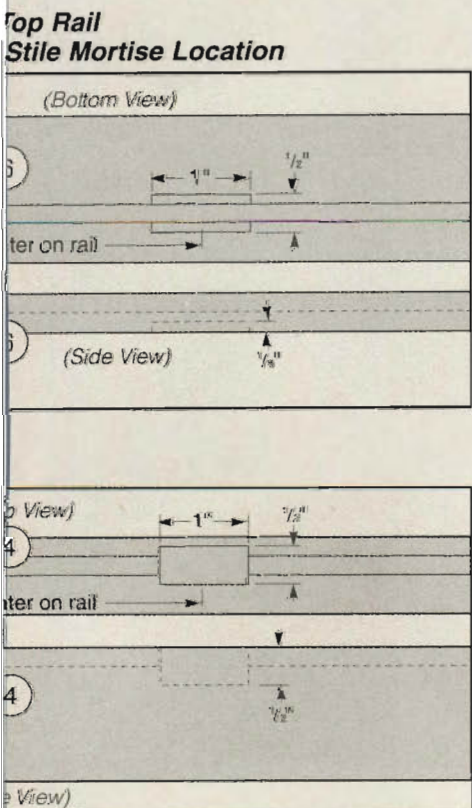
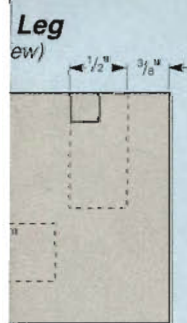
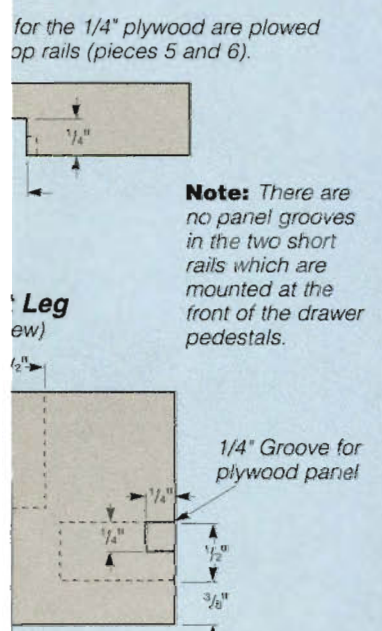
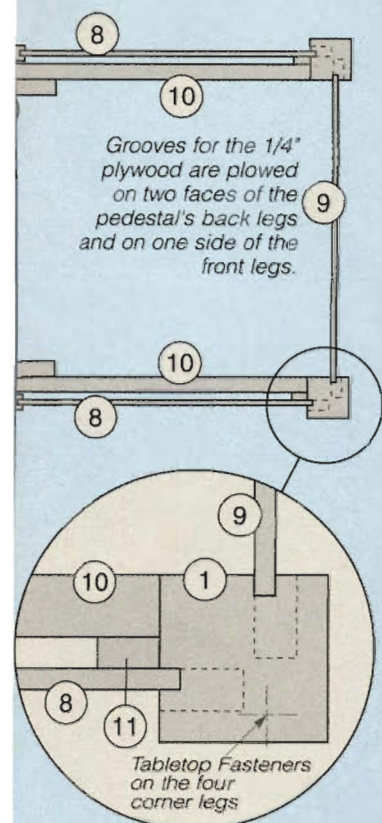
Detailed drawings and instructions for making your own stackable checkers. A great holiday gift



WOODWORKER'S JOURNAL

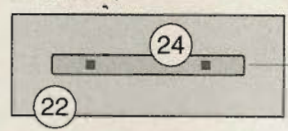
Box 261, Medina, MN 55340-0261.
© 2000, Woodworker's Journal magazine.
All rights reserved.



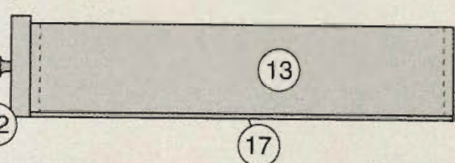


Bottom Rail Stile Mortise Location

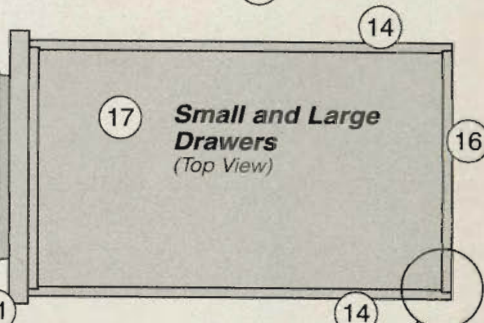
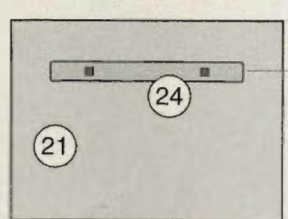
Small Drawer (Front View)



Small Drawer (Side View)

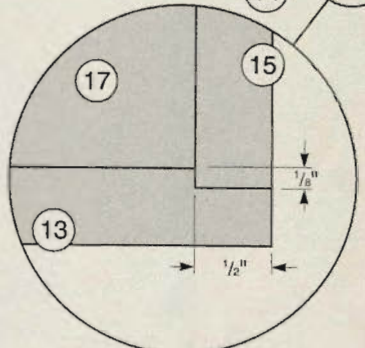


Large Drawer (Front View)

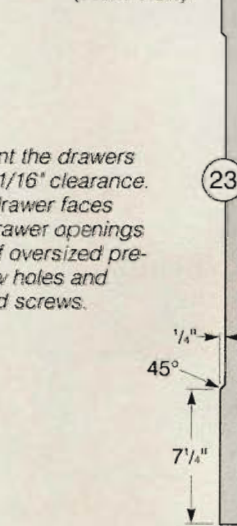


Note: The drawer pulls (pieces 24) are centered on the faces of the four small drawers. The drawer pulls on the large drawers match their placement on the small drawers (see above).

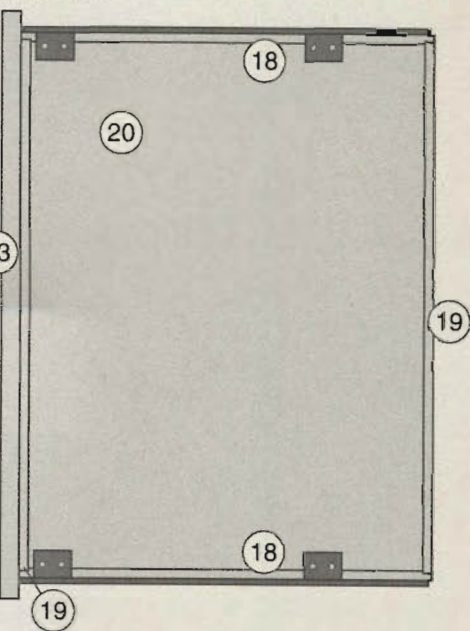
Small and Large Drawer Corner Detail (Top View)



Pencil Drawer Face (Front View)

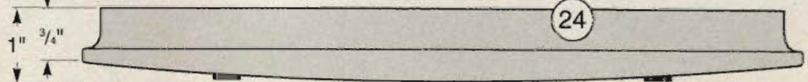


Pencil Drawer (Top View)

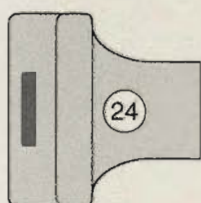
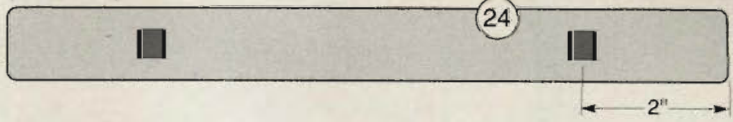


Note: Mount the drawers to allow for 1/16\"/>

Drawer Handle (Top View)



Drawer Handle (Front View)

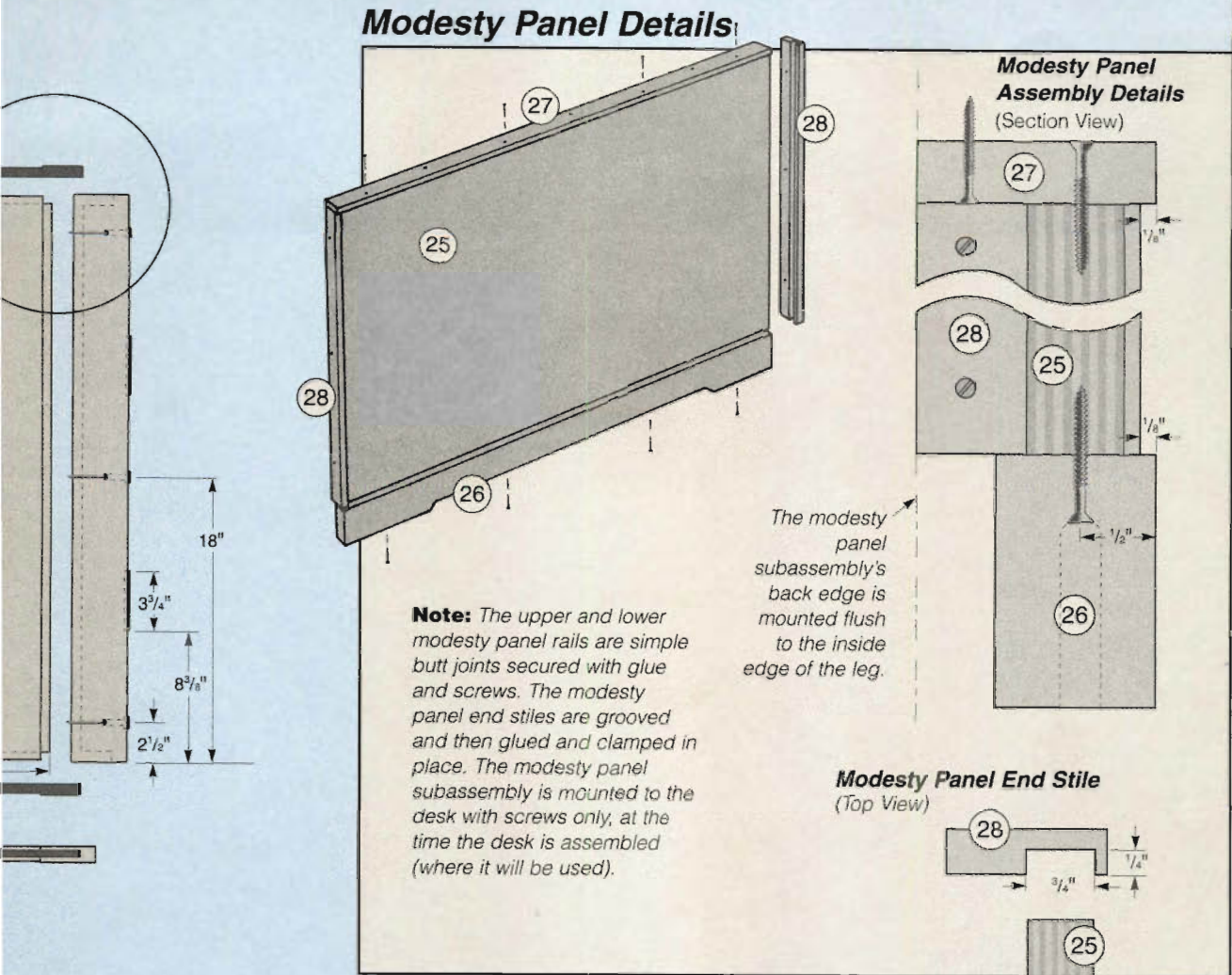


Drawer Handle (End View) Full-Size

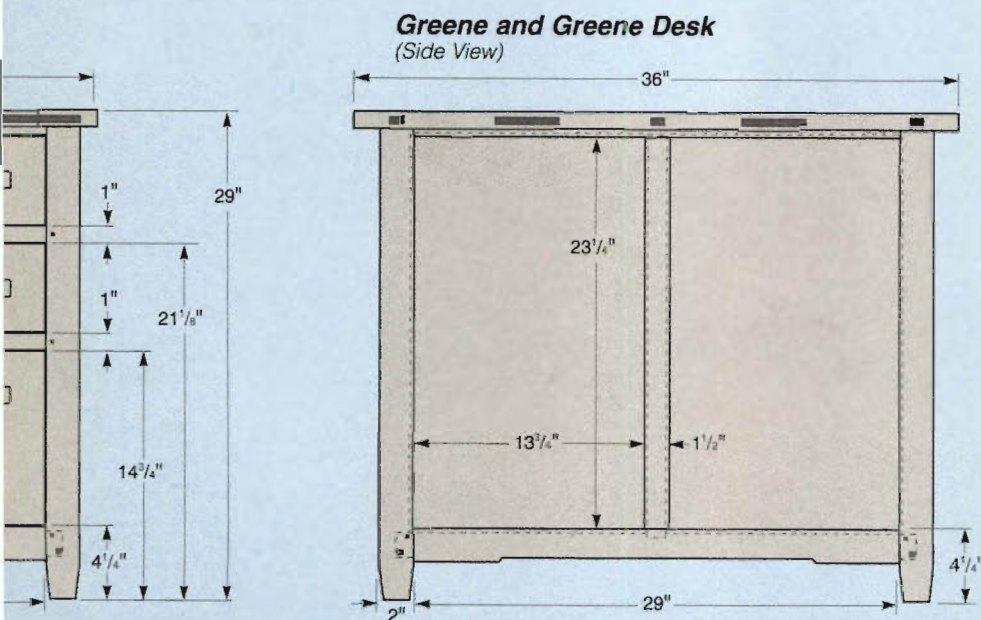
MATERIAL LIST

	T x W x L
1 Legs (8)	2\" x 2\" x 28"
2 Drawer Dividers (4)	1\" x 1 7/8\" x 14 5/16"
3 Short Bottom Rails (4)	1\" x 2\" x 16 5/16"
4 Long Bottom Rails (4)	1\" x 2\" x 31"
5 Short Top Rails (4)	1/2\" x 1 7/8\" x 14 5/16"
6 Long Top Rails (4)	1/2\" x 1 7/8\" x 29"
7 Panel Stiles (4)	3/4\" x 1 1/2\" x 23 7/8"
8 Pedestal Side Panels (8)	1/4\" x 14 1/8\" x 23 5/8"
9 Pedestal End Panels (2)	1/4\" x 14 3/4\" x 23 5/8"
10 Drawer Slide Supports (12)	3/4\" x 3\" x 29"
11 Drawer Slide Spacers (8)	3/4\" x 1/2\" x 20"
12 Drawer Support Tabs (12)	3/4\" x 1 1/2\" x 5"
13 Small Drawer Sides (8)	1/2\" x 4 5/8\" x 22"
14 Large Drawer Sides (4)	1/2\" x 9 1/8\" x 22"
15 Small Drawer Fronts & Backs (8)	1/2\" x 4 5/8\" x 12 9/16"
16 Large Drawer Fronts & Backs (4)	1/2\" x 4 5/8\" x 12 9/16"
17 Drawer Bottoms (6)	1/4\" x 13 5/16\" x 22"
18 Pencil Drawer Sides (2)	1/2\" x 1 3/8\" x 22"
19 Pencil Drawer Front & Back (2)	1/2\" x 1 3/8\" x 28 1/4"
20 Pencil Drawer Bottom (1)	1/4\" x 22\" x 29"
21 Large Drawer Faces (2)	1\" x 10 3/8\" x 14 3/16"
22 Small Drawer Faces (4)	1\" x 5 1/4\" x 14 3/16"
23 Pencil Drawer Face (1)	1\" x 2 1/4\" x 31 1/4"
24 Drawer Pulls (6)	1\" x 1\" x 10"
25 Modesty Panel (1)	3/4\" x 23 7/8\" x 30 7/8"
26 Modesty Panel Lower Rail (1)	1 1/4\" x 2\" x 31 3/8"
27 Modesty Panel Upper Rail (1)	1/2\" x 1 7/8\" x 31 3/8"
28 Modesty Panel End Stiles (2)	1/2\" x 1 3/4\" x 23 1/4"
29 Top (1)	15/16\" x 35 3/4\" x 64"
30 Breadboard Endcaps (2)	1\" x 3 1/2\" x 36"
31 Leg and Drawer Ebony Plugs (22)	3/8\" x 3/8\" x 9/32"
32 Small Ebony Plugs (18)	1/4\" x 1/4\" x 9/32"
33 Large End Cap Ebony Plugs (6)	3/4\" x 3/8\" x 9/32"
34 Long End Cap Ebony Plugs (4)	9/32\" x 3/8\" x 3 3/4"
35 Ebony Splines (4)	3/8\" x 11/16\" x 7"
36 Pencil Drawer Trim (1)	1/2\" x 1 7/8\" x 31 3/8"

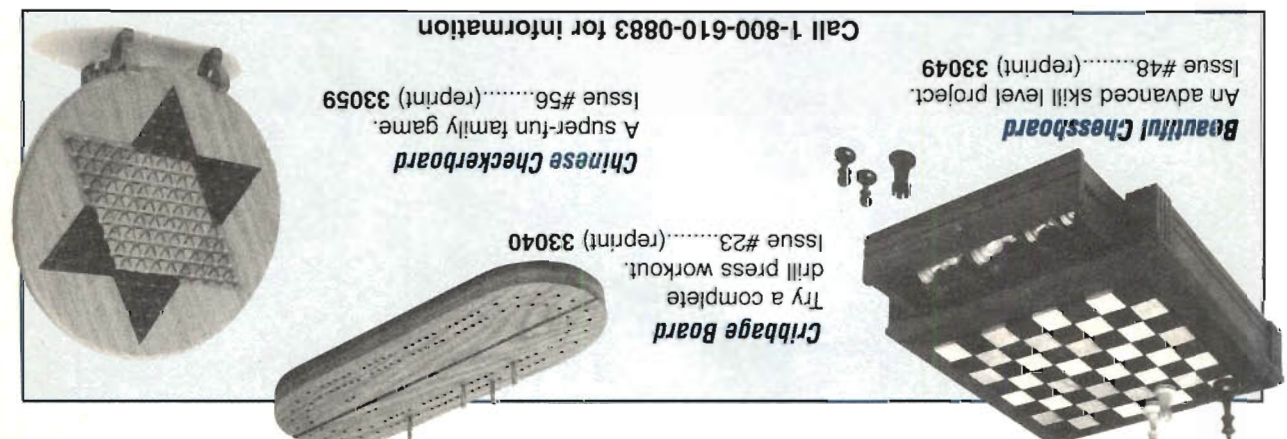
Modesty Panel Details



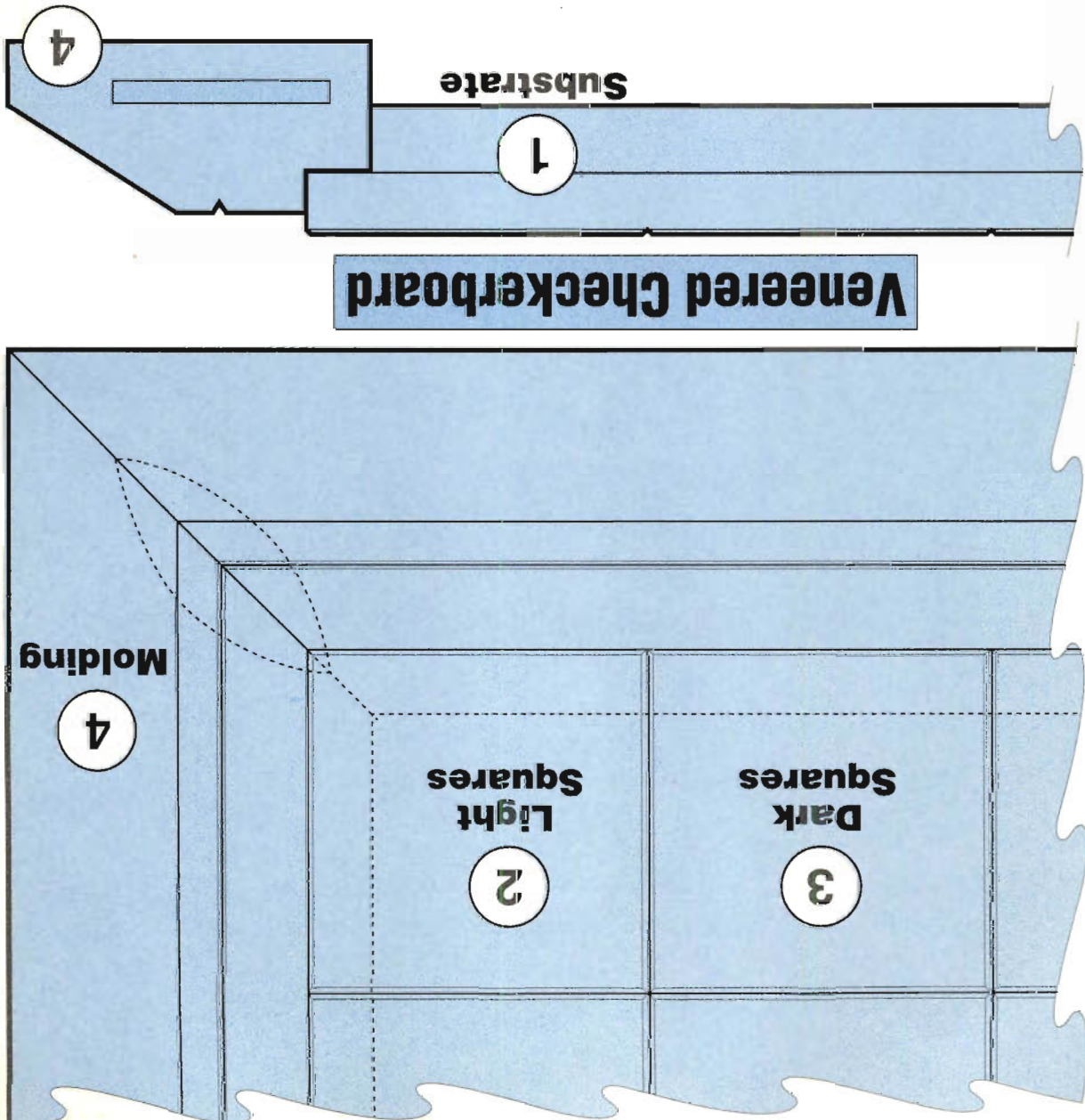
Greene and Greene Desk (Side View)



Other Great Gift Ideas



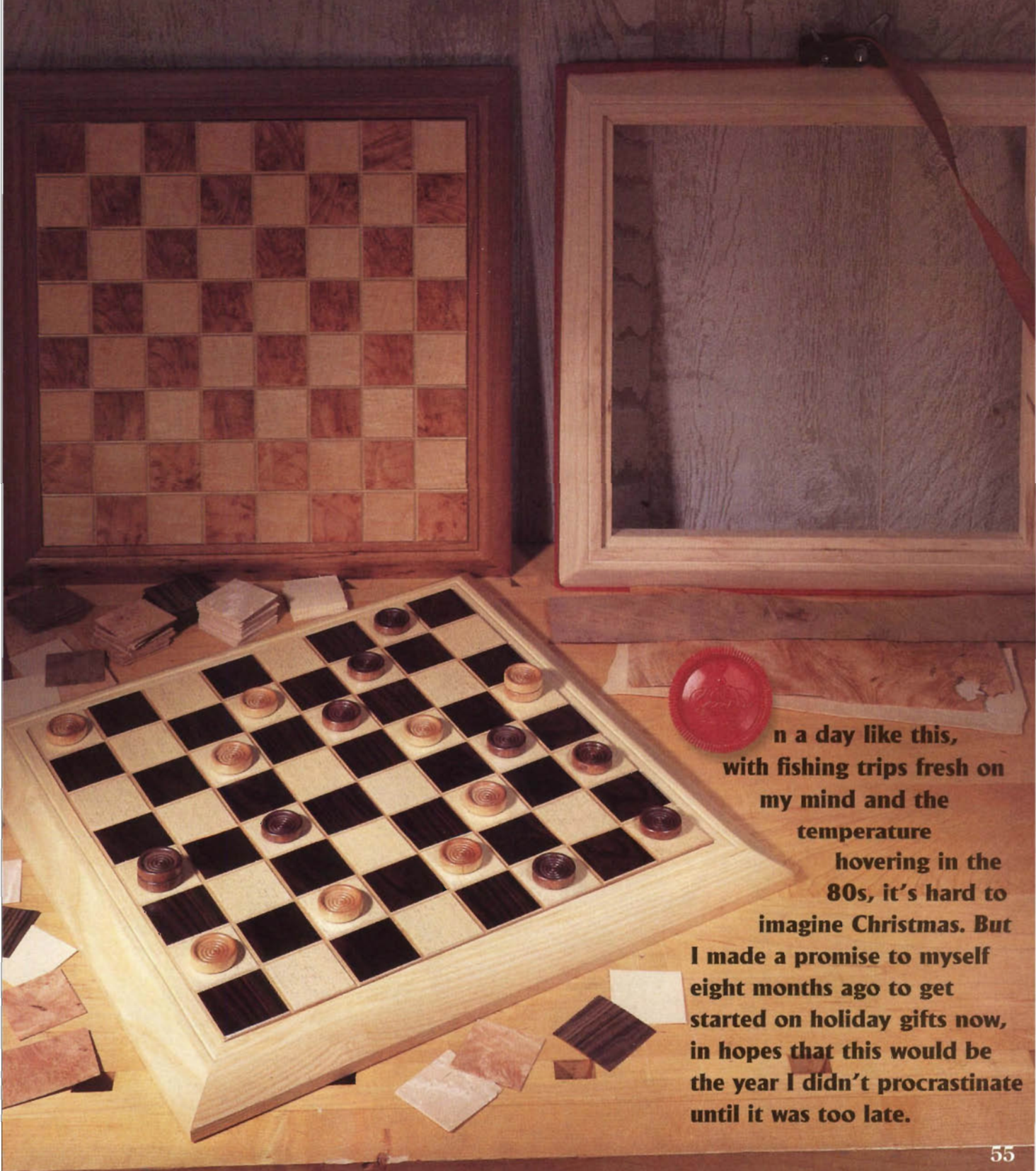
Veneered Checkerboard



Veneered Checkerboard

By Rick White

Brush up on your veneering skills and get an early start on holiday gifts. Production methods allow you to build identical projects that look unique.



In a day like this, with fishing trips fresh on my mind and the temperature hovering in the 80s, it's hard to imagine Christmas. But I made a promise to myself eight months ago to get started on holiday gifts now, in hopes that this would be the year I didn't procrastinate until it was too late.

I wanted to make the same gift for several people on my list, but have each one appear unique. All the leftover veneer I accumulated from the bookcase featured in last issue's *Woodworker's Journal* gave me the perfect idea. By using a few production methods and changing the species, I could build veneered checkerboards that were identical to produce and yet looked different.

Introducing ... Veneer!

If you have never worked with veneer before, this project is a perfect introduction. It calls for small pieces (which are easier to work with) and makes allowances for rookie mistakes. For example, if you don't get all the edges of the squares lined up perfectly, don't worry: this plan calls for a routed V-groove that will eliminate your mistakes.

There are several reasons for choosing veneer. It's a responsible environmental decision, because a clear hardwood log yields 30 square feet of veneer to every board foot of solid lumber. And it allows you to use the Apple Ply[®] core called for in this project, which is far more dimensionally stable than any species of solid lumber. But perhaps the best reason is that it's just a whole lot of fun and a truly rewarding experience.

Picking the Right Species

There are four material choices to make in this project. For the substrate (piece 1), I chose a birch multi-ply board with 15 plies (or layers). This product is widely sold as Baltic or Finnish birch, and is also available as Apple Ply[®]. As a substrate, it is incredibly stable,

void-free and presents a solid edge that can be milled with a decorative profile, then finished.

Your most critical decision will be choosing the veneer species for the squares (pieces 2 and 3). You need to pick two species which will provide a fairly dramatic contrast

when finished. The lighter species should also be available as 3/4" stock, to make the molding (piece 4) that frames the board. Some good combinations are ebony and ash, cherry and soft maple, and my favorite: walnut burl and birds-eye maple. Make sure both veneers are the same thickness (usually either 1/32" or 1/40").

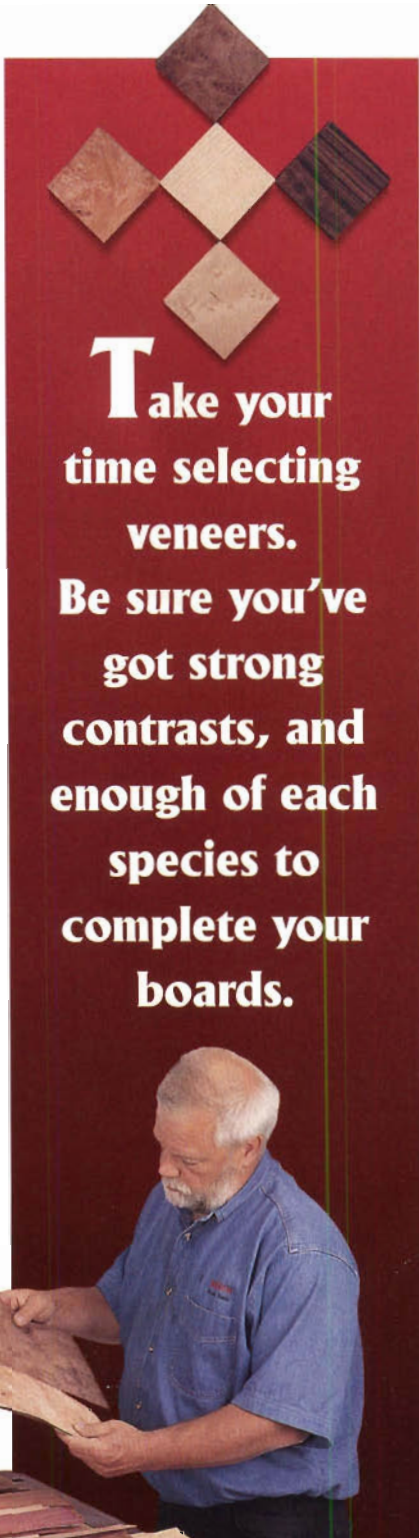
Making a Sandwich

Begin building the checkerboard by cutting the substrate to size (see the **Material List** at right), then turn your attention to the 64 squares of veneer. You can cut enough squares for up to three boards at the same time using the following method.

Select veneer that is at least 4 1/4" wide. On the jointer, dress one edge of each of two pieces of scrap plywood, then sandwich alternating sheets of veneer (first walnut, then maple and so on) between the pieces of plywood. Make sure one edge of each piece of veneer extends past the jointed edges of the plywood, as shown in **Figure 1**. If you have more than eight pieces of veneer, make a second sandwich.

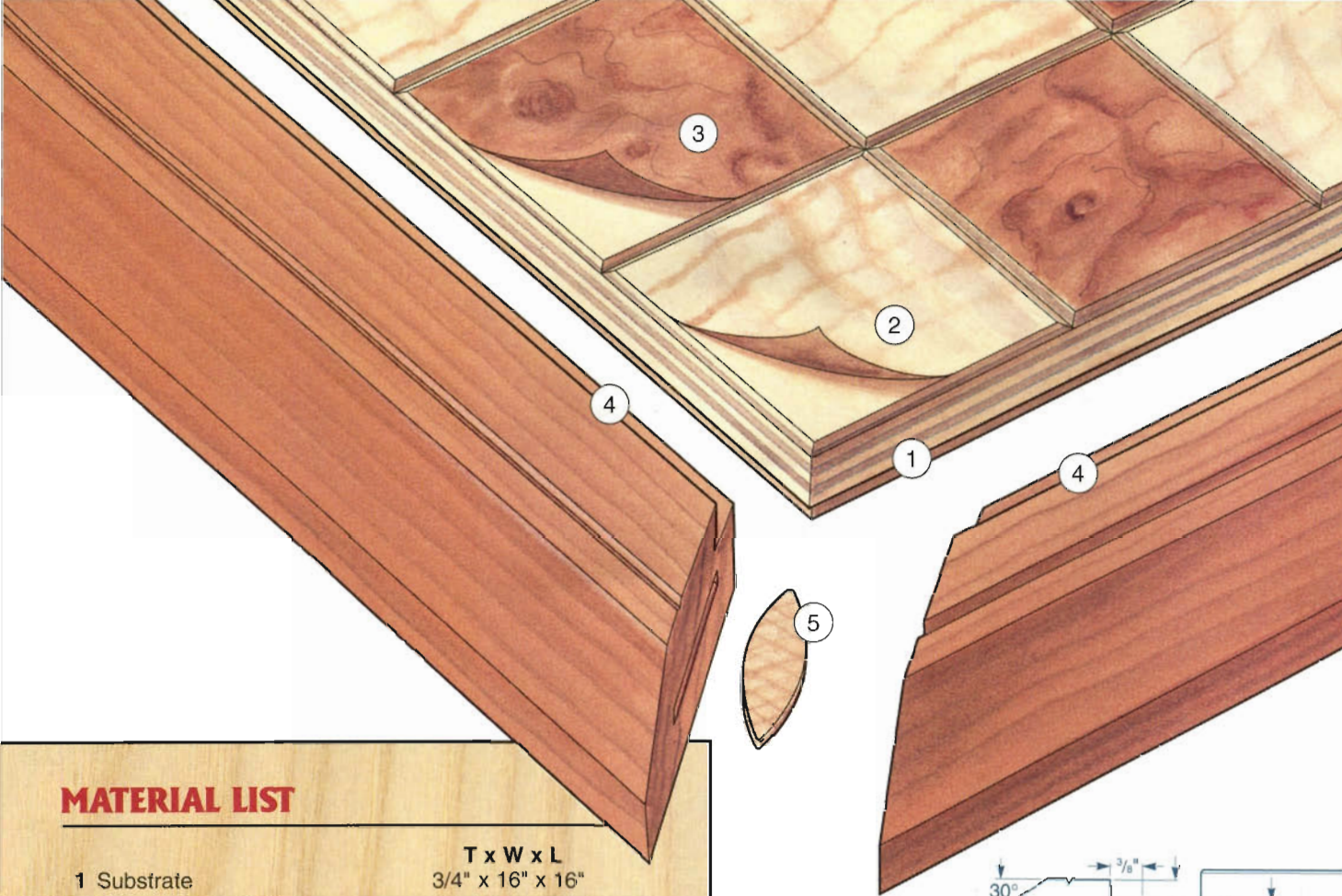
Predrill each sandwich for three sets of countersunk screws (see the **Pinup Shop Drawings** at the center of this magazine for these locations). The pilot holes should be the full diameter of the screws in the top layer of plywood and in the veneers (to prevent splitting the delicate veneer), but only half the thickness of the screws in the lower piece of plywood, to provide some grab. Drive the screws, then use a bearing-guided flush trim bit to simultaneously create a straight edge along all the sheets of veneer in each sandwich, as shown at right.

Leaving the veneer in the sandwiches, set your table saw fence exactly 2 1/8" from the blade. Rip the sandwiches into strips (**Figure 2**), with the previously squared edges against the fence.



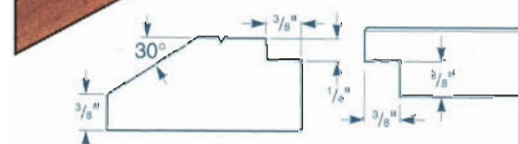
Take your
time selecting
veneers.
Be sure you've
got strong
contrasts, and
enough of each
species to
complete your
boards.

For a project like this checkerboard, a backer veneer isn't necessary. The V-grooves on the top relieve the stress.



MATERIAL LIST

	T x W x L
1 Substrate	3/4" x 16" x 16"
2 Light Squares (32)	1/40" x 2" x 2"
3 Dark Squares (32)	1/40" x 2" x 2"
4 Molding (1)	1" x 2 1/8" x 80"
5 Biscuits, #0 (4)	1 3/4" x 5/8"



**Molding/substrate
Detail**
(Section View)

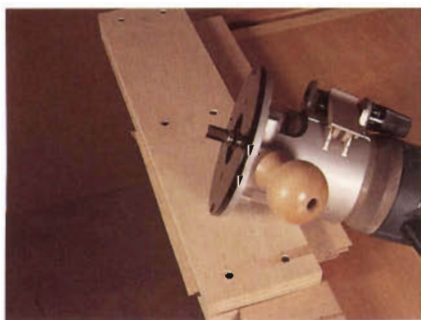


Figure 1: Sandwich several layers of veneer between two jointed pieces of scrap plywood, then use an edge trimming bit to establish a straight edge.

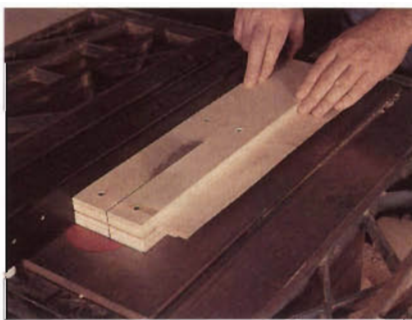


Figure 2: With the straight edge against your table saw fence, rip the plywood, and thus the veneers, into strips. Then joint both edges of each strip down to a 2" width.

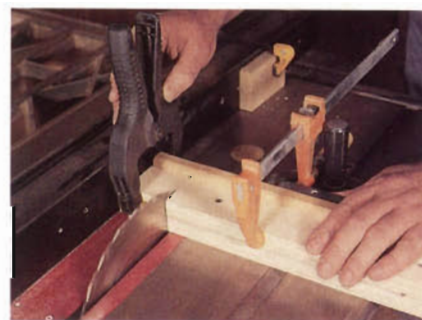


Figure 3: With a fine blade installed in the table saw, cross cut the jointed strips into 2" squares, using a long auxiliary fence and a stop block.

If your veneer was a little over 4" wide, this process will yield two strips. If the veneer was wider, obviously you'll get more.

After ripping, pass both edges of each sandwich across the jointer, taking 1/32" on each pass. The screws will hold the sandwich

together, and the result will be sandwiches exactly 2" wide.

Cross Cutting the Veneer into Squares

Here's the beauty of this production method: you can leave the veneers in their protective sandwiches all the way through the process until

they are actually cut into perfect 2" squares. The next step is to attach a wide auxiliary fence to your table saw's miter gauge, then place a stop on the fence exactly 2" past the far side of the blade (see **Figure 3**).

Install a fine crosscut blade in the table saw — I recommend at least

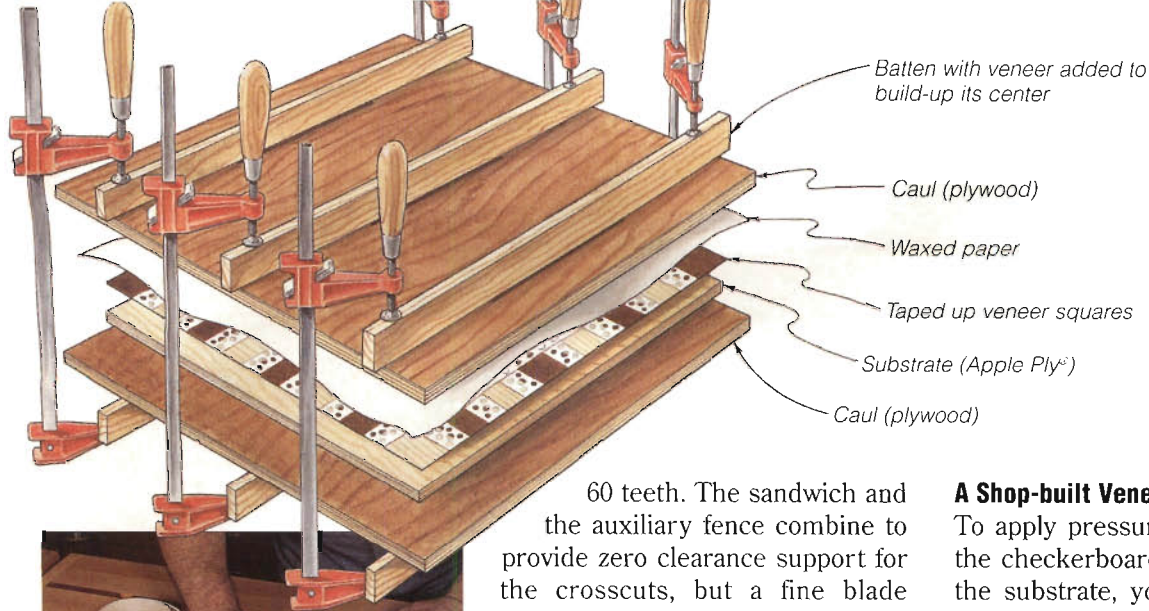


Figure 4: Use special, quick-sanding veneer tape to assemble the squares of veneer into a grid. Apply the tape to the best side.



Figure 5: Apply glue to the substrate only before stacking the assembly in your veneer press. Roll it out for even coverage.

60 teeth. The sandwich and the auxiliary fence combine to provide zero clearance support for the crosscuts, but a fine blade ensures there's no tearout. Trim the first end off a sandwich (including one set of the screws), then carefully proceed along the sandwich, making a cut every 2".

Taping the Squares Together

Once your all veneer squares are cut to size, lay them out on a tabletop and orient them so all the grain patterns run in the same direction. In the first row, you should have a white square on each player's right. Turn the best side up on each square, then start taping them together with veneer tape as shown in **Figure 4**. This is a special soft, paper tape with holes in it to reduce the amount of coverage, and thus the amount of sanding required to remove it. Make sure the lines are straight: a small gap won't hurt, if it's necessary to keep everything aligned.

A Shop-built Veneer Press

To apply pressure to the center of the checkerboard as you glue it to the substrate, you'll need to build a veneer press. (see the illustration above). Inside of two sheets of scrap plywood (called cauls), you'll place the substrate, then the veneer, and on top of that a layer of wax paper.

The press applies pressure in the center first, and then to the outside edges. This is done by means of a series of battens — sticks that are thicker in the middle than at the ends. The easiest way to make them is to simply glue two layers of 7" long veneer to the center of each piece of stock, as indicated above.

Apply standard yellow glue with a roller, spreading an even light coat on the substrate only (**Figure 5**). Carefully lay the taped-up veneer in place, briefly allow it to tack, then assemble the press and apply clamps to the battens.

Milling the V-grooves

After you remove the assembly from the press (give it a day to cure), sand it lightly to remove any residual glue, but don't sand through the veneer.

Install a 45° V-groove bit in your router table and expose 1/16" of it above the tabletop. Make a pass on some scrap, adjusting the height if necessary. Plow the two center grooves in the board (**Figure 6**), then move the fence 2" to make the next series of cuts. Plow four grooves this time, rotating the board 90° after each cut. Repeat the process to complete the decorative Vs. Use the same bit to chamfer the outside top edges of the board, then leave it in the router: you'll need it again in a minute.





Figure 6: Use the same 45° V-groove bit to plow the groove in the top of the frame (inset) as you did for the checkerboard grid.

Completing the Molding

After you have ripped the molding to size, plow a groove into its top face using the same V-groove bit you did for the checkerboard's top (see the inset on the photo above). The **Pinup Shop Drawings** on the center pull-out provide the exact location. Once that's completed, switch to a straight bit to mill the rabbet on the top of the molding (see **Figure 7**), and a matching rabbet on the bottom edges of the

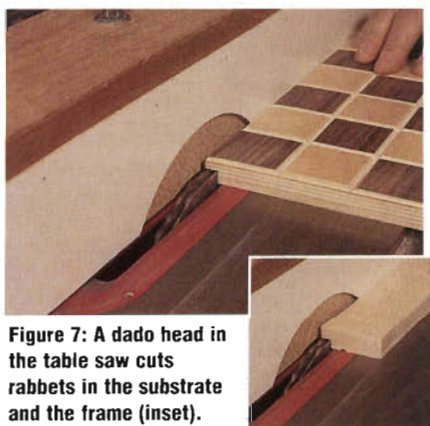


Figure 7: A dado head in the table saw cuts rabbets in the substrate and the frame (inset).

substrate, as shown in the photo above. Complete the molding by setting your table saw blade to 30° and chamfering the top outside edge (see **Figure 8**). Reset the blade to 90°, then sand the molding and miter it to length, dry fitting it to the substrate as you do.

Glue-up and Finishing

If this were a picture you were framing, a coat of glue on the miters and a few clamps are all that would be needed to assemble the frame. However, a checkerboard gets a lot more use than a picture frame, so reinforce the miters with #0 biscuits. Cut the slots, apply the glue and clamp the frame together. Make



Figure 8: Once you've completed the V-groove and rabbet on your molding, switch to a fine rip blade for the chamfer cut. Be sure to use a feather board and push stick for this operation.

sure it's both flat and square as you apply pressure (insert the board while clamping, as shown below, but remove it before the glue sets).

After the glue has cured, apply a coat of glue to the rabbet in the frame and install the checkerboard. Secure it with spring clamps, using pads to protect the veneer.

Sand the entire project with 220 grit paper, then apply three coats of clear satin polyurethane finish: it's durable enough to stand up to heavy use. Sand lightly between these coats with 320 grit paper, then hop in the car and go find some big sheets of gift wrapping paper!

*Rick White is the resident project builder for **Woodworker's Journal** and a contributing editor.*

Checkerboard History

Early in the last century, Sir Gardner Wilkinson discovered a portrayal of King Rameses playing checkers (or draughts) in the ancient temple of Thebes, circa 4000 BC. This verified that the game had preceded chess. Checkers was introduced to Europe from Egypt around 1500 AD.



DeWalt's 746 Takes Flight

By Rick Christopherson

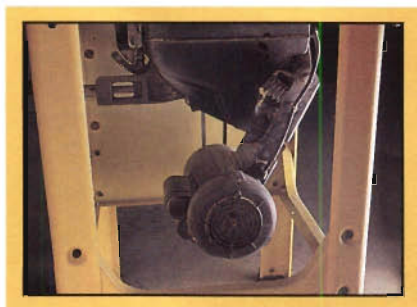


Wow! Power and performance crammed into a bright yellow package so you won't misplace it. But hey, at over 250 pounds, there's probably little chance you'll misplace the new DeWalt table saw, and you won't have to worry about your neighbors borrowing it either.

The DeWalt 746 is neither a contractor's table saw, nor a full-size cabinet saw. Rather, it's billed as a "Woodworker's Table Saw." At first glance, this seemed to be a standard contractor's saw with a different name tag. On closer inspection, it becomes obvious that this saw is indeed different.

Internal Motor; Rigid Base

The first difference that most woodworkers will notice about this saw is the placement of the motor, as shown at right. Instead of hanging out the rear of the base on a hinged support arm, the motor on the DW746 is suspended below the cast iron top for better weight distribution and balance. And the belt tension is not simply controlled by gravity pulling down on the motor, but is assisted by a tensioning spring at the



The motor on the DW746 is mounted below the blade on a hinged elbow. A spring controls belt tension to minimize belt slippage.

elbow of the motor arm. Reduced belt slipping results in better power transfer between the 1 $\frac{3}{4}$ HP motor and the blade.

Less obvious at first glance is the difference in the construction of the base. The DeWalt table saw is very rigid. Four heavy gauge steel legs support the cast iron top. Each leg is one piece from top to bottom, which differs from the typical design of most contractor class saws, which have a sheet metal upper base and separate lower legs. Only a fully enclosed cabinet saw will provide a more rigid base than the DeWalt table saw.



It's easy to reach the large paddle on the ON/OFF switch with your hand or knee. A padlock easily locks the saw.

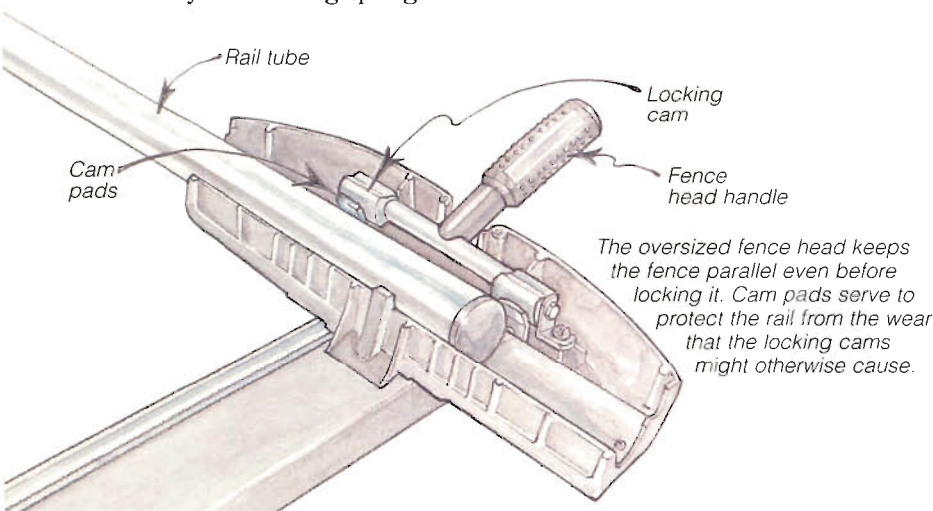
Control Placements

I thought there was an unwritten rule of thumb with table saws: If the blade tilts to the right, the bevel control handwheel is on the left-hand side of the saw, and vice versa. DeWalt's saw breaks that rule, and I like the result. It has the left-tilt blade many woodworkers prefer, yet the handwheel is on the left-hand side, where it's easy to access. On the downside, the handwheels are a little small, and the locking knobs are difficult to loosen once tightened.

The power switch is located to the left of the blade on the corner of the base leg (see photo above). The oversized paddle on the switch makes it easy to shut down without fumbling around looking for a small button or toggle switch.

Dust Collection and Fence

The dust collection system is very effective, due to a shroud which encloses the blade area under the saw. Even without using a shop vacuum, this shroud deposits



Tools by the Numbers

Note: Some early models of the DeWalt 746 presented a problem when setting the fence face perpendicular to the table top. DeWalt has corrected this problem. If you are experiencing difficulty with your DW746, contact DeWalt at 800-433-9258.

Motor.....	1 $\frac{3}{4}$ HP Induction, TEFC
Weight	254 lbs
No-Load Speed.....	3,000 rpm
Max. Depth of Cut	3 $\frac{1}{8}$ " @ 90°; 2 $\frac{1}{8}$ " @ 45°
Max. Dado Width.....	13/16"
Saw Price.....	\$899
Sliding Table Price	\$400
DeWalt Info.....	800.4.DEWALT
www.DEWALT.com	



The author uses the slider to cross cut some sheet stock. Note that the aluminum rip fence is drawn back to prevent crosscut binding.

nearly all the dust into a neat pile behind the saw. Connect the saw to a shop vacuum, and you have very little dust leaving the saw.

For many woodworkers, the first thing you do after you buy a table saw is remove the factory fence and install an aftermarket fence like a Biesemeyer or Unifence. Even though the DeWalt fence isn't as versatile or heavy as these units, it has enough features to hold its own. The standard unit on the DW746 is a T-square fence with a movable aluminum face. The front rail is tubular steel with a chrome plated finish. The importance of this design and chrome finish is that it allows the T-square head to slide easily while fine-tuning the rip fence position. I found that the DeWalt fence slides easier than other fences I've used, making precision adjustments effortless.

The aluminum face on the fence allows you to take full advantage of the sliding table attachment and even comes in handy when using a standard miter gauge. With this setup, you can actually use the fence to ensure accurate crosscuts

without measuring. To avoid binding, you simply pull the aluminum fence back away from the blade, as shown in the photo at left.

One interesting feature of the DeWalt fence is that it remains moderately parallel to the blade even before you lock it into place. This is handy when you are setting the rip-width by measuring at the blade with a tape measure or marking gauge, such as when matching a previous cut or dimension.

Inside the fence head is a continuous slide which rests on top of the chrome fence rail. Gravity alone is enough to keep this slide in line with the rail. The locking cam acts on the underside of the fence rail instead of the front of the rail, as is the case with most other designs.

Sliding Table Attachment

Adding the DW7461 sliding table to the standard DeWalt table saw transforms a good tool into a powerhouse tool any woodworker would fall in love with. The slider is made from cast iron, giving it extremely smooth and solid movement. The stroke length of the table is long enough to cross cut a 30" sheet of plywood and is extremely accurate. One of the most important aspects of a sliding table is the mechanism for travel — the slides. The DW7461 uses full-extension, double-travel slides. As a result, the table is well supported, but doesn't have protruding slide extensions to catch your leg on as you work. When not in use, the table locks into its center position and serves as an extension table.

Tool Preview continues on page 62 ...

SAVE A BUNDLE! BUILD IT YOURSELF!



Hey, Dad!
Grandpa!
Build
me!

Bounty Ship Play Fort

7'6"H x 8'W x 12'L

Build this fort and years of memories for you and your kids. We'll send you a complete set of blueprints and a list of all the materials and hardware you will need to build this project. The Bounty Ship Play Fort has 3 levels, including a hideaway compartment inside. The fort also compliments a sliding board, a ladder, a ramp and a fire pole slide from the top deck to the fort inside.

To order your blueprints, send a check or money order for \$75.00 to:

Playtime Blueprint Co.

14 Independence Way
Doylestown PA 19801

Please allow 2 weeks for delivery.

Order online using your
VISA, MASTERCARD or DISCOVER

Visit our web site for more unique products!

www.playtimeblueprints.com

(Circle No. 32 on PRODUCT INFORMATION form)

ARE YOU READY FOR THE FINAL ANSWER?

ROTOGATE—a rotating blastgate system—automates your dust collector while replacing your old slide gates. Turn on your power tool and Rotogate rotates to align the corresponding inlet and turns on your dust collector. Hook up all your machines all the time and use a smaller dust collector to boot. Neat huh?

Call 785-526-7789 or e-mail zoom@midusa.net

ROTOGATE

RR 2 Box 169, Sylvan Grove, KS 67481



(Circle No. 165 on PRODUCT INFORMATION form)

HARDWOODS

Over 100 Quality Hardwoods
from Around the World

LUMBER • VENEER • TURNING STOCK

GENUINE MAHOGANY

(Southwestern mahogany) • South American

Random 4-12" wide. 6-7' long, surfaced

2 sides. Satisfaction Guaranteed!

4/4 ... **SALE \$3.99** /bd ft

Reg. \$5.99/bd ft 20+ \$3.59/bd ft 100+ \$3.31/bd ft

8/4 ... **SALE \$4.99** /bd ft

Reg. \$6.99/bd ft 20+ \$4.49/bd ft 100+ \$4.27/bd ft

UPS PACK - 4/4 10/bd ft ... \$99.00

Delivered Cont US

www.woodworkerssource.com

for Specials, Current Prices and
Complete Wood Descriptions

1-800-423-2450



WOODWORKERS Source

5402 S. 40th St. • Phoenix, AZ 85040

(Circle No. 199 on PRODUCT INFORMATION form)

TOOL PREVIEW

Miter Gauge

Without the ability to make accurate crosscuts and miters, a sliding table would add little value to a table saw. The miter gauge that comes with the sliding table is an improved version of the Osborne Miter Gauge. Instead of spring-loaded ball-detent stops, DeWalt uses a manual plunger. This means you can set the miter off-angle for tweaking a cut to fit perfectly.

The miter gauge can be set anywhere between +45° and -45° for both right- and left-hand miters, as shown above. It can be used in the standard miter slots, or locked in place on the sliding table. The only drawback is the lack of rigidity. While more rigid than most other miter gauges, I did encounter a little flexibility in the linkage.



The DeWalt miter gauge is a modified version of the Osborne miter gauge and allows for mitering 45 degrees both right and left.

Precision

I pride myself on the accuracy of the tools in my shop. When I unpacked the DeWalt table saw and slider, I was impressed to find the miter gauge was only 0.06° in error — very close to perfect. However, I wanted to see how accurate the rest of the miter stops were. To do this, I needed to start out with the miter gauge set perfectly to 90°. After several attempts, I was able to recalibrate to 90° with a testing error of ±.002 degrees. With this calibration complete, I measured the



To test the angular error of a miter cut, I make multiple wedges to form a circle. This will compound any error, making it easier to measure. Here, the error for a 22½° miter is multiplied 16 times. Very impressive.

cutting errors at the other miter stop settings on the gauge. This level of precision is important if you want to make gapless miter joints. Even though most tools allow you to calibrate at one angle, they don't allow you to calibrate at several angles. I have found some expensive measuring tools to be less accurate than this miter gauge, and that alone speaks volumes for the quality and design of the DeWalt gauge.

Tool Preview continues on page 64 ...

Say Goodbye to your Tape Measure!

Never again rely on a tape measure to set your fence. The INCRA-TS delivers perfectly parallel, repeatable machine shop accuracy to your table saw.



Thousands have made the change, order the free video and see why!
"Inkra tools work — exactly as promised!"

Call NOW for your FREE Video
800-752-0725



Woodpeckers Inc.
The Inkra Tool Source
www.woodpeck.com

Distributed by Woodpeckers, Inc.
P.O. Box 29510 • Parma, Ohio 44129 • 800-752-0725

Everything a drum sander should be!

The original, made in the U.S.A., **16-32 Rus** benchtop drum sander offers these exclusive features:



- 5" dia. **self-cooling drum** for hours of steady use.
- Patented self-tightening abrasive **take-up fasteners** for quick change of abrasives.
- Patented **TRACKERS** automatically keep the conveyor belt centered.
- No-give **POWERFEED CONVEYOR UNIT** for precise dimensioning to within .010" uniform thickness.
- **INFEED & OUTFEED TABLES** add 3 sq. feet of workspace.
- Optional zinc-plated **METALSTAND** and caster set.

Only Performax offers 12 sanding models with drum widths from 16" to 50".

* INFEED & OUTFEED TABLE offer good until 12/31/00

Call: 800-334-4910
Visit us at: www.PerformaxProducts.com

INFEED & OUTFEED TABLES included for a limited time!

The power to shape your ideas

PERFORMAX

JET, Performax and Powermatic — A Family Of Brands

COMMAND PERFORMANCE



★ ★ THE ★ ★ GENERAL

In a test of multi-purpose 10" saw blades Wood Magazine declared that general purpose 40-tooth ATB's outperformed the conventional 50-tooth ATB/R combination blades. If you're looking for the ultimate all purpose work horse, let the CMT General lead you to battle. For fast, clean crosscuts and rips in hardwoods and laminates victory is sure to be yours with CMT. Wood Magazine was "tickled pink" with the performance of our thin kerf General. You will experience similar emotions.

CMT

the only ORANGE one™

(Circle No. 26 on PRODUCT INFORMATION form)

CMT USA, Inc.
307-F Pomona Drive
Greensboro, NC 27407
888-268-2487

www.cmtusa.com



Kreg's Pocket Hole Jig

By Jim Barrett

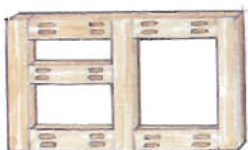
Pocket holes: I know you've seen 'em, but have you ever tried 'em? If not, you may find the technique to be head and shoulders above other conventional forms of joinery in terms of speed, simplicity and strength.

The process is stone simple, taking only a few minutes — no tedious cutting, drilling, clamping, or expensive equipment involved. The self-tapping pocket screws join the pieces immediately, so you won't need a bunch of clamps to keep things together while waiting for the glue to dry. On the downside, most pocket hole jigs, including the Kreg jig previewed here, are designed to join 3/4" thick stock — the 15 degree hole angle and start point of the holes roughly centers the exit point of

the screw in the end grain of stock this thickness. However, you can "tweak" some of the jigs, including the Kreg, to join thicker or thinner workpieces, as I'll explain presently. Also, pocket holes do leave their mark on the wood surface (and a big one, at that), so take this into account when determining hole locations so they're hidden from view on the finished project.

To do the magic, all you need is a pocket hole jig, a portable electric drill, and a few basic accessories: a stepped drill bit with stop collar (to drill the screw pocket and shank diameter in one step); self-tapping, square-drive pocket hole screws and matching driver; and a single clamp, to keep components aligned when driving screws.

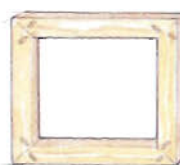
Typical applications for pocket hole joinery



Face frames



Post and rail legs



Mitered frames

Why I Chose the Kreg K2

In the search for a happy medium between the cheapest and most expensive jigs on the market, I settled on the Kreg K2 for this review, as it offers excellent speed, accuracy, durability, and versatility — at a middle of the road price.

If your work requires you to routinely drill pocket holes, but you don't want to drill a large hole in your pocketbook, this jig can save you loads of time and is fun to use as well.

The basic Kreg K2 jig includes a 3/8" stepped drill bit and stop collar, sample pack of screws and comprehensive instruction manual. I prefer the Kreg's "Master Pack" kit, which also includes a face clamp, 3" and 6" square-head driver bits, and a pack of 100 fine-thread screws. This version will set you back another \$20, but is well worth it, as it enables you to start work immediately on most projects.



Relief holes on the backside of the jig prevent sawdust buildup inside the guides.

Some of the features I liked on the Kreg included an integral toggle-type clamp with a large plastic foot that doesn't mar the workpiece and a sturdy L-shaped aluminum base enabling you to mount the jig to a bench as a portable work station. These two features alone are real time-savers, setting the K2 well above

Tools by the Numbers

Guide Diameter 3/8"
Outside Spacing 1" to 1 1/4"
Material Thickness 1/2" to 1 1/2"
Center to Center 7/8"
Materials aluminum/hardened steel
Price \$120.00

More Info 800-447-8638
www.kregtool.com

the "clamp-to-the-workpiece" types I've used in the past, many of which require separate clamps and take considerably more fiddle-futz to align properly.

As you'll notice in the photos, I made a simple "work station" base from 3/4" plywood, which enabled me to quickly secure the jig to my bench; the two-piece base also provides extra support on either side of the jig when drilling holes in wide or large pieces — the plans for this are covered in the manual that comes with the tool. Reference marks on the vertical leg of the jig make it easy to align the dual guide holes to the workpiece. The Kreg also sports hardened steel bushings running the full length of the guide holes (as opposed to the replaceable screw-in inserts on most

other jigs, which support only a small portion of the bit shank). In my tests, the squeaky tight tolerance between the bit and guide bushings resulted in clean, accurate holes and promised a longer bit life. Also, relief holes on the back side of the jig aid in chip clearance. The Kreg carries a lifetime warranty, should the bushings ever wear out.

The twin guide holes enable you to join face frame pieces from 1 1/4" to 2" wide without unclamping and reclamping the workpiece.

How It Works: Quite Simply

In my tests, the Kreg was surprisingly quick and easy to use for conventional face-frame assemblies and didn't take a whole lot of figuring out to join 3/4" plywood carcasses. Here are the three basic steps, pictured on page 66:

Step 1. Insert the stepped counterbore bit into one of the guide holes, then secure the stop collar on the bit so the pilot point stops about 1/8" shy of the jig base. (I used a nickel as a handy gauge.) This setting prevents the pocket hole from being drilled too deep or too shallow.

Step 2. Clamp the jig to the workbench, then align and clamp the workpiece to the jig using the

Tool Preview continues on page 66 ...

Do-It-Yourself

AND SAVE MONEY!

- ♦ Heirloom Quality Kits
- ♦ Grandfather Clocks
- ♦ Mantel & Wall Clocks
- ♦ Fully Assembled Available
- ♦ Satisfaction Guaranteed



**SEND FOR A
FREE CATALOG
TODAY!**

Emperor Clock, L.L.C.
 Department 7403
 PO Box 1089
 Fairhope, Alabama 36533
 334-928-2316

Visit our web site at <http://www.emperclock.com>

(Circle No. 133 on PRODUCT INFORMATION form)

ACCUSQUARE GOLD

MILLENNIUM Try as I did to find something, there was nothing on the Accusquare fence that I could find fault with. Graham McColloch, Canadian Woodworking Magazine Oct./99

The BEST Tablesaw Rip Fence...
 and we protect your investment with our
**GOLD STANDARD
LIFETIME WARRANTY**
 And your complete satisfaction... **90** days



- Dual hairline cursor
 - When you lock an Accusquare it STAYS parallel!
 - Spring loaded locking device - Always stays SQUARE as you move it!
 - Metal to metal locking ensures the fence will not move when locked in place. And it doesn't "creep" when you lock it down!
 - The ONLY Rip fence made exclusively from Accurate Aluminium Extrusion and State of the Art C.N.C. Machined Steel parts!
- Factory Direct Prices saves you Money**
Commercial Quality fence ensures...

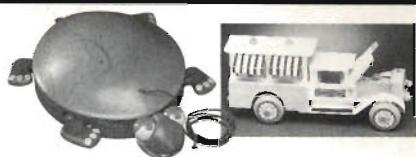
THE RIGHT CUT EVERY TIME
 TOLL FREE ORDER LINE
1-877-684-7366

Fax: 905-898-5114 Email: accusquare@home.com

(Circle No. 155 on PRODUCT INFORMATION form)

Free Catalog!

Clocks • Whirligigs • Toys • Wood parts
Clock parts • Plans • Kits & more!



See our **NEW** Spring items
and hundreds more in our
FREE 2000 Spring/Summer Catalog!
Fill in the info below and drop it in the
mail or call today!
1-800-848-4363 ext. WJ100

Name: _____

Address: _____

City: _____

State: _____ Zip: _____

Phone: _____

e-mail _____

CherryTree

Box 369 • Belmont, OH 43718
Toll Free FAX: 1-888-848-4388
www.cherrytree-online.com



(Circle No. 108 on PRODUCT INFORMATION form)

TOOL PREVIEW

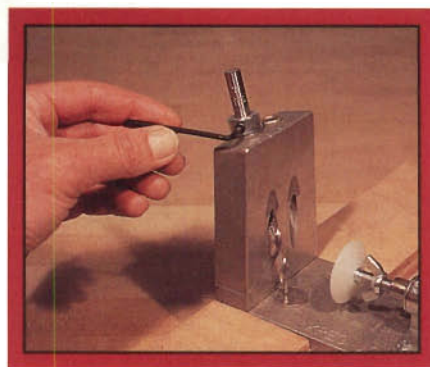
reference marks on the top edge of the jig. Mount the workpiece with the "good side" facing you, so you're drilling the holes through the back side. It's only necessary to drill holes in the ends of one piece, as the self-tapping screws are designed to pierce the mating piece without predrilling pilot holes. Align one side of the piece to the outside mark on the jig, drill the hole, then align the opposite side to the other outside mark and drill the second hole. And, yep, test the screw depth and spacing on scrap pieces first!

Step 3. Apply glue to the mating pieces, then clamp them together, making sure the adjoining pieces are flush. Drive in self-tapping square drive screws. Once the screws are tight, remove the clamp and go right to the next joint.

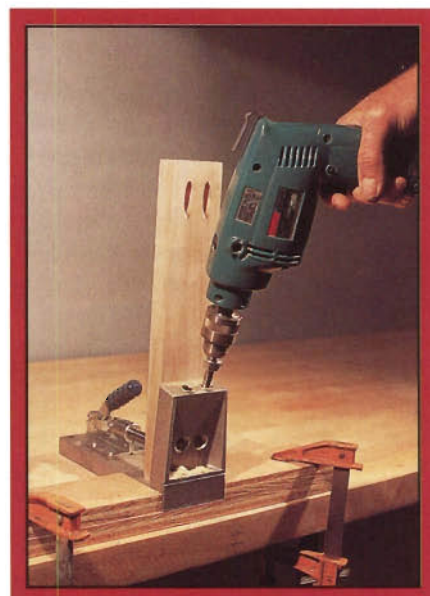
The drawings on the first page of this article show some common applications for pocket hole joinery. Another very useful application involves joining pieces of 3/4" plywood for cabinet carcass assembly. To do this, drill pocket holes every four to six inches along the back side edge of one piece, then align the first piece to the second and insert the screws. A similar process can be used to apply edge bandings for shelves or countertops.

Although the jig works best on 3/4" stock, you can join pieces from 5/8" to 1" without making any adjustments. To join 1/2" stock, you place a 3/8" shim underneath the workpiece and adjust the depth collar so the drill tip is 3/8" above the jig base. This places the exit hole roughly centered in the end grain. To join two 1/2" pieces, you'll need shorter (1") screws.

For stock over 1" thick (such as table legs), you can drill holes and drive screws on two or more sides.



Step 1: Use the stop collar to set the bit about 1/8" above the jig base. The author uses a nickel as a handy guide.



Step 2: Clamp the jig to the bench and insert the bit into the guide hole; allow the drill to come up to full speed before starting.



Step 3: Apply glue to the mating pieces and clamp together, making sure the pieces are flush. After driving screws, release the clamp.

The jig will take stock up to 1 1/2" thick, although you'll need to remove the wing nut on the clamp screw to achieve this.

MAKE YOUR SHAPER AND MOULDER KNIVES
with the new **VIEL** PROFILE COPYING GRINDING MACHINE
VHS VIDEO \$9.95 (credited against machine purchase)
• Grinds knives directly in the toolholder
• Makes distortion-free profiles
\$699.00 Only
CALL 1-800-915-2601
Master Card

VIEL TOOLS INC.
P.O. BOX 660, MADAWASKA, ME. 04756-0660

(Circle No. 87 on PRODUCT INFORMATION form)

ROUSSEAU COMPANY
FREE CATALOG
800-635-3416 • www.rousseauco.com

(Circle No. 161 on PRODUCT INFORMATION form)

Pocket-hole Coverups

The main drawback of pocket hole joinery is the long open screw mortise left on the surface of the workpiece (a case in point for joining the pieces so these are hidden). If you must join pieces with visible holes, you can plug them with a dowel of the same diameter (typically 3/8"), then pare the protruding ends flush to the surface. Kreg does offer precut pocket hole plugs (available in oak, maple, walnut, cherry, poplar, pine, and hickory; \$3.85 for 25, \$9.95 for 100). Simply glue the plugs into the holes, clamp in place until the glue dries (a spring clamp works well for this), then sand flush. Plugs of contrasting colors can add interest to the finished piece, as shown in the photo above.



The company offers precut wood plugs in a variety of wood species. Here, I used a plug of a contrasting color (walnut) to add visual interest.

Parting Thoughts

As I found out in my tests, the Kreg is a sturdy, well-designed jig that enables you to make precise pocket hole joints in a jiffy. I'm especially impressed with the comprehensive, 20-page instruction manual that comes with it. The well-illustrated manual provides precise how-to

instructions for a variety of practical applications, such as angled joints, curves, mitered corners, beveled 90 degree corners, post and rail joinery, tabletops and aprons, edge banding, stairs, outdoor furniture, Euro-style cabinets, and more.

Kreg also offers a load of accessories for this tool, including drill and driver bits, manual drivers, an assortment of pocket screws and wood or plastic plugs, an extension plate (for drilling holes in stock over 3" thick), replacement clamps, hand- and foot-operated pneumatic retrofit kits, project plans, and even some miscellaneous cabinet hardware and finishing supplies.

Jim Barrett's tool reviews have been featured in Woodworker's Journal magazine for over 10 years.

CNC under \$5,000



ShopBot®
The Workshop RoBot

ShopBot
PRT96

**Personal Robotic Tools
for Productivity and Flexibility**

(919) 680-4800 • Durham, NC
Fax (919) 680-4900
888-680-4466

www.ShopBotTools.com

(Circle No. 33 on PRODUCT INFORMATION form)

Earn Up To \$2,000 per Weekend
With **COUNTRY CRAFTS**
Low Start Up Cost

Build small wood furniture at home.
Start out in your spare time & expand
the business at your own pace.

Example: **Deacons Bench**
Selling Price 39.95 Material Cost 8.00
Production time: 30 min.

For Free Info Pak Call
(800) 382-3180 Ext 7090
COUNTRY CRAFTS

(Circle No. 132 on PRODUCT INFORMATION form)

**Quality Pen Kits
and Other Turning Kits**



- Designers & Manufacturers
- Wholesale & Retail

THE BereaHardWoods CO. Inc.
Manufacturer of quality writing instruments, components and kits.

CALL FOR FREE CATALOG
6367 Eastland Rd. • Brookpark, Ohio 44142 U.S.A.
Ph: 440-234-7949 • Fax: 440-234-7958 • bereahard@aol.com

(Circle No. 7 on PRODUCT INFORMATION form)

NO MORE DUST



Introducing Microplane® Rotary Shaper Power Tool Attachments
for low-speed shaping. The razor-sharp teeth create tiny shavings that fall to the surface instead of clouding your air.

Call 501-968-5455 or
1-800-555-2767
• dealer inquiries encouraged

www.microplane.com email: info@microplane.com

Microplane®
A Product of Grace Manufacturing®

(Circle No. 163 on PRODUCT INFORMATION form)

FREE TOOL CATALOG!

Your Best Work Starts With Us...

With over 8,000 of the finest woodworking tools in the world, Woodcraft can help you work more efficiently and skillfully than ever.

Call for your Free copy today.

Visit one of our stores! Call for the location nearest you.

1-800-542-9115

www.woodcraft.com



WOODCRAFT
Helping You Make Wood Work®

560 Airport Ind. Park,
Dept. 00WJ09Q,
PO Box 1686, Parkersburg,
WV 26102-1686



(Circle No. 25 on PRODUCT INFORMATION form)

WOODWORKER'S
JOURNAL *eZine*

Free Online Woodworking Magazine

Join the fastest growing electronic woodworking community – all the Web's woodworking news delivered directly to your e-mail box – every two weeks – for **FREE!**

woodworkersjournal.com/ezine/subscribe.cfm

Hardwood Showcase

Shopping for hardwoods has never been so easy!

WEST PENN HARDWOODS, INC.

"BEST VALUE" ROUGH PACK
100BF, ROUGH, 3' - 5' L, 3" - 10" W,
CLEAR 1-FACE,

RED OAK \$185, CHERRY \$300
WALNUT \$270, SOFT MAPLE \$185,
POPLAR \$125, ASH \$155, and more

BUY 300BF, GET \$50 OFF!

www.westpennhardwoods.com
(888) 636-WOOD (9663)

(Circle No. 84)



NIAGARA LUMBER

**YOU'LL APPRECIATE
OUR DIFFERENCE**

Prepaid Freight • Surfaced • Bundled •
Shrink Wrapped • Guaranteed

- All lumber is Select and better grade, 4" and wider, averaging 6"-7" in width, lengths are 6'-8'. All stock meets or exceeds National Hardwood Lumber Assoc. grade rules.
- All domestic lumber is Northern Appalachian grown, exhibiting characteristics of fine grain, texture and uniform color.

Visa/Mastercard/Discover accepted

**NIAGARA LUMBER &
WOOD PRODUCTS, INC.**

47 Elm Street
East Aurora, NY 14052

Call Toll-Free 1-800-274-0397

www.niagaralumber.com

(Circle No. 196)

HARDWOOD ADVANTAGE PACKS!

25bf 30"-60" L, 4-10" W, S2S TO 13/16" clear 1 face
Cherry \$98, Red Oak or Maple \$84, Poplar \$62

➤ **CALL 800-724-0132**

We pay most UPS shipping. Catalog \$1 (free with order)

SHORT PACKS TOO - www.bristolvalley.com

BRISTOL VALLEY HARDWOODS

4054 Rt 64 at Rt 20A, Canandaigua, NY 14424

(Circle No. 64)

Badger Hardwoods of Wisconsin, Ltd.

(800) 252 - 2373

17 Species of Hardwood Lumber and Plywood
Free Catalog - No Minimum Orders

www.badgerwood.com

(Circle No. 175)

GILMER WOOD COMPANY

2211 N.W. St. Helens Road
Portland, Oregon 97210

Ph. (503) 274-1271 Fax (503) 274-9839
Domestics & Exotics-Alder to Zircote
• **HUGE SELECTION** •

WOODS FOR:
Boxes, Carving,
Furniture, Models,
Turning, Flooring,
Paneling, Archery,
Bows, Millwork,
Pens and Pencils,
Guitars, Jewelry,
Boats, Canes,
Tools, and Veneer

WE STOCK:
Lumber 1" - 6"
Squares to 12x12
Thin Woods
Logs and Burls
Instrument Parts
Knife Blanks
Carving Blocks
Sample Sets
Assortments

LUMBER BY THE BOARD OR BY THE UNIT
www.gilmerwood.com

(Circle No. 110)

For more information
about how to place your
advertisement in
**HARDWOOD
SHOWCASE**
contact

DAVID BECKLER
800-878-7137

ROCKLER®

WOODWORKING AND HARDWARE

A Huge Selection of Fine Hardwoods!

Best selection of fine hardwoods, domestic and exotics, surfaced top and bottom with straight edges. **Guaranteed** free and clear on one side.

Shop on the web:

www.rockler.com

or call 1-800-279-4441

for a **FREE** catalog!

Department 10614

INVEST YOUR STOCK IN THIS.

Maximize the return on your woodworking investment with the RIDGID TP1300 13" Portable Thickness Planer. With the largest capacity in its class, this tool's got the power and performance to pay dividends for years to come.

15 amps of power, in fact, and complete with an extra set of dual edge, quick change knives to keep you humming while the others are down with nicks or getting sharpened. The planer's 4-post design and Sure-Cut mechanism isolate the cutterhead to minimize annoying "snipe" and produce superior finishes.



If it's guaranteed performance you demand, then the TP1300's got that too...with Ind-I-Cut™ to show you exactly how much material will be removed with each pass and Repeat-A-Cut™ to ensure that every piece exiting the machine is precisely the desired thickness. All backed by the RIDGID Lifetime Warranty against defects in material and workmanship.

As with any investment, consider your options carefully. This planer will be beating the field for years to come.



Sure-Cut:
Virtually "snipe"
free finishes.

Ind-I-Cut™:
Shows what'll
be removed,
before it's gone.



For more information call 1-800-4-RIDGID,
visit our website @ www.ridgidwoodworking.com or your nearest Home Depot store

(Circle No. 128 on PRODUCT INFORMATION form)

The Heavyweights: 4 x 24 Belt Sanders

By Sandor Nagyszalanczy



Small power tools are great when you need to do sensitive work, like driving #4 screws for the hinges of a jewelry box or sanding a laminated cabinet without damaging the delicate veneer. When it comes to belt sanders, compact 3 x 21 models are great for everyday jobs, like sanding face-framed cabinets or small parts for furniture. But when there's a big job to do, say sand an entire kitchen's worth of raised panels or remove multiple coats of weather-worn varnish from an exterior door, you want a tool with enough power and toughness to get the job done. A 4 x 24 belt sander is just the ticket.

BOSCH 1276DVS

Price: \$249 (street)

Weight: 13.5 lbs

Belt Speed: 1150 - 1550 SFPM

Motor: 10.5 amps

BOSCH: 877-267-2499



A skirt-like sanding frame mounts around Bosch's sander for working large panels. The angle of their big "D" handle is adjustable, providing clearance in tight spaces.



Right-handers might find Bosch's dust bag location obtrusive, but it's low-slung, so it shouldn't pose a major inconvenience.

Comparing a 4 x 24 belt sander to its 3 x 21 little brother is like comparing a sports car to a go-cart. The 4 x 24 has a wider belt and a bigger platen (the part of the tool that presses the spinning belt down against the work). Hence, it puts more square inches of abrasive belt to wood and removes stock more quickly. The bigger platen also helps keep the sander level, important when working on large tabletops and panels you want to keep flat. To handle the greater sanding load, 4 x 24 models also have more power than 3 x 21 units. This is a good thing when you're faced with a heavy-duty chore, like leveling a hardwood floor. Unfortunately, the price you pay for a 4 x 24's extra capacity and power is weight: These abrasive brutes tip the scales at up to 15 pounds and more; they are not designed for the bicep-challenged.

Few Models Available

Despite their differences, 4 x 24 belt sanders share quite a few features with their diminutive brethren. To spare your lungs from the voluminous clouds of fine dust

HITACHI SB10T

Price: \$239 (street)
Weight: 11.7 lbs
Belt Speed: 1150/1380 SFPM
(dual speed)

Motor: 8.7 amps
HITACHI: 800-546-1666



At 11.7 pounds, Hitachi's unit is lighter than all but Makita's. That advantage is compromised somewhat by the wide body and rear-biased weight balance, which make it tricky to handle at times.

they churn up, 4 x 24s have built-in dust collection via a small fan and fabric collection bag. Collection is even better when you remove the bag and connect a hose and shop vacuum. To keep sanding belts running true, a small tracking adjustment knob varies the angle of the front roller. When it's time to change the belt, a lever (that's easier to operate on some models than others) releases tension on the belt. Some 4 x 24s feature variable speed control, which allows you to adjust the speed of the belt (measured in surface feet per minute, or SFPM): slower for plastics and veneers; faster for rough wood or old finishes.

Shop Test continues on page 72 ...

1,000 ONLINE PLANS
www.woodworkersjournal.com



PANEL PRO
Vertical Panel Saw

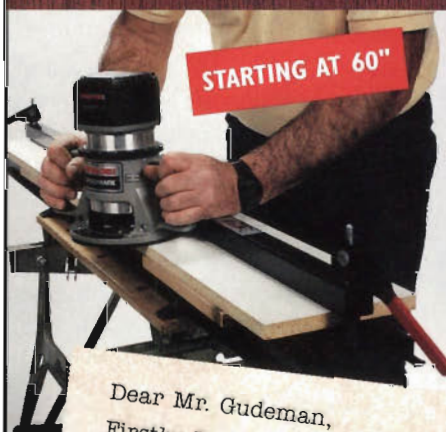
PanelPro® is a new kind of saw that makes your shop more productive. Just slide your panel into PanelPro and you get fast, square, accurate cuts every time. Specially adapted industrial duty saw motor is fully guarded and rotates from crosscut to rip in a snap. Factory set alignment minimizes set-up. Portable and lightweight for contractors. Call us or surf our website for more information.

13460 Central Avenue N.E.
Minneapolis, MN 55304
1-800-599-1655 www.panelpro.org

\$699
Plus Freight

(Circle No. 58 on PRODUCT INFORMATION form)

Joint A-billi-T the new matched edge jointer



Woodworkers are abandoning their jointers for the ease, sureness and portability of the Joint A-billi-T.

Joint-A billi-T is just as its name implies, a tool for perfect glue joints. Use your router to cut these joints flawlessly in your shop: dados, rabbets, tapered cuts, squaring panels. Guaranteed square and tight joints starts your project right.

PLACE YOUR ORDER:
Call 800-997-1918 today!

Dear Mr. Gudeman,

Firstly, I wish to thank you for calling me to see how the JOINT A-billi-T was working. In today's market place, I seldom get that kind of interest.

Secondly, I rate your product up there with sliced bread and baseball. I am finally nearing completion on an order for forty - yes, forty - tables for an Inn. The smallest ones are 14" x 18" and they go up to 36" x 72". Without a doubt, I could never have completed all those tops and aprons without the JOINT A-billi-T. I believe the production time for jointing the edges was cut at least 50%, not to mention the improved quality of the finished products and my sanity, when you must tease a stubborn board into matching with its cousin.

Anyone who is a serious woodworker, or perhaps anyone who wants to plane an edge on a board, needs a JOINT A billi-T.

Congratulations on this wonderful improvement to the woodworking process. Like any process, each step must produce the desired results each time. With your product, this is possible.

Congratulations again for your contribution to woodworking.

Sincerely,
George Coates

unsolicited

Gudeman Enterprises
P.O. Box 126 Dept. WJ
Goodfield, IL 61742
309-965-2183
800-997-1918

FREE INFORMATION!
Call 800-997-1918

(Circle No. 72 on PRODUCT INFORMATION form)

Dovetails... Easy! Accurate! Affordable!

\$39⁹⁵

See it work:

Download FREE plans & manual.

www.stots.com



Stots Corporation

PO Box 257, Harrods Creek, KY 40027

(Circle No. 201 on PRODUCT INFORMATION form)

SHOP TEST

Sad to say, but power-tool-hungry woodworkers don't have the wide range of choices among 4 x 24 belt sanders that they do with other power tools. By my reckoning, there are only 9 models on the market, and three of those are simple variations of basic models. For this article, I've chosen to test one model by each of the five manufacturers currently producing them.

Bosch 1276DVS

The 1276DVS is Bosch's variable-speed version of their more basic 4 x 24 sander, the 1276D. At 13.5 pounds and with a 10.5 amp motor, the well-built Bosch is in the middle of the pack compared to other 4 x 24s. It would be even heavier if not for its light frame, manufactured from magnesium. The Bosch's low center of gravity and comfortable handles make it comfortable to hold and easy to control. The angle of the

1276DVS's big "D" front handle is adjustable, to suit the user and provide clearance when sanding close to a frontal obstruction, say the floor near an end wall.

The Bosch's dust bag is located on the drive-belt side of the motor housing, a position right-handed users might find obtrusive. However, the bag is compact and low-slung, so it shouldn't pose a major inconvenience. A rubber O-ring between the bag and dust port prevents leaks.

More accessories are available for the Bosch than for any other 4 x 24. These include a bench stand and fence to transform the tool into a stationary sander, and a sanding frame (one's also available for the Hitachi). This skirt-like frame mounts around the sander to help keep it dead flat when sanding large panels.

DISCOUNT PRICES ON BOOKS & VIDEOS

Call Toll Free
1-800-243-0713

No shipping charges
in US on orders
over \$35, others

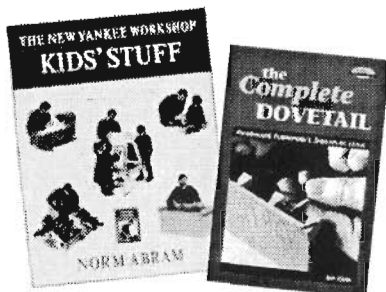
add \$3. Canada & Overseas add 15%

Fax 606-255-5444

phone inquiries call 606-255-5444

<http://www.mannyswoodbooks.com>

e-mail: purchasing@mannyswoodbooks.com



The New Yankee Workshop:

Kids' Stuff by Norm Abrams (\$18)

The Complete Dovetail

by Ian Kirby (\$14)

BUY ON LINE!

<http://www.mannyswoodbooks.com>

Call or e-mail for Our
New Book, Video and
Plans Catalog

(Circle No. 124 on PRODUCT INFORMATION form)



MAKITA 9404

Price: \$219 (street)

Weight: 10.8 lbs

Belt Speed: 700 - 1450 SFPM

Motor: 8.8 amps

MAKITA: 800-462-5482



The sliding plastic closure clip on Makita's bag is easier to operate than the zippers found on most dust bags.



Makita's variable speed control is located within reach of the user's trigger finger, but too close to the edge of the belt for comfort.

Hitachi SB10T

The SB10T is Hitachi's only 4 x 24 belt sander, a sort of "stretched and widened" version of its SB75 3 x 21 model. Despite a dual-speed motor that draws only 8.7 amps (the lowest power of the bunch) on its high-speed setting, the motor feels like it has more torque than the rating indicates. On the low speed setting, the unit feels distinctly under-powered, and it's easy to slow the belt considerably with a little downward pressure. A by-product of the SB10T's compact motor is reduced weight: at 11.7 lbs., only the Makita is lighter. That advantage is compromised somewhat by the Hitachi's wide body and rear-biased weight balance, which make it tricky to handle at times.

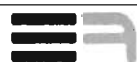
Shop Test continues on page 74 ...



Milwaukee's sander has a superbly engineered belt release mechanism, which takes only a light touch to operate. It makes belt changes a joy instead of a struggle.

MILWAUKEE 5936

Price: \$297 (retail)
Weight: 14.5 lbs
Belt Speed: 1400 SFPM
Motor: 10 amps
MILWAUKEE: 800-414-6527



Econ-Abrasives

WE MAKE ABRASIVE BELTS ANY SIZE, ANY GRIT!

Standard Abrasive Sheets

CABINET PAPER

	50/pk	100/pk
60D	\$17.58	\$31.58
80D	16.42	29.26
100 thru 150C	15.26	26.95

FINISHING PAPER

80A	\$11.74	\$19.89
100 thru 280A	10.50	17.58

NO LOAD PAPER(white)

100 thru 400A	\$12.90	\$22.40
---------------	---------	---------

"C" = 100 SHEETS

Velcro® Vacuum Discs

8 Hole pattern for Bosch sanders

Dia.	Grit	Price
5"	60	\$.48 ea
5"	80	.46
5"	100 thru 320	.45



*Available in 5 hole pattern *

*Wide Belts*Rolls*Flap Wheels

*Pump Sleeves*PSA Discs

*Router & Wood Bits*Wood Glue

*MasterCard, VISA, American Express
C.O.D. or Check

*CALL FOR FREE CATALOG

- TX add appropriate sales tax

- Continental U. S. shipping add \$5.95

ABRASIVE BELTS

Please Specify Grits

1X30	\$.81 ea.	3X24	\$.93 ea.
1X42	.81 ea.	3X27	.96 ea.
1X44	.81 ea.	4X21 3/4	1.06 ea.
2 1/2X16	.85 ea.	4X24	1.10 ea.
3X18	.86 ea.	4X36	1.35 ea.
3X21	.90 ea.	6X48	3.50 ea.
3X23 3/4	.93 ea.	6x89X80	6.24 ea.

OTHER SIZES ON REQUEST

HEAVY DUTY SPRING CLAMPS

Clamps come w/PVC tips and grips.



Size	Price
4"	\$1.75 ea
6"	2.25
8"	3.50

JUMBO ROUTER PAD(24" x 36")

It will not allow small blocks of wood to slip out under router or sanding applications.

ROUTER PAD
ONLY \$8.95ea.

JUMBO BELT CLEANING STICK
ONLY \$8.80

Econ-Abrasives

P.O.Box 1628
Frisco, TX 75034

(972)377-9779



TOLL-FREE ORDERING LINE (800)367-4101

(Circle No. 67 on PRODUCT INFORMATION form)

Osborne

Wood Products, Inc.



Stranded???
Osborne introduces a full line of Kitchen Island legs. From 34 1/2" tall and from 3 1/2" to 4" in diameter, they're sturdy enough for anything to perch on!



"Patches"

Call for a catalog • 1-800-849-8876

www.osbornewood.com

8116 Highway 123 North • Toccoa, GA 30577

(Circle No. 155 on PRODUCT INFORMATION form)

RIPSAW

The only **AFFORDABLE-PORTABLE** band sawmill that can be easily carried to the jobsite and operated by one person.



The Ripsaw will cut up to 20" diameter logs into lumber, from 1/8 to 9" thick and up to 14" wide and weighs only 45 lbs.

For a **FREE** Brochure contact:

Better Built Corporation

789 Woburn Street, Dept. WJ

Wilmington, MA 01887-4600

Phone: 978-657-5636 ~ Fax: 978-658-0444



MasterCard, Visa, Discover
Accepted

E-mail: info@ripsaw.com

Visit our website: <http://www.ripsaw.com>

(Circle No. 83 on PRODUCT INFORMATION form)

NEW!

www.wwhardware.com

Expanded Website!

We have the
largest selection of
cabinet hardware
in this industry.
Over 6000 items
in stock.



FREE Fall Sale Flyer!



**Woodworker's
HARDWARE**

P.O. Box 180

Sauk Rapids, MN 56379

24 HOUR FAX: 888-811-9850

800-383-0130

Mention offer #214

(Circle No. 147 on PRODUCT INFORMATION form)

SHOP TEST

The Hitachi's dust bag is out of the way for right-handed users, and its fan seems to suck dust with more velocity than the other sanders do. One small quibble: the seal between the bag and port is poor, allowing some dust to escape during use.

Makita 9404

The model 9404 is Makita's newest 4 x 24 belt sander. Their only other 4 x 24, the 9403, is a much heavier and more powerful unit. Is a lighter sander worth the price of having less power? After using the 9404 for an afternoon (and not getting a sore arm from hefting it), I'd definitely say "yes."

The 9404 has a very low profile and good weight distribution. Its handles are comfortable, but I think that locating them farther apart would improve handling. Like the Bosch, Makita's dust bag is on the drive belt side of the body, but it sticks out much farther behind the sander. Fortunately, the bag's low profile makes it relatively unobtrusive. I found the bag's sliding plastic closure clip easier to operate than the zippers found on most dust bags. The clip makes emptying the bag a quick and clean operation.

Although Makita's 8.8 amp motor doesn't feel as powerful as Hitachi's similar-size motor, the Makita still has enough punch to handle all but the heaviest jobs. The unit's variable speed control is located within reach of the user's trigger finger, but it's too close to the edge of the belt for my

PORTER-CABLE 362VS

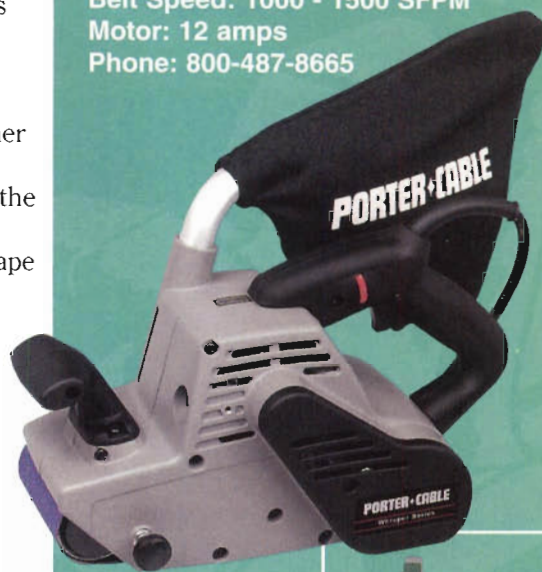
Price: \$199 (street)

Weight: 15.5 lbs

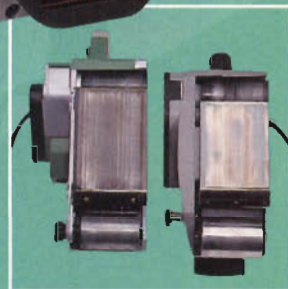
Belt Speed: 1000 - 1500 SFPM

Motor: 12 amps

Phone: 800-487-8665



The platen on the 362VS (right) is shorter than other sanders, but it was just as aggressive as the other models.



comfort. A mis-tracked belt could give a straying finger a nasty gash. On the plus side, the 9404's power cord is 17 feet long (most units have six to eight foot cords), eliminating the need for extension cords on most jobs.

Milwaukee 5936

The big red Milwaukee 5936 4 x 24 is the only belt sander that they manufacture. Sturdily built with a heavy cast-alloy undercarriage, the body of the 5936 is entirely made of durable injection-molded plastic. There are no fancy frills or bells and whistles on this sander — just a solid unit with a reasonable amount of power on tap. The lack of a variable speed control means you might eat through stock

**"The three heavier models
have the power to rip
through multiple layers of
finish without pooping out."**

a little faster than you'd like to, say when sanding cabinet face frames flush with delicate plywood cabinet sides.

While the Milwaukee's handles are amply sized and comfortable, the unit's high center of gravity made me feel a little detached from the workpiece, like the "floating down the road" feeling I get when driving a big luxury car with power steering.

A standout feature on the Milwaukee sander is its superbly engineered belt release mechanism, which takes only a light touch to operate. Amazingly, it made belt changes a joy instead of the usual struggle.



Porter-Cable 362VS

Of the three 4 x 24 belt sanders Porter-Cable makes, the 362VS is the most feature-packed, with both a variable-speed motor and built-in dust collection. At 15.5 pounds, the Porter-Cable 4 x 24 is the heaviest sander in this group ... and it feels like it. The payoff for schlepping all that weight is a sturdy machine, with a body made entirely from cast aluminum. And the 362VS has lots

of power: Its 12 amp motor is biggest of the bunch. Despite its bulk, the Porter-Cable is well balanced machine, with comfortable handles and a variable speed control right

next to the trigger. Its large capacity, right-hander-friendly dust bag attaches to a snug-fitting port that lets nary a particle of dust escape.

Interestingly, the platen on the Porter-Cable 4 x 24 is shorter than other sanders: 5 $\frac{3}{4}$ ", as compared to 6 $\frac{1}{2}$ " that's typical. This means the 362VS puts less sanding belt in contact with the wood, although I didn't notice that it sanded any less aggressively than the other models.

Shop Test continues on page 76 ...

**SHOP
FOX®**

DEPENDABLE
PRODUCTS
THAT IMPROVE
MOBILITY AND
PRODUCTIVITY
IN THE SHOP.

252199958R2

HEAVY-DUTY MOBILE BASES & ROLLER STANDS

**ASK FOR
THESE QUALITY
PRODUCTS
BY NAME!**

**D2056
TOOL TABLE**

Support cross braces on top provide incredible strength and capacity. Flared legs and adjustable rubber feet ensure stability while reducing machine vibration. Butcher block finish table top measures 13" x 23" and is 30 $\frac{1}{2}$ " tall. **700 lb capacity.**

**D2275
TOOL STAND**

This sturdy universal tool stand measures 24" tall, 27 $\frac{1}{2}$ " x 31 $\frac{1}{2}$ " at the base and 17 $\frac{1}{4}$ " x 22" at the top. Includes non-slip rubber feet. **1,000 lb capacity!**

**D2273
SINGLE
ROLLER STAND**

- Adjusts in height from 26 $\frac{1}{2}$ " to 45".
- All-steel construction
- 15 $\frac{1}{2}$ " wide ball bearing roller
- **250 lb capacity**

**D2272
TILTING
ROLLER
STAND**

- Adjusts in height from 25 $\frac{1}{4}$ " to 43 $\frac{1}{4}$ ".
- Rollers Tilt from 0° to 45°
- All-steel construction
- 5 $\frac{1}{2}$ " wide ball bearing rollers
- **150 lb capacity**

**D2274
5 ROLLER
STAND**

- Adjusts in height from 26 $\frac{1}{2}$ " to 45".
- All-steel construction
- 15 $\frac{1}{2}$ " wide ball bearing rollers
- **250 lb capacity**

**D2271
ROLLER TABLE**

Features all-steel welded construction and measures 19" wide x 65" long. Comes with 9 ball bearing rollers. Adjustable in height from 26 $\frac{1}{2}$ " to 44 $\frac{1}{2}$ ". **1000 lb capacity**

**D2057
HEAVY-DUTY
MOBILE BASE**

- Adjusts from 19" x 20 $\frac{1}{2}$ " to 29 $\frac{1}{2}$ " x 29 $\frac{1}{2}$ "
- **600 lb capacity**

**D2058
SUPER
HEAVY-DUTY
MOBILE BASE**

- Adjusts from 18" x 24 $\frac{1}{2}$ " to 28 $\frac{1}{2}$ " x 33 $\frac{1}{2}$ "
- **1200 lb capacity**

CALL US OR VISIT OUR WEBSITE FOR THE LOCATION OF A DEALER NEAR YOU.

Media Code
WA183

WOODSTOCK INTERNATIONAL INC.
SELECT WOODWORKING TOOLS AND ACCESSORIES

Phone: 1-800-840-8420 FAX: 1-800-647-8801
www.woodstockinternational.com

(Circle No. 156 on PRODUCT INFORMATION form)



MORE VERSATILE THAN A SWISS ARMY KNIFE.

The Dremel rotary tool might be the most versatile tool you can own. With speeds from 5,000 to 30,000 rpm and more than 100 available accessories, it gives you the power to handle lots of jobs. Use it to carve wood, shape plastic, grind metal, cut pipes, polish silver, sharpen tools, etch glass, and more. For more information, call 1-800-4-DREMEL (1-800-437-3635).

DREMEL®
Tools for the Imagination™
www.dremel.com

(Circle No. 12 on PRODUCT INFORMATION form)



Dust output can build up with these large units. Try removing the fabric collection bag and going right to a shop vacuum.

Recommendations

Despite the relative dearth of choices a woodworker has when buying a 4 x 24 belt sander, I find the existing models fall into two camps: those that try to retain most of the compactness and handiness of 3 x 21 models, and those that are unabashedly big and powerful; the “muscle cars” of the belt sanding world.

The Hitachi SB10T and Makita 9404 fit the former category, and both are amazingly compact and manageable for 4 x 24 units. Their overall lightness and low center of gravity make them very handy and capable of handling delicate sanding jobs, like smoothing veneered panels. Yet these sanders aren't wimpy: Both have power enough to tackle all but the gnarliest of jobs. Of the two, I think the 9404 has the edge on balance and handleability. In fact, the Makita feels almost as nimble as a 3 x 21 sander. After a little practice, I was even comfortable using the Makita single handed — a trick I'd never dream of trying with the weighty Milwaukee or Porter-Cable.

The three heavier-muscle models, the Bosch, Milwaukee and Porter-Cable, all pack a punch up to any stock-smoothing challenge:

Even fitted with a 24-grit belt — the coarsest I could find — all three had the power to shred a rough wood surface or rip through multiple layers of finish without pooping out. Among the trio, I preferred the Bosch 1276DVS's blend of power and weight and its feeling of precision, which gave me confidence when sensitive sanding was more important to success than raw power.

Alternatively, I couldn't help but be impressed by the pitbull-tough construction of the Porter-Cable. If I ran a production cabinet shop where tools were treated more like bricks than expensive precision devices, I'd feel comfortable giving my gorilla-like employees Porter-Cable 4 x 24s. I'd rest easy knowing that these metal-bodied heavyweights can take punch after punch, without going down for the count.

Sandor Nagyszalanczy, a professional furniture designer and craftsman, is the author of “The Art of Fine Tools,” available from Taunton Books.

“I find that 4 x 24 belt sanders fall into two camps: those that try to retain the compactness of 3 x 21 models, and those that are unabashedly big and powerful.”





Easy to turn on. Hard to turn off.

When we designed our new scroll saw, we gave it the features you wanted most. (We know, because we asked you.)

We put the power switch and variable speed controls where they made sense, up top. We designed the table to tilt both ways, instead of just one way. And the table "clicks in" every 15 degrees to make bevel cutting easy and sure. Of course, we also included handy features like a tool-less blade change, an adjustable blower and an integrated light. And we put it all on a heavy cast-iron base for solid performance. All of which makes it one of the easiest scroll saws to have fun with, right out of the box. In fact, the only hard part is turning it off.



DREMEL
Tools for the Imagination
www.dremel.com

(Circle No. 12 on PRODUCT INFORMATION form)

Hello, Mr. (Wood) Chips

By Joanna Werch Takes



High school senior Bill Belland's spice chest includes hand-cut dovetails, front and back.



Students in George Trout's woodworking classes at Springfield, Pennsylvania's Springfield High are happy to be there — "It's hard to imagine high school without it," says junior Kate Curran. "I used to build ramps and stuff for my skateboard, but nothing like this," adds junior Brett Shaffer.

"This" includes four-poster beds, Queen Anne chests and Victorian pool tables, all built without plans. These elaborate projects come about despite the fact that, as George says, "I tell everyone I don't consider myself a woodworker. We do simple joinery that a 14- or 15-year-old can handle."

Instead, he uses woodworking to pursue his goal of "training the brains."



George Trout's students like Katie Fogarty, left, take great pride in their projects. Pat Manning, builder of the oak armoire at right, said, "A week into the class I knew I was set."



"I HAVE TO
TURN KIDS
AWAY AT NIGHT.
AS A TEACHER,
THAT'S A GOOD
PROBLEM."

GEORGE TROUT

"I like to teach it as a problem-solving technique," George said. "If you have 100 pieces in your project, you have 100 problems. It's a way to train creative thinking."

Since Springfield High hired George 14 years ago, he's taught shop classes to about 125 kids a year. They start out learning about the tools and shop safety, but by the end of the first year, they're building whatever project they want. "I tell them, 'The stranger, the better.' If I have to, I'll add or subtract elements" to make it an appropriate project, George said.

Ideas come from magazines, furniture flyers or CD covers — but the greatest inspiration for the kids is an annual show where students' works are displayed to the community. "There are a lot of parents



Upper-level students like senior Vince Yanni buy their wood "pretty much off the tree," for projects like this birch entertainment unit.

Senior T.J. Colaiezzi noted, "Mr. Trout's here until two, three or four in the morning sometimes."

Each project starts with rough sketches, and George insists the student measure the space at home where the piece is supposed to go.

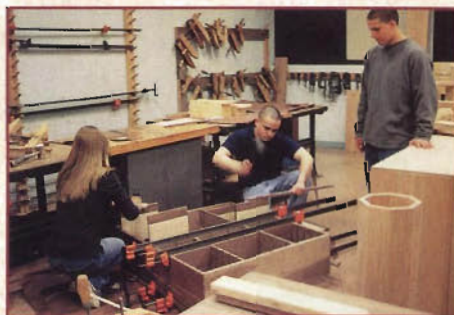
Beyond that, "There is no plan," George said. "We measure as we go, and build as we go."

The goal is to learn through the different problems the students encounter. That might include cutting new moldings to cover a damaged area or making pieces smaller to allow for wood expansion. Grades depend on each student's natural talent and what he or she

with tears in their eyes" at the show, George said. "Even if there are production mistakes that the kid and I know about, the parents don't see them."

Students spend tons of hours, including evening labs, getting their projects ready for the show.

Senior Bob Bollinger's birch chest of drawers takes the "stranger, the better" suggestion to heart.



After last year's pool table, senior T.J. Colaiezzi, above, has moved on to a 65-drawer Victorian secretary desk.

An annual raffle of a "mass production" project helps pay for upgrading the routers and sanders students like Brian Bretherick use.



Senior Matt Blackburn's cherry clock came after some simpler projects.



does with it. "Some kids can't tie their shoes without problems, but I'm not going to punish them for being uncoordinated," George said.

Senior Pat Manning added, "Mr. Trout put on the blackboard a couple years ago, 'Winning isn't getting a ribbon at the show. Winning is liking what you've done.'"

Pat, who plans to pursue a career in woodworking, is the exception among George's students. More common is the reaction of junior Amanda Gessay. She sees her future woodworking "not as a job, but as a side hobby in my garage. I don't think I ever want to give it up. I think I'll like it forever."

Shellac: Simple and Sweet

By Michael Dresdner

I suspect that if shellac were introduced today as a newly invented modern finish, it would be hailed as a near miracle. It boasts a wealth of characteristics that woodworkers routinely seek in a finish. Shellac is non-toxic, self-sealing, user-friendly, easily repairable, very fast drying, and can be applied by rag, brush, spray gun, or even dipping. It brings out the beauty of wood and the primary solvent for it is grain alcohol — virtually the same stuff we quaff in beer, wine, and liquor.

But that's not all; it is such an effective barrier coat for almost all the contaminants that wood is prey to that some folks call it a "universal sealer."

A Bit of History

In fact, shellac is anything but new. Its recorded use goes back some 3,000 years, and the water-soluble dye that comes out of the first washing of raw shellac was long prized for the bright scarlet color it gave to silk, leather and wool. We no longer

harvest shellac for its dye because we have synthetic ones. Over the years it has been used not only as a coating for fine furniture and other objects, but as an adhesive in musical instrument repair, an insulator, and for a range of solid objects from jewelry to the precursor of our CD's, Edison's early records and cylinders. In fact, the invention of Bakelite (phenolic resin plastic) came about as an attempt to make "synthetic shellac." These days the bulk of shellac in the U.S. is used for coating medicine to make pills easier to swallow and as "confectioner's glaze" to make fruit and chocolate shiny. You'll see it listed that way in the ingredients of popular candies like Junior Mints and Raisinettes. One of its more curious uses is in "time release" medicine. Shellac is highly resistant to acids, but will break down in basic (alkaline) solutions. Our mouth and stomach are acidic environments, but our intestines are basic. If part of a medicine is coated with shellac and part uncoated, the uncoated portion will go to work almost immediately in your stomach, while the coated batch won't start working until it makes its way down to your intestines. Clever, eh?

Is it Really Bug Doots?

Shellac is produced by *laccifer lacca*, a tiny bug that swarms on certain trees in India and Thailand. This parasite infests the trees in its larval stage and makes itself a protective crust during its development. At the end of the bug's life cycle, the fully encrusted branches are harvested and "seedlac," the crudest form of shellac, is scraped off and crushed. Washing the seedlac removes the water soluble dye, but some non-soluble dyes stay behind in the resin itself. As a result, shellac comes in a variety of colors, depending on the type of tree, the geographical area, and even the time of year it is harvested. The most common is orange shellac, but colors range from dark garnet through very light super blonde and platina.

Seedlac contains the shellac resin, about 5% wax which the bugs create as "breathing tubes," and the random bits of tree bark, twig wood, and bug legs that get caught in the scraping process. It is then either melted, or dissolved in alcohol, and strained. The cleaned resin can be dripped onto



Bug Doots: Tiny lacifer lacca swarm on trees in their larval stage, creating a protective crust. The encrusted branches are then harvested, the earliest stage of shellac.



a sheet and cooled as buttons, but more commonly it is dried and stretched or rolled into sheets, which are broken up into flakes. It can also be charcoal filtered to remove some of its color, get bleached with chlorine to create "white" shellac, or have the wax removed. Wax free "dewaxed" shellac is especially useful as a sealer, since some finishes will not adhere to shellac with wax in it.

Uses for Shellac

We woodworkers have plenty of reasons to prize shellac. It makes a beautiful non-toxic finish for chairs, cabinets, cradles and cribs, bookshelves, boxes, beds, picture frames, musical instruments, turnings and anything that gets normal but not excessive wear. Shellac has very good resistance to acids, water, stains and scratches, but won't hold up to high heat or alkalines, such as ammonia based window cleaners. I would not choose it for areas that are near heat sources, like fireplace mantles or cabinets above stoves, or for a kitchen counter or table that might be a repository for a hot coffee pot. But most anywhere else, shellac would be a beautiful option.

Perhaps the most important use for shellac in the woodshop is as a sealer. Technically speaking, the first coat of any finish seals the wood, but shellac does far better than most in that department. Refinishers know that a coat of dewaxed shellac after stripping will seal in old stains, wood resins, knots, wax, grease and even

continues on page 82 ...



Organize and protect your copies of Woodworker's Journal

Custom-made binders are ideal to protect your magazine collection. Designed to hold a year's worth of issues, our binders are made with reinforced board and covered with a leather-like material. A special spring mechanism holds individual rods which easily snap in place.

Item #36227\$10.95 ea.
(2 or more, \$9.95 ea.)

Call Today!
800-610-0883

Please mention code 70301

Think Jig.



The World's Best Router Jig System

Thinking Jig? Think Leigh.
Whether you're a hobbyist or a

professional, the Leigh Jig will help you create your best work. Versatility with precision make the Leigh Dovetail Jig better than the rest. Rout through and half-blind dovetails, with variable spacing of pins and tails, on one jig. Create decorative Isoloc joints, finger joints, and multiple

mortise & tenons easily with Leigh attachments. And our easy-to-follow user guide will help make it happen fast! Call toll free now to learn more.

LEIGH
Joining Tradition With Today

Call For Your Free Leigh Catalog Today! 1-800-663-8932

Leigh Industries Ltd., PO Box 357, Port Coquitlam, BC, Canada V3C 4K6 Tel. 604 464-2700 Fax 604 464-7404 Web www.leighjigs.com

(Circle No. 86 on PRODUCT INFORMATION form)

Clear up to \$300/Day Making Bunk Beds



Easy to Operate Part Time *Right Out of Your Home!*

"I started making bunk beds in my garage 10 years ago with just \$ 120 of tools and no woodworking experience. Over the years I have successfully built it into a substantial business." *Robert O'Reilly, Founder*

Low Startup Costs

With the help of our video on HOW TO MAKE A BUNK BED and step by step Operations Manual, you can do the same thing. There is plenty of business almost everywhere.

SOME EXAMPLES:

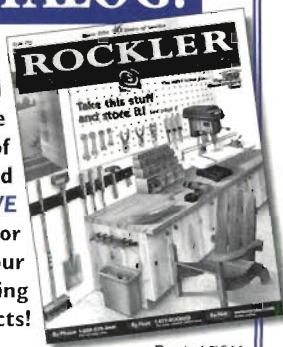
\$185 Profit on a \$269 Sale
\$273 Profit on a \$477 Sale
\$411 Profit on a \$665 Sale

Call For Free Info Pak
(800) 382-3180 Ext 1507
Bunk Bed Specialties, Inc.

(Circle No. 120 on PRODUCT INFORMATION form)

FREE WOODWORKING CATALOG!

The only
place to find
a huge
selection of
NEW and
EXCLUSIVE
products for
all your
woodworking
projects!



Dept. 10611

Log on @

www.rockler.com

or call 1-800-403-9736

Since 1954

ROCKLER
WOODWORKING AND HARDWARE

The **NEW** name for
The Woodworker's Store

FINISHING THOUGHTS

silicone oil, which causes those annoying pockmarks called "fisheye" that show up in later coats of lacquer. Shellac can act as a barrier between incompatible finishes. It can improve adhesion between two dissimilar coatings because it sticks well to most any surface, and most finishes stick well to it.

Waterborne coatings present their own problems, and shellac as a sealer makes many of them go away. Water-soluble dye will bleed up into coats of waterborne finish, but a thin coat of shellac will prevent that. It will also act as a "tie" coat to improve adhesion to oil based stains, and will even add some depth to darker woods that sometimes look "washed out" under waterbornes. It's a wonderful way to forestall fisheye and other contamination problems that sometimes prevent waterbornes from laying out as smoothly as they should. A coat of shellac will even prevent the water from raising the grain of the wood.

Applying Shellac

I routinely use a wash coat of dewaxed shellac as a sealer under lacquer, waterborne coatings, and sometimes even polyurethane. My method of hand applying the sealer coat results in more uniformity. Typically, when you

Try Mixing Your Own

Mark a lidded jar with a line indicating how much shellac you will need for your project. Now make a second line halfway to the first. Fill up to the lower line with loose dewaxed shellac flakes, then pour in denatured alcohol to the upper line. Screw on the lid and shake the jar frequently for the next two hours or so, then leave it overnight. By morning it should be ready to use, but stir it to make sure all the shellac is dissolved. Remember to put a date on the jar and use it within six months.



apply the first coat of finish to wood, it sits nicely atop the flat grain areas, but gets completely sucked into the end grain. As a result, the end grain looks raw while the less porous flat grain looks shiny. So even though you applied a uniform coat, you end up with an uneven one due to selective absorption of the wood.

To prevent that, I flood the first coat of shellac on, then wipe off the excess while it is

still wet. Thin the shellac first by adding denatured alcohol until the mixture is about the consistency of skim milk. By flooding it on liberally, the end grain has a chance to absorb as much shellac as it can. When I wipe off all that has not been immediately absorbed on both the flat and end grain areas, the result is a uniformly sealed piece.

The first coat of shellac will raise the grain of wood very slightly. I let it dry about an hour and sand very lightly with 320 grit paper — just to smooth it a bit. After that, subsequent coats of shellac don't need to be sanded, since the alcohol in each successive coat will redissolve the first one enough to give perfect adhesion. You can apply more shellac with a brush, spray gun, or even with a cloth pad, a process called French polishing.

Shellac is excellent as a sealer under other finishes as well. In that case, use only dewaxed shellac, since some finishes won't adhere well to the wax in orange shellac. Liquid shellac sold in cans contains wax. To get dewaxed shellac, you must buy it in flake form and mix it yourself, or buy aerosol cans, which contain the dewaxed version. But take heart — later this year, Zinsser, makers of Bullseye brand products, will be coming out with wax free shellac in cans.

Some Tricks of the Trade

As nice as it is, shellac can sometimes be a bit tricky. Because it has a high surface tension, it may pull away from the pores of large pore woods like oak and ash

after brushing or spraying. If this happens, there are ways to make it lay out better. First, simply add some denatured alcohol. Thinner shellac flows out better, but also dries faster. To slow it down, try finishing in the early or late hours of the day, when the shop is cooler. Alcohol evaporates slower at lower temperatures. If that is not enough, you can substitute Behkol solvent, from the Behlen company, for some of the alcohol. Behkol is a slower drying alcohol mixture. For even better flow and leveling, there is a surface tension reducer on the market called "Shellac Wet." Just a few drops of it will make the shellac flow out and lay flat.

One final warning: Like all materials, shellac has a shelf life.

Older shellac will take longer to dry and will create a softer film. Zinsser puts a fill date on the bottom of their cans, and you should use it within two to three years of that date. But the more alcohol in the shellac, the shorter its shelf life. Thinned shellac, like the sealer mix I described above, will last only about six months.

Michael Dresdner is a nationally known finishing expert and author. His latest book, "The New Wood Finishing Book," was published by Taunton Press.



CNC2000 ROUTER
PORTABLE COMPACT CNC

NEW!

Price - \$7,950.00

MADE IN USA

30 x 30 x 10 Travel - Design allows larger items to be placed under or on top of base. Rout wood, plastic, solid surface or metal.

ALIGN-RITE

1942 East 17th Street • Tucson, AZ 85719 • (888) 624-1942
www.alignritetool.com

(Circle No. 117 on PRODUCT INFORMATION form)

Get a beautiful wood finish without a brush...just wipe it on for professional results and easy cleanup.

PETRI
Diamond Hard

NEW

Wipe-On GEL PolyFinish

Easy-To-Use MicroTropic Gel PolyFinish!

Simply apply to any wood surface for a tough Satin Finish! For Interior and Exterior Application. No tools or brushes needed... just a lint free cloth.

Apply With Ease And Confidence!

- No Brushes • No Spills
- No Drips • No Mess

Perfect For Use On

- Unfinished Wood
- Cabinets & Floors
- Doors & Frames
- Marine Trim & Woodwork

And much more!
Dealer Inquiries Welcome

PETRI Paint Co.
www.petripaintcompany.com
Call Toll Free: (888)393-4758

Makers Of The Purest Oil & Water Based Polyurethanes Since 1962

(Circle No. 197 on PRODUCT INFORMATION form)

Burning Questions

Q I'm building a twin size captain's bed frame for my son. For the exterior wood that can be seen, I've chosen soft maple. To reduce cost, I want to use basswood for the interior frame work. Is basswood a good structural substitute for soft maple?

Tom McKnight
Jacksonville, Florida

A You must be a very frugal guy, Tom. This plan's probably going to save you about \$20 — but it will add to your glue-up and assembly work. Since it's only a twin bed, I think your son will get solid support with whichever species of basswood you're looking at. Suppliers won't necessarily distinguish between different basswoods because the wood is so similar. Just know that the most important one is

American basswood
(*Tilia americana*), and

next is white basswood (*Tilia heterophylla*). Linden, linn and beetre are the same thing, too. European lime (*Tilia vulgaris*) is also really similar; it's just slightly more dense.

Basswood can shrink a lot when you're drying it, but it rarely warps when it's in use. Once you've got it dry, it's odorless, lightweight, and straightgrained.

I'm sure your basswood bed will also bring your son pleasant dreams.

Rick White
Contributing Editor

Q In the June issue, we were still stumped about Phil Monson's dagger-like tool.

Lots of readers, however, were able to answer the Frost, Minnesota man's burning question.

The Editors
Woodworker's Journal

A "It appears to be half of a stovepipe damper, the other half being a sheet metal or cast iron disk," says Mike Schoeppner of Kansas City, Missouri. "First, you stab the point through one side of the stovepipe. The disk goes inside the pipe, and it has slots so that the dagger goes through 'edgewise.' Then the dagger is pushed on through so it comes out the other side of the pipe. As you rotate the key handle of the dagger 90 degrees, it rotates the disk inside to effectively open or close off the pipe." Doing this, says Dick Barlow of Pensacola, Florida, lets you regulate the intensity of the fire in a woodburning stove.

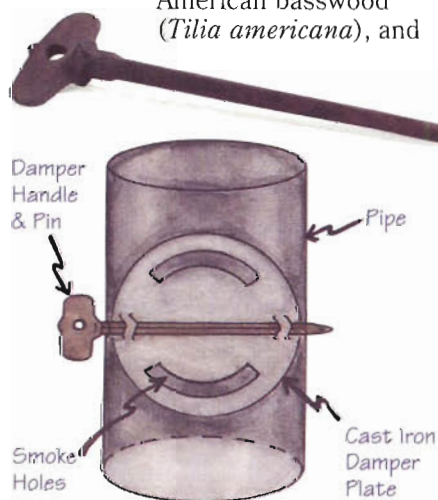
Norm Bodnar of Walton Hills, Ohio, knew why it had small holes

As a child, Ruxton Tucker of Laguna Niguel, California, learned about a tool too hot to handle.



in the pointed end: "a pin went through them to hold a spring-like device that kept the 'dagger' in place, as well as kept it from falling out of the pipe." Normally, the shaft from a stovepipe damper has a twisted wire cover over the handle so it stays cooler, says Barry Munsell of Miles City, Montana, but he's seen solid handles like this one before.

Del Fisk of Forsyth, Montana, tried to make us feel better for not originally recognizing Phil's tool. "Of course, a person would have to



A stove belonging to David Klapka of Baltimore, Maryland, is still firing away with one of these tools attached.



Winner! For taking the time to respond to Stumpers, Connye Suehg of Castroville, Texas wins a collection of American Tool's Quick Grip clamps. We toss all the Stumpers letters, published and unpublished, into a hat to select a winner. If you have a question or answer, send it to: Stumpers Dept., Woodworker's Journal, P.O. Box 261, Medina, Minnesota 55340. Or e-mail: jtakes@woodworkersjournal.com

be an old, old (71) country boy like me to have seen a few of them and burned his fingers a few times adjusting the draft on one of those infernal contraptions," he wrote. Phil might have his "tool" because the damper outlasted the stovepipe, and could be salvaged for re-use, said **Donald S. Buck** of Richmond, Virginia. **Everett Callahan** of Martinsville, Indiana, noted that stoves were used in workshops, so "this item could very well be among some tools."



A base attached to Martin Cecil's tool could be a clue to its purpose: drilling post holes? punching out doughnuts? Your thoughts?

Q We discovered this odd-looking tool in an old shed on a farm that my son bought. He did not know what it was, and I am only guessing that it is a press of some kind.

*Martin H. Cecil
Owensboro, Kentucky*

A A predecessor to the jackhammer, perhaps? Sure looks like it would be easier to crush grapes with this thing than by stomping up and down on them. How about it, folks? What are your answers?



The Best Place to Buy Tools On the Web!

(Circle No. 172 on PRODUCT INFORMATION form)



Look what you can do with a MultiMaster



The MultiMaster kit includes the MultiMaster, sanding pad, scraper, and flush-cut saw blade all for under \$200. The optional professional kit includes the carbide grout blade, carpet knife and a carbide rasp. To order a MultiMaster now for immediate delivery from a participating dealer, call **1 800 441-9878**.

Fein Power Tools, Inc. 1030 Alcon Street Pittsburgh, PA 15220

Finishing is just the beginning



FeinMultiMaster

(Circle No. 105 on PRODUCT INFORMATION form)

Marketplace

To place your advertisement in Marketplace, contact Jim Van Gilder or Mike Hill, J.F. Van Gilder Co., P.O. Box 802405, Dallas Texas 75380. Call: 800-878-7137 or 972-392-1892, fax: 972-392-1893, or e-mail: david@jvgco.com, mike@jvgco.com or jim@jvgco.com.

Adirondack Rocker



Use our Full-Size Plan to build this comfortable rocker featuring a curved back and contoured seat.

Overall Dimensions:
27-1/2" wide x 35-1/2" high x 36" deep.

Plan #735 - \$18.50 Ppd.
Catalog \$3 (free with order)

Order Today!

1-800-657-7692

Or mail your order to:

Furniture Designs, Inc. Dept. JR - 90

1827 Elmdale Av. Glenview, IL 60025

Designing Fine Furniture Plans Since 1968

Visit Our Website: www.furnituredesigns.com

(Circle No. 24)

Legacy Woodworking Machinery

See the
Past Meet
the
FUTURE!

800-279-4570

WWW.
legacywoodworking.com

(Circle No. 21)

UNFINISHED WOOD



CUPBOARD
DISTRIBUTING

Wood Parts for Toys
Miniatures Woodworking
Furniture Building

119 Miami St; PO Box 148WR

Urbana, Oh 43078

www.cdwood.com

(Circle No. 4)

HADDON LUMBERMAKER



This low cost 4 lb. attachment turns any chain saw into a portable saw mill and accurate cutting tool. Lets you make good custom cut lumber from logs - RIGHT WHERE THE TREE FALLS! Pays for itself with the lumber from the first tree you cut. Out-performs other products many times its size and price! Call or write for a free brochure. To order call us with your credit card number or send \$79.95 + \$8.00 S&H to:



1-888-705-1911

HADDON TOOL INC.



21967 W. Vernon Ridge Rd., Mundelein IL 60060
visit us on the internet at <http://www.haddontools.com>

(Circle No. 61)



S. LaRose, Inc.

Serving the industry
since 1936!

Thinking of building a clock?
We've got everything from the
plans to the works! Call for your
FREE clock parts catalog, #WJW2!

S. LaRose, Inc.

3223 Yanceyville St. • P.O. Box 21208

Greensboro, NC 27420

Order now! 1-888-752-7673

E-Mail: SLAROSE@worldnet.att.net

www.slarose.com

(Circle No. 130)

DIXIE MILLWORKS

Phone/Fax: 912-995-2327

1688 Billy Lark Rd. • Dawson, Ga. 31742

Finally a place to get a 'little' work done.

Your small
wood turner...

• Custom Turning Work
• Small and Short Sizes • Restoration
and Duplicates • No Minimum Order

(Circle No. 8)

ROUTER BOXJOINT JIG

CNC CUT ALUMINUM
MACHINE 4 SIDES AT ONCE
MACHINE A BOX IN LESS THAN 10 MIN.
THREE SIZES 1/4-3/8-1/2 INCH
BOXJOINTS MADE EASY

\$99^{EA} ALL 3 FOR \$229 +S&H



1-877-994-4278

(Circle No. 177)



MADE IN U.S.A.

WETZLER CLAMPS

THE PROFESSIONAL'S CHOICE

Rte 611 PO BOX 175 MT. BETHEL, PA. 18345

www.wetzler.com

800-451-1852 FAX: 570-897-5891

(Circle No. 95)

INCORPORATE

PROTECT YOUR PERSONAL AND/OR BUSINESS ASSETS!

■ CORPORATIONS ■ LLC'S ■ LIVING TRUSTS
PERSONALIZED SERVICE, WE WILL DESIGN A PLAN TO PROTECT
YOUR ASSETS AND GREATLY REDUCE TAXES. ALL STATES SERVICED.

CALL OR FAX FOR FREE INFORMATION PACKET:

FINANCIAL GUIDANCE SERVICES, LLC.

TEL: 949.661.6583 FAX: 949.661.5041

(Circle No. 41)

FACTORY DIRECT PRICES

check us out now!



Sliding Tables

OverArm
Blade Covers

newest
precision
technology

1-800-387-9789

www.exaktortools.com

(Circle No. 169)

Creative Woodcraft Plans

Quality plans since 1985

www.woodcraftplans.com

www.woodentoyplans.com

(Circle No. 59)

TODAY'S WOODWORKER BINDER



Each of
these vinyl
padded
3-ring binder
has 2
pockets,
6 hangers
and enough
room for
a full year's
worth of
back issues.

Item #60692\$8.95 ea.

2 or more, \$7.95 ea.

Call 1-800-610-0883

Don't forget to mention code 70302!

THE BEALL COLLET CHUCK



For accurate wood turning.
Available collets hold
pieces from 1/4" to 3/4"
securely without marking.
No wrenches required.
For 1" & spindles.
Adaptors now available for
larger lathe spindle sizes.

For information call or write: Dept. W/
THE BEALL TOOL COMPANY

541 Swarts Road, N. E. • Newark, OH 43055

Toll Free (800) 351-4718 Fax (740) 455-5890

See our Web Site: www.bealltool.com

(Circle No. 143)



For product information at the speed of light ...

go to our *Electronic Advertiser's Directory* online at:

www.woodworkersjournal.com/adinfo

Link directly to our advertiser's web sites

for the fastest information available.

Resource Directory

To receive information about products or services featured in this issue of *Woodworker's Journal* by mail, fill in the attached postcard, circling the appropriate number(s).

No.	Source	Page	No.	Source	Page
69	3M (sanding sponges).....	7	149	MAS Epoxies (epoxies).....	88
203	A & I Supply (tool supplier).....	18	73	McFeely's (fasteners).....	89
68	Accuride (drawer slide).....	14	160	Microplane (roto-shaper).....	67
2	Airy Sales Corporation (nailer).....	24	18	Model Expo Inc. (model ship kits).....	94
117	Align-rite (CNC router).....	83	155	Mule Cabinetmakers Machine (rip fence).....	65
80	Arrow Fastener (nailer).....	21	196	Niagra Lumber (hardwoods).....	68
175	Badger Hardwoods (hardwoods).....	68	55	Nyle Dry Kiln Systems (kiln).....	24
194	Bench Dog (router tables & accessories).....	21	20	Olson Saw Co/ Blackstone (saw blades).....	13
7	Berea Hardwoods (hardwoods).....	67	171	Olympia Steel Buildings (steel bldgs).....	18
83	Better Built Corporation (portable sawmill).....	74	202	Oneida Air systems (dust collection).....	18
64	Bristol Valley Hardwoods (hardwoods).....	68	30	Original Saw Company (radial arm saw).....	22
120	Bunk Bed Specialties (plans & patterns).....	82	125	Osborne Wood Products (wood products).....	73
108	Cherry Tree Toys (plans & patterns).....	66	58	PanelPro™ (panel saw).....	71
26	CMT USA, Inc. (saw blades).....	63	164	Patina Solutions (patina finishes).....	89
132	Country Crafts (plans & patterns).....	67	103	Peck Tool (carving tools).....	89
59	Creative Woodcraft Plans (plans online).....	86	93	Performax Products (sander).....	62
4	Cupboard Distributing (wood parts catalog).....	86	197	Petri Paint Supply (polyurethane finishes).....	83
66	Dakota Alert (driveway alarm).....	89	21	Phantom Engineering (wood mills).....	86
40	Delta International Machinery Corporation (power tools).....	25,99	32	Playtime Blueprint Co. (plans & patterns).....	61
	Delta/Anderson Ranch Sweepstakes.....	15	88	Quik-Grip Clamps (clamps).....	17
141	Diamond Machining Tech. Inc. (sharpening tools).....	93	75	Red Hill Corp (abrasives).....	88
8	Dixie Millworks (wood turning parts).....	86	76	Ridge Carbide Tool Co. (bits, cutters & knives).....	89
12	Dremel (scroll saw, multi-tool).....	76,77	128	Ridgid Power Tools (planer).....	69
102	Ecogate (blast gate system).....	13		Rockler Woodworking & Hardware (online catalog, hardwoods).....	68,82,94
67	Econ Abrasives (abrasives).....	73	165	Rotogate (blast gate system).....	61
133	Emperor Clock, LLC (clock parts).....	65	161	Rousseau Company (router accessories).....	66
71	Engraving Arts (branding irons).....	89	129	Router Bits on the Web (router bits).....	88
169	Exaktor Tools (table saw accessories).....	86	130	S. La Rose, Inc (clock parts).....	86
105	Fein Power Tools (multi-tool).....	85	33	Shopbot Tools (CNC router).....	67
41	Financial Guidance (financial services).....	86	51	Smithy (multipurpose tool).....	89
24	Furniture Designs (plans & patterns).....	86	126	Southern Steel Bldgs (steel buildings).....	89
176	Garret Wade Company (catalog).....	23	81	Specialty Furniture Designs (plans).....	88
110	Gilmer Wood Company (lumber).....	68	201	Stots Corporation (dovetail jig).....	72
89	Grizzly Industrial, Inc. (power tools).....	2,3	142	Suffolk Machinery (saw blades).....	89
173	Guardsman WoodPro (franchising group).....	19	119	System Three Resins (epoxy).....	88
61	Haddon Tool Company (lumbermaker).....	86	143	The Beall Tool Company (collet chuck).....	86
19	Harbor Freight Tools (tools).....	96,97	1	Tool Crib of the North (tools).....	11
200	Hardwoods of Michigan (hardwoods).....	18	144	Tool Guide Corp (power tools).....	9
170	HTC Products (mobile bases).....	9	87	Viel Tools (grinding system).....	66
106	Hut Products, Inc (pen turner's catalog).....	23	84	West Penn Hardwoods (hardwoods).....	68
85	JET Equipment & Tools (power tools).....	100	172	Western Tool Supply (tool supplier).....	85
72	Joint A-Billi-T (jointer).....	71	95	Wetzler Clamp Company (clamps).....	86
163	Jointech (fence system).....	22	25	Woodcraft Supply (catalog).....	68
14	Keller & Company (dovetail jig).....	18	16	Woodline AZ (bits, blades & cutters).....	91
43	Kreg Tool Company (pocket hole jig).....	93	131	Woodpecker's International (fence system).....	62
15	Laguna Tools (power tools).....	95	156	Woodstock International (mobile bases & stands).....	75
177	Lazer Art (boxjoint jig).....	86	147	Woodworker's Hardware (catalog).....	74
86	Leigh Industries, Ltd. (router jigs).....	81	198	Woodworker's Haven (band saw fence).....	88
195	Librawood (tools).....	88	199	Woodworker's Source (hardwoods).....	61
152	MacBeath Hardwoods (hardwoods).....	89	159	WoodWrite Ltd. (mini-lathes).....	89
124	Manny's Woodworker Place (books & videos).....	72			

If you can build a boat with it,
why not a chair?



1-888-627-3769

masepoxies@aol.com

www.masepoxies.com

2615 River Road #3A Cinnaminson, NJ 08077

Contact us for our new catalog/technical guide

(Circle No. 149)

www.librawood.com

"The best prices
on the best tools"

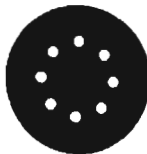
**"Forrest" Saw Blades
"Whiteside" Router Bits**

Plus "Jacobs" Power Router Collets, Videos, Books & more
visit our web site at

www.librawood.com

(Circle No. 195)

Supergrit® SANDPAPER
WWW.SUPERGRIT.COM
HOOK & LOOP DISCS



4 1/2" or 5" 5 or 8 Holes \$13.00/50
6" 6, 8, or 16 Holes \$17.50/50

"LAPRIKA" Micron 1/4 sheets
40-10 Micron (400-1500 grit)
REG. 39.95/50 SALE \$12.50/50

BELTS-A.O. RESIN

1x30 \$.75 4x24 \$1.10

1x42 \$.75 4x36 \$1.50

3x21 \$.85 6x40 \$3.00

3x24 \$.90 6x89 \$6.20

SHEETS—9"x11", A.O.

60D, 80D \$14/50

120C, 150C \$23/100

180A, 220A \$19/100

ABRASIVE ROLLS

PREMIUM PSA DISCS

RED HILL CORP.

P.O. BOX 4234

GETTYSBURG, PA 17325

FREE 48 PAGE CATALOG

& incredible close-out sheets.

800-822-4003

(Circle No. 75)

Finally, a stack-able bandsaw fence
that easily allows accurate re-sawing



Double point
lockup and wide
clamping plate
Teflon guide
bearings
Front and rear
support rails

Our patented re-saw locks allow multiple fence
rails to be stacked to the full cutting height of your
bandsaw. A high, solid fence with no movement
means total control of the cut for veneers or the
splitting of precious stock. Complete fence with
hardware \$80.00 Extra rails \$20.00

Woodworker's Haven

1-888-994-2836

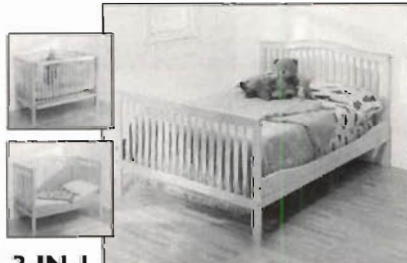
www.woodworkershaven.com

(Circle No. 198)



ROCKLER
WOODWORKING PLANS

Woodworking made easy!



**3-IN-1
TRANSITIONAL BED**

Easily transforms from a crib, to
a daybed, to a full bed. Hardware
kit (#32405) is also available.

\$14.99

Plus handling
Plan #30351

Call Today! 1-800-610-0883

Please mention code W0100

www.routerbits.com

Whiteside Router Bits
Systematic Saw Blades
Fisch Forstner Bits
HTC Mobile Bases



Router Bits on the Web

(Circle No. 129)

EPOXY

Quick Cure

The definitive "five-
minute epoxy" for
fast, permanent repairs
to wood, fiberglass,
ceramics, glass,
leather and plastics.



For the nearest dealer,
call 1-800-333-5514

Customer technical support
at www.epoxyhelp.com

System Three Resins, Inc.
P.O. Box 70436 • Seattle, WA 98107

(Circle No. 119)

Plans

**#109 Fufon
sofa/bunk
16.95**

60¢ Res./ Add 6% Sales tax

Top bunk is twin
size, bottom is
sofa or full
sized bed by
simply pulling 2
pins. Great space
saver in dorms or
small rooms!



Specialty Furniture Designs

11099 W. Adams Rd. Dept WJ-1 Riverdale, MI 48077

www.galaxymall.com/home/plans

1-800-892-4026

color catalog \$3.00 or FREE with order

(Circle No. 81)

Instant Survey ...

The three projects from this issue are
pictured at right. Here's your chance to
let us know which ones you like (and
would like to see more of)!

Simply circle the corresponding reader
service number on the Product
Information card between the previous
pages. Don't forget, you can also use this
card to request more information on any
advertiser in this issue. You'll receive your
product information within six weeks.



**Greene & Greene
Style Desk**

Page 34

(Circle No. 135)

**Veneered
Checkerboard**

Page 55

(Circle No. 136)

**Designing
with
Full-size
Mock-ups**

Page 42

(Circle No. 137)



**Shaker Design
Principles**

Page 24

(Circle No. 138)



SQUARE DRIVE SCREWS



Simply the Best

Square Drive Beats Driver Slippage
Deep Thread for Super Grip
Hardened Steel for Superior Strength
Made in the US or Canada!
Over 450 Styles Available!

Send \$5 for Samples, Catalog,
& Coupon for \$5 Off first \$25 Order

McFEELY'S PO Box 11169 • Dept WWJ
SQUARE DRIVE SCREWS Lynchburg • VA • 24506
Call Toll Free: 1-800-443-7937

(Circle No. 73)

WE'VE GOT MORE ... TIPS
SUPPLIES
PROJECT IDEAS

PLANS

WWW.WOODWORKERSJOURNAL.COM

SHOP OVER 1000
PLANS ONLINE!

WOODWORKER'S
JOURNAL

OWN THE COMPLETE HOME SHOP!

FREE
info pak

Don't fill your workspace with
expensive tools. You can do all
your projects on one machine.

- Work on wood—and
metal or plastic
- Easy and fun to use
- Built to last a lifetime

10-In-1 tool
CALL TODAY!

**SUPER
SHOP**

1-800-345-6342

or write: **Smithy**

Dept WWJ PO Box 1517
Ann Arbor, MI 48106-1517

Visit us at www.smithy.com

(Circle No. 51)

AUTHENTIC PATINA FINISHES MAY BE APPLIED TO ANY SURFACE!

Now you can create beautiful true patina finishes just
like the pros. Simply apply our Green, Blue, Black,
Burgundy & Rust patina solutions over our Liquid
Copper coating or on natural Brass, Copper & Bronze.
13-bottle sample kit for all surfaces - only \$45.

For more information call or write:
1-800-995-9946
2785 Kurtz #8, San Diego, CA 92110

**PATINA
SOLUTIONS**

(Circle No. 164)

On-line store open www.macbeath.com

NEW!



Featuring lumber packs,
veneer, furniture squares, ash
bat blanks, plywood & more ...

930 Ashby Ave.
Berkeley, CA 94710
800-479-5008
Fax: 510-843-9378

(Circle No. 152)

the PECK TOOL
company since 1928

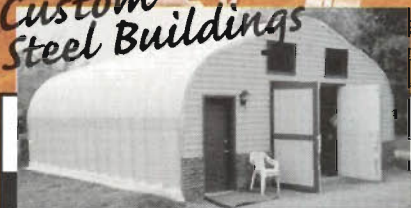
Fine German & Japanese
Hand Tools for the
Discerning Woodworker

Please
Call for a
Free Catalog! 1.303.440.5480

PO Box 4744
Boulder, CO 80306-4744
www.PeckTool.com

(Circle No. 103)

Custom Steel Buildings



FACTORY DISCOUNTS UP TO
\$5,000.00!!

- Ideal for storage of woodworking
equipment and supplies
- As a workshop for the do-it-yourselfer
- As a small business location

Made in the U.S.A. - 20 year warranty

Build it yourself - **EASY,
FAST CONSTRUCTION**

CALL FOR SIZES

Buy factory direct and save by calling
Toll Free 888/667-8002

www.southernbuildings.com



(Circle No. 126)

The Future of Mini-Lathes IS NOW!!!

Call now or see our WEB SITE for more
information on our world class

Precision Mini-Lathes,
including the "automagic" Model 361
Also see our new CNC lathe, Model 4611

Pen Turning Supplies

Titanium Gold Pen Kits

Lowest Prices Available (Retail/Wholesale)

Pre-cut & Drilled Pen Blanks
in 38 Varieties of Rare and Exotic woods

Turner's Magic™

Friction Drying Sealer & Polishes

WoodWrite Ltd.

888-WOOD-WRITE (966-3974)

www.WoodWriteLtd.com

(Circle No. 159)

CUSTOM ROUTER BITS CUTTERS & KNIVES

2 week or less delivery

Toll-Free Fax Drawings: 1-888-RCT-TOOL (728-8665)

Mail drawings or wood samples:

Ridge Carbide Tool Co.

P.O. Box 497, 595 New York Ave.
Lyndhurst, NJ 07071
(800)-443-0992

"Industry Leader in Custom Router Bits"

Send \$3 for complete 100 page

STOCK TOOL CATALOG

See our catalog at: www.ridgecarbide.com

(Circle No. 76)

CUSTOM BRANDING IRONS

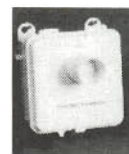
HIGH QUALITY, DEEP ENGRAVED BRONZE DIES
LONG LASTING INDUSTRIAL DUTY HEATERS

**FREE BROCHURE AND SAMPLE BRANDS
NOT THE CHEAPEST - QUALITY COSTS MORE**

ENGRAVING ARTS 800-422-4509 fax: 707-984-8045
P.O. Box 787 www.brandingirons.net
Laytonville, CA 95454 e-mail: clem@brandingirons.net

(Circle No. 71)

WIRELESS DRIVEWAY ALARM



A bell rings in your house
anytime someone walks or
drives into your place.
- Free Literature -

DAKOTA ALERT, INC.

BOX 130, ELK POINT, SD 57025
605-356-2772
www.dakotaalert.com

(Circle No. 66)

Netscape: Woodworker's Journal - The voice of the woodworking community.

Location: <http://www.woodworkersjournal.com/> What's Related

**WOODWORKER'S
JOURNAL eZine**

NEW!

Free Online
Woodworking Magazine

<http://www.woodworkersjournal.com/eZine/subscribe.cfm>

Sign up for your free subscription!

SWEDISH SILICON STEEL

BAND SAW BLADES

Electro
Heat
Induction
Hardened



Milled Sharp Teeth
Any Length
Any Size

BEST?
FREE
CATALOG
Bi-Metal - M-2/M-42
Flex & Hard Back - PC: Series
AS: Series: Veneer Bands

TIMBER WOLF BANDS

HIGH PERFORMANCE PALLET & BAND MILL BLADES

SUFFOLK
MACHINE **1-800-234-SAWS**

12 Waverly Avenue
Patchogue, NY 11772

19 YEARS OF GROWTH NATIONWIDE

(Circle No. 142)

PROJECT PLANNER



SHOP-BUILT PANEL SAW

A professional quality saw at half the cost of a manufactured model. The extruded aluminum kit is available with all the parts to complete the aluminum frame and carriage assembly.

31443 TW Article Reprint	\$3.95
22223 Extruded Aluminum Kit	\$299.99
23812 Five Star Knob	\$9.99
88692 T-slot Bolt	\$1.99
68064 Easy Grip Knob*	\$8.99
83329 Metal T-slot Track	\$8.99
52423 Self-stick Measuring Tape	\$5.99

*Four required.

ECONOMY TOOL BOX

Transporting and organizing your tools will be easier with this box. It features a main storage top, five drawers and a detachable front panel.

40519 Plan	\$5.99
79236 Tool Box Lock	\$7.99

CRAFTSMAN'S TOOL BOX

Carry everything you could possibly need in this handsome tool case.

79582 TW 19	\$4.95
26443 Two Brass Plated Oblong Catches	\$2.99
68619 1/2" Solid Brass Knob*	\$2.49

*Two required.

ECONOMY WORKBENCH

A great workbench that won't bust your budget. The hardware kit includes a Veritas twin screw vise, leveler glides and T-bolt tracks.

52292 Plan	\$9.99
88379 Hardware Kit	\$164.99



WORKBENCH

Mortise and tenon joinery the easy way, and you still end up with one sturdy workbench.

22470 VVJ 58	\$4.95	\$2.47
59584 Large End Vise		\$69.99
33523 Square Bench Dogs (pair)		\$19.99



WOODWORKER'S JOURNAL SLIP CASE

An economical way to organize back issues of your favorite magazine.

35811 Slip Case	\$8.95
2 or more	\$6.95 ea.

Ordering Info:

Please call the number below and mention the code shown. Your handling fee and taxes (see below) will be automatically calculated at the time of your order.

WJ: Woodworker's Journal Back Issue

TW: Today's Woodworker Back Issue

Plan: Rockler Woodworking Plan

If you're not completely satisfied with any product or plan, just return it for a 100% refund, no questions asked.



Shipping & Handling

Under \$10.00	\$2.99
\$10.00 - \$30.00	\$4.99
\$30.01 - \$60.00	\$6.99
\$60.01 - \$80.00	\$7.99
\$80.01 - \$100.00	\$8.99
Over \$100.01	\$9.99

Canadian and other foreign orders, please call for additional handling charge.

Sales Tax:

Customers in AZ, CA, CO, IL, IN, MA, MI, MN, MO, NY, OH, WA, and VT must add applicable state taxes to total. All applicable county and city taxes also apply.

Woodworker's Journal Article Reprints: \$3.95

Shop Jigs

Band Saw Circles	#1449
Bowl Making	#1450
Box Joint #1	#1451
Box Joint #2	#1452
Cutoff	#1453
Dado	#1454
Horizontal Boring	#1455
Keyed Spline	#1456
Keyed Miter Jig	#1457
Miter Clamping	#1458
Miter Cutting	#1460
Radial Arm Crosscut	#1461
Radial Arm Planer	#1461
Stop Dado, Router	#1464
Table Saw Cutoff	#1465
TS Edge Jointer	#1466
TS Multi Fence	#1469
TS Round Tapering	#1470
Tapering	#1471
Tenoning #1	#1473
Tenoning #2	#1474
Tenoning #3	#1474
Tenoning #4	#1475
Through Dovetails	#1476

Shop Fixtures

Bar Clamps	#1996
Bow Saw	#1998
Clamp, Shop-built	#2000
Clamp Rack	#2001
Clamp, Cam #1	#1999
Clamp, Cam #2	#2177
Disk Sander	#2004
Drafting Table	#1778
Drawing Board	#2005
Drill Press Fixture	#2006
Drill Press Organizer	#2006
Drill Press Vise	#3340
Drum Sander	#2007
Grinder Stand	#2008
Handsaw Caddy	#2009
Handscrew Clamp 1	#2010
Handscrew Clamp 2	#2011
Jointer Pushboard	#2013
Lathe Steady Rest	#2014
Router Bit Box	#2026
Router Cabinet	#2027

www.woodworkersjournal.com

Or call 1-800-610-0883 (mention code: W0100)

WOODLINE Panel Raisers and Rail & Stile Cutters will help you make **CABINET DOORS EASIER & FASTER**

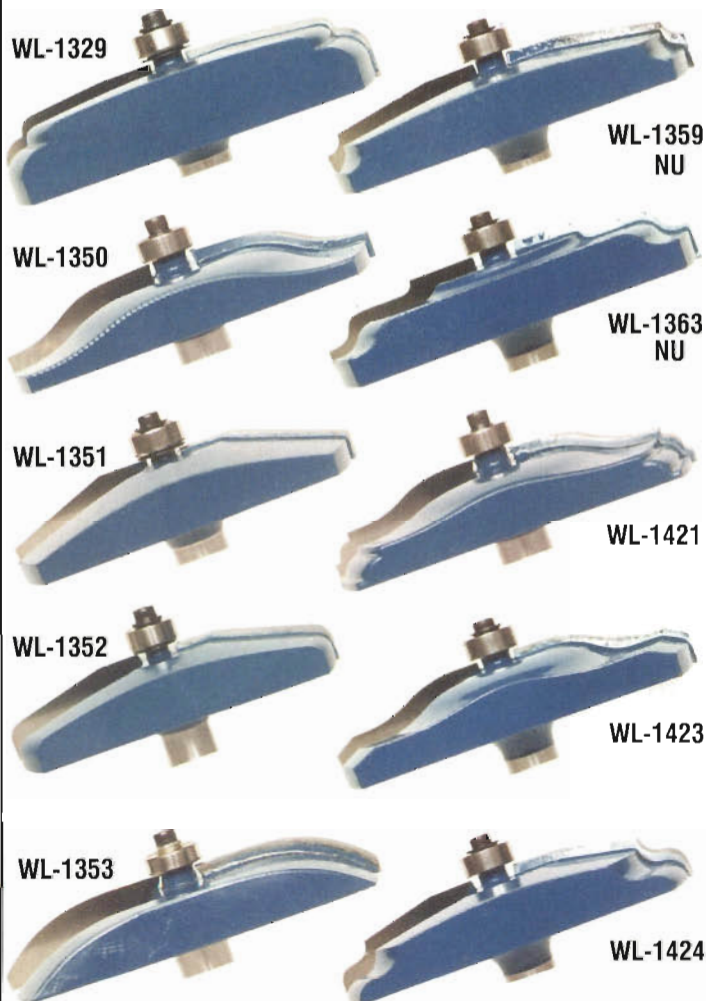
Purchase any 1 of these PANEL RAISERS
PLUS
Any 1 ONE-PIECE RAIL & STILE CUTTER

only **\$85.**
for the 2 bits

PANEL RAISERS

Now in 10 profiles. 1 1/2" reveal.
3 1/2" diameter 1/2" shank router bits.

OUR PRICE
\$40.ea



To complement your beautiful panels
WOODLINE now offers terrific...

ONE-PIECE RAIL & STILE CUTTERS

in 7 attractive profiles. These cutters are both easy to use and save plenty of time because it is unnecessary to take them apart

or to change bits for the matching pass. Just lower the cutter or raise the material following the simple instructions which are included.

1/2" shank router bits.

OUR PRICE
\$49.ea



WOODLINE ARIZONA, Inc

P.O. Box 1530 • Payson, AZ 85547

Great Router Bits & Shaper Cutters!

Best Selection...Best Price

Get your FREE
catalog and see our
great selection of Bits
and Cutters
1-800-472-6950

- All Major Credit Cards
- Shipping is only \$3.75 per order
- Most items in stock
- Same-day shipping!!

Order Toll Free

1-800-472-6950

WOODLINE's Quality Bits & Cutters feature:

- Tough Micro-Grain Carbide
- Euro Anti-Kickback Design
- Super-slick Non-stick finish
- **Super Low Prices**

Check our website for
new products:
www.woodbits.com
E-mail:
cutters@netzone.com

Your Guide to Tools

A Woodworker's Index

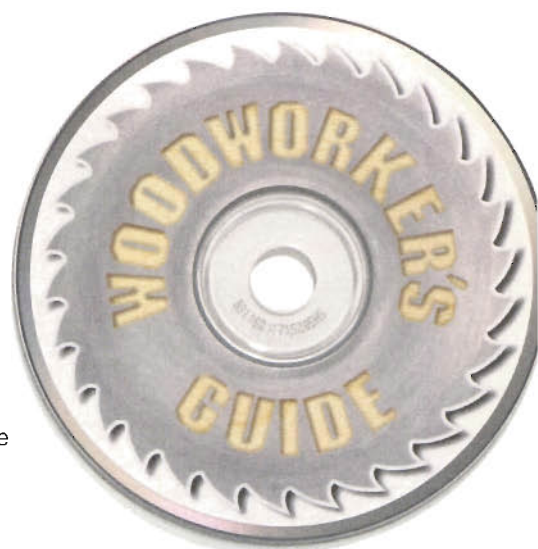
Woodworker's Guide is a complete index of woodworking articles from 26 magazines — 1,100 issues in all. The index lists over 21,000 articles from 1995 to June 1999.

Woodworker's Guide 2000 comes in two formats, a 470-page spiral bound book that sells for \$39 and a CD version for \$35. Both versions are organized into 37 categories that make it easy to find articles and plans on almost any subject.

The CD version is so simple it's almost impossible to get into trouble, even for the most computer challenged woodworker. The lookup is quick and can be viewed on screen or printed. The only problem I ran into was when I tried to be too specific in my search, eliminating articles with only partial word matches.

One of the real strengths of the CD version is that it allows you to look at all 36 categories with one search. When I looked up "dentil," it found 22 articles in seven categories. Trying to reproduce the same list using the spiral bound version would require looking at every category — not that difficult, but time-consuming.

The CD version also has a neat feature that lets you identify the magazines in your personal library. To search just the issues you have at home, you simply turn on the "periodical filter," and the database only returns articles that are in your home library. A tool review index allows you to look up reviews of specific tools by name, vendor, or model number. Annual updates every



November will keep the index current.

If you're designing a project or just trying to find a specific technique or tool review, Woodworker's Guide is an invaluable resource. I'd also highly recommend the CD version because it's faster, cheaper, and the search results were more complete.

Find out more info at 610-446-7231 or www.woodworkersindexing.com.

— Steve Krohmer

Planer Comes With Pro Qualities

Bosch's new 3365 planer gives hobbyists access to some features previously available only in professional level tools. In addition to left and right chip ejects and a vacuum attachment, it comes with an edge guide fence long enough to provide consistent planing through the entire workpiece. A five amp

motor generating 18,000 rpm drives the single blade. "Because of the superiority of the Woodrazor micrograin tungsten carbide blade, a second blade just isn't necessary with the 3365 planer," says Jim Stevens, Bosch product manager, woodworking. "Another key benefit of the single-blade design is that

only one blade edge is exposed to possible damage from hidden nails and staples."

Blade changes are quicker and easier, too, Jim said. The planer's drum automatically positions the blade to an ideal cutting angle. Price is about \$107.

For more info, call 877-267-2499 or visit www.boschtools.com.



Bosch's new 3365 features the Woodrazor tungsten carbide blade.



Vermont American's new screwdriving bits are cool ... literally. IceBits undergo a cryogenic ("deep freeze") hardening process at temps below -100 degrees Fahrenheit that's meant to lock in their molecular structure and make them last longer. According to Vermont American, they drive up to 10 percent more screws and have over a 30 percent longer tip life than conventional bits. Special gripping ribs also reduce slippage in the screw head. As singles, the bits start at 89 cents; as packs of 10, at about \$5.99. For more, call 800-742-3869 or visit www.vermontamerican.com.

Craftsman's Cordless Makeover

More power, more comfort and easier use were among Craftsman's goals in a complete redesign of its Professional Cordless Drill line. "We concentrated our efforts on the end-user," Sears tool buyer Ray Holbrook said. "Pound for pound, these drills can go head to head with any cordless drill on the market."

High performance sub-C battery cells now provide the drills with 15 percent more capacity and greater reserve power. Ergonomic control comes from a contoured handle with a soft grip surface. And, in contrast to the previous two-part Craftsman chucks, the chucks on the new drills are the single-sleeve keyless form, with a die cast clutch which allows one-handed bit changes.



Craftsman also redesigned the battery pack so it slides into a holding chamber in a tongue and groove fashion which offers constant contact with less voltage loss. The redesign also resulted in a narrower handle diameter, making the tool easier to manage.

Craftsman's drills also come with a built-in bubble level for accurate drilling or driving in horizontal or vertical positions, two battery packs and slotted and Phillips bits. Sizes range from a 3/8" 9.6 volt to a 1/2" 24 volt; price range is \$119.99 to \$269.99. For more information, call 800-377-7414 or visit www.sears.com/craftsman.

Safer Start-ups

If you've ever recovered from a power outage to find your palm sander plowing across the floor like a movie monster, you'll be interested in Sensing-Saf-Start®. This device replaces the power cord on small machines, including table saws and drill presses, in order to prevent the machines from restarting after a power interruption. The Sensing-Saf-Start won't reset until you've turned the machine switch to "off." Three 120 volt styles and one 240 volt style are available, for around \$68. Call 916-933-2699 or visit www.saf-start.com for more info.



DuoSharp™

A superior two grit diamond sharpening system



Diamond DuoSharp™

- ◆ sharpens, hones, laps knives & tools fast
- ◆ precision flatness for precision sharpening
- ◆ extends carbide tooling life 5 to 7 times
- ◆ flattens conventional stones & waterstones



Diamond Machining Technology, Inc.
85 Hayes Memorial Drive Marlborough, MA 01752 USA
www.dmtsharp.com 508-481-5944
Visit us at IWF Booth #3043



Leading wood joinery into the **NEW** millennium...

Kreg Tool Company is pleased to offer two new tools for pocket hole joinery at IWF 2000.

NEW The DKII, floor standing, fully automatic pocket hole boring machine

NEW The K2000 ProPack, a complete manual pocket hole system that features the K2000 adjustable Kreg Jig



Booth 7116

www.kregtool.com
1-800-447-8638

GETTING TO KNOW YOU SPECIAL

OPTICAL QUALITY
LIGHTED MAGNIFIER

Only
\$12.99

Mfg. List \$28.99
No. MP24SLCB



AVAILABLE
ON OUR WEBSITE

along with thousands of other tools and hobby products. To get your special price, type "WJ90" into the comment box.

www.modelexpoinc.com

Call 800-222-3876

Fax 800-742-7171

Or send \$12.99 (plus \$5.00 S&H).

FREE COLOR CATALOG
WITH ORDER!

MODEL EXPO, INC. Dept. WJ90

PO Box 229140,
Hollywood, FL 33022

Special offer valid through 12/31/00.
© Model Expo, Inc., 2000

(Circle No. 18 on PRODUCT INFORMATION form)

Rockler.com
WOODWORKING SUPERSTORE

LOG ON
and take off.

Visit the best site for
woodworking supplies
on the web, and we'll
give you **\$10 off** your
first order!

To activate this offer,
go to this page:

www.rockler.com/wj

ROCKLER

WOODWORKING AND HARDWARE

ByPhone Call our order entry
department 1-800-403-9736

ByFoot Call 1-877-ROCKLER for
the retail store closest to you

ByNet Shop online at
www.rockler.com

V0720

WHAT'S IN STORE

3-Way Edging Clamps

Woodworkers can never have too many clamps — especially if the kind they have will perform multiple functions, like the 3-Way Edging Spring Clamp.

Manufactured by Adjustable Clamp Company under their Pony brand, the 3-Way is both a spring clamp and an edge clamp. Soft pads prevent the clamp from scratching as you use it to clamp up any shape or size — edges, round on round, toothpicks or a countertop. Invented by a contractor who noticed the flexibility in a credit



card that he wanted in a clamp, the 3-Way can be applied with one hand. It comes with a steel PVC coated edge spring. The clamp is available in 1" and 2" sizes with throat depths of 1 1/4" and 2 1/8". For more information, contact Adjustable Clamp at 312-666-0640.



A Solid Base

Cunningly, Woodstock International planned its Shop Fox® Adjustable Mobile Bases to work with almost any machine in your shop. Fully adjustable for different base sizes, they also boast heavy gauge steel construction strong enough to move machines on a regular basis. Potholes in your cement shop floor? ShopFox has a retractable foot with two plungers you can screw up or down for leveling, without shims or spacers. Swivel casters on two corners are designed for maneuverability.

The Model D2057 Shop Fox Heavy-Duty Mobile Base can handle machine base sizes from 18 1/2" x 20" to 29" x 29" and a maximum weight of 600 lbs; suggested retail is \$69.95. The Model D2058 Shop Fox SuperHeavy-Duty Mobile Base covers base sizes of 18" x 20 1/2" to 28 1/2" x 33 1/2" and weights up to 1,200 lbs. at a suggested retail price of \$89.95. For info, call 800-840-8420. www.woodstockinternational.com

Milwaukee's Bit

With Milwaukee's new PathFinder drill bits, you get a little bit of everything — a Forstner bit, a paddle bit, and a twist bit. Their patented crown and shank design gives PathFinder its versatility, with six cutting edges on the oversize crown that allow forward, backward, sideways and angular cuts with full control. A shank with a smaller diameter than the crown permits sawdust to escape and allows steering in any direction. Forward, it's a Forstner bit; sideways or backward, it's a milling cutter. Milwaukee says PathFinder makes fast, clean cuts in wood and composites, without binding or vibration. Individual prices range from \$11.50 to \$18.60. For more info, call 877-729-3878 or visit www.mil-electric-tool.com.



Laguna Tools Band Saw

Limited Time
Offer



Now Only \$995*

No more excuses, you will never have a better time to purchase a Laguna Tools LT16 band saw. Due to the high volume of band saws that we sell, we can now give you the best band-saw value in the market. Manufactured in Italy exclusively for Laguna Tools, this powerful and swift piece of Italian ingenuity has high-quality, performance and your name written all over it. Don't wait. Call today to get your free demonstration video.

- 12" resaw capability
- Easy blade change with 1/16 to 1" blade capacity
- 1.5 HP motor
- All-welded steel frame construction
- Cast-iron flywheels with snap on rubber tires
- Electrodynamically balanced
- Large 16" x 19" cast-iron table
- Cast-iron rip fence
- 3/8" x 3/4" miter gage slot
- Two dust ports for excellent dust collection
- Blade tension indicator
- Table tilt from -10 to 45 degrees. Steel trunions
- Bearing Euro guides, both upper and lower
- Mobility kit, power feeder and 110-volt motor available

*Excludes sales tax and freight

LAGUNA TOOLS

You Build With Wood, We Build With Trust.

800-234-1976

E Mail: lagunatools@earthlink.net Web: www.lagunatools.com

17101 Murphy Avenue, Irvine, California 92614 (949) 474-1200

100 Central Avenue, South Kearny, New Jersey 07032 (973) 491-0102 • Fax (973) 491-0591

(Circle No. 15 on PRODUCT INFORMATION form)

4239

FREE SHIPPING!

FOR ALL ITEMS SHOWN ON THESE TWO PAGES!

LOW PRICE GUARANTEE! • PRICES EFFECTIVE THRU 1-1-2001

WE'LL BEAT ANY COMPETITOR'S PRICE ON ANY IDENTICAL ITEM - EVEN IF IT'S AN ADVERTISED SPECIAL

WE CARRY
OVER 5000 ITEMS!
CALL TODAY FOR
A FREE CATALOG
SUBSCRIPTION

DELTA®

10" Delta 36-070R POWER MITER SAW

- 120V, 13 amps, 60 Hz, 5200 RPM
- Factory reconditioned, factory perfect
- Electric blade brake • Direct drive
- All ball bearing • 5/8" arbor
- Positive miter stops: 45°, 22-1/2°, and 0°
- Cutting capacity: 2 x 6 @ 90°, 4 x 4 @ 90°, 2 x 4 @ 45°
- Wide one-piece fence for extra support: 2-1/2"H x 17-5/8"L
- Aluminum base: 6" x 17-5/8" with predrilled holes
- Miter left/right: 50°
- Cast iron head

LIMITED
QUANTITIES

ITEM
51839-4KAA

\$99⁹⁹

CENTRAL MACHINERY

SANDPAPER
SOLD
SEPARATELY

12" DIRECT DRIVE BENCH TOP DISC SANDER

Get sharp, accurate finishes without burning or marring. Direct drive disc won't slip. Table tilts to 45°. 2" dust collection outlet; fan-cooled brushless motor; miter gauge; base pads prevent creeping; safety switch. Includes 60 grit, 12" sanding pad.

- 1 HP, 120V, 10.0 amps
- No load speed: 1793 RPM
- Wheel diameter: 12" • Base: 13" x 10"
- Shipping wt.: 92 lbs.

ITEM
37297-3KAA

\$89⁹⁹

DELTA®

OSCILLATING SPINDLE SANDER ATTACHMENT

WITH SANDING SLEEVES

This attachment turns almost any drill press into an oscillating spindle sander. Accepts up to 3" sanding drums. Includes table with dust outlet, 1" and 2" steel inserts, 2 drive belts, gear box, belt guard, mounting bracket and hardware. 40 strokes per minute on 2" diameter drill chuck running at 2000 RPM; 3/4" stroke; 8-1/2" x 8-1/2" table; 2-1/4" diameter dust outlet; includes 3 each of 80 and 120 grit sandpaper: 1/2", 3/4", 1", & 1-1/2"

ITEM
53574-1KAA

\$39⁹⁹

24 PC., 2-1/2" SANDING SLEEVE SET

Includes 3 each 80 and 120 grit sanding sleeves - 1/2" through 1-1/2"

ITEM 53510-4KAA

\$5⁹⁹

CHICAGO
Electric Power Tools

INCLUDES
CHARGER
& BATTERY

A. 18 VOLT CORDLESS, VSR DRILL/DRIVER KIT W/3/8" KEYLESS CHUCK

VSR; Speed range: 0-900 RPM; 3/8" Jacobs® keyless chuck; 6 pc. screwdriver & 6 pc. drill bit sets; includes charger, battery and carrying case

ITEM
37144-4KAA

\$59⁹⁹

B. 18 VOLT CORDLESS, 5-3/8" CIRCULAR SAW KIT

Kit includes: 1 hour quick charger, 18V battery, saw and hex key. 2400 RPM, 1.3 amps, 10mm arbor, and 50° bevel capacity.

ITEM
37412-7KAA

\$69⁹⁹

18 VOLT REPLACEMENT BATTERY

ITEM 37145-1KAA

\$29⁹⁹

5-3/8" TUNGSTEN CARBIDE TIP BLADE

Teeth: 24, C2 carbide steel, 10mm arbor, max. RPM: 7000

ITEM 41290-0KAA

\$7⁹⁹

RIP FENCE

ITEM 37449-1KAA

\$3⁹⁹

DREMEL®

Dremel 4953

MULTIPRO™ ROTARY TOOL KIT

Fastest of the rotary tools, the MultiPro™ provides all the control and cutting action needed to complete hundreds of jobs. Ideal for precision cutting, grinding, engraving, polishing, routing, carving, and more. Works on materials like wood, metal, or plastic. Includes flex shaft attachment, cutting guide attachment, 100 assorted accessories and deluxe storage case.

- 120V, 1.5 amp motor
- Variable speed slide switch from 5000-30,000 RPM
- Shatter-resistant housing
- Integral cooling fan
- 1/8" collet capacity

ITEM
41240-3KAA

\$89⁹⁹

\$79⁹⁹

OVER 5000 ITEMS!

VISIT OUR WEB SITE!

harborfreight.com/go/wood

DAILY SPECIALS!

WEB SITE AUCTION!

NOW OPEN!

SEASONAL SPECIALS!

CLOSEOUT ITEMS!

BLACK & DECKER Industrial

5 AMPS!

Black & Decker 1180

3/8" VSR HOLGUN DRILL

High powered and heavy duty for industrial work.

- 5 amps, 1200 RPM
- Aluminum gear case for durability
- Heat treated gears for smooth operation
- Two-finger trigger for comfort
- Capacity for wide range of accessories

ITEM
53531-3KAA

\$54⁹⁹

CarbTip
INDUSTRIAL

8" DADO BLADE SET W/SAWS AND CHIPPERS

Long lasting industrial quality carbide tipped dado set produces flat-bottom cuts. Cuts clean and smooth grooves and dados from 1/8" to 3/4". Use for hard or soft woods, plywood, particle boards and laminates. C2 tungsten micro-grain carbide tips last up to 50 times longer than steel blades and can be resharpened. One chipper is 1/16" thick, all others are 1/8" thick. 7000 RPM maximum. Includes:

- Two 24T 8" outerblades
- Five, 2T chipper blades - one is 1/16"
- Includes brass shimstock

ITEM
40745-2KAA

\$29⁹⁹

CHICAGO
Electric Power Tools
4" PLATE
JOINER

- Fence adjusts to a maximum depth of up to 1-1/8"
- Maximum angle of up to 45°
- Preset depth stops: 0, 10, and 20
- Includes 4" carbide tipped blade, dust bag, high impact base and fence, carbon brush set, 4mm hex wrench, arbor wrench, glue bottle, assorted biscuits (10 each of 0, 10, and 20 gauge)
- 4" blade diameter
- 115V, 6.4 amps, 10,000 RPM, 60 Hz, single phase
- Tool wt.: 6-1/2 lbs.

ITEM
38437-2KAA

\$49⁹⁹

CARBIDE TIP PLATE JOINER REPLACEMENT BLADE

- Blade teeth: 6 carbide tip teeth
- Blade diameter: 4"
- Maximum RPM: 12,000

ITEM 38840-0KAA

\$7⁹⁹

HEAVY DUTY 16 GAUGE BRAD TACKER

This unit packs extra punch to cleanly drive extra long brads every time. Use for cabinetry and carpentry jobs, also paneling, casings, and other construction applications. Features solid aluminum magazine with sliding cover.

- 60 to 100 PSI • 1/4" NPT inlet
- 3/4" to 2" brad length; 16 gauge
- 100 brad capacity
- 4-1/2 lbs. tool weight

ITEM
31317-6KAA

\$69⁹⁹

16 GAUGE BRADS PK. OF 2500

LENGTH	ITEM	PRICE
1"	34122-0KAA	\$4⁹⁹
1-1/4"	34123-1KAA	\$5⁹⁹
1-1/2"	34124-0KAA	\$6⁹⁹
1-3/4"	34125-2KAA	\$7⁹⁹

* Within the 48 contiguous states / \$4.95 handling on all orders

No per item shipping and handling charge

Call To Order or Ask for Free Catalog:

Order 24 Hours a Day/7 Days a Week
Most Phone Orders Shipped in 48 Hours



FAX TOLL FREE: 1-800-905-5220

1-800-423-2567

CHARGE
IT!



4239

Or Send Check or Money Order to: Harbor Freight Tools,
3491 Mission Oaks Blvd. Box 6010, Camarillo, CA 93011

Great Gifts Galore



The Slatted Cradle appeared in the May/June 1985 issue of *Woodworker's Journal*.

Touch of the Tropics

When we printed our original version of the Steamer Trunk, we thought it recalled the luggage our grandparents took on ocean voyages. With the right paint, **Keith Pitchford** of Dyer, Indiana, decided, it could

Our original Steamer Trunk appeared in the September/October 1993 issue of *Today's Woodworker*.



sail the tropical seas along with the fish which decorate his daughter's room. He added soft-down hinges to create a toy chest for all of his daughter's treasures.

Baby, Cradle and All

The arrival of **Milton Kretsch's** first grandchild gave birth to the opportunity this Newbury Park, California, woodworker had been waiting for. For years, Milton saved the plans for a slatted cradle he found in the pages of *Woodworker's Journal*. Who says grandmothers-in-waiting are the only ones with such heightened anticipation?

An Office for Home

Reader **Chuck Taylor** of Hillsboro, Ohio, must be a popular guy at the office. He had recently completed an entertainment center when a co-worker's question about a home computer center led to Chuck whipping up one of Rick White's designs. Chuck used red oak and



Cool Jewel Box

"This is sooo cool!" was the reaction of **Charlie Cheney's** granddaughter to the jewelry box her Lancaster, South Carolina, grandfather presented her. Charlie adapted our plans in order to create a jewelry box which



The Jewelry Box (with a rose intarsia on the lid) appeared in the September/October 1998 *Woodworker's Journal*.



The Computer Cabinet was featured in *Today's Woodworker*, Sept/Oct 1997.

stain, finished with tung oil, to create a piece of furniture that provides a place for every computer-related thing. Now his colleague has a snazzy place to pay bills, surf the Web — and play solitaire in peace!

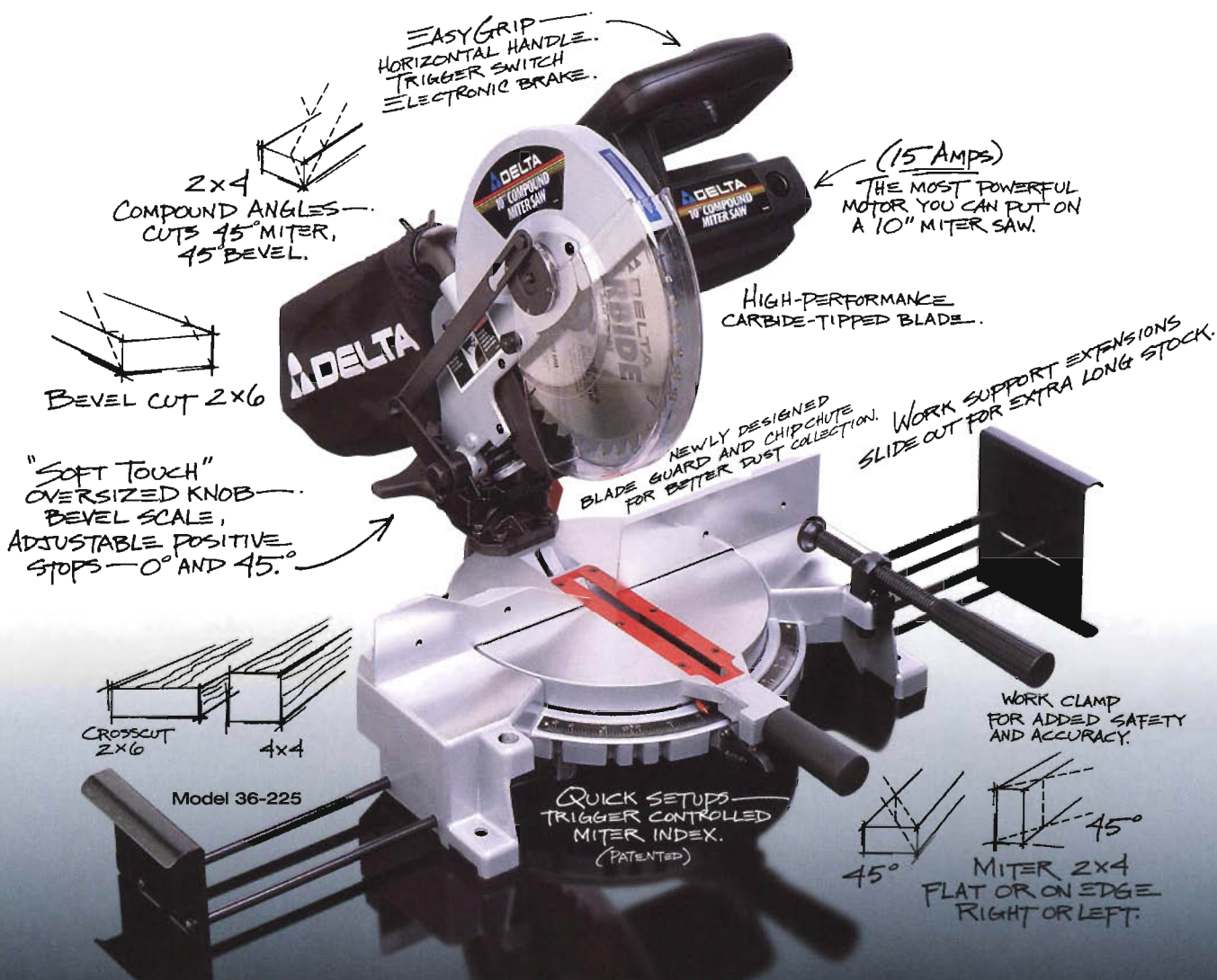
the drawers with brass bushings in the front edge. Brass plugs in the lid operate the pins when the lid is locked. He used Honduran mahogany for the carcass, box-joint corners, lid and bottom panels, tray and shelf; bird's-eye maple for the lid and bottom frames; and ebony for a trim.



Winner! **Chuck Taylor** wins a Bosch 1295H orbital sander for his contribution to *End Grain*. For a chance to win, send letters and photos to: **End Grain, Woodworker's Journal**, P.O. Box 261, Medina, Minnesota 55340. If we publish yours, we'll throw your name in a hat for our free tool drawing. Photos of projects from *Woodworker's Journal* or *Today's Woodworker* are eligible.

DELTA TAKES A SERIOUS LOOK AT ALL THE ANGLES.

The new 10" Compound Miter Saw: 33 lbs. of power and precision.



We've always been serious about Miter Saws. After all, we invented the very first one. Which means we've gotten pretty good at understanding what should go into them. Like the 33 lbs. of raw power and precision you're looking at here. Packed with features that'll have you looking forward to cutting angles you used to try to avoid. And it's just one of a full family of Delta Miter Saws. For the name of your nearest dealer, call Delta Machinery, 800-438-2486. In Canada, call 519-836-2840. www.deltawoodworking.com

SERIOUS
WOODWORKING TOOLS
SINCE 1919.

DELTA
MACHINERY
A Pentair Company



Delta is a proud sponsor of The New Yankee Workshop with Norm Abram on PBS.

(Circle No.40 on PRODUCT INFORMATION form)



The beauty is in the details.

Strip away JET's rich white color and you still have the best 10-inch contractor-style table saw money can buy. Why the best? Because we have an eye for detail. We introduced the up-front switch on this saw—now an industry standard. Our precision T-style JETFENCE™ gives you the accuracy your projects demand and the ability to duplicate every cut you make. We also added quick-connect plugs to the 1½ horsepower motor so you have no wiring worries; just power up and get to work. The color? Well, that's another detail we thought you'd appreciate.

JET

JET, Performax and Powermatic—the JET Family of Brands.

(Circle No. 85 on PRODUCT INFORMATION form)



Call 1-800-274-6848
or visit www.jettools.com
for a catalog or the name
of a JET dealer near you.