

Tool previews for the new season

FREE pattern!

WOODWORKER'S JOURNAL

The magazine
for Today's
Woodworker

December 1998

Volume 22

Number 6

Easy-to-make
holiday gifts

Instant heirloom:
**build an Irish
parlor clock**

A rock solid
trestle table
that knocks
down in minutes

Special technique:
**How to cut
coves on your
table saw**



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Today's Woodworker

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10"X40TX1/8" or 3/32"	\$156	\$119	\$107	\$95
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9"X40T	\$146	\$109	\$98	\$87
30T	\$125	\$99	\$89	\$79
*8-1/4"X40TX 3/32"	\$136	\$99	\$89	\$79
8"X40T 3/32"	\$136	\$99	\$89	\$79
30T	\$115	\$89	\$80	\$71
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8"X60T	\$150	\$109
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NEW SIZES AVAILABLE

NEW SIZES AVAILABLE	LIST	SALE
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Hitachi 8-1/2"X60TX5/8"	\$179	\$109
DeWalt 8-1/2" & Ryobi 8-1/2"X60TX5/8"	\$179	\$109
Delta 9"X80TX5/8"	\$204	\$119
Ryobi-Makita & all 10"X80TX5/8"	\$207	\$129
DeWalt, Makita, B&D, Hitachi 12"X80TX1"	\$229	\$139
Ryobi-Makita 14"X100TX1"	\$266	\$179
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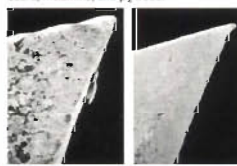
Faster feed rates & absolute splinter control. Stops splintering on OAK/BIRCH PLY VENEERS & MELAMINE

SIZES AVAILABLE	LIST	SALE	SIZES AVAILABLE	LIST	SALE
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8" X 80T X 1/8" & 3/32" K	\$202	\$169	12" X 100T X 1-1/8" K	\$253	\$215
220mm x 80T X 1/8" & 30mm	---	\$167	14" X 80T X 1"	\$232	\$197
9" X 80T X 1/8" & 3/32" K	\$207	\$179	14" X 100T X 1"	\$266	\$226
10" X 80T X 1/8" & 3/32" K	\$207	\$159	16" X 80T X 1"	\$262	\$223
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dedicated crosscut blade."

See American Woodworker April 1998, pp. 64-69.

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- See thru blade guard
- Angled dust chute in bottom of stand
- Includes 2 table inserts (blade & dado)

G1023Z Only \$1095⁰⁰

G1023ZX has all of the features listed on the G1023Z with 1 updated feature:

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G1023ZX Only \$1195⁰⁰

76Z



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WOODWORKER'S JOURNAL



32 Irish Parlor Clock

By John English

Our features editor got the inspiration for this design from an old clock his Uncle Joe uncovered in Ireland.



52 Trestle Table

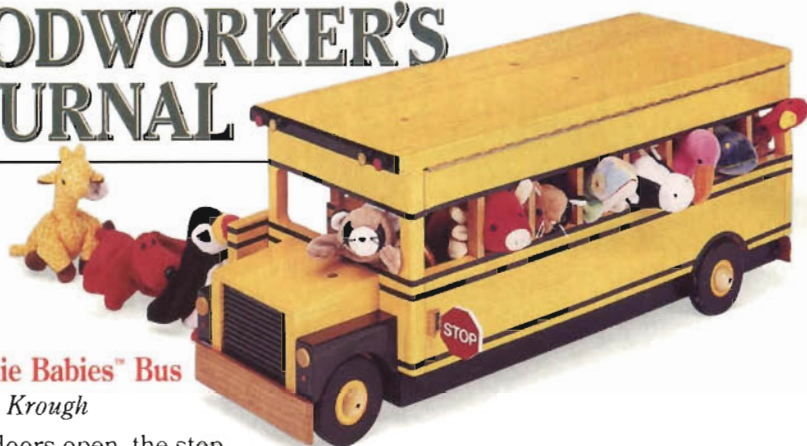
By Margaret Cole

What an unexpected surprise: this rock solid table knocks down to four parts in minutes. And when it's together, the main beam won't bang up your ankles.

58 Cricket Xylophone

By John Hutchinson

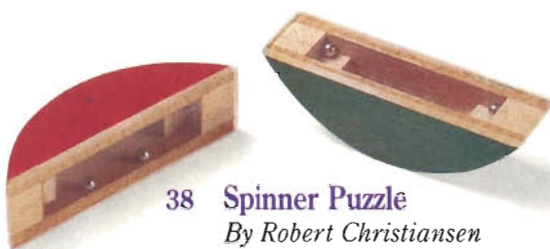
A tuneful toy that makes full use of the musical properties of wood.



26 Beanie Babies™ Bus

By Al Krough

The doors open, the stop sign extends, and the roof lifts up: this bus is ready to carry the Beanies in your house wherever they need to go.



38 Spinner Puzzle

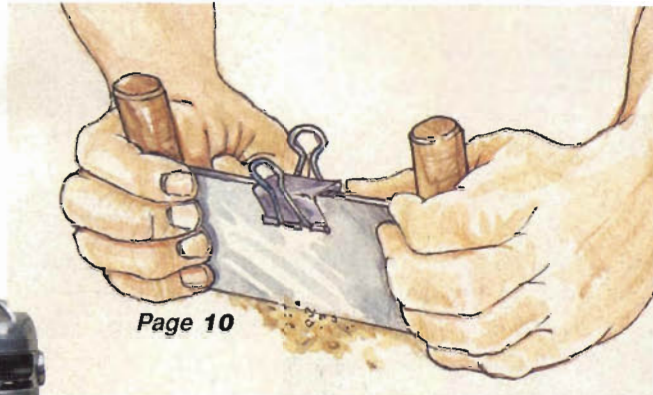
By Robert Christiansen

This simple puzzle makes a great stocking stuffer — and our production approach guarantees Santa will have enough for all the kids!



Departments

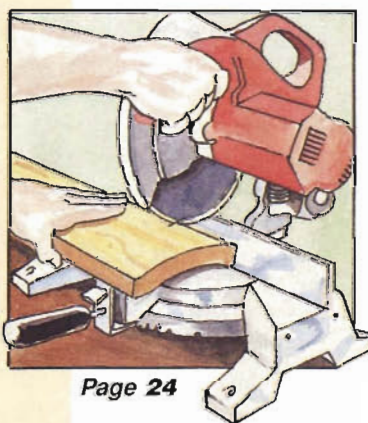
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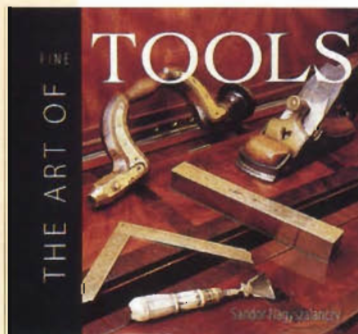
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Safety First

Learning how to properly operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary safety guards have been removed from the equipment shown in some of the photos and illustrations in *Woodworker's Journal*. We in no way recommend using this equipment without safety guards and urge readers to strictly follow manufacturers' instructions and safety precautions.

Tool Memories

We asked for your help last summer identifying the "Montana Mystery Tool" sent in by subscriber **Roger Hutchinson**. As this issue goes to press, we've received 120 letters and e-mails on the subject.

Seems like the tool brought back a lot of memories: for instance, we heard from 10 blacksmiths' sons whose fathers used the spoke pointer to make wagon wheels.

James E. Patterson of Reseda, California explained how it worked. "This tool is used to start the tenon on a wheel spoke," he wrote. "With this tool there is another that cuts the tenon to size and length. This second tool is very similar, except it cuts like a plug cutter. After the tenon is cut, the spoke is put in the hub and the wood rim is put on the spoke."

More nostalgia came from **Earl J. Whitfield** of Redford, Michigan. The tool's owner was right to think it was used with a brace, Earl said. "The reason I know this: I spent many hours in my grandfather's blacksmith shop in northwest Georgia, until Henry Ford's tractors and trucks put most of the general blacksmiths out of business." Turn to **Stumpers** (see page 22) for more on this interesting tool.

With the holiday season fast approaching, woodworkers everywhere will soon be spending every waking hour frantically



finishing up gifts for friends and family. To jump start the process, we're featuring three great gift ideas in this issue, starting with **Robert Christiansen's** easy-to-make stocking stuffer (see page 38). With your many versions of our Beanie Babies™ Bedroom still pouring in, it's no surprise **Al Krough** decided to tackle Beanie Baby transportation (see page 26). This is a must-do project if you have little ones on your list. And if they're not into Beanie Babies, perhaps **John Hutchinson's** musical cricket (see page 58) will strike the right note.

Finally, for those of you ready to tackle something more substantial, check out **Margaret Cole's** red oak harvest table on page 52 or **John English's** parlor clock on page 32.

Any of these projects can be the start of happy memories. I wish you all a safe, happy holiday season and hope you each find joy in your own traditions during this wonderful time of the year.

Larry N. Stoiaken

Spoke Pointers.



Stearn's Patent Spoke Pointer with graduated adjustable shank. Points, 1 1/4 inches in diameter.

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NOVEMBER/DECEMBER 1998

Volume 22, Number 6

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The Montana Mystery Tool (shown at right in an 1897 Sears catalog) was no mystery to our readers! **Bob Schaefer** of Hamilton, Ohio — who sent us this picture — was one of many to identify it.

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Regarding our patent-pending cutterhead snipe control lock that stabilizes the cutterhead during operation: "Compared to the other machines in the test, the Delta produced the cleanest surface and the least amount of snipe. The other planers in the test also gave us excellent surface finishing, but the Delta stood out as just a bit better."

Woodworker's Journal, January/February 1998



Regarding our quick-change 2-knife system with two high-speed steel, double-edged, reversible knives: "... quick-change knives that we found easy and accurate to install. We found that with the quick-change systems we aligned the knives within .001." And, we could install both knives in about five minutes." "Editors' Choice Top Tool™"

Better Homes & Gardens® Wood,® November 1996



Regarding the fact that you can take precision with you, wherever you go: "The Delta got great marks for quality of cut and portability, and for its innovative cutterhead assembly lock." "Editors' Choice"

American Woodworker,™ December 1996

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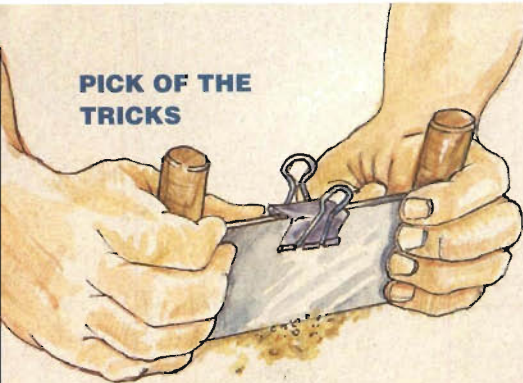
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22-560

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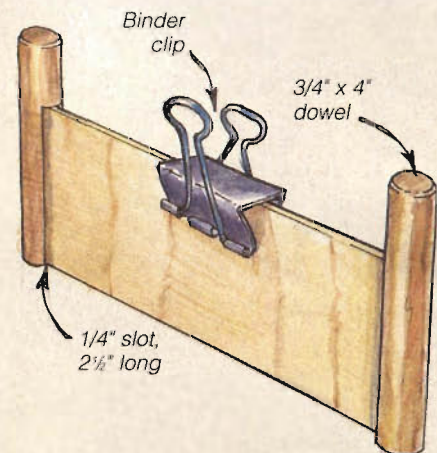
PICK OF THE TRICKS



A Simple Scraper Holder

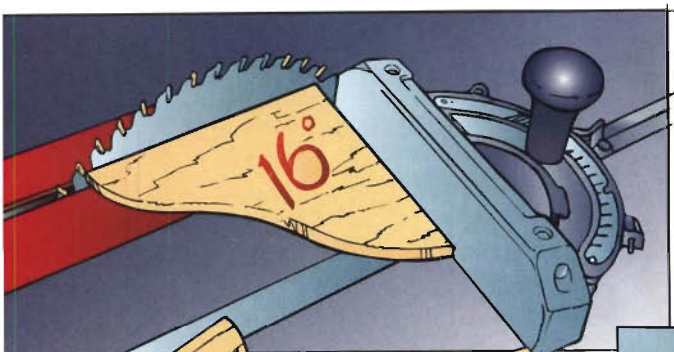
This simple scraper holder consists of two dowels joined by a flexible piece of 1/8" plywood. A 1/4" slot is routed into each dowel and the dowels are then glued to the plywood. To achieve maximum flexibility, the plywood is cut so the grain in its exterior layers runs parallel to the dowels. The scraper blade fits into the slots and is held in place by a binder clip.

A. M. Benson
Houston, Texas



TRICKS OF THE TRADE

Cutting Corners in Your Shop



Templates work great for setting both miter gauge and blade angles

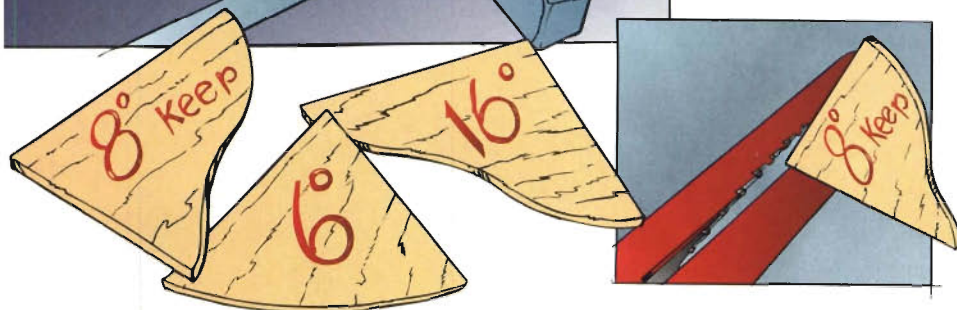


Table Saw Angles

Rather than look for a protractor or T-bevel, or trust the arrow indicators, I made a set of the angles I most commonly use to adjust my table saw blade or miter gauge. 1/4" plywood works fine. I use them again and again to set my saw for cutting angles, pentagons, hexagons, octagons, and even segmented bowls.

Richard Dorn
Oelwein, Iowa

Toner Trick

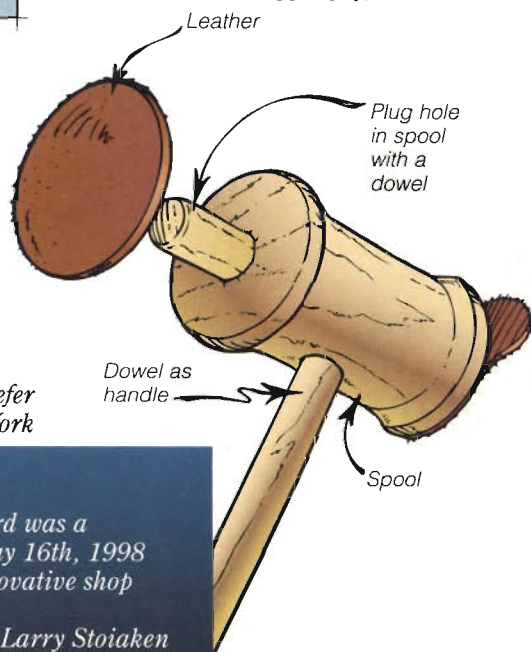
Here is a simple, useful hint. When I need to transfer a pattern or drawing onto a piece of wood, I make a copy on a copying machine and iron it on to the wood. The heat from the iron transfers the toner onto the wood, and the pattern is right where I need it.

E. Frohnhoefer
Riverhead, New York

Thread Spool: A Shop Aid

Sometimes, when doing light woodworking or model construction, a small wooden mallet is very handy. I found an empty thread spool makes just such a mallet. First, I glued a section of dowel through the center hole of the spool and trimmed the dowel flush with the spool faces. Then I glued a leather face to each spool end. Next, I drilled a hole through the body of the spool and glued a short piece of dowel there to act as a handle. I have found this tool to be most helpful when doing model work.

Howard E. Moody
Upper Jay, New York



Howard E. Moody 1924-1998

With sadness, we note the passing of our associate Howard Moody. Howard was a prolific writer and popular contributor to *Tricks of the Trade*. He died May 16th, 1998 and will be missed by those whom he touched through his writing and innovative shop tips and tricks. Our condolences to his wife, Clara, and family.

Larry Stoiaken
Editor in Chief

Tape Measure Tip

The ordinary tape measure is great for making accurate measurements due to the clear markings and thinness. The bulky case, however, is often awkward to manage. I took an old tape measure and cut out a short section, then used a grinding wheel on the ends to make it more accurate. The one-foot section gets the most use, but I also cut two- and three-foot measures.

*Robert Guyan
Portland, Oregon*

Sticky Sawdust

If you have a problem with sawdust sticking to the gear and screw mechanism on the tilt and elevation controls of your table saw, making it difficult to turn, give it a good cleaning and then spray with silicone. The silicone causes the sawdust to fall off instead of collecting and prevents rust. I also spray the arbor housing in front and behind the blade to prevent gum buildup.

*Walter L. France
Lithia Springs, Georgia*

The Half-lid Paint Striker

Next time you begin a paint job requiring a whole can of paint, remove the lid and use a hacksaw or other metal saw to cut the lid into two halves. Put one aside for future use, then slightly bend down the cut edge of the other and press it into the rim of the paint can. The half lid makes a sturdy, long-lasting "shelf" to lay down the brush temporarily, while the cut edge provides a sharp, straight edge against which to press excess paint out of the brush.

*Lane Olinghouse
Everett, Washington*



Winners!

For submitting this issue's Pick of the Tricks, A. M. Benson wins a Makita 14.4 volt cordless drill with a carrying case, charger and extra battery. This drill system features the extra capacity Nickel-Metal Hydride batteries.



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 any photos or drawings needed to explain your idea. Send all tricks to Woodworker's Journal, Dept. T/T, P.O. Box 261, Medina, MN 55340. Or e-mail us at: editor@woodworkersjournal.com

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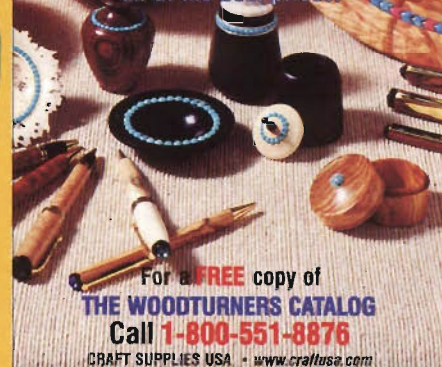
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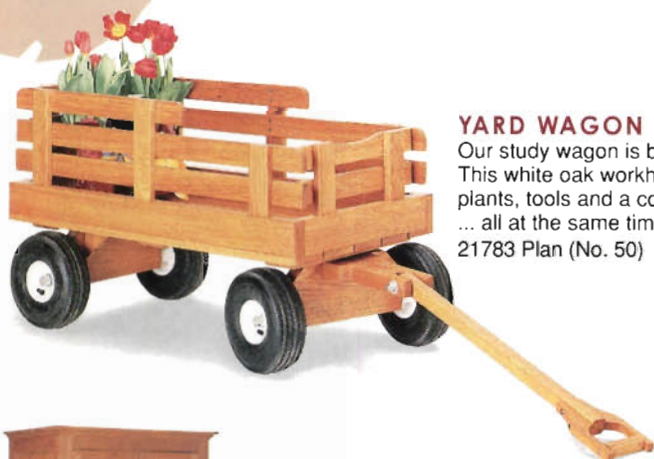
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Sincerely,

Larry N. Stolaken

Larry N. Stolaken
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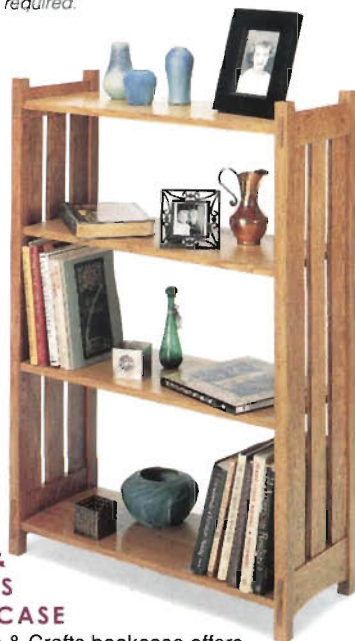
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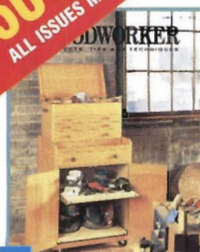


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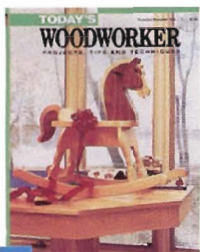
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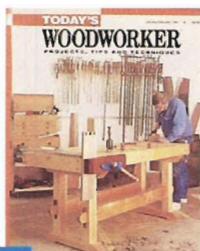
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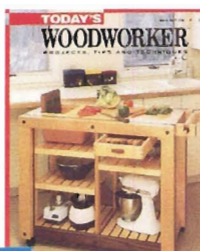
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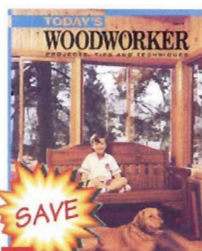
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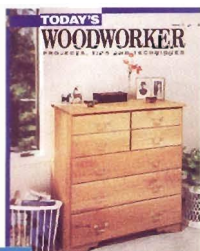
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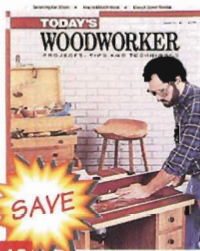
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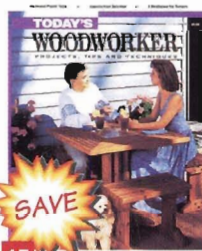
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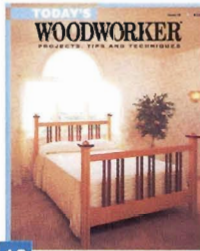
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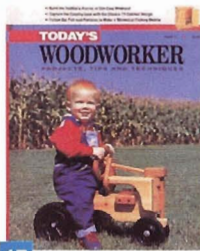
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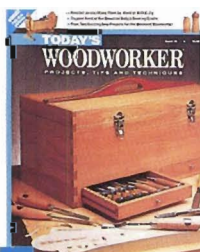
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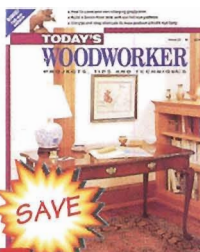
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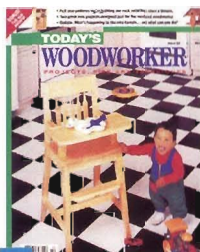
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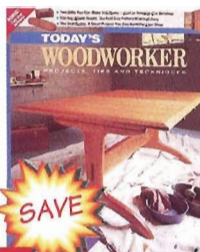
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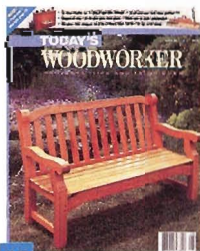
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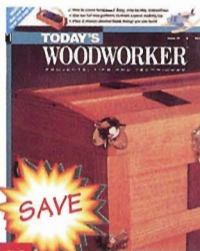
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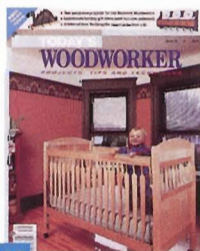
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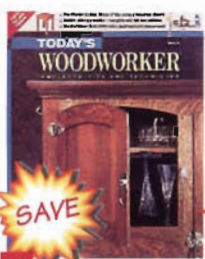
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31 Mirror, coat rack, dollhouse, sanding supply cabinet. **OUT OF STOCK**



32 Computer desk, 18 wheeler, cherry end table, CD holder. 97255.....\$4.95.....\$2.47



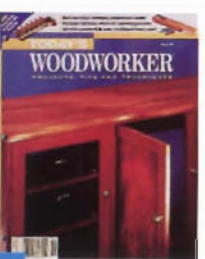
33 Icebox, band saw fence, woodworker's whirligig, deck table. 97263.....\$4.95.....\$2.47



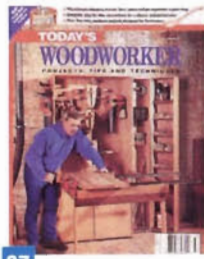
34 Kid's workbench, birdhouse, bookcase, jelly cupboard. 97271.....\$4.95.....\$2.47



35 Jewelry box, tilt table for drill press, hutch, toy tanker. 97289.....\$4.95.....\$2.47



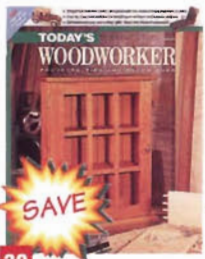
36 Pencil box, logging truck, baker's shelf, entertainment center. 97297.....\$4.95



37 Clamping station, cherry dresser, spice rack, soup spoon. 58784.....\$4.95



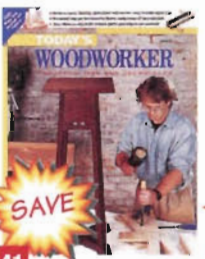
38 Coat rack, phone center, Scandinavian sideboard, tea table. 58792.....\$4.95



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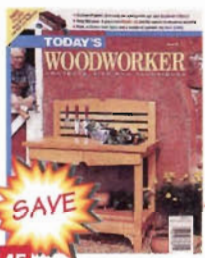
42 Hobby box, card player's coasters, salmon cutting board, race car. 59048.....\$4.95.....\$2.47



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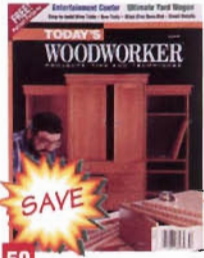
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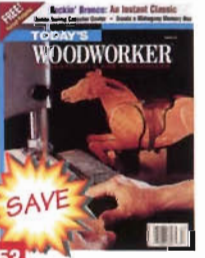
50 Arts and Crafts wine rack, yard wagon, entertainment center. 21783.....\$4.95.....\$2.47



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52 Bookshelves, folding bench, Beanie Babies™ bedroom, cupboard. 21858.....\$4.95.....\$2.47



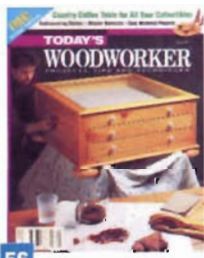
53 Compact computer desk/cabinet, rockin' bronco, memory box. 21866.....\$4.95.....\$2.47



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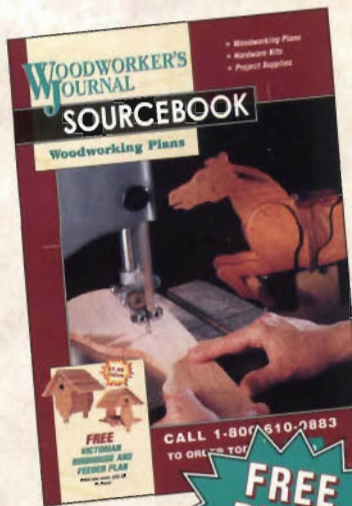
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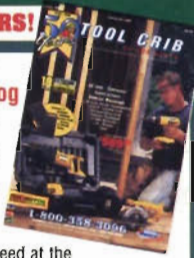
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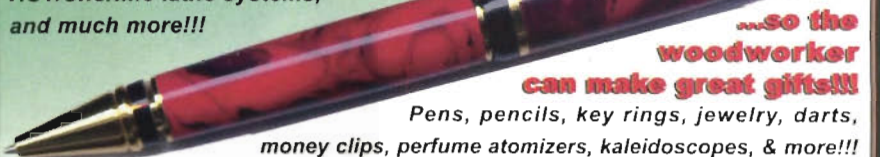
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Carving Out a New Business

By Joanna Werch

Eisenbrand Hardwoods

The Accidental Importers

Art Eisenbrand's decoy carvings were good enough to impress major department stores — but it was the wood he was using that fascinated other woodworkers. Almost by accident, the former insurance agent ended up selling exotic hardwoods.

The story began when Art learned carving during the Depression: his dentist father traded tooth care for lessons from a nationally recognized artist.

Years later, Art's own son, Clay, was working around the house and suffered a serious accident. Art carved an ebony decoy for the surgeon involved. The surgeon's brother-in-law turned out to be a gift buyer for Nieman Marcus.

When he called and asked for a large order, Art sprang into action. The store wanted "more birds than I could produce in half a lifetime," he said, so he flew to the Philippines for help. He found carvers for his Macassar ebony birds in the wood's native region, produced an order for Nieman

Marcus and started trying to sell the decoys elsewhere.

Art left his decoys in their natural color, so everyone had a good view of the ebony. So many people asked him

Art Eisenbrand, left, and his son Clay sell exotic hardwoods like the pink ivory shown in this photo.



Sue Jegloski of Cloquet, Minnesota carved this delicate nest of blue titmouse.



A pied tail hawk clutches its prey in this carving by Greg Curless of Madison, Wisconsin.



Mike Arthurs of North Bay, Ontario entered his quizzical pair of barn owls in the show.



A black duck drake from Tom Christie of St. Joseph, Michigan was among the decoys.

Fair Fowls

Over 230 Canadian and Upper Midwestern carvers took a little time off this past August to bring their best work to the Northern Nationals competitive show. It was the ninth year for the show, sponsored by the Minnesota Decoy and Wildfowl Carving Club. According to spokeswoman Karen Lesch, the show helps promote wildfowl carving and pull it out of the hobby and craft realm. "It's really art," she explained. Judging from the examples shown here, we'd have to agree.

where he got his wood, he finally decided to launch an importing business. "It was a whole lot easier messing with the wood, than it was the wood carving," he explained.

Eisenbrand Inc. Exotic Hardwoods was established in 1979 from those requests for Macassar ebony. The company now imports exotic wood from six continents, along with a full compliment of domestic hardwoods. Although the business supplies fine wood to such well-known commercial customers as Fender Guitars and Gibson

Musical Instruments, its mainstay is sales to the average woodworker.

Macassar ebony from Southeast Asia is still among the top three sellers, together with babon ebony and cocobolo. Snakewood, with black speckles resembling snakeskin, is one of the exotics Art finds most fascinating.

Art is retired now, but the family business continues under the watchful eyes of his wife Mary Ann and son Clay. To reach Eisenbrand, write to 4100 Spencer St., Torrance, California, 90503. Or you can call them at 800-258-2587.

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Across the nation, members of the growing American Association of Woodturners gather in 100 local chapters to talk about their craft. The Association puts them in contact with turners from across the country — and around the world. It's called the

"American" Association, but these days the 7,000 members include plenty of turners from overseas. They express their passion with demonstrations and an annual symposium

Don Olsen's 14" urn is fashioned from hickory sapwood.



Nested bowls in box elder burl range from 14" to 4" pieces. Mike Mahoney is the turner.

where members can show off their accomplishments. This year's gathering in Akron, Ohio brought together almost 1,000 turners.

The Association offers grants enabling individual members or chapters to receive or provide woodworking education and a quarterly journal to keep members up-to-date on what's happening in the turning world.

For more information, contact the American Association of Woodturners at 3200 Lexington Avenue, Shoreview, Minnesota 55126; or call 612-484-9094.



Jon Siegel produced the dramatically turned legs that provide support for this table as well as the elaborate turnings on the ladderback chair at right.



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The five finalists in the Bosch FutureTech Challenge Woodworking competition are pictured here with their finished pieces.

FutureTech Challenge

Students Win Tools and Prizes

Five college students from around the country had one thing on their mind as they arrived at the Jacksonville, Florida fairgrounds: winning the final round in the Bosch FutureTech Challenge, a woodworking competition sponsored by Bosch Power Tools and the StudentAware classroom safety poster program.

The Challenge is a national contest that allows select students a chance to compete for more than \$23,000 in cash and tools. Five finalists were flown with a guest, all expenses paid, to Jacksonville, where they competed on two final projects to test their woodworking skills. Both projects, (a step stool/chair and a mantle) were judged on accuracy, fit, finish, creativity and safety practices.

All five attendees won a prize, but Doug Popovec of Belle Vernon, Pennsylvania took first place, winning \$4,000 in Bosch tools and another \$4,000 in cash. Tyler E. Gardner won second place, Josh Climer, third place; John Gohier, fourth place; and Marcus Logan came in fifth. The colleges represented by the five finalists also received Bosch tools valued at \$1,000. The final projects, as well as materials and tools, were donated to Habitat for Humanity.

Woodworkers Converge on Atlanta

Georgia Dome swells in August

Over 53,000 woodworkers had blistered feet after covering some 695,000 square feet of woodworking exhibits in the Georgia World Congress Center and the Georgia Dome this past August. They came to get a first-hand look at the latest and greatest from everyone who's anyone in the woodworking world. This year over 1,200 exhibiting companies showed their wares at the International Woodworking Machinery & Furniture Supply Fair.

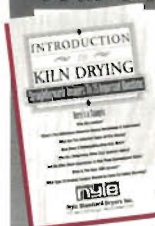
Your Woodworker's Journal staff was in attendance, walking the show and loading up on information. Look for extended coverage in our next issue.

Nick Cook kept visitors entranced with his turning at the Powermatic booth during the International Woodworking Fair. Powermatic president George Delaney enlisted Nick's help during the design stage of the Model 3520.



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Master Craftsmen's Guild of Wyoming

By Joanna Werch

“What happens here in Wyoming is that we're so isolated that it's kind of like being a woodworker on the moon.” That's Mark Koons,

president of the Master Craftsmen's Guild of Wyoming, describing how it feels to be a woodworker in Wyoming. “Materials are brought in on a shuttle and



Mark Koons' projects include end grain lamination like this mixed species table.

you go off [to build] in your own fantasy world. There's no relation to what's happening elsewhere.”

If you've ever been to Wyoming, you'll understand the reference to lunar isolation. For instance, Mark Koons lives more than 100 miles from the Guild's meeting site.



Guild founder Mark Francis built this beautiful maple deacon's bench.

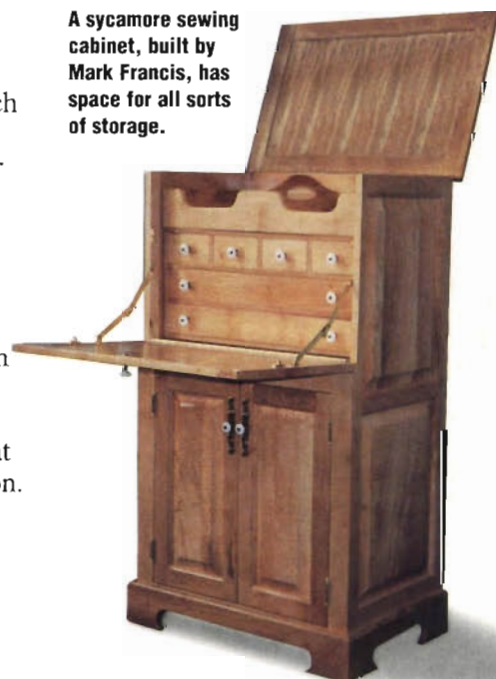
Still, members find it important to talk with other woodworkers. Guild founders Mark Francis and Nick Carter organized a formal group in 1996 out of a bunch of woodworkers who chatted in each other's shops. They invited other accomplished craftspeople to join, and, at last count, membership was 23 — not bad for a state with a population of only 453,588.

Meetings include presentations on topics like advertising and vacuum technology. Christmas is service project time. Last year, a hospice received 20 lap trays and a puzzle board made of baltic birch and alder. The year before, Guild members made kaleidoscopes for needy children.

For some Guild discussions, a “talking stick” format keeps everyone's focus on the speaker. Whoever holds the stick — sometimes a pencil, sometimes an Irish walking stick — talks. Everyone else listens. The idea came from Mark Koons' friends at the nearby Pine Ridge Reservation.

In spite of its small size, the Master Craftsmen's Guild has hosted spring and fall shows in Casper for the past two years. Some of the Guild members who aren't woodworkers have begun incorporating wood into their work, too. A saddle maker uses it in his frames, and a glass artist has begun designing items that call for wooden mounting plates or wall sconces.

A sycamore sewing cabinet, built by Mark Francis, has space for all sorts of storage.



Mel Klaassen designed and built this hall tree, while John Hoffman carved the lion's head. The quarter sawn white oak piece's mirror reflects the Wyoming prairie.





Contrasting woods on the drawer side and face enhance Mark Francis' dovetail details.

A dozen members are primarily woodworkers. Their individual projects range from furniture made in traditional American style to furniture made of peeled pine logs and from small cars and trucks to dulcimers.

Like Cole Porter, these woodworkers can gaze at the moon out where the West commences, but their projects show they've kept their senses. If you're ever out in Wyoming, contact them at Master Craftsmen's Guild of Wyoming, P.O. Box 50533, Casper, Wyoming 82605 or call 307-322-2127.

Winners!

For their help and cooperation, the Master Craftsmen Guild of Wyoming will receive the Jet JSL-12BS Shopline 12" Bandsaw shown here.

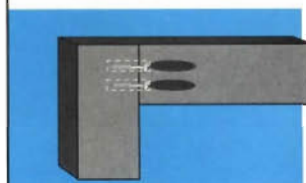


If you'd like to have your club featured in our "Club Spotlight" write to Joanna Werch at the Woodworker's Journal, P.O. Box 261, Medina, Minnesota, 55340 or call at 612-478-8303. If you're on-line, you can e-mail us: editor@woodworkersjournal.com Featured clubs will be awarded a prize to raffle off to their members.



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(Circle No. 80 on PRODUCT INFORMATION form)

True Mysteries

Q I found this router with a strange, bell-shaped base at a flea market. It utilizes the small (2½" diameter, 2.5 amp) Stanley motor, has the same yellow adjustment nut as the router's normal base and is obviously an original part. The base's bottom is 7½" in diameter, open at the front and has a 1½" hole in the back. The router will not thread down through the base far enough for a bit to reach anything under the base. The guy I bought it from said he thought it was used for polishing small parts with a wire brush. However, I don't know of any wire brushes that can handle 22,000 RPM! Any ideas?

Jeff McVey
Boise, Idaho

A We couldn't find this tool through research in our books of old Stanley products, but we know we can count on our readers to help us out.

Does the picture ring a bell in your mind?

Put on your thinking caps:
do you know what this is?

Q I recently made a deal to buy all of the wood in an old barn. In the deal I came across about 300 feet of cherry. The problem, however, is that it is all cut in widths from 2¼" to 2½" — and none of it is straight. What I'd like to do is make the widths true. Any suggestions?

Bill Anderson
via Internet

A This issue's techniques article is all about truing up wood. We'll get your boards into cherry condition!



Ralph Smith of Ottumwa, Iowa sent us this picture of a Stearns spoke pointer set.

Lots of folks knew lots about the "Montana Mystery Tool" in our August issue. Turns out Roger Hutchinson of Three Forks only had half a set (the portion shown at left above). Read all about the Stearns spoke pointer set in "On the Level" on page 6.

Another stumper from the August issue, a number of you agreed, was a wooden mold. Exactly what kind of mold is still a mystery. Some contended it came from a plasterer's tool kit. Others said it was for investment casting, the printing trade — or a big stick of butter.



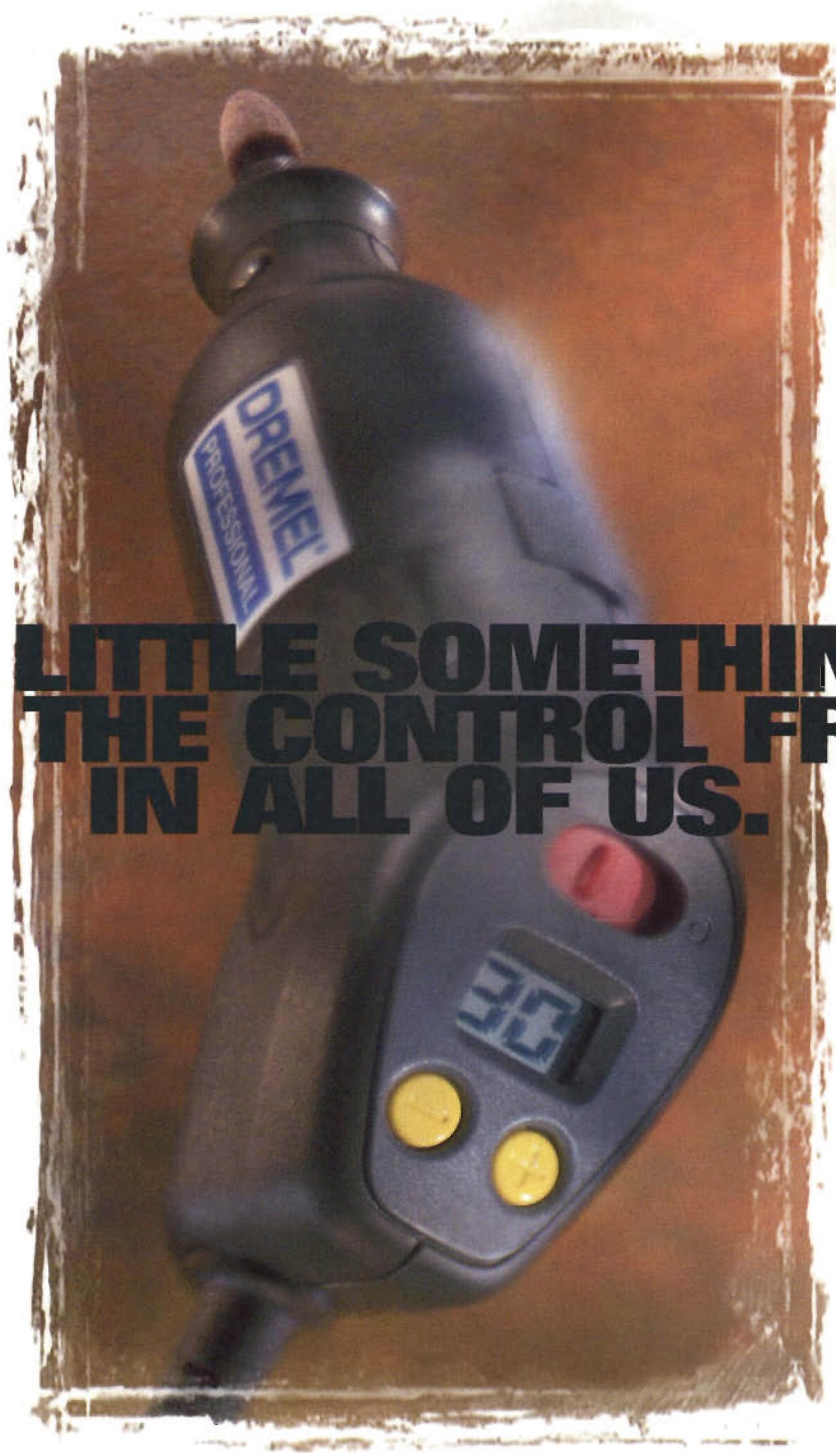
It's no mystery to readers; the two pieces of a spoke pointer set (or a smaller cousin, the dowel pointer set) are used to make round tenons on shafts for furniture rungs or wagon wheels.

A fine powder in the tool's recessed carvings could have been talc, chalk or lime meant to act as a releasing agent for plaster or wax. Several writers pointed out that the pattern was made to run continuously. Speculations on the end use included picture frames, church decorations, cabinetry appliques, carriage rungs and printed designs.

Winner!



For taking time to respond to Stumpers, Luke Fox of Southbury, Connecticut wins a collection of American Tool's Quick Grip clamps. We toss all the Stumpers letters into a hat to select a winner. If you have a question or answer, send it to the editor: Stumpers Dept., Woodworker's Journal, P.O. Box 261, Medina, Minnesota 55340. Or e-mail us: editor@woodworkersjournal.com



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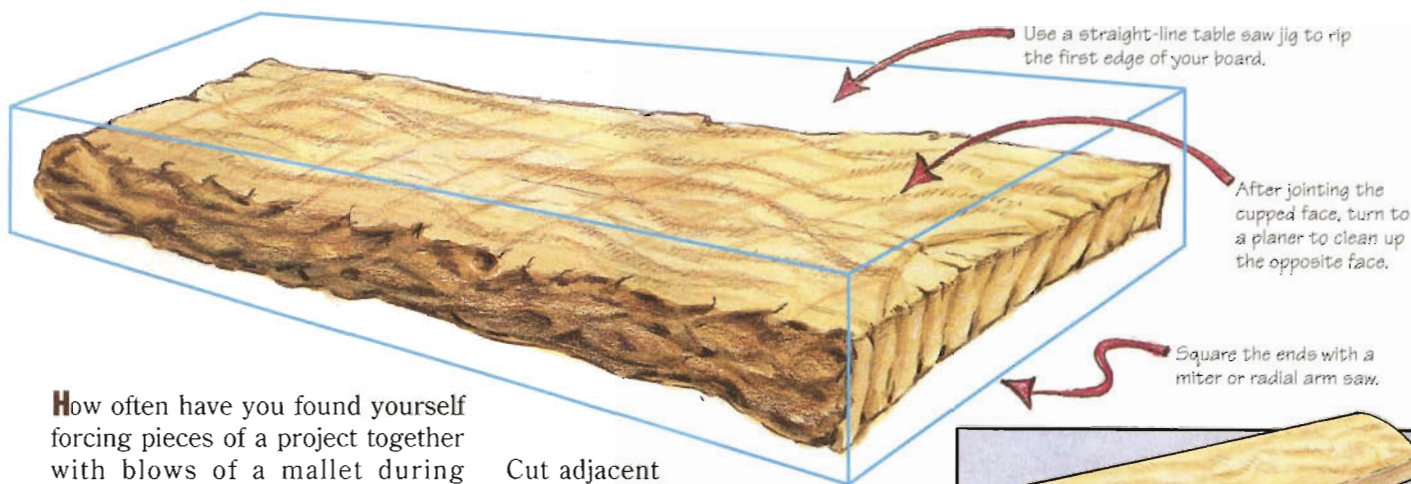
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Four Steps to Square Stock

By Cortland Privateer and Gena Tennyson



How often have you found yourself forcing pieces of a project together with blows of a mallet during assembly? Don't worry, this isn't a message from the gods that you should give up woodworking: poorly milled lumber usually causes problems like this. Cupped, bowed or twisted stock can wreak havoc on the best laid plans and make assembling a project difficult, if not impossible. Proper rough stock preparation lays a solid foundation for the rest of your work.

Selection and Acclimation

It's important to select and buy good lumber, and you're off to a great start when you choose a quality hardwood supplier. Select straight boards, pleasing in color, grain pattern and condition. After you bring the lumber home, let it adjust to your shop (or wherever it will be milled) for at least a week. This adjustment or "acclimation" period allows the stock to stabilize in its new environment, minimizing both cupping and bowing.

Determine what boards to use for the individual pieces of your project and mark them accordingly. Make attractive use of grain patterns, while keeping waste to a minimum. Imagine how the grain of different boards will look when glued together, and try to make it flow from one board to the next.

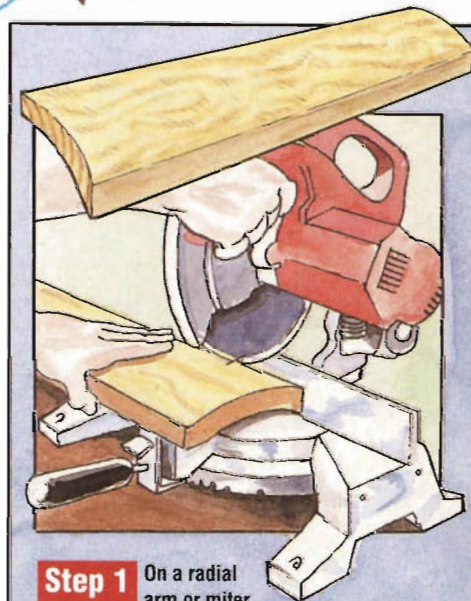
Cut adjacent drawers from the same board for continuous grain direction.

Cut to Rough Size

The first step is to cut boards an inch longer and 1/2" wider than their final measurements. (**Note:** don't forget to allow for tenons, or you'll end up with the nicest firewood in town.) Use a radial arm or miter saw to crosscut to rough length. When cutting to rough width, it's quieter, cleaner and safer to do it on a band saw rather than a table saw. If you decide to go the latter route, see the sidebar at top right for a jig that makes the job easier and safer.

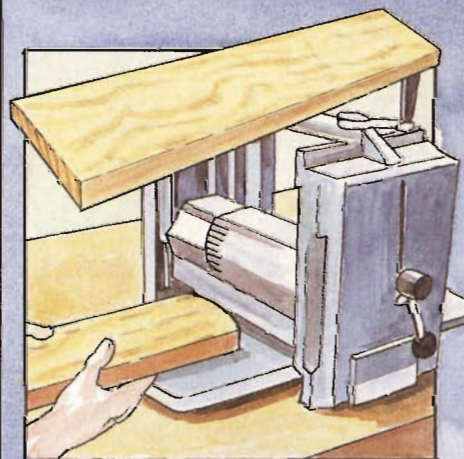
Flatten on the Jointer

The jointer is the tool of choice for flattening cupped or bowed lumber. A planer will flatten a board only for the time it is underneath the cutterhead — a crooked board will quickly return to its former twisted state. Your jointer must be in tune to deliver great results. Make sure the fence is at 90° to the table, and that both tables are properly aligned. If the fence is out of square even 1°, the edges of boards will not be perpendicular to their faces, creating a barrel effect in your case sides or tabletops.



Step 1

On a radial arm or miter saw, rough cut your stock 1" longer than its final measurement. Then turn to a band saw to get the width within 1/2" of its final size.

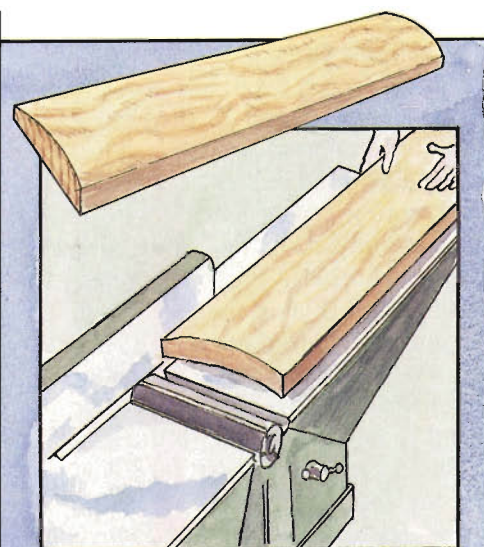
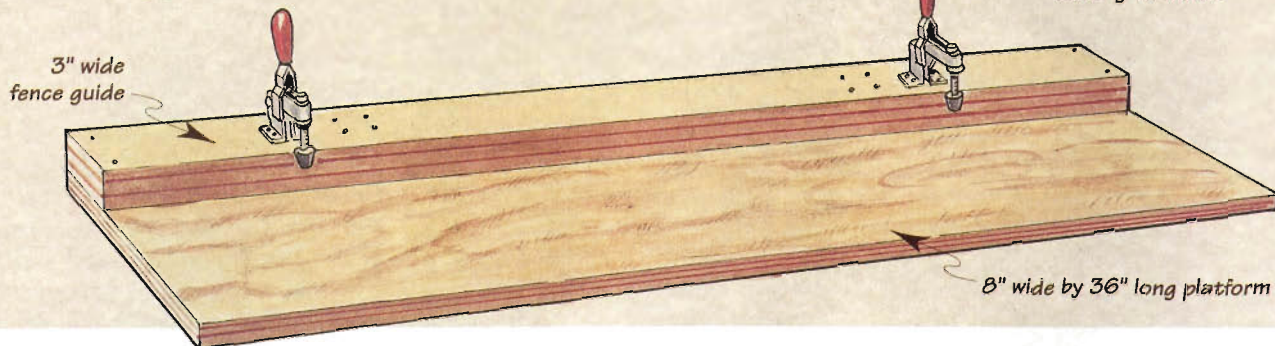


Step 3

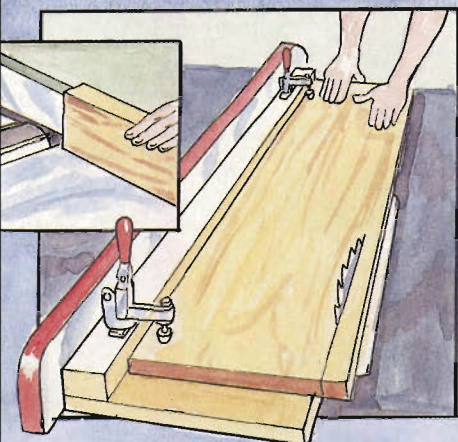
With the flat (jointed) face down, run the board through a planer to create a parallel surface on the opposite (top) face.

Board Straightening Table Saw Jig

This jig lets you rip a straight edge on rough stock. Build it by gluing a guide fence to an 8" wide platform, then mount toggle clamps on the guide fence. Place your board (with some stock extending past the edge) on the platform and secure it with the toggle clamps. Slide the guide fence along your table saw's fence and slice off the excess lumber.



Step 2 Use a jointer to remove cups or twists, flattening one face of the board. Joint the concave face but don't push down too hard or you'll shave the middle instead of just the edges.



Step 4 Use the jig shown above or a jointer (see inset) to clean up one band sawn edge of your stock. Then rip the second edge parallel to the first on a table saw.

To joint a board, place one band sawn edge against the jointer fence. Take thin passes and cut with the grain to reduce tearout. Never take off more than 1/16" per pass, use a push block and keep all guards in place. Most important of all: never hang your fingers over the edge of a board.

To flatten a bowed board on the jointer, the concave side should always be face down. Don't push down too hard or the entire board will be cut instead of just the high spots. Too much pressure just produces a thinner bowed board.

Move to the Planer

After flattening one face of a warped board on the jointer, plane the opposite face. If you don't own a planer, a local mill shop will often plane stock for a small fee.

Plane with the grain as much as possible to avoid tearout, and take thin passes; again, no more than 1/16" at a time. Feed boards with irregular grain through as slowly as possible. Don't bring stock to finished thickness in one day: stop planing about 1/8" from final size, then let the wood adjust and equalize overnight. Now you're ready to straighten one edge.

Straighten the Edges

The easiest way to begin squaring your two edges is to move right to

the jointer (first making sure the fence is square). Since you've already flattened both faces, either one can be run against the jointer fence. However, if your band sawn edges are too rough, I recommend the jig shown above. Either way, be sure to cut with the grain to avoid chipping, then move on to the table saw to straighten the other edge.

Cut to Final Dimensions

Before you rip your stock to final width on the table saw, the rip fence must be accurate. Although our Biesemeyer fence is extremely accurate, we double check it every now and then by measuring from the rip fence to any saw tooth that inclines toward the fence.

Crosscut stock to final length using a miter or radial arm saw — just take 1/8" off one end to square the pieces, then flip it end for end and trim it to length. You can also crosscut on a table saw, providing you have a sliding table or a very accurate miter gauge (an extension fence helps). Begin your project as soon as possible, while the wood is straight and flat.

Congratulations, you've completed the first and perhaps the most important step in woodworking. The rest of your work should now produce rewarding, enjoyable and square results — without the help of a 10-pound mallet!

Beanie Babies Bus

*With a finger-safe hinge on the roof, an operable emergency exit and a working **STOP** sign, this incredibly cute school bus is a safe bet for your gift list.*

By Al Krough



hose little Beanie Babies™, they are everywhere! I see them hanging around on the tops of dressers, hiding in closet corners and peering out between volumes on the bookshelf. Which is funny, because I'm not even sure they know how to read. Maybe it's time to gather them up, pack them in a bus and send them off to school.

Begin with the Chassis

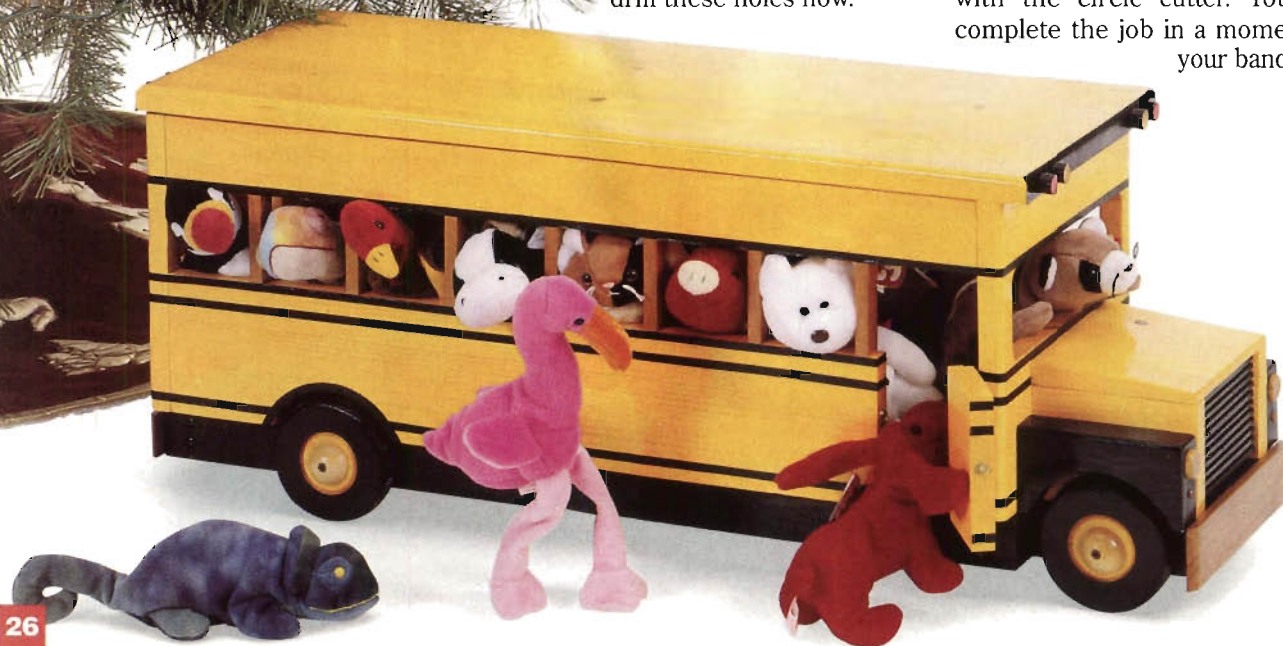
Start building your bus by ripping solid pine or scrap plywood for the chassis beams and struts (pieces 1 through 3; see the Material List for all of the dimensions). To be assured the axle holes will line up properly, clamp the four beams together as they will be assembled (see the **Pinup Shop Drawings** on the center pullout), and drill these holes now.

Cut the frame spacers (pieces 4) to size and dry fit the frame, using the layout shown on the **Pinup Shop Drawings**. Glue and screw the frame together with square drive screws (pieces 5). When you paint the heads later they'll look as if they belong on a bus frame.

Wheels and Axles

Cut some birch dowel for the axles (pieces 6 and 7), then move to your drill press and circle cutter to make the wheels (pieces 8).

Begin by laying out the wheels according to the **Full-size Pattern**, also located on the center pullout. Clamp the first wheel blank into position on the drill press table with some scrap under it. Install an adjustable hole cutter and center its drill bit on the axle hole. First score a 1/8" deep line along the transition between the tire and the wheel rim (see **Figure 1**). Then set the circle cutter to make a 3½" diameter cut and slice most of the way through the stock with the circle cutter. You will complete the job in a moment on your band saw.



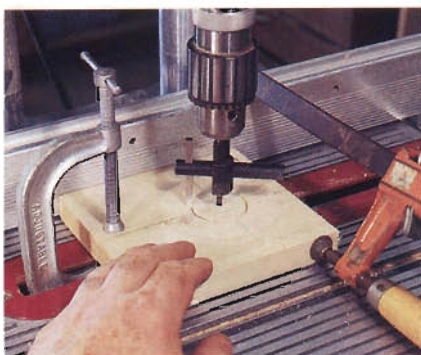


Figure 1: Use a circle cutter in your drill press to score the transition between the wheel rim and the tire, and to cut out the wheels.

Before you move the stock, switch to a 3/4" bit and drill out the axle hole. Next, step over to the bandsaw to finish the wheel; then sand the tire smooth, round over the edges and repeat the process for the rest of the wheels.

Hubcaps

I used 1 1/4" hardwood balls for the hubcaps (pieces 9). Coarse sand paper in a belt sander works well to sand the balls to slightly less than half their original size. Use caution (and gloves) when sanding, as the balls try to fly out of your fingers from time to time. When you're done, drill a countersunk pilot hole through the middle of each hubcap for the retaining screws (pieces 10) and set them aside.

Body Building

Use the **Pinup Shop Drawings** to lay out and cut the body front and back (pieces 11 and 12) to size. I edge glued a few narrow boards to create enough stable wide stock for both parts. Use a 3/4" Forstner bit to establish the curved corners on the windshield and rear windows (see **Figure 2**), including the rear emergency door. Finish cutting these openings with a scroll saw. Save the cutout from the door (piece 13): it will be trimmed to size later. Drill the brake light holes and set these parts aside for a while.

The Bus Sides

The upper and lower sides (pieces 14 and 15) are connected by seven cherry window dividers (pieces 16). Cut the sides to length, test fit them to the frame and mark which ends will be at the front. Clamp all four side elements together so you can gang cut 1/4" deep dadoes in them for the window supports. Follow the locations and dimensions shown on the **Pinup Shop Drawings**, and make the cuts on your table saw with a 3/8" wide dado head (see **Figure 3**). Glue and clamp the supports to the upper and lower sides. (I used liquid hide glue to allow time for adjustments.)

Sand the sides when the glue has set, then band saw the door opening



Figure 2: Use a Forstner bit to create smooth radii on the window and windshield corners, then complete the cutouts on a scroll saw.

in the lower passenger side. Once again, keep the cutoff intact.

Trim this cutoff (the passenger door, piece 17) and the rear emergency door to the dimensions shown on the **Pinup Shop Drawings**. Use your table saw (with the zero clearance insert and push stick) to cut the rabbets on both doors for their piano hinges. Then band saw the openings in the sides for the rear wheels, and drum sand these arcs.



Figure 3: Clamp all four elements of the bus sides together to cut lined-up dadoes for the window dividers.

Assemble the Body

Sand the bus sides, front and back, then use your tablesaw to create a hinge rabbet along the top edge of the driver's side (see **Pinup Shop Drawings**). Cut the floor (piece 18) to size. After a dry fit, glue and nail the body together. Place the nails (pieces 19) that hold the floor in areas that will eventually be covered by tape on the sides (see **Pinup Shop Drawings**). Set the nail heads, fill the holes and sand them. Since you will be staining, don't leave any filler buildup. Glue and screw the body subassembly to the chassis, driving counterbored screws (pieces 5) from the bottom.

Make the Radiator Grill

The grill (piece 20) is made on the table saw, using a 1/8" rip blade (see **Figure 4**). A zero clearance insert and a push stick are vital here for safety. Cut a 12" piece of 3/4" pine to 3". Then lower the height to 1/8" and set the fence 1/4" from the blade. Rip one pass the length of the piece: this is the top of the grill assembly.

Move the fence another 1/4" away from the blade and make another pass. This will give you a clean 1/8" groove and a 1/8" raised portion. Keep moving the fence after each pass until the grill is completed. Sand the grill lightly, then set it aside.



Figure 4: Use a zero clearance insert and a push stick to mill a long piece of stock for the grill, then trim it to size later.

The Engine Compartment

To keep rain out of your engine, the hood (piece 21) slopes from 3/4" thickness at the back to just 3/8" at the front. This is an easy resaw on your band saw. Dry fit the hood to the two engine compartment sides (pieces 22), making sure all three pieces have exactly the same dimension from front to back. Glue and clamp the hood to the sides, then glue and screw this subassembly to the chassis and bus front. When the glue has cured, trim the radiator grill to fit — but don't glue it in place until the bus is finished.

Use the **Full-size Pattern** to lay out and band saw the front fenders (pieces 23) to size. Cut these from 5/4" stock: you may have to face glue it up from thinner material. Sand the fenders and follow up by drilling the headlight and parking light holes (see **Pattern**). Then set the fenders aside for painting later.

The Stop Sign

Use the **Pinup Shop Drawings** to lay out the octagonal STOP sign (piece 24) from hard stock such as maple or aspen. Before the shape is cut, band saw a dado through one edge of the sign (see **Pinup Shop Drawings**). You will use this



Building the seats

Make all

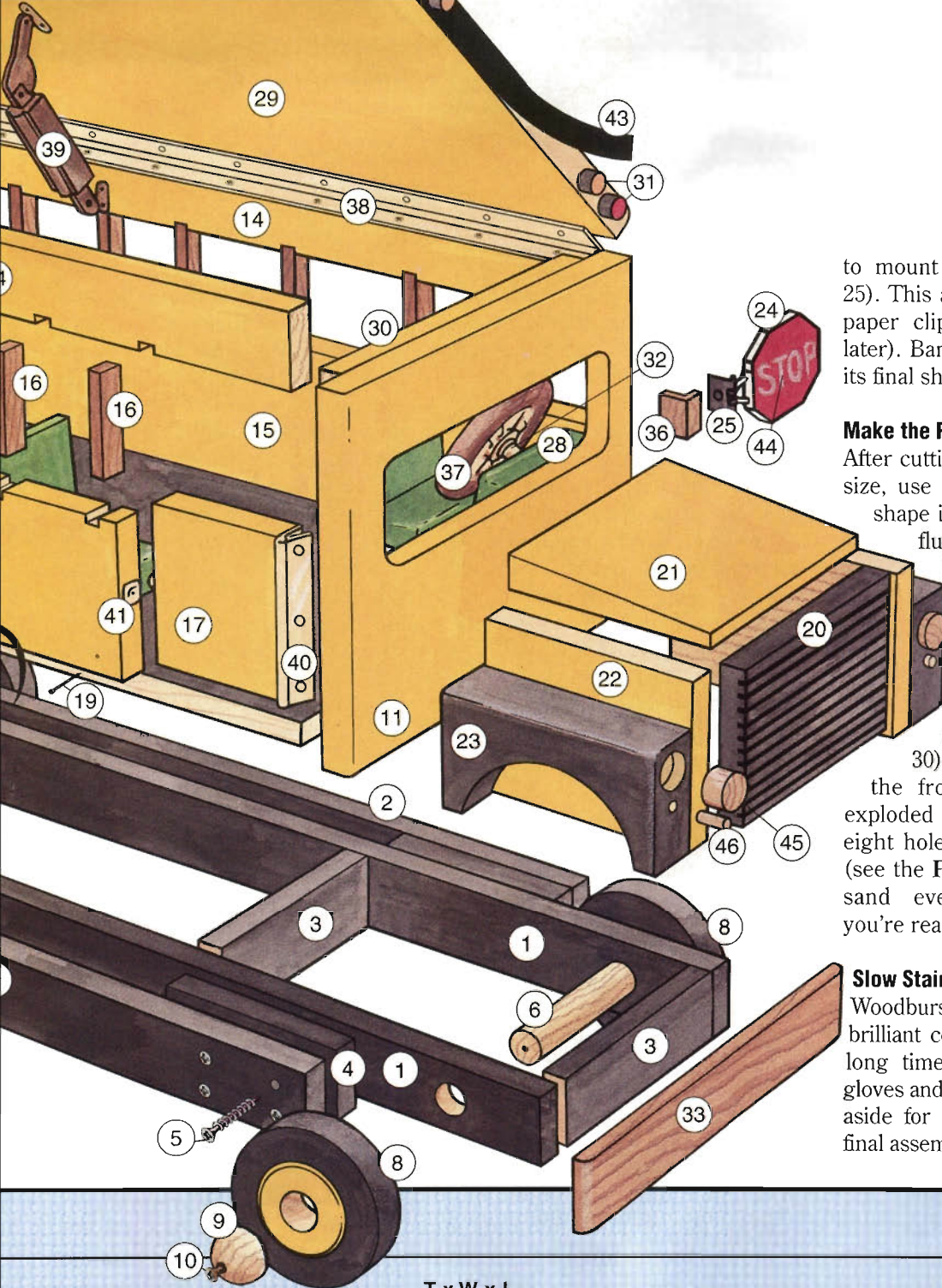
twelve seats at once, noting that the grain on the backs (pieces 26) runs up and down. Start by ripping a 48" long piece of 1/4" thick stock to 3 3/8" width, then trim all twelve to length. For the seats themselves (pieces 27), rip a 48" piece of 3/4" thick stock to 1 1/2" width. Before trimming to length, set your table saw blade to 15° and create their wedged shape (see **Pinup Shop Drawings**).

Follow up with a 3/4" roundover bit to shape the front edge, then cut the seats to length. Glue and nail the backs to the seats, then trim a piece of the shaped seat stock to make the dashboard (piece 28: **Full-size Pattern**).

MATERIAL LIST

	T x W x L
1 Chassis Main Beams (2)	3/4" x 1 1/2" x 30"
2 Chassis Exterior Beams (2)	3/4" x 1 1/2" x 25 1/2"
3 Chassis Struts (4)	3/4" x 1 1/2" x 4 1/2"
4 Frame Spacers (4)	1/2" x 1 1/2" x 5"
5 Chassis Screws (60)	#6 x 1 1/2" Square drive
6 Front Axle (1)	3/4" dia. x 7 1/2"
7 Rear Axle (1)	3/4" dia. x 10 1/2"
8 Wheels (4)	3/4" dia. x 3 1/2"
9 Hubcaps (4)	1 1/2" dia. Hardwood balls
10 Hubcap Screws (4)	#4 x 1 1/2" Square drive
11 Body Front (1)	3/4" x 10" x 8 1/2"
12 Body Back (1)	3/4" x 10" x 8 1/2"

	T x W x L
13 Rear Emergency Door (1)	3/4" x 2 3/4" x 4"
14 Body Sides, Upper (2)	3/4" x 2" x 24"
15 Body Sides, Lower (2)	3/4" x 4" x 24"
16 Body Window Dividers (14)	3/8" x 3/4" x 3"
17 Passenger Door (1)	3/4" x 2 3/4" x 4"
18 Floor (1)	3/4" x 8 1/2" x 24"
19 Body Nails (40)	1 1/2" Brads
20 Radiator Grill (1)	3/4" x 3" x 4 1/2"
21 Engine Compartment Hood (1)	3/4" x 6" x 4 1/2"
22 Engine Compartment Sides (2)	3/4" x 3" x 4 1/2"
23 Front Fenders (2)	1 1/4" x 2 1/4" x 4 1/2"
24 STOP Sign (1)	1/4" x 2" x 2"



to mount the hinged arm (piece 25). This arm is just half an Acco[®] paper clip hinge (more on that later). Band saw the STOP sign to its final shape, but don't install it.

Make the Roof

After cutting the roof (piece 29) to size, use a 3/4" roundover bit to shape its top edges. The roof is flush with the body on the hinged (driver's) side and extends slightly over the passenger door side to create a handle. To add a little support, glue and clamp a pair of braces (pieces 30) to the inside face, toward the front and back (see the exploded view at left). Drill the eight holes for the warning lights (see the **Pinup Shop Drawings**), sand everything smooth, and you're ready to stain.

Slow Staining

Woodburst brand stains result in brilliant colors, but they do take a long time to dry. Plan on using gloves and setting the stained pieces aside for at least two days before final assembly.

	T x W x L
25 STOP Sign Arm (1)	Half an Acco clip
26 Seat Backs (12)	1/4" x 3 3/8" x 3 3/4"
27 Seats (12)	3/4" x 1 1/2" x 3 3/8"
28 Dashboard (1)	3/4" x 3/4" x 3"
29 Roof (1)	3/4" x 10 3/8" x 26 1/4"
30 Roof Braces (2)	3/4" x 3/4" x 8 1/2"
31 Warning Lights (1)	1/2" dia x 6"
32 Horn/Steering Column (1)	Axle pin
33 Front Bumper (1)	1/4" x 1 5/8" x 8 1/4"
34 Rear Bumper (1)	1/4" x 1 1/4" x 9 1/2"
35 STOP Sign Arm Screw (1)	1/2" long

	T x W x L
36 STOP Sign Arm Bracket (1)	3/8" x 5/8" x 1"
37 Steering Wheel (1)	2 1/2" OD, spoked
38 Roof Hinge (1)	1" x 24" continuous
39 Roof Support (1)	Toy box lid support
40 Door Hinges (2)	8" Jewelry box hinge (half)
41 Door Latches (2)	Bullet catches
42 Narrow Striping (1)	1/4" Geotape™
43 Wide Striping (1)	3/4" Electrical tape
44 STOP Sign Lettering (1)	1/2" Chartpak™ letters
45 Headlights (2)	3/4" dia. x 1/2" Dowel
46 Parking Lights (2)	1/4" dia. x 1/2" Dowel

Project Supplies

The following supplies for this project are available from *Woodworker's Journal*.

Square-x drive screws (#6 x 1 1/4")	#28647	\$2.79
Spoked wheels	#23549	\$6.99
Toy box lid support	#26161	\$3.49
Piano hinge (1/4" for roof)	#19283	\$7.29
Jewelry box hinge (for doors)	#10314	\$7.99
Bullet catches	#28472	\$5.99

To order your supplies, call 800-610-0883.

Apply masking tape to the cherry window supports, then apply yellow stain to the roof, roof braces, sides, front, back, hood and wheel rims. Apply black stain to the floor, chassis, radiator grill, tires and fenders. You can also stain a six inch long piece of 1/2" dowel (piece 31) at this time. You will use this to make the warning lights. After the stain is dry, cut this dowel into ten 1/2" long segments.

Stain one end of six lights red for stop lights, and leave the other four unstained for the warning lights. I used a Windsor green stain for the seats, horn button (piece 32) and dashboard; its color reminded me of the seats in the buses I rode to "away" games a long time ago.

Adding Trim Details

When the stain is dry, clamp and glue the radiator in place, 1/8" shy of the front of the engine compartment. Use a couple of brads to hold it in place: the fenders will hide them. Then glue and clamp the fenders to the compartment.

Solid cherry stock, unstained, is a natural choice for the bumpers (pieces 33 and 34). Using a belt sander, round off the front edges of both (see **Figure 5**), then glue and clamp them in place (see **Exploded View**). Note their bottom edges are flush with the bottom of the chassis.

Make the STOP sign hinge next. Acco® paper clips are made so the arms of the clip snap back to the closed position. Using a hacksaw, cut the clip along the fold in the black metal plate. Slide the wire loop into the kerf previously sawn

in the STOP sign and pour in a little cyanoacrylate (instant) glue.

After the glue cures, pack wood filler into the kerf and sand. Then drill a small screw hole in the center of the metal hinge, for mounting it to the bus. The head of the screw (piece 35) must be small enough to allow the wire loops to pass over it when the STOP sign is deployed.

For the sign to lie flat against the bus, the hinge must be shimmed. You also need a support to stop the sign at a right angle from the bus. A small L-shaped bracket (piece 36) solves both problems (see **Full-size Pattern**). Make it on the band saw from a piece of scrap cherry. Dry fit it to the hinge, then glue it in place (see **Figure 6**).



will slide down the column: to stop it, slide the wheel onto the column and run a bead of hot glue around the bottom of the wheel. Then keep spinning the wheel until the glue is thoroughly set. This will allow the wheel to turn freely, but still stay at the top of the shaft. Apply stain to the steering wheel rim, then glue it into the hole in the dashboard.

Cut the continuous hinge for the roof (piece 38) to length and mount it in its mortise on the driver's side of the bus. Predrill for the screws on both pieces, and attach the roof next.

Follow the manufacturer's instructions when locating and predrilling for the screws which hold the toy box lid support (piece 39, see Project Supplies) in place. This hardware is designed to prevent the roof from slamming down on little fingers.

Add the Steering Wheel

Drill a hole in the dashboard for the horn, which is also the steering wheel column (see **Pinup Shop Drawings** for location and dimensions). The spoked steering wheel (piece 37, see Project Supplies box)

Fitting the Doors

I used an 8" jewelry box piano hinge (piece 40), cut in half, to secure the front and rear doors. Make sure both doors close leaving a 3/16" space for the bullet catches (pieces 41). Drill a 1/4" hole in the center of each door edge, push the door latch in firmly, and close the door. The protrusion from the catch will leave a faint line on the door jamb which you can use as a guide for the strike installation. When properly installed, the door will close with an audible "click" and stay shut until pulled open.

Apply two coats of topcoat to all parts before you install the seats and wheels. When these coats have dried, install the seats. With the exception of the driver's seat, space them so their backs line up with the back edges of the window dividers.



Figure 5: Give the solid cherry bumpers an authentic look by rounding over their ends on a belt sander before you glue them in place.

Attach them with glue and one chassis screw, driven up through the floor between the frames.

Install the driver's seat back far enough from the steering wheel to leave adequate space for the driver. This means there will not be a seat directly across from the first seat on the passenger door side.

Add the Striping

I found a 1/4" black tape (piece 42), used for making charts, at the local office supply store. It's flexible enough to follow the arc of the rear wheel cutouts and still remain smooth. Called Geotape®, a single roll is enough for all the bus stripes.

The two upper body stripes are applied at the top and bottom of the windows section, covering up the window support joints. Leave a 3/8" gap between these and the next lower stripe. The bottom stripe covers the nails used in attaching the floor. Note this brand of tape won't stick securely unless applied to a varnished surface.

I used good old 3/4" electrician's plastic tape (piece 43) for the front and back edges of the roof. Use a sharp knife to remove the tape from the warning light holes.

The STOP sign lettering, made by Chartpack, (pieces 44) also came from my local office supply store. They're available on white vinyl sheets as individual self-adhesive 1/2" letters.

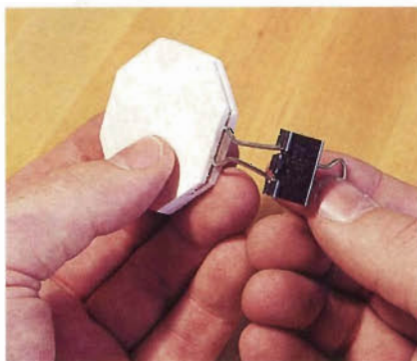


Figure 6: The stop sign hangs on a hinge made from half a metal paper clip, which you screw to a cherry shim/stop.

Lights, Signs and Final Topcoat

The dowels for the headlights (pieces 45) and parking lights (pieces 46) should protrude from the fenders about 1/16". Lightly sand their front edges, put a dab of glue on each and press them into the predrilled holes in the fenders. The pre-stained warning and tail lights should stick out 1/4".

Install the STOP sign next. Use a bit of cyanoacrylate glue on the back of the bracket and screw through the hinge and bracket into the bus body. The sign should lie flat against the body, but be able to swing forward 90° and stop. The

greatest thing about using the Acco hinge is that the STOP sign will snap back to the undeployed position once all your passengers have disembarked.

Install the axles through the frame holes and slide on the wheels. If they don't spin freely, sand the axle and wax them a bit. Put a small dab of glue on the back side of the hubcaps and screw them in place.

After the accessories have been installed, apply two layers of topcoat to the outside of the bus body to seal the tape to the bus. You may find the hubcaps and lights will require a little extra finish.

Al Krough is a subscriber and retired executive with a passion for woodworking.

Little Olivia Elder pulls a surprise inspection of a bus full of eager Beanie Babies.



AN IRISH PARLOR CLOCK

A new case for an old movement charms a second century of woodworkers.

By John English



couple years ago, in the ancient Irish market town

of Arklow, an uncle of mine had a client who decided to retire. Uncle Joe, who supplied bottled propane to hardware stores, drove to Arklow and began helping his customer clear out some stock so the store could be listed with a realtor. He was out back, counting gas cylinders, when he spotted the original version of this project. Its veneer was peeling off, and the carcass was riddled with woodworm.

Despite all of that, Joe knew immediately he had discovered something special. Though the carcass was decrepit, the clock's solid brass movement had been exceptionally well built with thick, hardened gears and a great deal of hand fitting. Knowing that, and being aware of my love of clocks, Joe asked me to build a new home for the wonderful Westminster movement. I enjoyed the task so much that, as soon as I finished, I ordered a brand new movement and built a second clock (shown here) that will tell the time at my sister's home in Dublin.



THE ORIGINAL
CLOCK, BUILT IN
THE LATE 1800'S,
FEATURED ENGLISH
BROWN OAK AND
RIFT SAWN OAK
VENEER



Modifications

I decided to forgo veneering and build the new clock entirely out of solid stock. The decision to switch from oak to Honduras mahogany was not entirely mine: my sister's home is furnished throughout with mahogany pieces. From my point of view, this was a lucky situation. Mahogany costs about the same as white oak, is more readily available in a full 1" thickness and is easier to work and machine.

The Carcass

The measurements in the Material List on page 34 can be used both to purchase stock and to cut all the pieces to rough size. With that done, the first milling step is to cut 1/4" square dados (see **Figure 1**) across the case sides (pieces 1) at the locations shown on the **Pinup Shop Drawings** between pages 38 and 51. These dados are small, so this operation can be completed in two passes with a standard blade.

Stay at the saw to cut a rabbet in each side for the back (piece 2), as shown on the **Pinup Shop Drawings**. The back is set in 1/4": the reason will become obvious when you mount the movement.

The ends of the carcass top and bottom (pieces 3) are also rabbeted

(see **Figure 2**), creating tongues to fit in the dados you just milled. Take your time making these cuts, dry fitting them several times to ensure a perfect fit.

Glue and clamp the sides to the top and bottom, making sure everything is both square and flat. (For parts orientation, refer to the **Exploded View** on page 34.) Attach the back with 3/4" pin nails every six inches along the perimeter, then set the carcass aside to dry.

The Crown Subassembly

The crown of the clock rests on a plate (piece 4) that will eventually be screwed to the carcass. The radii on its front corners and the profile of the crown front (piece 5) can be found on the **Full-size Pattern**. Cut both to shape on your band saw, then miter both ends of the crown front and one end of each crown side (pieces 6).

Dry fit these parts to the plate, then locate biscuits on the mitered

joints. Keep the biscuits toward the insides of the miters, as shown on the **Pinup Shop Drawings**. When everything lines up, glue and clamp them together. Glue the entire subassembly to the plate.

After the glue cures, use a belt or disk sander to reduce the glued-up mitered corners to the radii on the plate. Start with a coarse grit belt to remove most of the waste, then refine the corners with less aggressive belts, finishing with 220 grit. Move to a drum sander chucked in your drill press to clean up the top edges, then mill the ogee at the bottom of the upper plate's edge with a guided bit in your table router.

Attach the crown to the carcass with screws driven up from the inside of the top, through predrilled and countersunk pilot holes (see **Pinup Shop Drawings**).



Figure 2: Tongues on the top and bottom fit into dado slots in the sides. Create them by milling rabbets on the opposing edges.



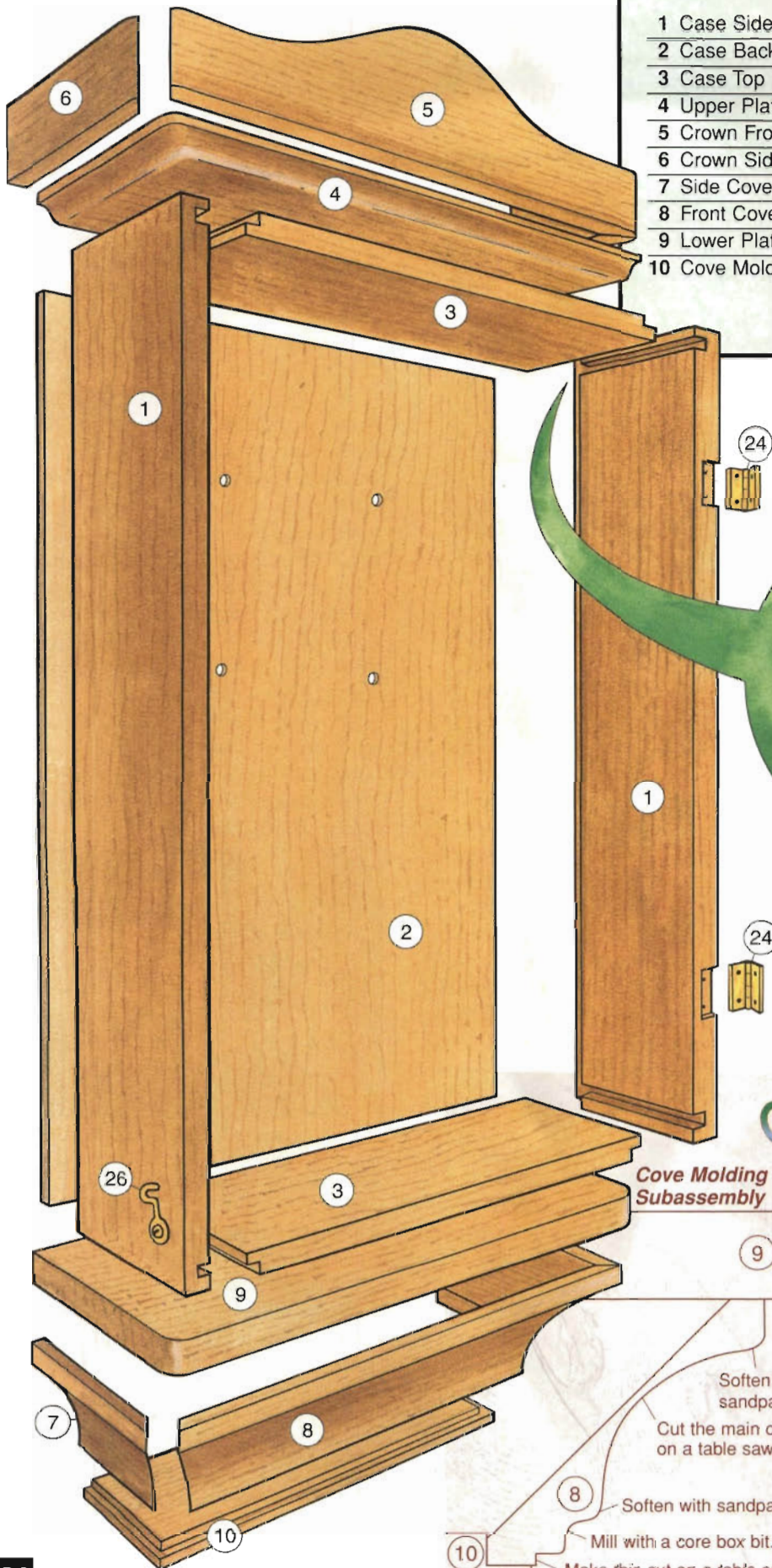
Figure 1: No need to set up a dado head: you can use a standard saw blade to make the small dados on the inside faces of the sides.

A Mitered Compound Cove

In a technique common among nineteenth century clock case builders, the bottom of the clock is dressed up with three pieces of wide molding. These moldings (pieces 7 and 8) are mitered and glued together before they're attached to the lower plate (piece 9). Their profile is shown on the **Full-size Pattern**.

MATERIAL LIST

	T x W x L
1 Case Sides (2)	3/4" x 4 1/8" x 23 3/4"
2 Case Back (1)	1/4" x 11 3/16" x 22 1/16"
3 Case Top & Bottom (2)	3/4" x 4 1/8" x 11 1/4"
4 Upper Plate (1)	1" x 5 13/16" x 14 1/4"
5 Crown Front (1)	1" x 3 1/2" x 14 1/4"
6 Crown Sides (2)	1" x 1 3/4" x 5 1/2"
7 Side Cove Moldings (2)	3/4" x 4 1/8" x 4 7/8"
8 Front Cove Molding (1)	3/4" x 4 1/8" x 12 3/16"
9 Lower Plate (1)	1" x 5 9/16" x 13 9/16"
10 Cove Molding Plug (1)	1/2" x 2 9/16" x 7 1/8"



24

24

9

8

10

Back Corner Detail

COVE MOLDING ...

Cove Molding Subassembly

Soften with sandpaper.

Cut the main cove on a table saw.

Soften with sandpaper.

Mill with a core box bit.

Make this cut on a table saw.

Clamp two scrap auxiliary fences to your table saw 4 1/8" apart and at 45° to the blade. Center them on the blade (front to back). Set the blade height to 1/16", then test your setup on scrap. Raise the blade 1/16" on each pass until the cove shown on the **Full-size Pattern** is formed. Use a push-stick: never pass your hands over a spinning blade.

Project Supplies

The following supplies are available from our friends at **Klockit**. Call (800) 556-2548.

Clock Movement #13047\$149.95

Clock Face #26411\$29.99

Woodworker's Journal has the rest of the hardware you'll need. Call (800) 610-0883.

Hinges Package #25718\$2.59

Catch #27854\$1.99

Turnbuckles Package #27912.....\$1.99

Cut the molding's main cove on your table saw (see sidebar below), then reset the saw and rip the edges to the correct angles (also on the **Full-size Pattern**). Mill the decorative groove with a core box bit in your router table (see **Figure 3**), then sand the entire molding. A drum sander works great as a manual sanding block to clean up the main cove, as shown in the inset.



Figure 3: Use a core box bit to rout a decorative groove into the lower edge of the crown molding, then clean up the main cove (right).

Round the front corners of the lower plate and sand, then miter the cove molding (see **Pinup Shop Drawings**). Now pin nail and glue the molding segments to the plate.

(see **Elevation drawing** below left).

Built-up Door Stiles

Begin building the door by rabbeting one edge of each door stile (pieces 11) and both edges of the center rail (piece 12), following the dimensions shown on the **Pinup Shop Drawings**. This saw setup can also be used to cut rabbets on the inside bottom edge of the top rail (piece 13) and the inside top edge of the bottom rail (piece 14).

Again referring to the **Pinup Shop Drawings**, use the saw's miter gauge to create tongues on both ends of each rail. After dry fitting, glue and clamp the stiles and rails together. Make sure to check for squareness and flatness.

When the glue is dry, use biscuits (pieces 15) to attach the door molding (pieces 16) to the outside edge of each stile. This molding is first shaped on the router table with a 3/8" radius roundover bit as shown in **Figure 4**. Once secure, attach the small quarter rounds (pieces 17) to their inside edges, (see **Figure 5** and the **Elevations** on the next page).

Attach this sub-assembly to the carcass with screws, then rabbet the edges of the cove molding plug (piece 10) before gluing and clamping it in place



Figure 4: The outside edge of the large door molding is shaped on a router table with a 3/8" radius roundover bit.

The Door Muntins

A pair of thin muntins (pieces 18) divide the bottom half of the clock door into three glazed segments. The safest way to make the muntins is to form them on the edge of a wide board (see **Figure 6**), then trim them to size (see **Figure 6 Inset**). Their dimensions are shown on the **Pinup Shop Drawings**.

These muntins are set into dadoes cut in the door's center and bottom rails. Locate these dadoes on the **Pinup Shop Drawings**, then cut them on the table saw, as shown in **Figure 7**. Keep in mind that the top rail isn't dadoed.

Use your saw's miter gauge to trim the ends of the muntins to fit into these dadoes, following the dimensions shown in the detail drawing on the **Pinup Shop Drawings**. When everything fits, glue and clamp the muntins in place.

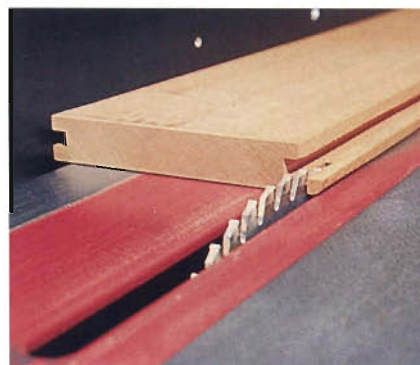
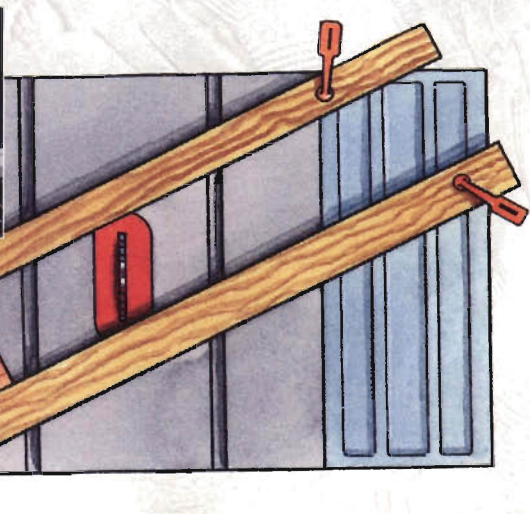
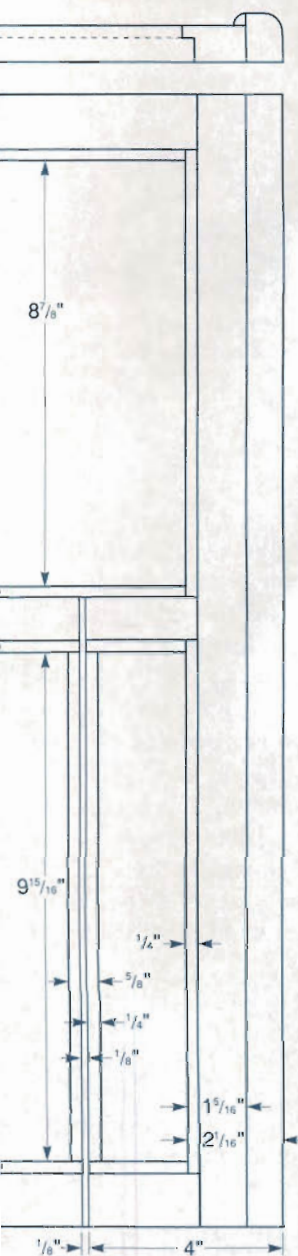


Figure 5: The safest way to make the small quarter round molding for the door edges is to form it first with a router on the edge of a wide board, then rip it to width as shown here.

ON THE TABLE SAW



Door Assembly (Top View)



Door Assembly (Back View)

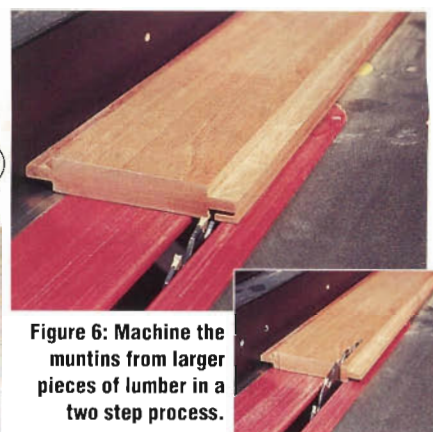
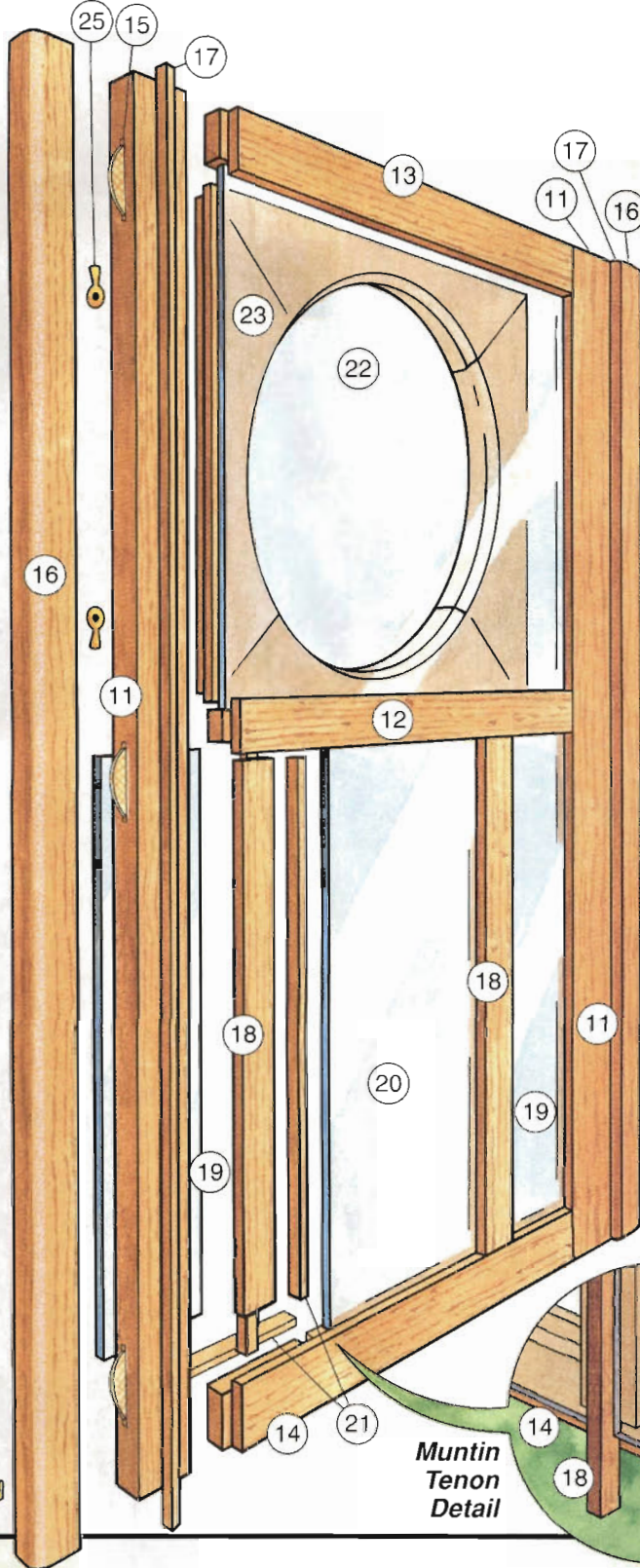


Figure 6: Machine the muntins from larger pieces of lumber in a two step process.

Glass Retainers

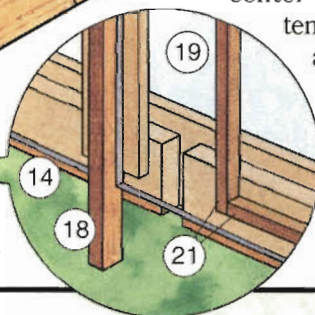
The three lower panes of glass in the door (pieces 19 and 20) are secured by a simple stop molding (piece 21) ripped off the edge of a wide board and mitered to fit the glass openings.

The large pane of glass in front of the dial (piece 22) is kept in place by a separate, removable frame made up of four mitered segments of square stock (pieces 23) that are biscuited and glued together before being milled to accommodate the dial. Hold off on this assembly until you locate the dial in the door.

Getting the dial to line up properly in the door is critical, so I strongly recommend creating a template from 1/4" plywood to help. Rip and crosscut your template to fit the rabbets in the upper door opening, center the clock dial on the template (see **Figure 8**), and use it to draw an outline of the large circular hole.

Cut the dial hole with a jig saw or

Muntin Tenon Detail



MATERIAL LIST

	T x W x L
11 Door Stiles (2)	3/4" x 1 5/16" x 23 5/8"
12 Center Door Rail (1)	3/4" x 1 7/16" x 9 3/8"
13 Top Door Rail (1)	3/4" x 1 7/16" x 9 3/8"
14 Bottom Door Rail (1)	3/4" x 1 7/16" x 9 3/8"
15 Biscuits (8)	Ryobi style R3
16 Door Molding (2)	3/4" x 1" x 23 5/8"
17 Door Stile, Small 1/4 Round (2)	1/4" x 1/4" x 23 5/8"
18 Door Muntins (2)	3/4" x 5/8" x 12 13/16"

	T x W x L
19 Bottom Side Panes (2)	Glass, cut to fit
20 Bottom Center Pane (1)	Glass, cut to fit
21 Stop Molding (1)	1/4" x 7 1/16" x 90"
22 Top Pane (1)	Glass, cut to fit.
23 Dial Frame Segments (4)	3/4" x 2 1/8" x 9 3/8"
24 Door Hinges (2)	Brass, 1 1/2"
25 Dial Frame Turnbuckles (4)	Brass
26 Door Catch (1)	Brass hook and eye

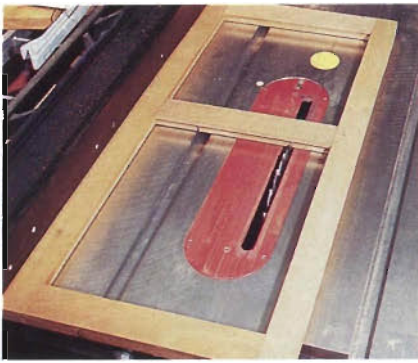


Figure 7: Make dados for the muntins in the door frame subassembly. Remember that the top rail does not have dados.

saber saw, then clean up the edges with a drum sander chucked in the drill press. Be very particular — the quality of this work will be quite obvious later on.

Finishing and Hardware

You're now ready to sand and finish the entire project. I used four coats of clear satin polyurethane to bring out the mahogany's luster. Sand between coats with 400 grit paper, then use a tack cloth to clean up before the next coat. When your finish is dry, set the clock on its back and position the door on the carcass. Locate and install the hinges (pieces 24) next. Each hinge will require a single dado in the front edge of the carcass stile, as shown on the **Pinup Shop Drawings**; this eliminates the need to chop any mortises in the back of the door. Screw the hinges in place, then temporarily tack the dial template into the rabbets in the back of the door.

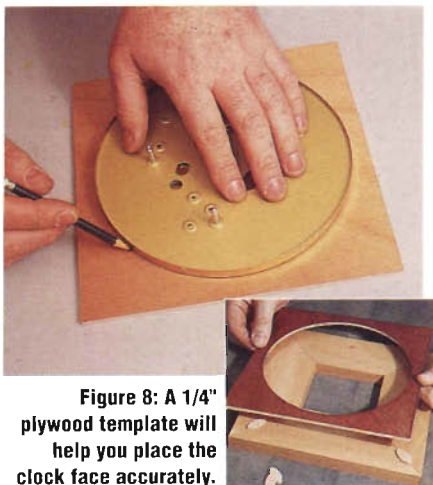


Figure 8: A 1/4" plywood template will help you place the clock face accurately.

Milling the Dial Frame

With the location of the dial established, you can now make the frame that fits around it. Rip the four frame segments (pieces 23) to size, then miter them to the lengths shown on the **Pinup Shop Drawings**. Use biscuits (placing them at the locations shown on the **Pinup Shop Drawings**), glue and clamps to create a square form that looks like a picture frame. Make sure this frame is flat and square as you tighten the clamps.

When the glue is dry, trim the outside of the frame to fit in the door rabbet, leaving 1/16" play all round. Remember to shave a little off each side so the mitered joints don't look off center. When the fit is perfect, center your plywood template on the frame, clamp it gently in place, and then draw a line for the circular cutout.

Make the cutout with a scroll or jig saw, then use a drum sander to clean up the edges. When you're satisfied with the fit, use a bearing guided chamfering bit to relieve both the front and back edges of the cutout, following the chamfer dimensions shown on the **Full-size Pattern**. Cut a 3/8" wide rabbet on the back edges of the dial frame, making it flush with the door.

Finish the dial frame, then secure both it and the glass with four brass turnbuckles (pieces 25). Close the door and install the brass catch (piece 26) with a screw and a couple of pins, as shown on the **Pinup Shop Drawings**.

One final piece of advice: mechanical movements are very sensitive, so make sure the wall where the clock will hang is absolutely plumb and level. If it is, you'll enjoy years of reliable service from this reproduction of an Irish parlor clock.

PLACING THE MOVEMENT

Attach the dial to the movement according to the manufacturer's instructions, then remove the large square pane of glass from the door. Place the movement in the case (with the 12 at the top), then close the door. Gently reposition the movement until the dial is centered in the cutout (see photo, below).

Open the door and use a pencil to mark the movement's bolt locations on the plywood back. Then remove the movement and drill the holes. Secure the movement to the back with the nuts and washers provided by the manufacturer.



Install the chiming rods next (see **Pinup Shop Drawings**), then attach the hands. Set the clock upright to install the pendulum, then follow the manufacturer's instructions to set the time and adjust the movement.



Stocking Stuffer!

Watching my grandkids play reminded me of this simple pleasure — a lesson from my high school science teacher.

By Robert Christiansen

Do you like puzzles?

Puzzles like these are playtime with a lesson: the object is to get two ball bearings to sit upon a pair of shelves, and the simple solution is a lesson in centrifugal force. Spin the puzzle on a flat surface, and the bearings will roll uphill onto the angled shelves ... and stay there!

This great toy really lends itself to production-line methods. Each puzzle requires two ball bearings and a little Plexiglas™: you can use any species of scrap stock for the puzzle's body.

The photo series at right tells most of the story. To build the jig used in Step 3, just band saw a piece of scrap to the same profile as the inside of the puzzles. Dry fit to establish its location on the miter fence, then screw it in place.

The sides of the puzzles are cut from strips of 1/4" plywood. Center the radii in Step 4 on this stock at 2", 6", 10", 14", 18" and 22". Then they will line up perfectly with the centers of the arcs you drilled earlier in the body moldings.

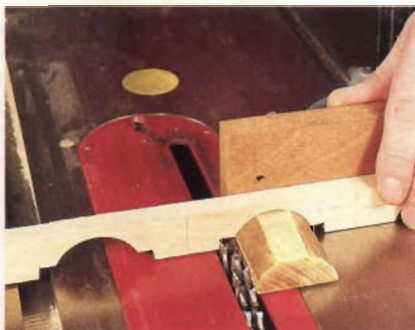
Refer to the **Full-size Pattern** to locate the brad separating the two bearings. Make sure these brads are perpendicular to the sides, then hammer them home. Sand lightly, lay the puzzles face down, and spray three coats of finish on the outside wood surfaces.



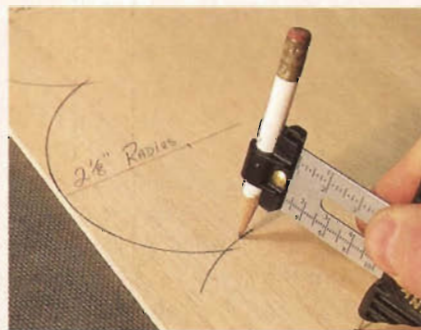
Step 1: Begin with a strip of 3/4" thick scrap, at least 3" wide. Use the Full-size Pattern at right to lay out and drill a series of 2" diameter holes in this stock.



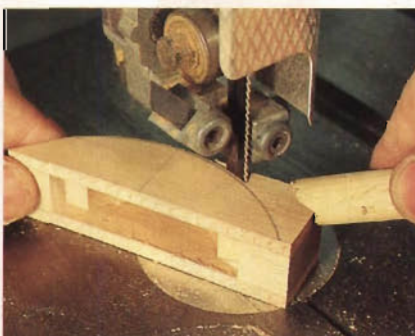
Step 2: Rip the stock to thickness (see Pattern) on your table saw. Reset the fence and rip the edges to width, then cut it down the middle to make two moldings.



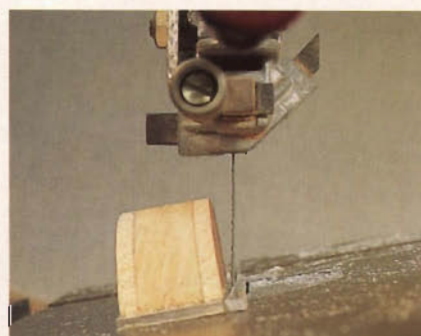
Step 3: Make the pairs of sloped notches (see Pattern) with a 3/8" dado head at a 5° angle. Hold the work in a jig (see photo), and reverse the cut to make left and right shelves.



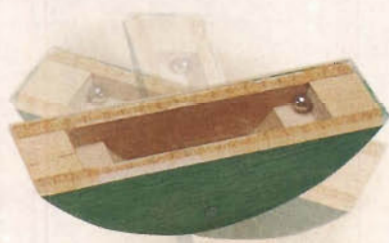
Step 4: Lay out the puzzle sides as a series of 2 1/2" radii on 1/4" plywood. Use quick-setting glue to attach the sides to the bodies by aligning the penciled and drilled-out arcs.



Step 5: Sand, then spray the insides of the puzzles with two coats of clear finish. Then band saw individual puzzles from the strips.

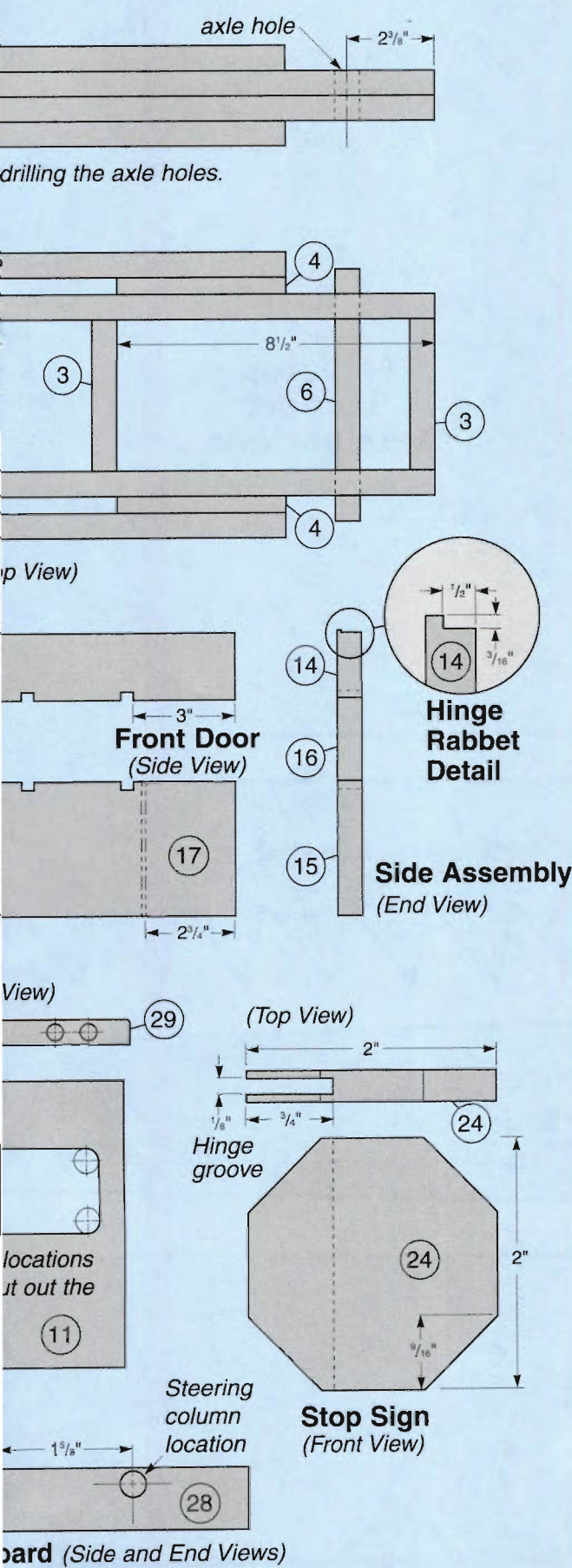


Step 6: Drop two ball bearings in each puzzle, epoxy the Plexiglas tops in place, then set your band saw table to 5° and trim the tops.



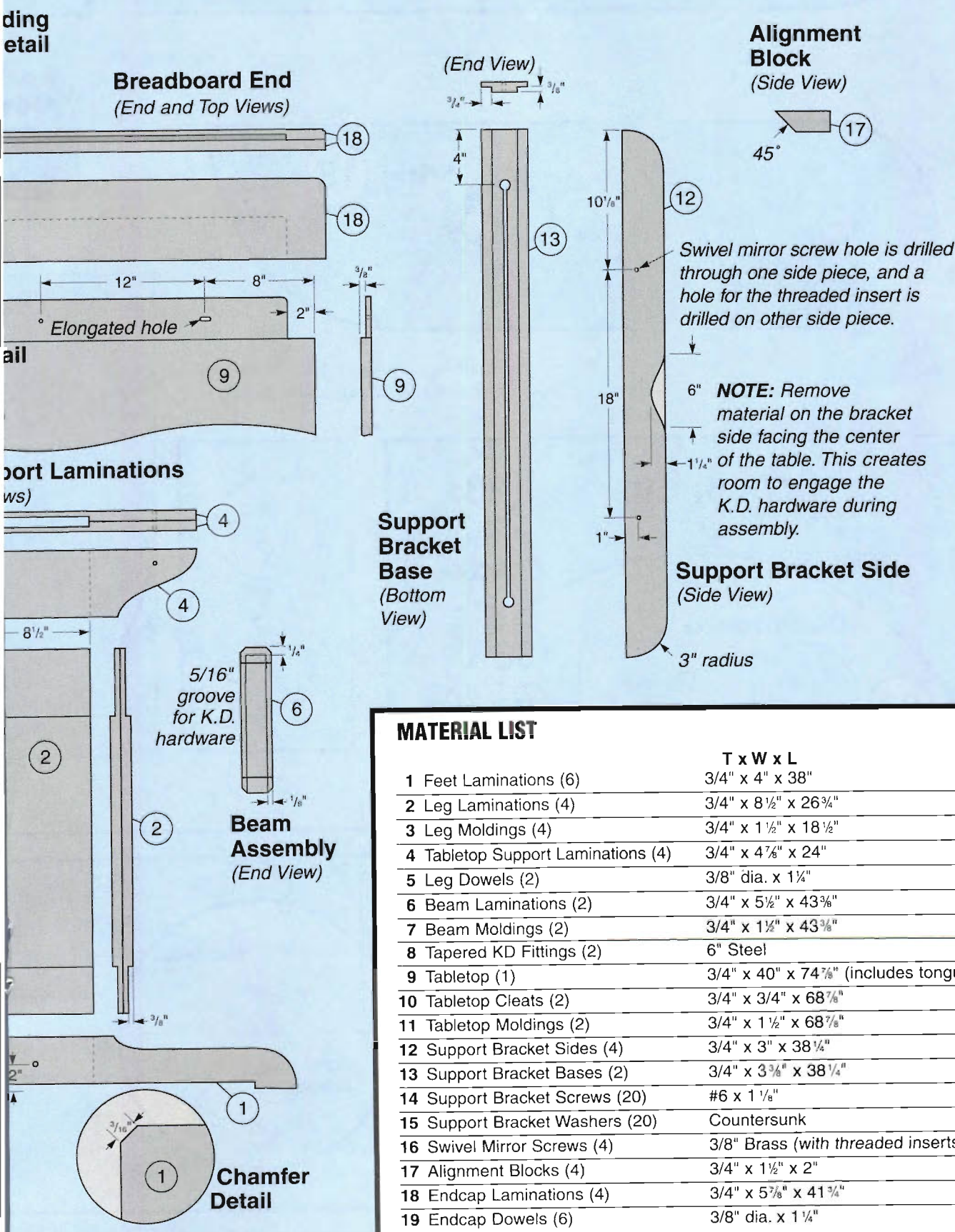
Beanie Babies Bus

Feet Laminations (End View)



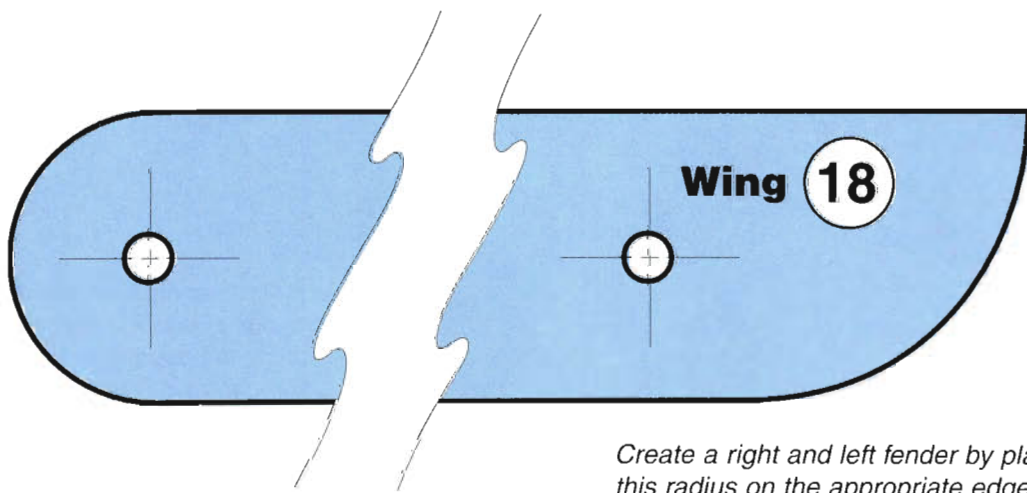
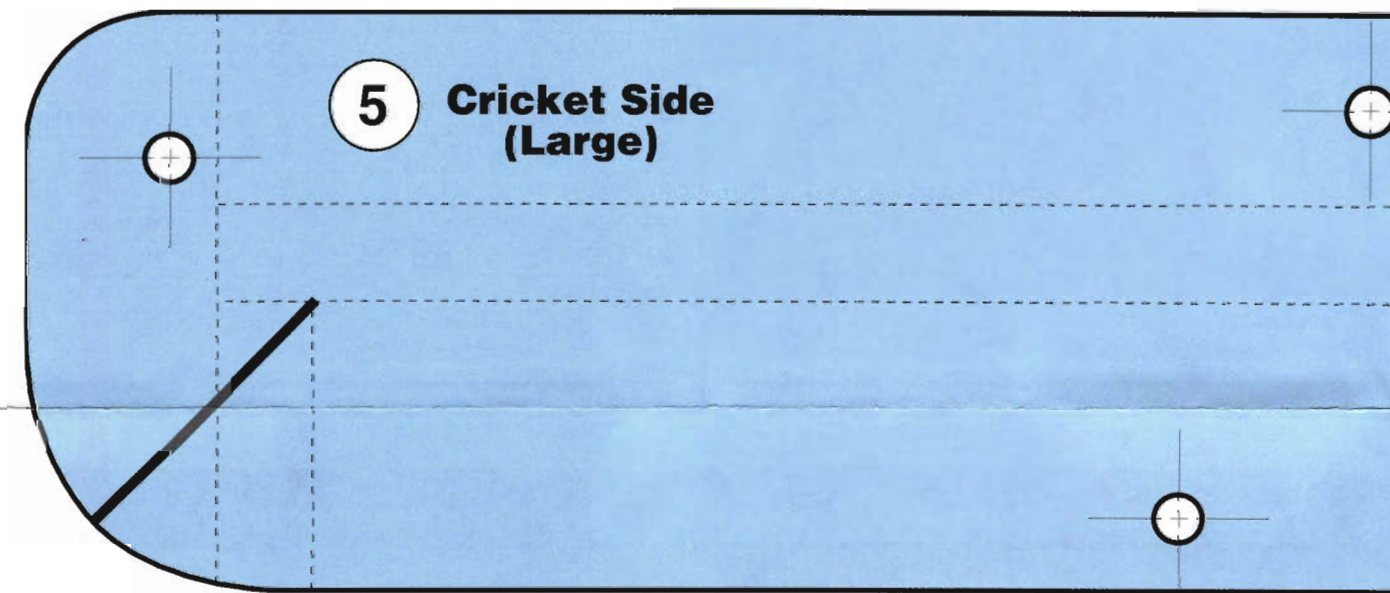
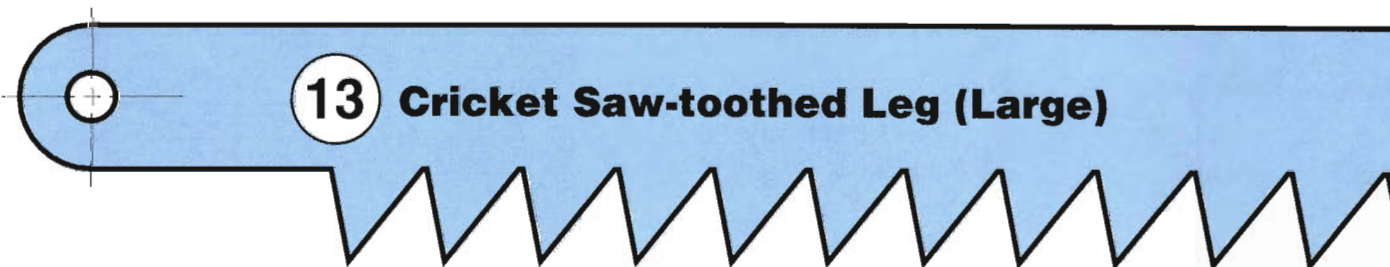
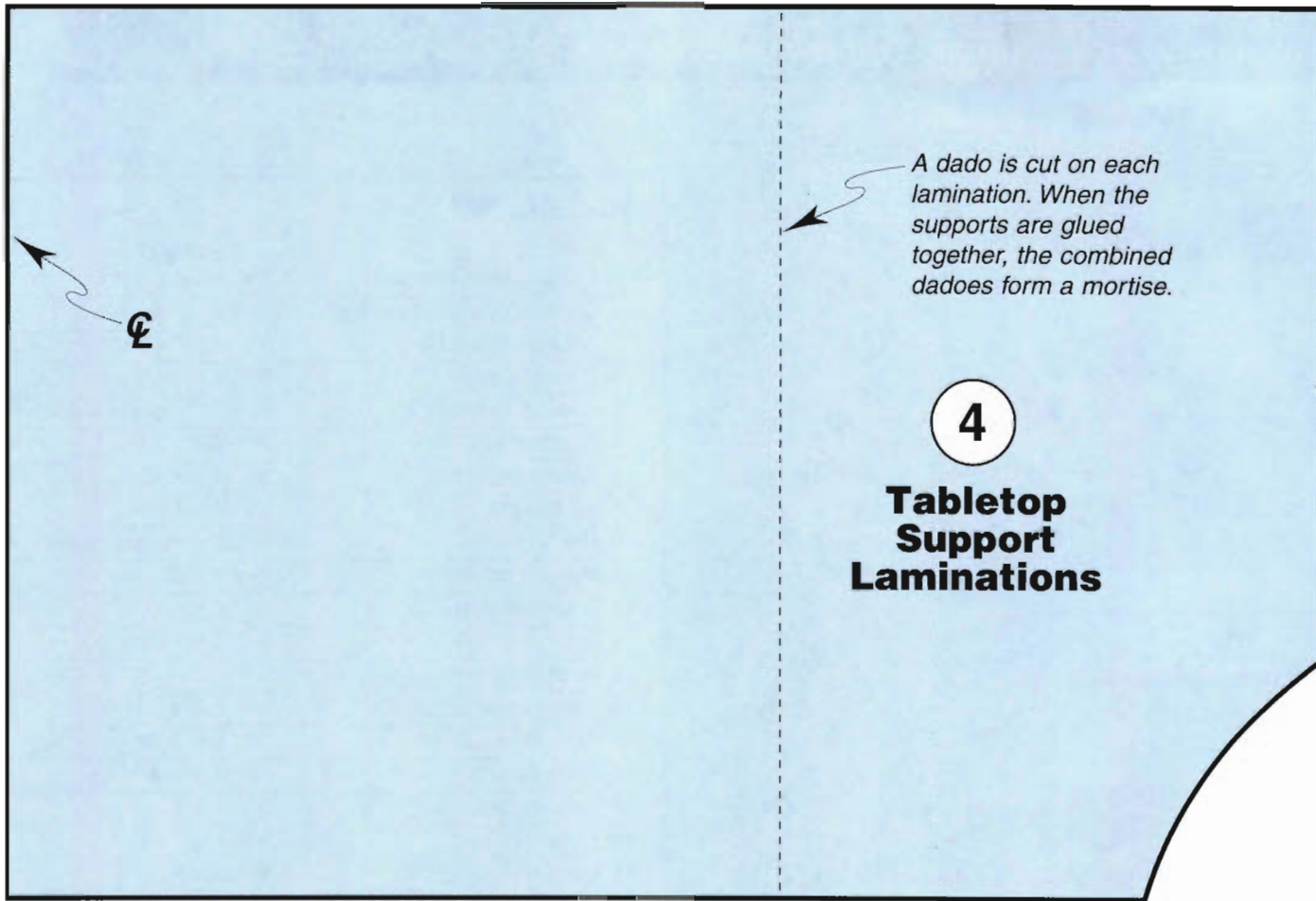
MATERIAL LIST

	T x W x L
1 Chassis Main Beams (2)	3/4" x 1 1/2" x 30"
2 Chassis Exterior Beams (2)	3/4" x 1 1/2" x 25 1/2"
3 Chassis Struts (4)	3/4" x 1 1/2" x 4 1/2"
4 Frame Spacers (4)	1/2" x 1 1/2" x 5"
5 Chassis Screws (60)	#6 x 1 1/2" Square drive
6 Front Axle (1)	3/4" dia. x 7 1/2"
7 Rear Axle (1)	3/4" dia. x 10 1/4"
8 Wheels (4)	3/4" dia. x 3 1/2"
9 Hubcaps (4)	1 1/4" dia. Hardwood balls
10 Hubcap Screws (4)	#4 x 1 1/4" Square drive
11 Body Front (1)	3/4" x 10" x 8 1/2"
12 Body Back (1)	3/4" x 10" x 8 1/2"
13 Rear Emergency Door (1)	3/4" x 2 3/4" x 4"
14 Body Sides, Upper (2)	3/4" x 2" x 24"
15 Body Sides, Lower (2)	3/4" x 4" x 24"
16 Body Window Dividers (14)	3/8" x 3/4" x 3"
17 Passenger Door (1)	3/4" x 2 3/4" x 4"
18 Floor (1)	3/4" x 8 1/2" x 24"
19 Body Nails (40)	1 1/2" Brads
20 Radiator Grill (1)	3/4" x 3" x 4 1/2"
21 Engine Compartment Hood (1)	3/4" x 6" x 4 1/2"
22 Engine Compartment Sides (2)	3/4" x 3" x 4 1/2"
23 Front Fenders (2)	1 1/4" x 2 1/4" x 4 1/2"
24 STOP Sign (1)	1/4" x 2" x 2"
25 STOP Sign Arm (1)	Half an Acco clip
26 Seat Backs (12)	1/4" x 3 3/8" x 3 3/4"
27 Seats (12)	3/4" x 1 1/2" x 3 3/8"
28 Dashboard (1)	3/4" x 3/4" x 3"
29 Roof (1)	3/4" x 10 3/8" x 26 1/4"
30 Roof Braces (2)	3/4" x 3/4" x 8 1/2"
31 Warning Lights (1)	1/2" dia x 6"
32 Horn/Steering Column (1)	Axle pin
33 Front Bumper (1)	1/4" x 1 5/8" x 8 1/4"
34 Rear Bumper (1)	1/4" x 1 1/4" x 9 1/2"
35 STOP Sign Arm Screw (1)	1/2" long
36 STOP Sign Arm Bracket (1)	3/8" x 5/8" x 1"
37 Steering Wheel (1)	2 1/2" OD, spoked
38 Roof Hinge (1)	1" x 24" continuous
39 Roof Support (1)	Toy box lid support
40 Door Hinges (2)	8" Jewelry box hinge (half)
41 Door Latches (2)	Bullet catches
42 Narrow Striping (1)	1/4" Geotape™
43 Wide Striping (1)	3/4" Electrical tape
44 STOP Sign Lettering (1)	1/2" Chartpak™ letters
45 Headlights (2)	3/4" dia. x 1/2" Dowel
46 Parking Lights (2)	1/4" dia. x 1/2" Dowel

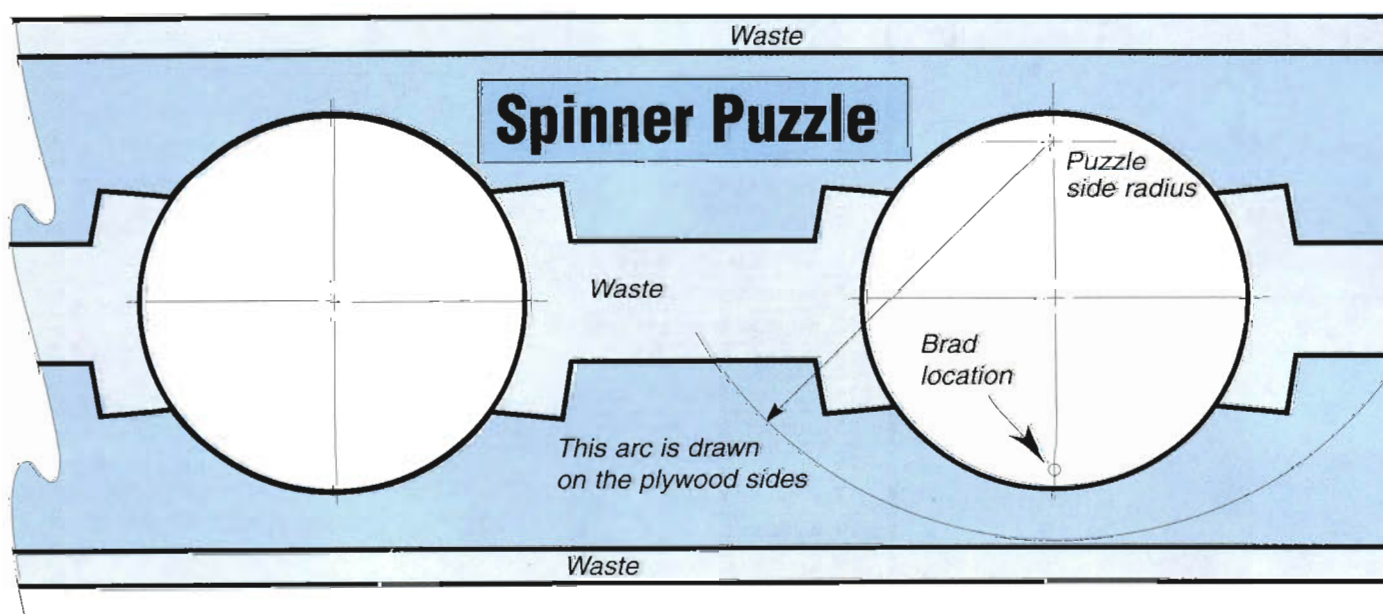
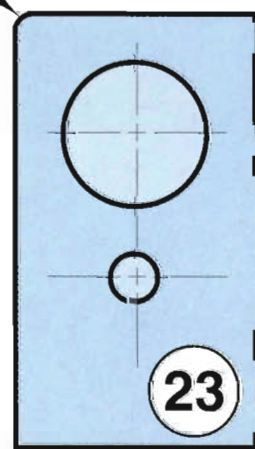
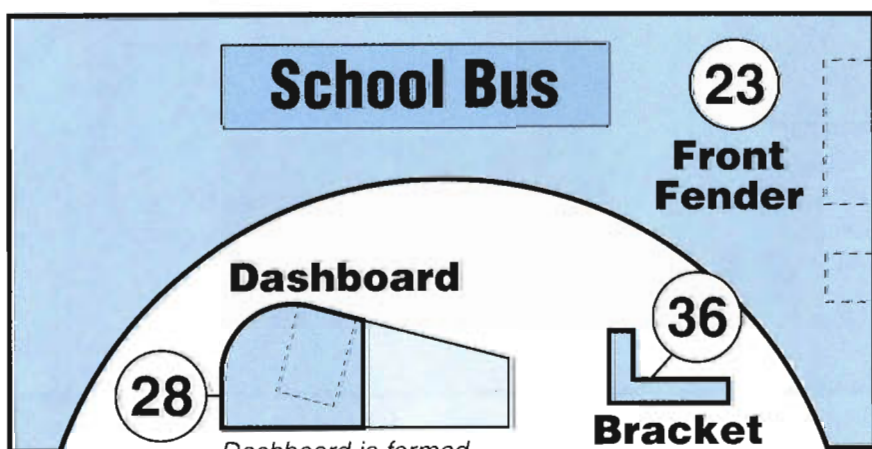


MATERIAL LIST

	T x W x L
1 Feet Laminations (6)	3/4" x 4" x 38"
2 Leg Laminations (4)	3/4" x 8 1/2" x 26 3/4"
3 Leg Moldings (4)	3/4" x 1 1/2" x 18 1/2"
4 Tabletop Support Laminations (4)	3/4" x 4 7/8" x 24"
5 Leg Dowels (2)	3/8" dia. x 1 1/4"
6 Beam Laminations (2)	3/4" x 5 1/2" x 43 3/8"
7 Beam Moldings (2)	3/4" x 1 1/2" x 43 3/8"
8 Tapered KD Fittings (2)	6" Steel
9 Tabletop (1)	3/4" x 40" x 74 7/8" (includes tongues)
10 Tabletop Cleats (2)	3/4" x 3/4" x 68 7/8"
11 Tabletop Moldings (2)	3/4" x 1 1/2" x 68 7/8"
12 Support Bracket Sides (4)	3/4" x 3" x 38 1/4"
13 Support Bracket Bases (2)	3/4" x 3 3/8" x 38 1/4"
14 Support Bracket Screws (20)	#6 x 1 1/8"
15 Support Bracket Washers (20)	Countersunk
16 Swivel Mirror Screws (4)	3/8" Brass (with threaded inserts)
17 Alignment Blocks (4)	3/4" x 1 1/2" x 2"
18 Endcap Laminations (4)	3/4" x 5 7/8" x 41 3/4"
19 Endcap Dowels (6)	3/8" dia. x 1 1/4"



Create a right and left fender by placing this radius on the appropriate edge.



Trestle Table

Hole for carriage bolt

1

Feet Lam

16

Wheel

Offset hole on back wheels.

Mounting pin

Separator pin

Plat

Cricket Xylophone (Large)

er
el

15

13

Cricket Saw-toothed

8

Wheel

12

Straight Leg (Small)

5

Cricket Side (Small)

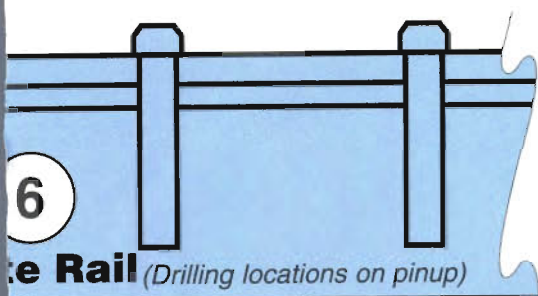
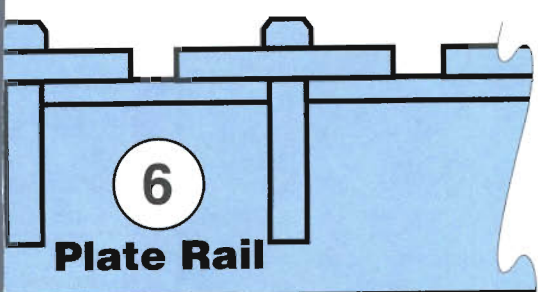
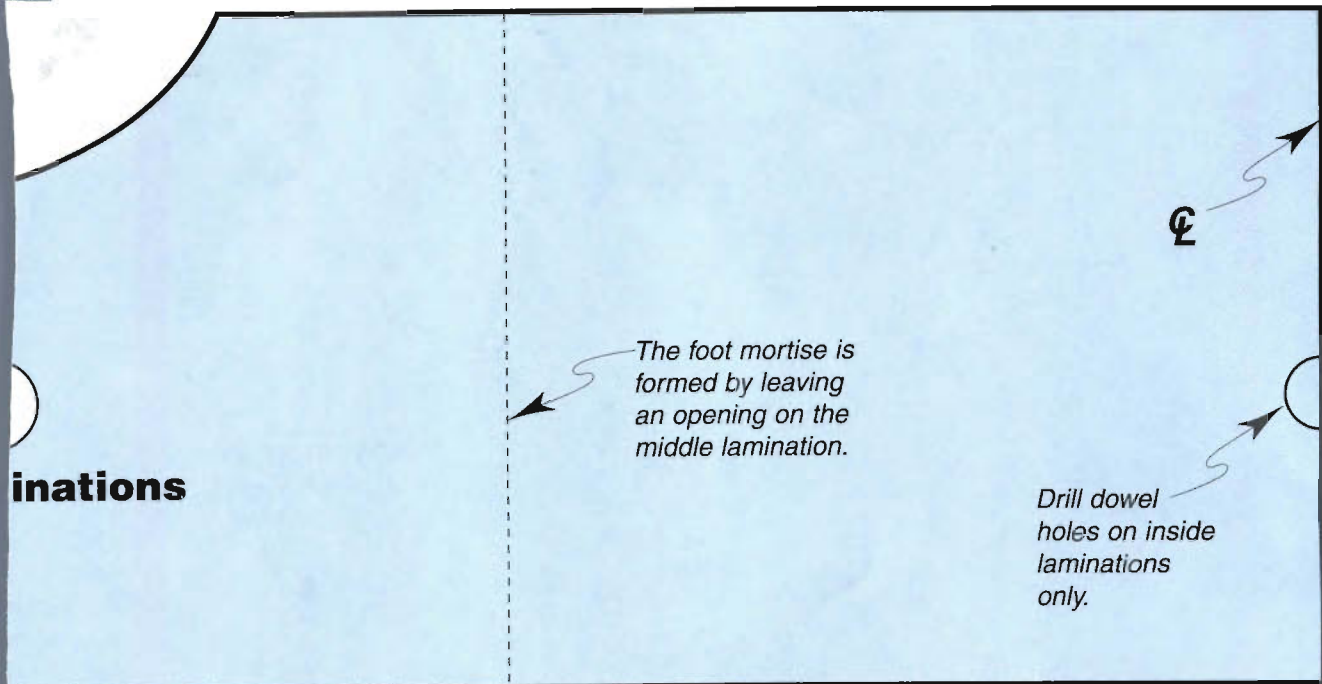
**PINUP
SHOP
DRAWINGS**

Full-Size Patterns

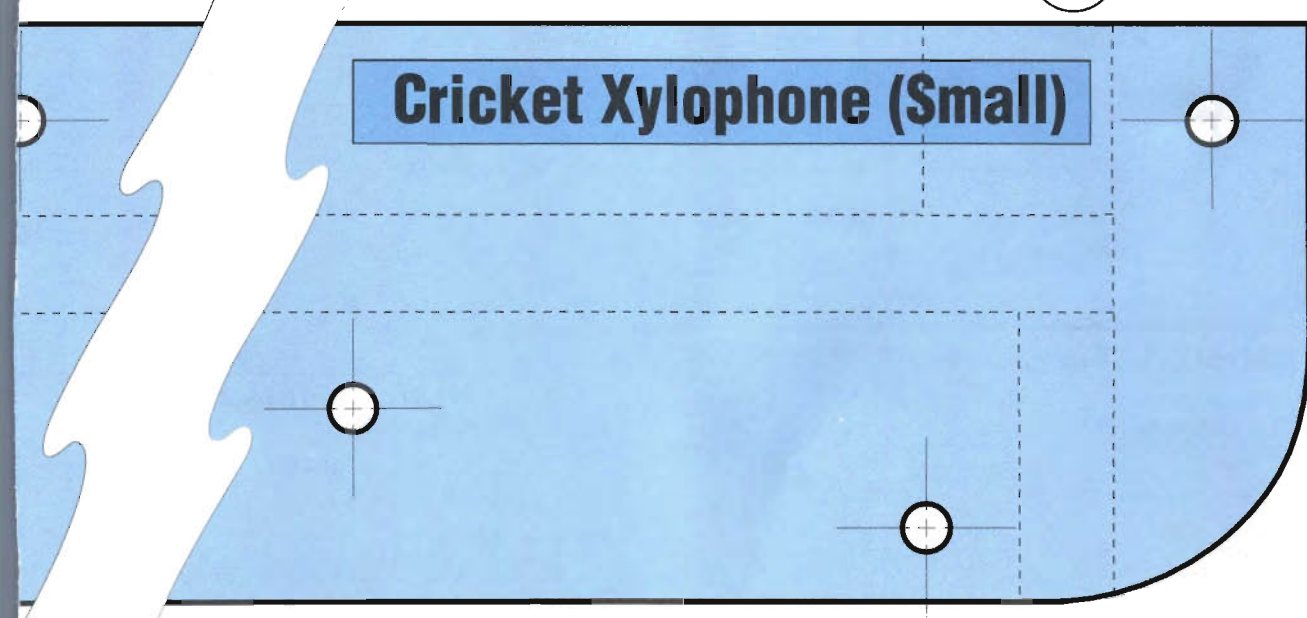
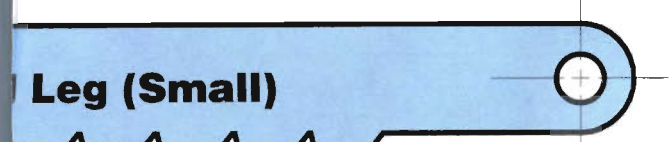
- Open staples carefully, remove pattern and fold staples back in place.
- Use graphite paper (available at art supply stores) or cut and trace full-size patterns onto your stock.
- Cut out the elevation drawings and pin them to your shop wall.



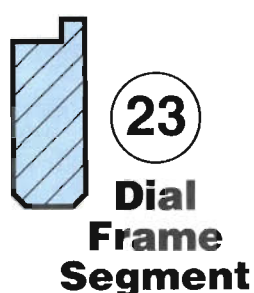
Trestle Table
Detailed breadboard end elevations and Full-size patterns of the feet and support pieces.



These drilling locations can be found on the chart on the Pinup shop drawings.



Cove Molding

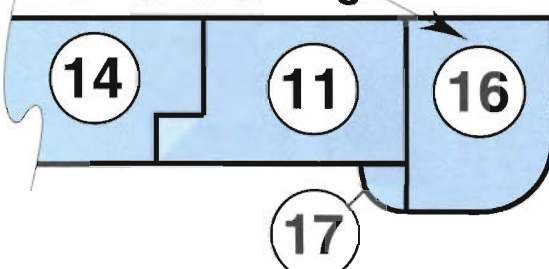


Irish Parlor Clock

5
Crown Front

8

Door Moldings



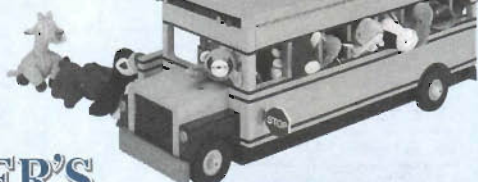
Irish Parlor Clock
Molding profiles, muntin elevations, movement mounting details and more.



Musical Crickets
Full-Size patterns of both large and small crickets.



Stocking Stuffer
The spinner puzzle's Full-size patterns.



Beanie Babie™ Bus
A complete set of elevation drawings, plus Full-size Patterns of key pieces.

WOODWORKER'S JOURNAL
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Rich Soborowicz

By John English

Though Rich Soborowicz enjoyed being part of the Information Age, his burning desire always was to turn his

woodworking hobby into a career. Over the past four years, his dream has begun to come true. Since 1994, Rich has owned and operated a custom furniture shop called Nature's

Fine Woodworking in his hometown of Kent, Washington.

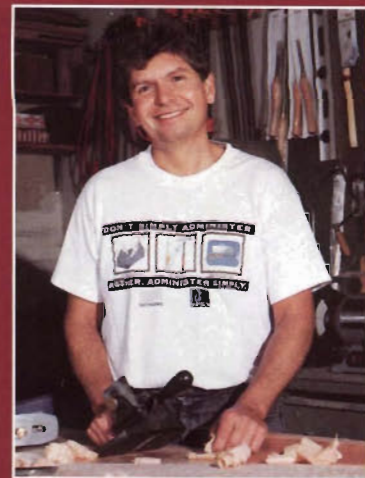
A programmer, systems analyst and project manager in the computer industry for 16 years, Rich feels his previous career helped him develop the organizational skills necessary for both building projects and running a woodworking business. He also spent eight years as a hobbyist, fine tuning his furniture making skills, before opening the doors to his shop. Rich's goal was to "develop a style that includes clean, simple lines in exceptional pieces of functional furniture." He makes use of traditional joinery involving extensive use of hand tools, and brings an almost obsessive attention to detail to his work. It shows in the design, craftsmanship and finish of every one of his pieces.

Rich likes to blend solid hardwoods and veneers in his creations. "My personal taste is a combination of Shaker and traditional styles," he says. "The results could be labeled as modified Shaker."

But his designs and techniques aren't limited to one style — as the projects on this page demonstrate.

For instance, Rich used counterbored and plugged screws to add a little strength to the natural holding power of the mortise and tenon joinery in his **walnut blanket rack**, shown above. The goal was to create a quilt rack with simple lines that wouldn't visually overpower the quilt on display.

The seat and legs of the elegant **cherry rocker** pictured below are joined by old-fashioned coggled mortise and tenon joints. Rich built the chair to fit the customer's physique. The bent wood was air dried and steamed, and the finish is a blend of tung oil,



Soborowicz says his aim is to "develop a style that includes clean, simple lines in exceptional pieces of functional furniture."



varnish and thinner, topped with several coats of oil and beeswax.

With quilted maple top and sides, padauk legs and walnut spacers, the **end table** shown at top left is a woodworking medley that found its original inspiration in Asiatic designs. An oval caps each leg, so the top of the table seems to float. The top itself is a maple frame surrounded by a sheet of glass — a window through which to view the exquisite woods and joinery.

For the **half-round table** shown above, Rich used solid 1 1/2" tiger maple for the top. The skirt and legs are cherry, with maple inlay on the legs. The inspiration for this piece was painful: Rich got tired of bumping his shins on hall table corners.

Rock Solid Trestle Table



uch!"
That was my
neighbor
Roger's main

comment on the old dining room table his family has used for the last three generations. Despite the fact he's a somewhat smart guy, Roger apparently spent most of the last fifty years banging his shins on the low beam that holds the table's legs in place. Seems a half century of accumulated wisdom is paying off. Roger and his wife, Joan, recently had me build them a replacement table that would take care of the problem.

This knock-down table will seat eight in a pinch and features breadboard ends. Its main beam is elevated to spare your shins.

By Margaret Cole

The new table had to incorporate several design elements the original lacked. It had to be large enough to seat six comfortably — eight in a pinch. They also wanted a table that would come apart and go back together easily (since their dining room doubles as a dance floor on Thursday nights).

Roger wasn't ready to move away from the solid oak trestle style he was so accustomed to, but Joan wanted a top that wouldn't feature "crumb catchers" and a slightly fancier look. Of course, both wanted to keep the cost way down. I'll bet this sounds familiar to anyone who has built a project for a neighbor!

The first thing I recommended was breadboard ends — for two reasons. First, I knew someone would be seated at each end regularly (probably Roger), and I didn't want him to trade his shin problem for a knee problem. These ends add a few inches of width on their own, but more important, they allow you to move the legs further in without risking cupping at the ends. To address Joan's concern, they (along with a little extra router work) tend to upscale the overall appearance. Finally, to keep the cost of materials down, I specified readily available, 3/4" thick hardwood stock.

Grain orientation in face-glued boards

Through the ages, countless woodshop students have discovered, (often to their dismay), that wood retains a tendency to curl away from the center of the tree.

Christian Becksvoort explained this best in his excellent book, *In Harmony with Wood*: "On a plain sawn board, [cupping] is usually manifested in the concave surface forming away from the tree."

So, to put it simply, gluing the bark sides together, as shown below, will decrease the chance that the edges will peel apart later.

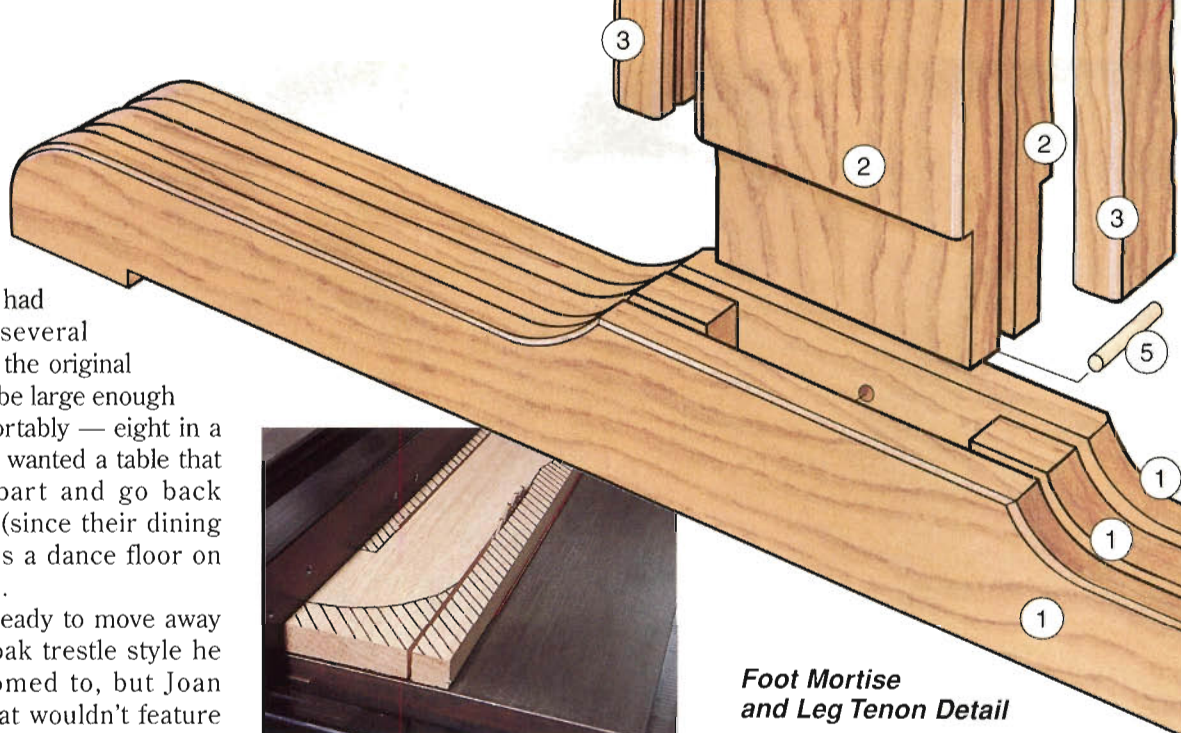
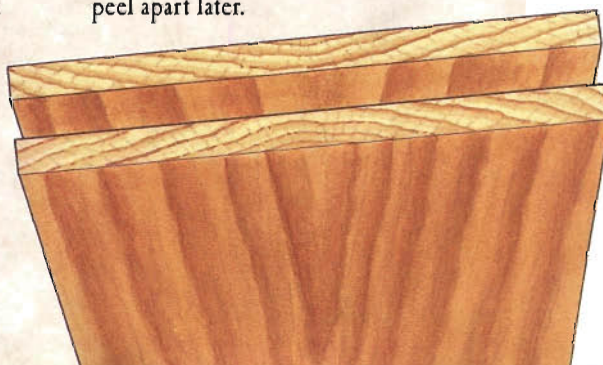


Figure 1: Use your table saw to make the straight cuts in the feet, then switch to the band saw to complete the curved cuts.

Start with the Feet

When it came to the large mortises in the feet, the decision to build with 3/4" thick stock paid off in terms of labor. The feet are made up of three thicknesses of wood face glued together, so making the large bottom mortises was a simple matter of leaving a hole in the middle of each foot, as shown in the drawing above.

Start building the feet by cutting six laminations (pieces 1) to shape (see the **Full-size Pattern** on the center pullout). Make the straight cuts on your table saw, as shown in **Figure 1**, then finish up each cut by band sawing the curves to shape.

After the laminations are cut to shape, remove the center sections of two of them (see the **Pinup Shop Drawings**, also located on the center pullout). These instant mortises will be a bit wider than the leg tenons, which allows the laminated legs to shrink and expand with seasonal changes in humidity.

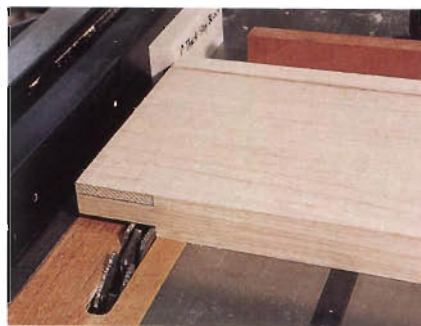
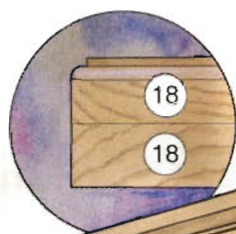


Figure 2: A spacer clamped to the fence lines up the legs for tenoning and prevents binding by keeping the work away from the fence.

Glue and clamp the feet together, making sure the ends and the top edges are flush as you tighten your clamps. When the glue is dry, scrape off any excess before jointing the top and bottom edges and drum sanding the curved areas. Then run a bearing guided chamfering bit along the top edge of each foot (as shown in the **Pinup Shop Drawings**).

Beading Detail

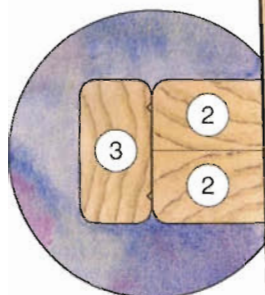


Tenoned Legs

Each of the legs (pieces 2) is made from a pair of face-glued boards, edged with a custom molding. After cutting and jointing the boards to size, glue and clamp the bark sides together, as discussed in the sidebar on the previous page. After the glue sets, joint the edges before rounding over the vertical edges of each leg with a 1/4" radius roundover bit.



Figure 3: After rounding over all four long edges of the leg moldings, create two V-shaped glue control grooves in each back face.



Roundover and Glue Trap Detail



Material List

	T x W x L
1 Feet Laminations (6)	3/4" x 4" x 38"
2 Leg Laminations (4)	3/4" x 8 1/2" x 26 3/4"
3 Leg Moldings (4)	3/4" x 1 1/2" x 18 1/2"
4 Tabletop Support Laminations (4)	3/4" x 4 7/8" x 24"
5 Leg Dowels (2)	3/8" dia. x 1 1/2"
6 Beam Laminations (2)	3/4" x 5 1/2" x 43 3/8"
7 Beam Moldings (2)	3/4" x 1 1/2" x 43 3/8"
8 Tapered KD Fittings (2)	6" Steel
9 Tabletop (1)	3/4" x 40" x 74 7/8" (includes tongues)
10 Tabletop Cleats (2)	3/4" x 3/4" x 68 7/8"
11 Tabletop Moldings (2)	3/4" x 1 1/2" x 68 7/8"
12 Support Bracket Sides (4)	3/4" x 3" x 38 1/4"
13 Support Bracket Bases (2)	3/4" x 3 3/8" x 38 1/4"
14 Support Bracket Screws (20)	#6 x 1 1/8"
15 Support Bracket Washers (20)	Countersunk
16 Swivel Mirror Screws (4)	3/8" Brass (with threaded inserts)
17 Alignment Blocks (4)	3/4" x 1 1/2" x 2"
18 Endcap Laminations (4)	3/4" x 5 5/8" x 41 3/4"
19 Endcap Dowels (6)	3/8" dia. x 1 1/2"

Now lay out the tenons on the ends of the legs (the top and bottom are different thicknesses). Cut them with a dado head, using your table saw's miter gauge and a spacer block (see **Figure 2**).

Rip and joint the leg moldings (pieces 3) to dimension, then use the same roundover bit you used on the legs to shape all four of its long edges. Stay at the router table a minute longer to mill two glue traps in the back face of each piece of molding (see **Figure 3**), using the tip of your V-groove bit.

The Tabletop Supports

While the table's feet were three laminations thick, there is no structural or aesthetic reason for such a large build-up in the tabletop supports. To save time and materials, I went with just two laminations here.

Project Supplies

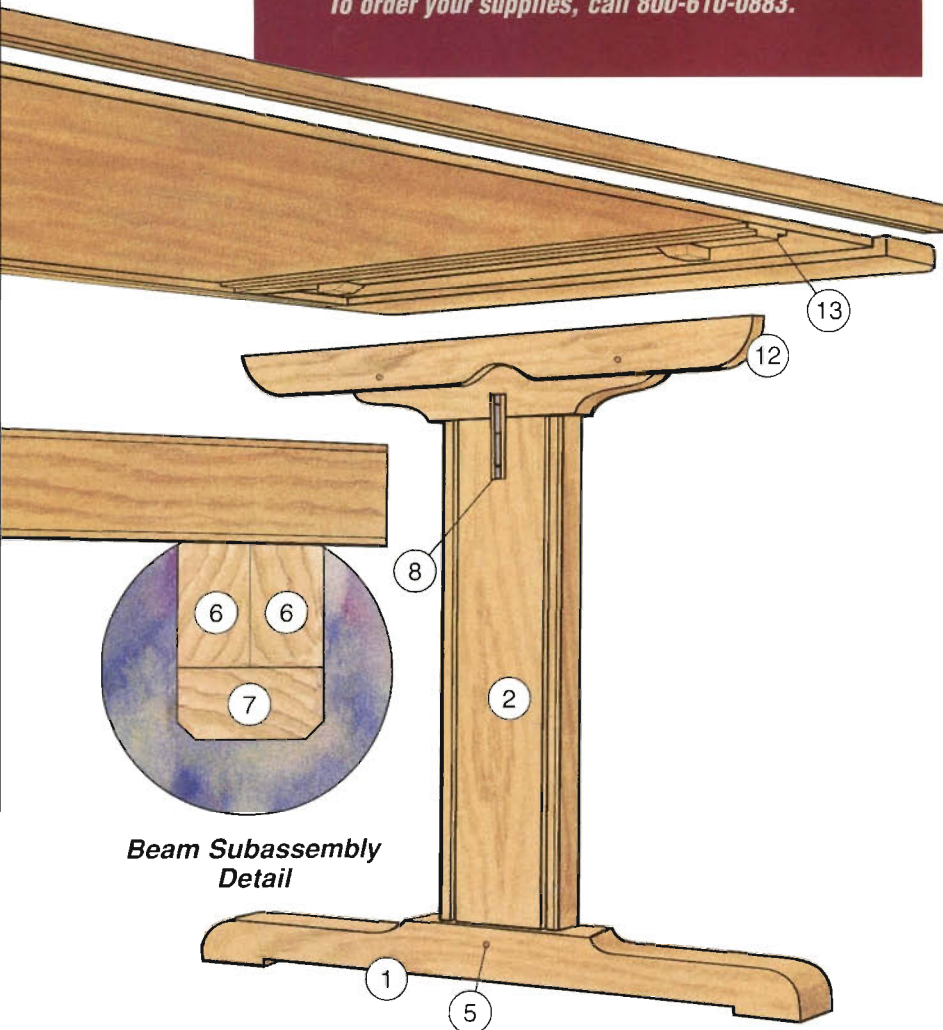
The following supplies are available from the Woodworker's Journal.

Swivel Mirror Screws Pair #32342.....\$5.99

6" Tapered KD Fittings Pair #28878.....\$2.39

*Two pairs required.

To order your supplies, call 800-610-0883.



Creating mortises in these supports is a simple matter of cutting a 3/8" deep dado in each lamination (piece 4), then gluing two pairs together (see the **Pinup**



Figure 4: After cutting the glued-up tabletop supports to shape, drum sand the curved edges.

Shop Drawings). Use the same table saw technique you used for the leg tenons to create these dados. Dry fit them to the legs as you go, to ensure a correct fit.

Transfer the **Full-size Pattern** to each support lamination, then band saw all of them to shape. Do this after cutting the dados because this step is more forgiving: a slip here can be repaired more easily than a crooked mortise.

Glue and clamp the two sets of support laminations together in the correct orientation. After the glue dries, use your drum sander to remove the band saw marks, as shown in **Figure 4**.

Assemble the Legs

Dry fit the leg tenons in the feet and tabletop support mortises. The fit should be snug on the wide faces and leave a 1/16" gap at either side to allow for movement (see **Figure 5**). When you're satisfied with the fit, glue the feet to the legs.

While the glue is wet, lock each tenon into its mortise with a 3/8" dowel (piece 5: see **Pinup Shop Drawings** for hole and dowel locations). Each dowel should penetrate the inside foot lamination and leg tenon laminations.

Before gluing the tabletop supports in place, trim the moldings to length. Glue and clamp them in place, keeping the glue between the traps you milled earlier. When the glue is dry, install the tabletop supports with glue and clamps.



Figure 5: Leave 1/16" play on either side of the legs when you glue them into their mortises, to allow for wood movement. Leg moldings will eventually cover these gaps.

The Beam

Remember poor old Roger's shins? The beam on this table is located high enough to avoid even the tallest diner's ankles. It is made from two face-glued laminations (pieces 6) that are edged with square moldings (pieces 7). Glue and clamp all four elements together. After the glue dries, ease the long edges with your chamfering bit (see the **Pinup Shop Drawings**).

Stay with the router to cut mortises in the ends of the beam for the tapered steel knock-down fittings (pieces 8) that hold the beam to the legs. Use a bearing

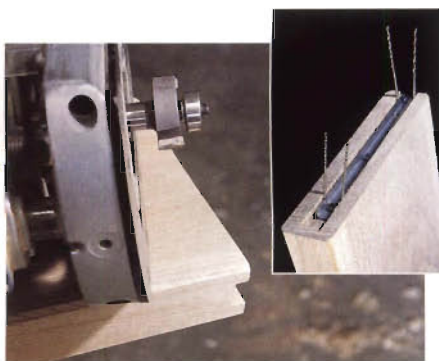


Figure 6: Use a bearing-guided rabbeting bit to cut mortises for the steel tapers. Pairs of matched drill bits help center the tapers while you predrill for their screws.

guided rabbeting bit to make these mortises, as shown in **Figure 6**. Their dimensions can be found on the **Pinup Shop Drawings**. To center the tapers in the mortises, I found pairs of thin drill bits made perfect spacers (**Figure 6, inset**) while predrilling for the screw holes.

The Tabletop

While veneered plywood is one choice for the tabletop (piece 9), my neighbors opted for traditional solid oak. For a stable top, alternate the end grain of each board — but don't get religious about it. There's

nothing sadder than an exquisite face of a board staring at the floor for a couple of generations because someone got carried away on a simple rule of thumb. After the glue has dried, scrape the excess and sand thoroughly. Use a straightedge and a straight bit in your router to trim it to its exact width and length, making each cut in several passes. To minimize tearout, use a new or freshly sharpened router bit.

Stay with your straightedge and router to cut the 3/8" thick tenons on the ends of the tabletop (see **Pinup Shop Drawings**). Then remove 2" from each end of each tenon with your saber saw, and smooth any tearout with a file.

Build up the tabletop's edges by gluing and clamping 3/4" square cleats (pieces 10) along each long edge. While the glue dries, use a beading bit to form the edge of the moldings (pieces 11) as shown in the detail drawing on page 54 and the **Pinup Shop Drawings**. Glue and clamp these moldings in place,



Figure 7: Use a dado head in your table saw to cut rabbets in the support bracket bases. Two support bracket sides will fit into the rabbets.

and, when the glue dries, scrape off the excess and belt sand them flush. Before you leave the tabletop, sand a 3/8" radius on each of the four tenon corners.

The Tabletop Cleats

Use a pair of U-shaped support brackets to lock the top to the legsets. Each bracket is made up of two sides (pieces 12) and a base (pieces 13). Following the dimensions shown on the **Pinup Shop Drawings**, use a dado head in your table saw to create rabbets on the long edges of each base (see **Figure 7**).

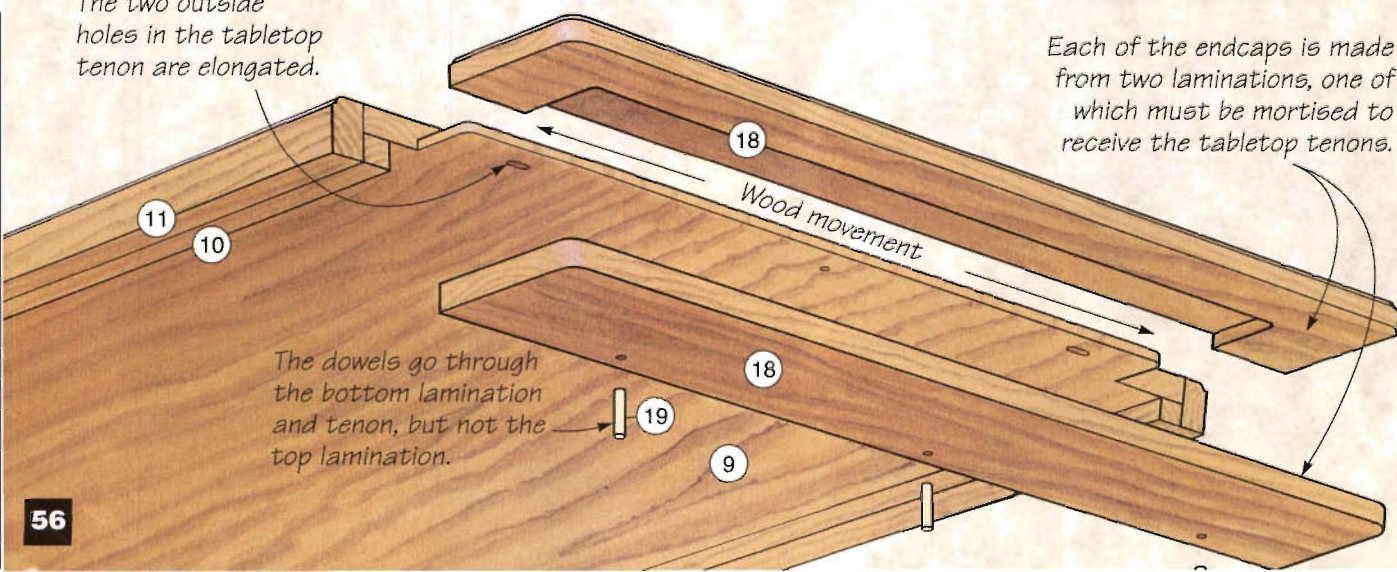
An easy approach to building breadboard ends

Breadboard ends are caps employing grain running perpendicular to a tabletop. This warp-fighting joint typically features a mortise slightly wider than its tenon to accommodate wood movement. Start by laying out the 3/8"

deep mortises (**Pinup Shop Drawings**), and remove the waste with a straight bit chucked in your router. Clamp the two laminations (pieces 18) together, and dry fit them to a tenon. When you're satisfied with the fit, glue the laminations together. Be sure the mortises are

perfectly aligned. After the glue dries, joint both long edges before sanding a 3/4" radius on the outside corners of each endcap. The endcaps are intentionally 1/4" longer than the tabletop is wide, to allow for expansion in the top. Shape the top outside edge of each breadboard end with the same

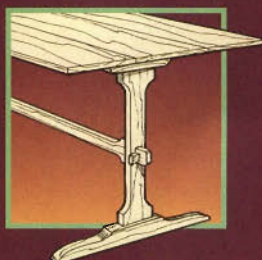
The two outside holes in the tabletop tenon are elongated.



Trestle Tables

Trestle tables date back to the Middle Ages.

More recently, the Shakers of the nineteenth century added their touch to the design. They liked the long length achieved with few supports.



Band saw and sand the ends of the support bracket sides to the shape shown on the **Pinup Shop Drawings**, then glue and clamp the brackets together. Drill a 3/4" hole 4" from each end of each bracket base, then chuck a 1/4" straight bit in your router to cut a groove between these holes (see **Figure 8**). The large holes at the ends of the grooves will stop the base pieces from splitting.

Assemble the legs and beam and center them on the upturned top. Mark the locations of the legs (make sure they are perpendicular to the edges of the tabletop), then remove the legset. Use your marks to locate the support brackets, then predrill for ten screws (pieces 14) in each bracket base. Use washers (pieces 15) to seat the screws along the groove: this system is designed to accommodate expansion and contraction of the 40" wide top.

Replace the legset, this time seating it upside down in the support brackets and centering it side to side.



Remove the endcaps and elongate the two outside holes in each tenon (details on the **Pinup Shop Drawings**).

beading bit you used on the tabletop edge molding. Then slide the ends onto the tabletop tenons and drill three 1/4" holes up from the bottom, at the locations shown on the **Pinup Shop Drawings**. Remove the endcaps and elongate the two outside holes in each tenon, as shown above. Reinstall the ends and secure them by gluing the three dowels (pieces 19) in place. The slotted holes allow the tenons to move a little inside the endcaps' mortises.

Drill two holes (see **Pinup Shop Drawings**) in each of the outside support bracket sides, continuing through the tabletop supports (don't go all the way through the inside support brackets). Remove the legsets and enlarge the holes in them — but not in the brackets — to receive the threaded inserts that come with the swivel mirror screws (pieces 16). Screw the inserts home and tighten everything up with the swivel mirror screws. At this point, you can add the optional alignment blocks (pieces 17, see **Pinup Shop Drawings**). They're handy for quickly lining things up if you'll be knocking down the table with any regularity. All that really remains now is the breadboard ends, and those are described at left.

Finishing Up

Roger and Joan wanted a clear finish that would showcase the white oak and still be impervious to spills, dropped silverware and other dining room hazards. In the end it came down to satin polyurethane or Danish oil. While everyone loved the look and feel of the oil, we just weren't sure it would hold up as well as the poly.



Figure 8: Create the screw slots in the cleat bases in several passes, raising the 1/4" bit 1/8" on each pass.

I applied five coats of finish to the top and three to the legset. The top's underside received two coats. First coats everywhere were cut with 25% thinner, and all but the topcoat were steel woolled between applications. The end result is exactly what we were looking for: a classic piece of furniture completely at home in a 100-year-old rural farmhouse.



This sturdy trestle table is ready to knockdown in minutes: it comes apart and sets up without tools.

Cricket Xylophone

This cricket doesn't just sing on mild summer evenings: with his musical range, he can charm your kids all year long.

by John Hutchinson



I'd like to say the motivation behind this project was a spiritual quest — a search for the Chinese omen of good luck, or even a midwinter yearning for the sounds of a summer night. In truth, it began with an act of clumsiness. After a long evening finishing parts for an animated toy, I reached for a paper towel and sent the entire project flying. As the pieces bounced on the concrete floor, they made wonderful tinkling sounds. It dawned on me that by refining the music in the wood, I could add a new dimension to my toys. And that's how this cricket xylophone plan was hatched.

Bug Body Building

Begin building your own cricket xylophone by referring to the Material List. Use the list as a guide to cut the end blocks, tray, tray supports, tray cleat and sides to size (pieces 1 through 5). Then make a photocopy of the small cricket's side from the **Full-size Pattern** on the center pullout. (Note: while patterns are provided for both of the cricket sizes, this article refers to parts used in the smaller model. The large version can be constructed following the same procedures).

Cut out the side pattern (a little oversize) and tack it to one of the hardwood sides with a spray adhesive. Temporarily stick the two sides together with dabs of

hot melt glue. Band saw the kerfs for the cricket's mouth, as shown in **Figure 1**, then move to your drill press to bore the through holes shown on the **Full-size Pattern** for both the axle and leg dowels.

Gently pry the sides apart without removing the pattern, then scrape away any remaining hot glue. Refer to the **Pinup Shop Drawings** on the center pullout to

Nina Elder gives our cricket xylophones the official kid inspection.



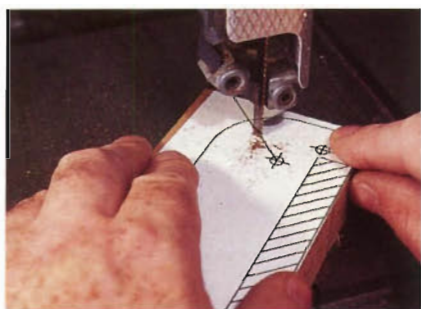


Figure 1: The cricket's mouth is formed on the band saw while the stock is still square.



Figure 2: After gluing up the body parts, move to the Full-size Pattern to find the dimensions for shaping the cricket's end blocks.

determine the tray supports' relationship to the end blocks, then glue and clamp these parts together. Glue the tray and tray cleat between the end block subassemblies, keeping everything flat and square as you tighten your clamps. Center the glued-up parts between the sides, then glue and clamp the sides to the center. After this assembly dries, return to your band saw to shape the cricket's head (see **Figure 2**). This profile is provided on the **Full-size Pattern**. Now sand away the remains of the pattern and the band saw marks.

Keeping kids in mind, use a 3/8" roundover bit chucked in your router to shape the edges of the bug body. Then dry fit the plate rails (pieces 6), referring to the **Pinup Shop Drawing** for positions. Note that these pieces are not parallel, since they must accommodate the various lengths of the sound plates. Don't glue these rails in place yet.

This project will have your band saw making beautiful music in short order.

Floating Plates

The xylophone's sound plates may look like piano keys, but each varies in length. Their width and thickness are essentially the same, so you can cut them from a single strip of cherry (piece 7). Trim them to the lengths shown on the **Full-Size Pattern**: after completing the xylophone, you can refer to the sidebar in this article for fine tuning instructions. Drill a hole (locations and dimensions are on the **Full-size Pattern**) in each plate; use scrap backup to avoid tearout.

The mounting pins for the plates (pieces 8) are standard 7/32"

diameter maple axles. Again referring to the **Full-Size Pattern**, lay out and drill these holes in the plate rails, using a 9/32" bit. Once you've drilled all the holes, you can glue the plate rails to the body.

The space between the plates is 7/32", so the same pins can be used as the plate separators (also pieces 8). This spacing provides adequate clearance around each plate, allowing it to vibrate freely.

Lay the felt pads (pieces 9) in place temporarily, then dry fit the

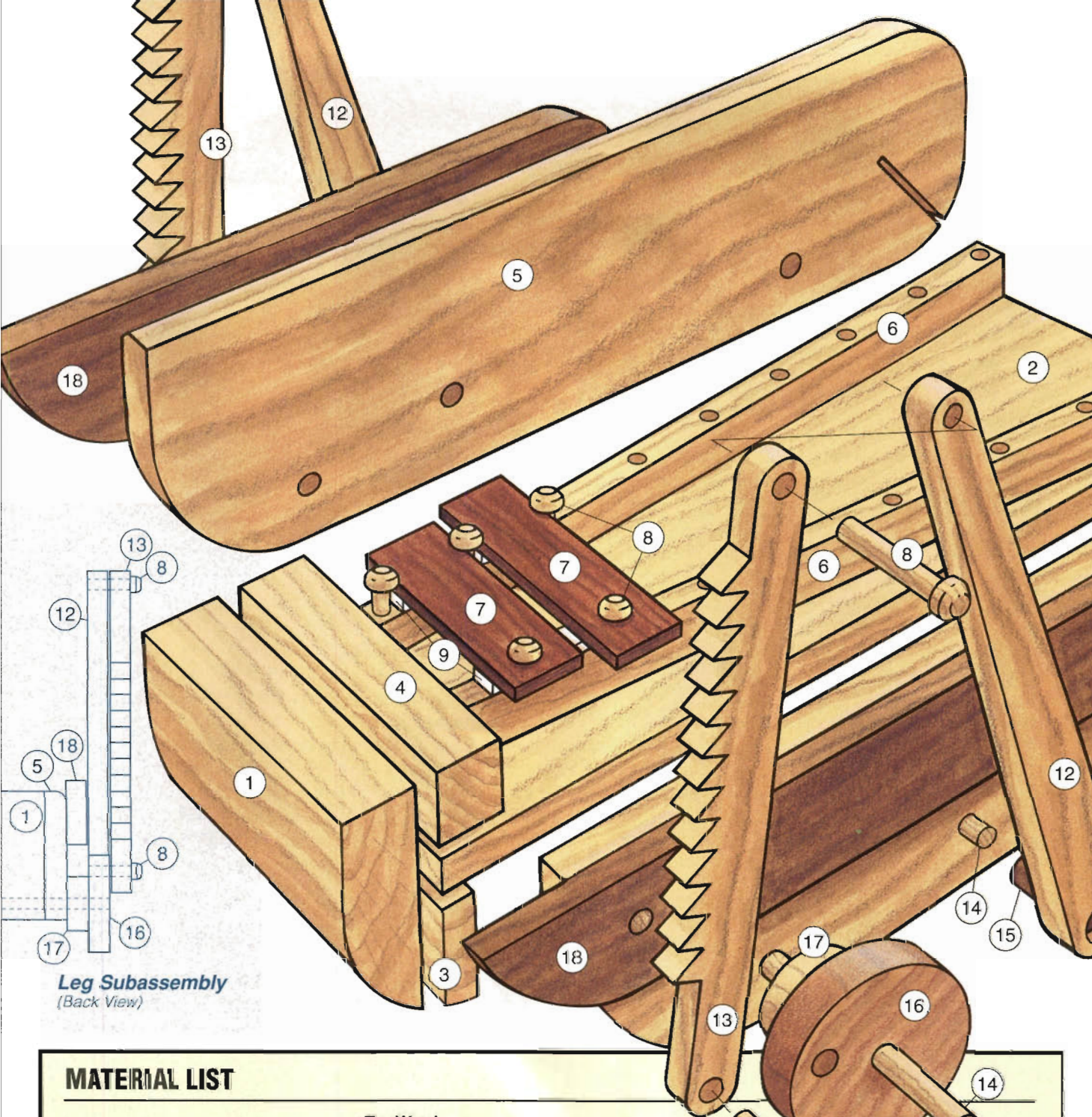
Small-project-guy's heaven

Southeastern Ohio is dotted with some of the finest hardwood mills in the country. I recently stopped at one of them to replenish my dwindling supply of walnut and told the owner I was looking for a small quantity of wood for toys. To my delight, he led me to a small shed where his mill kiln samples were stacked.

Every time a load is run through the drying kilns, a small sample piece is placed on top of the stacks. This piece is monitored for moisture content as a representative of the entire load.

Before me were perfectly dried samples of every species they milled, in every cross-sectional dimension. This was small-project-guy's heaven: clear, rough-sawn poplar, cherry, walnut, maple and oak — at \$20 a pickup truck load.

I didn't own a planer at the time. I did two days later.

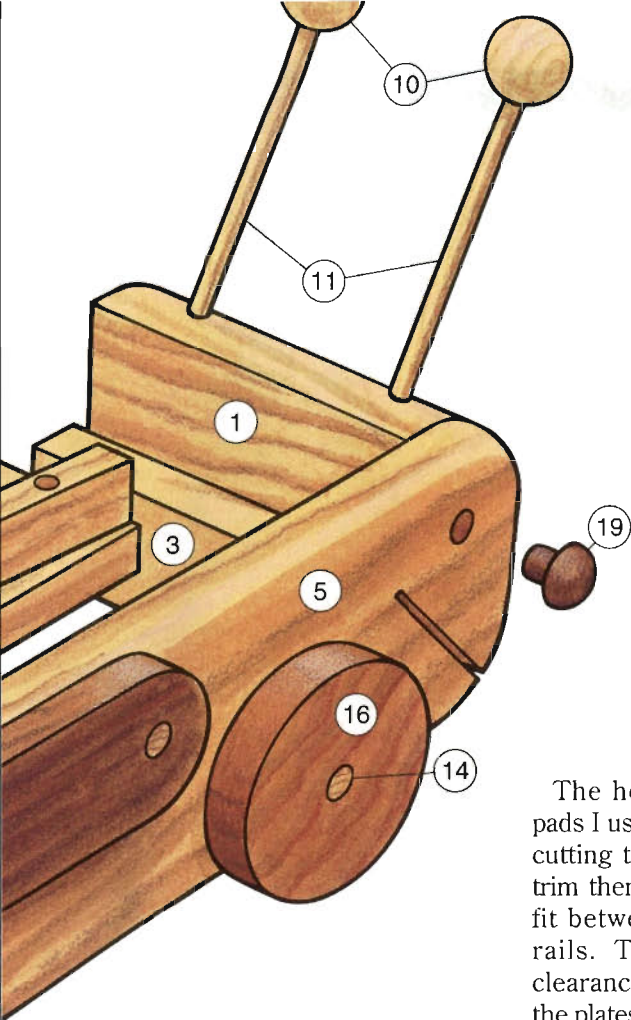


Leg Subassembly
(Back View)

MATERIAL LIST

	T x W x L
1 End Blocks (2)	1" x 3" x 3"
2 Tray (1)	1/2" x 4" x 12 1/4"
3 Tray Supports (2)	1/2" x 1 1/2" x 3"
4 Tray Cleat (1)	1" x 1" x 3"
5 Cricket Sides (2)	1/2" x 3" x 14 1/4"
6 Plate Rails (2)	1/2" x 1" x 11 1/2"
7 Sound Plate Molding (1)	5/32" x 1 1/8" x 31"
8 Mounting Pins/Separators (27)	7/32" dia. Axles
9 Felt Pads (16)	1/8", Self-adhesive
10 Mallets (2)	3/4" dia. Wooden ball
11 Mallet Handles (2)	3/16" dia. x 6"

	T x W x L
12 Straight Legs (2)	1/2" x 1" x 8"
13 Saw-toothed Legs (2)	1/2" x 1" x 7 1/2"
14 Axle Dowels (3)	1/4" dia. x 6 1/4"
15 Spacer Dowels (2)	1/2" dia. x 1 1/4"
16 Wheels (4)	1/2" x 2 1/4" dia.
17 Wheel Spacers (2)	1/2" x 1 1/4" dia.
18 Wings (2)	1/2" x 1 1/2" x 11 1/4"
19 Eyes (2)	1/2" Walnut buttons
20 Optional Pull Ball (1)	2" dia.



mounting pins, sound plates and plate separators. Before gluing the plate separators in place (notice the mounting pins and sound plates are never glued in), you need to establish their height: you must leave a little space between the bottom of each separator pin's domed head and the top of the neighboring plates. This allows the plate to bounce vertically and vibrate when struck.

For clearance gauges here, use plastic laminate samples. They are little rectangles with a hole at the top for hanging on display racks. Since the samples are approximately 1/32" thick, the 3/32" clearance between the separator and plate translates simply enough to three stacked samples. If the positioning pins between the plates are not perfectly spaced (restricting free movement of a plate), lightly crush the pin with long-nose pliers parallel to the long axis of the plate.

The heavy duty, 1/8" thick felt pads I used were self-adhesive. After cutting them into 1/2" wide strips, trim them to short lengths that will fit between the pins on the plate rails. The combination of pin clearances and felt support allows the plates to, in effect, float in space.



Figure 3: The full-size pattern on the center pullout makes machining the legs on the band saw a breeze. Follow up with a file.

Mallets

Although the sound plates could have been mounted on a flat surface, the trough below them in this xylophone acts as a resonating chamber. When the plates are struck, the opening greatly improves the quality of the sound.

The mallets for this instrument were made using 3/4" solid hardwood balls (pieces 10), with 3/16" dowels (pieces 11) for the handles. To drill holes in the balls, I

Project Supplies

The following supplies are available from the Woodworker's Journal.

Axle Pins Pack* #21691\$.35

Hardwood Ball #21469\$.13**

1/2" Walnut Buttons #20545\$2.79

Optional Pull Ball #21493\$1.25

*Ten packs required.

**Two required.

To order your supplies, call 800-610-0883.

held them firmly in place on my drill table with a small hand screw, then bored the holes to the dimensions shown on the **Pinup Shop Drawings**. Once drilled, glue the dowels into the holes. Trim one handle on your belt sander so they're both exactly the same length, then move to your band saw to create the cricket's straight and saw-toothed legs.

Moving Legs

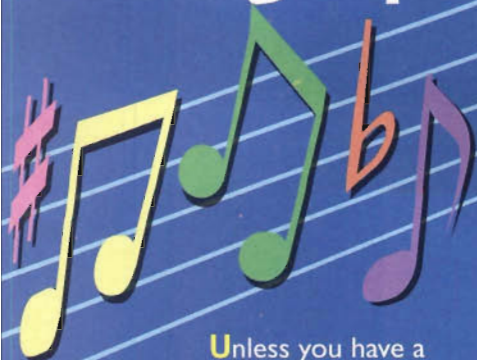
Both the straight and saw-toothed legs (pieces 12 and 13) can be cut to shape on a band saw. Attach copies of the **Full-size Pattern** to your stock and make these cuts (see **Figure 3**). Sand the faces, rounded ends and straight edges of all four legs with your belt sander (it works best if you have a model you can turn upside down and clamp to the bench). Then detail the saw-toothed surfaces with a 1" wide belt sander or a set of files.

Following the **Full-size Pattern**, drill axle holes in the saw-toothed legs a little oversize (9/32"), to allow movement around the axles (pieces 14). At the lower end of the straight legs, bore larger (1/2") holes. Since the straight legs have to clear the wings, cut two short lengths of 1/2" dowel (pieces 15) to serve as spacers. Bore a 1/4" hole in the blind side of each spacer (see **Pattern**) to accept the axle.

The Wheels

All four wheels (pieces 16) are 2 1/4" in diameter, cut from 1/2" thick stock. You can make these cuts with an adjustable hole cutter.

Tuning Up



Unless you have a child prodigy on your hands, the average five-year-old won't really know if his or her xylophone hits the right notes. So, as you tune it, keep in mind this project is primarily a toy, not a sophisticated musical instrument.

At first I thought a musical scale could be produced by adding an equal increment to each successive plate. Not even close! After doing a little research at the library, I found what I was looking for was a diatonic major scale — the familiar “do-re-mi” Julie Andrews sang in *The Sound Of Music*.

Initially, the musical scale should sound fairly accurate, but variations in density and grain will cause some plates to sound slightly sharp or flat. To zero in more precisely on the exact notes, I suggest doing your final sanding in the company of a musician friend, whose ear will get you as close as you need to be.

Start with the lowest (largest) plate. If the sound from the next plate is sharp (too high), its bottom surface should be belt sanded to decrease the thickness. This will lower the pitch. Conversely, if the pitch is flat (too low), disk sand the end to shorten the plate and raise the pitch. Repeat this procedure for each successive plate.

Since the pilot bit on most cutters is 3/16", you'll have to rebore the center holes to accept the 1/4" diameter axles. Drill an offset hole in two of the wheels (see **Full-size Pattern**) for the lower pivot points on the two saw-toothed legs.

Final Assembly and Finishing

As any frustrated woodworker knows, a 1/4" dowel won't fit in a 1/4" hole. Rather than increasing the bore's diameter, I slightly crimped some of the pins or dowels in this project with a pair of linesman pliers. As an added benefit, the serrated jaws produce a series of grooves serving as reservoirs for glue.

Attach the straight legs to the saw-toothed legs with pins (pieces 8) and glue, keeping in mind these joints must move freely. Secure the legs to the wheels in the same fashion. Since the rear wheels are in the same plane as the straight legs, wheel spacers (pieces 17) are needed. For these, just make another pair of disks with the hole cutter, this time 1 1/4" in diameter.

Jeffrey Manes relies on the large cricket to play Bach. This article gives complete building instructions for the small cricket; the larger version is on the center pullout.



Make the wings (pieces 18) from a contrasting hardwood (I used walnut). Follow the **Full-Size Pattern** to shape these pieces and locate their pin holes. Attach the wings to the body with glue and pins (pieces 8). Once the glue cures, slice the pin heads off with a back saw, and sand the wings smooth.

Make the cricket's eyes (pieces 19) from 1/2" walnut screw hole buttons. You can make an optional pull (piece 20) from a 2" diameter wooden ball, attached to the cricket with a length of cord secured to a hook under the chin. Drill two holes in the head (see **Pinup Shop Drawing**) for the mallets, which become the cricket's antennae.

At this stage you can apply a gloss, wipe-on, heavy duty oil and urethane finish to all the surfaces that won't be glued. A hard finish seems to brighten the tone. Once the finish has dried, slip the axles into the body holes, slide on the relevant spacers, and glue the wheel/leg assemblies in place.

That's it! You're ready to play — whether it's chopsticks or baroque.

John Hutchinson is an Ohio architect with an interest in articulated toys.



Note: since the mounting pins and sound plates are easily removable, this is not a toy for very young tots or babies. The pins could present a serious choking hazard for too young a musician.



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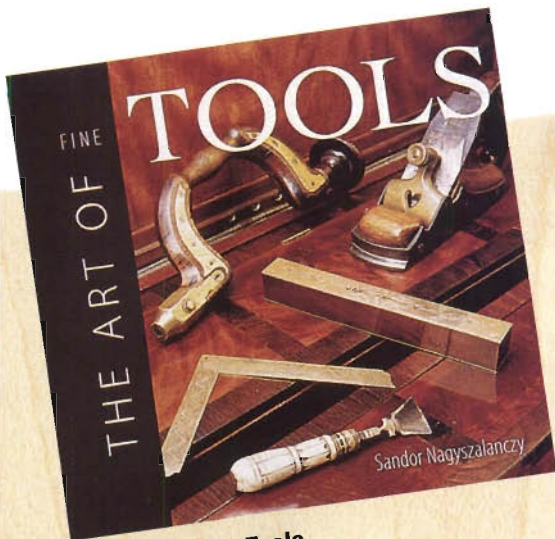


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New Tricks for Old Tools



The Art of Fine Tools

This latest offering from Sandor Nagyszalanczy is a celebration of the world's most incredible woodworking tools. Tools made with remarkable precision, lavished with artistic decoration and endowed with unusual design — ranging from ancient to modern. Many of them belong to private collectors and have never been photographed before. This is the author's fifth woodworking book; he has also written extensively for magazines. ISBN 1-56158-263-8. \$37 from Taunton Press. For more information, see the **HOTLINE** box on page 65.

Porter-Cable Jig Saw: Wrenchless blade changing

Porter-Cable's new refined tilt-base jigsaw, model 9543, makes for fast and easy blade changes, thanks to three simple steps: squeeze the clamp, insert the blade, release the clamp.

The base tilts on a built-in wrenchless locking mechanism and has an exclusive blade guide system to minimize deflection. A series of positive detents at 0°, 15°, 30° and 45° in either direction provide a stronger lock-in for cutting at various angles.

End-users can determine the necessary strokes per minute by turning the variable speed dial wheel on the trigger — a one-handed operation. Ranges are between 500 and 3,100 spm. The four-position orbit selector switch allows the user to select the aggression of the stroke. The model 9543 also features a dust blower (which can be deactivated). The complete jigsaw kit comes with a plastic carrying case, metal sub-base, plastic sub-base, anti-splinter insert, wood cutting blade and operator's manual. Porter-Cable's new jigsaw kit is expected to sell for approximately \$179, retail.

For more information, see the **HOTLINE** box on page 65.



COERS' CORNER

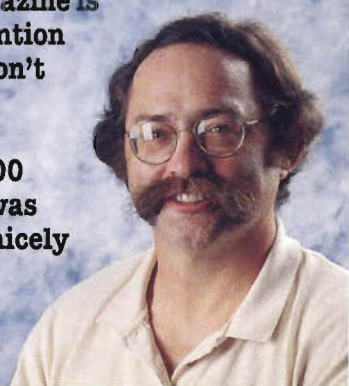
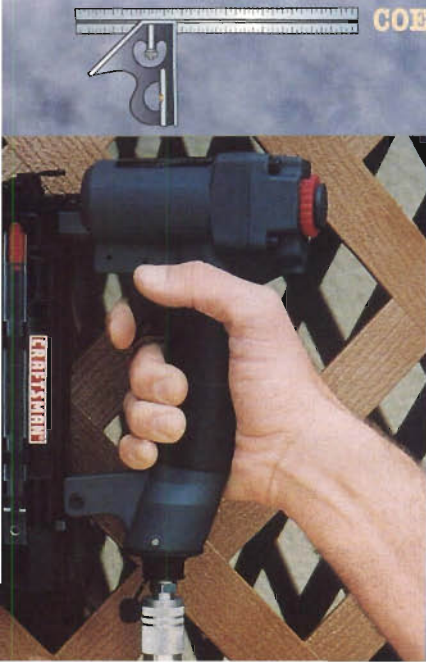
Brad nailer is light in your hands and on your wallet

Craftsman's 1/4", 18 gauge lightweight air powered brad nailer is now available at \$79.99, a price nearly anyone can afford. It weighs only 1½ pounds, about half the weight of other, conventional brad nailers.

The range of brads is from 5/8" to 1¼". The magazine is easy to open and load, although you must pay attention to which groove you put the brads in. The cover won't slide shut if they're in the outside groove.

I tried some 1¼" 18 gauge brads with the air pressure at 70 psi — on the low side of the 60 to 100 psi operating range. I shot them into red oak and was very pleased with the results. All the brads were nicely set below the surface.

For more information, see the **HOTLINE** box on page 65.



Fast Fasteners!

If you haven't found a use for that shiny new compressor yet, the people at Senco have a suggestion. This leading manufacturer of professional grade pneumatic tools has introduced a homeowner line called AccuSet - two staplers and two nailers starting at around \$100 each. The A100LS stapler drives 1/4" crown staples from 1/2" to 1" in length, while the A150LS handles slightly larger fasteners (staples up to 1 1/2" long). The A125BN brad nailer drives finish nails from 5/8" to 1 1/4" in length, and the A200BN fires brads from 5/8" to 2" long. All four tools feature safety triggers, rear exhausts and a warning light that tells you when to reload.

For more information, see the **HOTLINE** box below.



Hotline

Taunton Press 800-888-8286
 Porter-Cable 800-487-8665
 Craftsman Sears stores
 AccuSet 888-222-8144
 Wolfcraft 630-773-4777
 Ryobi 800-525-2579
 Modulus 800-633-8587



Wolfcraft Forstner Bit Set: One shaft, five heads

Wolfcraft's new Forstner Bit Set has five different heads, but it's no monster. The German-designed set (#7650) offers five bits whose heads are interchangeable with only one shaft. The heads screw into the threaded shaft, fitting drill presses with 3/8" chucks or larger. To change the bit, simply unscrew the head and replace it with one of the others.

This set is an economical answer to wood boring and can be used to drill holes for a multitude of applications such as rabbeting, mortising and grooving. It easily drills pocket holes, partial arcs and pilot holes without skipping or tearing up the workpiece. The Forstner bits are capable of drilling up to 2 1/2" deep, creating smooth, accurate flat bottom holes. They can be used in soft and hard woods as well as veneers, and will cut through almost any grain pattern. Made of quality high-speed steel construction, the set includes one 3/8" interchangeable shaft, a storage tray and five bit heads measuring 3/4", 7/8", 1", 1 1/4" and 1 3/4".

Wolfcraft's interchangeable #7650 Forstner Bit Set retails for around \$39.99.

For more information, see the **HOTLINE** box at left.

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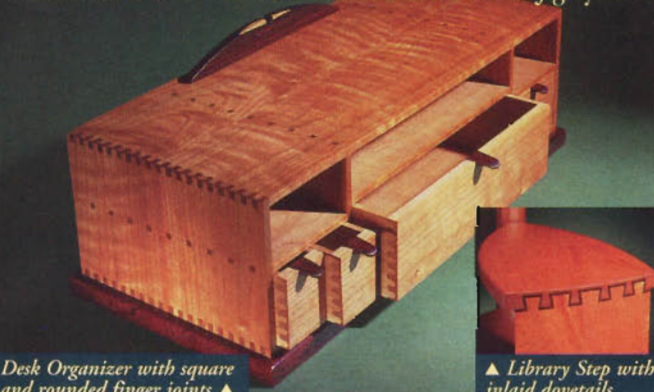
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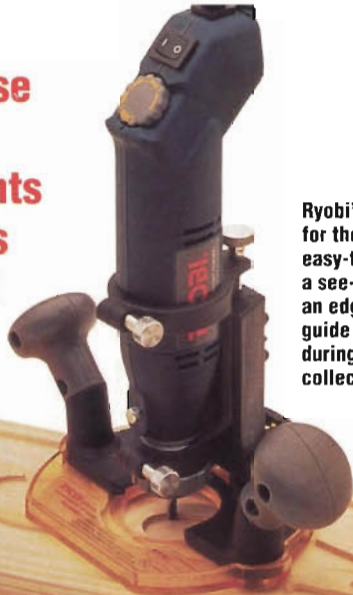
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Router base and other attachments for Ryobi's Multi-Tool



Ryobi's new router base for the Multi-Tool has easy-to-grip handles, a see-through base, an edge guide and guide rods for accuracy during routing, and dust collection capability.

New attachments for Ryobi's Multi-Tool have multiplied its uses. A router base turns the Multi-Tool into an inexpensive yet accurate router that can carve names and designs into even the hardest woods. It will retail for about \$45. A 42-inch-long flex shaft has a design that maximizes flexibility and while reducing heat build-up. Its fingertip grip provides comfort, control and accuracy. The flex shaft is available in a kit with the Multi-Tool and a 100-piece accessory set (model HT20VSKF) and can be found at retail stores for about \$59. It's sold separately for about \$30. Also available, for about \$39, is a set of seven high-speed steel Multi-Tool 1/8" router bits.

For more info, see the **HOTLINE** box on page 65.



Modulus scoring saw attachment



Score points for convenience with the Modulus scoring saw attachment: it turns most 10" table saws into precision scoring saws in seconds. Putting the unit on and off the saw is as quick and easy as changing a blade — it mounts on the arbor where your regular blade normally fits. A belt and pulley drive the smaller blade in the opposite direction from the main blade so it scores the bottom edge of the board just before the larger blade makes the main cut — eliminating tearout. It makes totally chip-free cuts, top and bottom, in most laminates up to 1" thick. The SS-100 Scoring Saw Attachment is sold in the United States by all Powermatic and Jet dealers and normally retails for \$399.

For more information, see the **HOTLINE** box on page 65.

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Ridgid® Rolls Out a New Line

By Rob Johnstone



Emerson Tool has introduced a complete new line of benchtop and stationary power tools for woodworkers, under the Ridgid brand name. A lifetime warranty on the line is evidence of their commitment to quality.

An entirely new line of woodworking tools introduced by a manufacturer with a long history of superior quality — that's not your usual midsummer event. But that's exactly what happened on a steamy weekend in Winfield, Missouri, last June, when Emerson Tool unveiled their new Ridgid woodworking line.

"We are committed to bringing high quality power tools to professionals and serious woodworkers, with products we have engineered from the ground up," said Brian Sponsler, vice president of

sales and marketing. "This new product line continues the Ridgid tradition of excellence and expands its reach into new markets."

This may be new ground for Ridgid, but it isn't Emerson's first foray into this market. Until recently, Emerson built much of the Craftsman® line. And their Ridgid plumbing tools have long been a standard in that industry. As a woodworker, I was intrigued by these traditional names and curious about the possibilities. What they rolled out was a pleasant surprise.

Two 10" Tablesaws

The new line centers on two table saws, the Model TS2412 and the TS2424. These are the kind of bread and butter, built in the USA contractor saws woodworkers love. As with most of the Ridgid offerings I inspected at the tool conference, attention to detail was very apparent. Heavy duty induction motors, complete with unique Poly "V" belts, are an example. Large adjustment wheels (big enough to grip properly) and heavy gauge steel construction



The TS2412 and TS2424 table saws have 100% sealed ball bearing construction, which eliminates the need for bearing lubrication.

inspire confidence. Each saw is partnered with a quality fence system — more evidence of thoughtful design and construction.

The TSD2424 comes with its own mobile base — a real value where limited space is an issue. Standard features include a patented Ind-I-Cut™ kerf indicator, a miter gauge, dust collection port and Ridgid's Soft-Touch™ controls.

Miter Saw

Whose shop is really complete without a power miter saw? For those in need, Ridgid's new 10" version is a solid offering. With its Soft-Touch™ controls, standard left and right miter detents and banana-styled handle, it offers a solid range of features.



Blade speed for the 16" scroll saw ranges from 500 to 1700 strokes per minute. Its cast iron base reduces vibration, provides extra stability and comes with pre-drilled mounting holes.

The Ridgid miter saw's die-cast aluminum body and Emerson electric motor are American made and designed with woodworkers in mind. The electronic brake is a nice safety feature to round out an attractive shop addition.

16" Scroll Saw

Over the past decade, scroll sawing has experienced a huge upsurge in popularity. Even in this newly crowded market, Ridgid's 16" variable speed version is sure to attract some serious attention. A good saw for beginners, it also has the flexibility to attract those who have been scroll sawyers for years.

Ridgid's 10" miter saw has built-in miter stops at 0°, 22½° and 45° left and right, plus built-in bevel stops at 0° and 45°.

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One of the most exciting innovations from Ridgid is this totally new tool that adapts from an oscillating spindle sander to an oscillating belt sander in seconds, with no tools required.

A quick-change blade design requires absolutely no tools, and the saw accepts both pin and plain blades. The large work table tilts to 47° while

Oscillating Spindle Edge Sander

The slickest, and to my mind the most unique, tool in this new line is a combination oscillating spindle and belt sander. Making use of regular 4" x 24" sanding belts and spindle sanding tubes, this clever machine should quickly become a workhorse in shops everywhere.

The body has storage molded in, and the table adjusts to several different angles. It even has a groove for a miter gauge. I look for this machine — new in both design and concept — to lead the way in a new group of consumer oriented tools. Kudos to Ridgid for starting the ball rolling.

The 15,000 cuts per minute motor on the 6" jointer-planer can be converted from 120 to 240 volts.

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Wood Lathe	\$300

(Approximate prices)

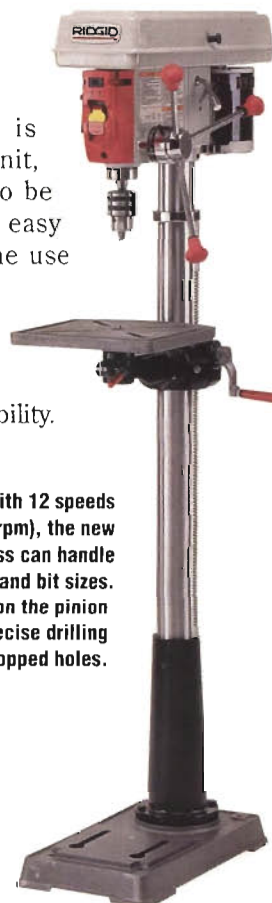
Jointer

Another tool to tempt you is the 6" jointer. The three-knife head is accompanied by a sturdy stand with leveler feet, an important detail if your shop floor is as uneven as mine. Ridgid describes the power plant as a totally enclosed, fan cooled, dual voltage induction motor, which tells me it is built to last.

15" Drill Press

This floor model press is not a flashy unit, but it seems to be well built and easy to operate. The use of cast iron for its table and base are an example of built-in durability.

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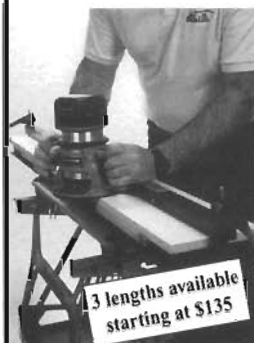
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Gentlemen:

My brother and I each bought one of the smaller JOINT A-billi-T units and we also bought one larger unit to share for those rare (for us) projects that require the large model. These were purchased some years ago at the Columbus, Ohio woodworking show.

I judge any tool that I purchase by how easily it works into my normal woodworking routine and ultimately how often that I use the tool or device. I am pleased to tell you that the JOINT A-billi-T was instantly a tool that I used as regularly and as easily as my table saw. The glue joints that I was able to obtain when preparing stock were nothing short of amazing compared to my old method using the jointer. I recently completed a trestle table with a top that is 81 inches long and 31 inches wide and was constructed of full 2 inch white pine. Obviously this project required the use of the large size JOINT A-billi-T to prepare the edges of the boards for gluing. It worked perfect and by using the method described with the A and B edges ti the operating instructions, I was able to obtain joints that are impossible to see except for the change in grain pattern.

I simply had to write and inform you of how pleased that I am with your product. I recommend it to any serious woodworker.

Best Regards,
Robert K. Wallace

unsolicited

Joint A-billi-T the new matched edge jointer

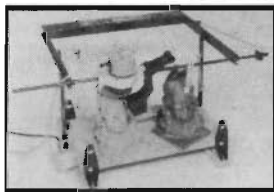
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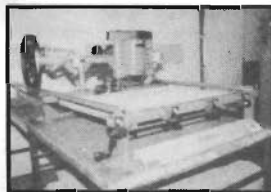
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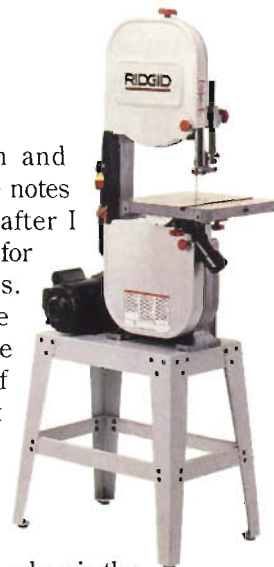
STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION (Required by 39 USC 3685) 1. Publication Title: Woodworker's Journal. 2. Publication No. 0199-1892. 3. Filing Date: September 15, 1998. 4. Issue Frequency: bimonthly. 5. No. of issues published annually: six. 6. Annual Subscription Price: \$19.95. 7. Complete mailing address of the publication office: 4365 Willow Dr., Medina, MN 55340. 8. Complete mailing address of the headquarters: 4365 Willow Dr., Medina, MN 55340. 9. Full names and mailing address of publisher, editor, managing editor: Ann Rockler Jackson, Publisher, Larry Stoiaken, Editor in Chief, Nancy Ammend, Managing Editor; Rockler Companies, Inc., 4365 Willow Dr., Medina, MN 55340. 10. Owner, names and addresses of stockholders: Rockler Companies, Inc.; Ann Rockler Jackson, 4365 Willow Dr., Medina, MN 55340. 11. Not applicable. 12. Not applicable. 13. Publication Title: Woodworker's Journal. 14. Issue date for circulation data below: July/August 1998. 15. Extent and nature of circulation is:

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1. Sales: dealers, carriers, counter & vendors	13,971	20,600
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Larry Stoiaken, Editor in Chief - 9/15/98.

Band Saw and Wood Lathe

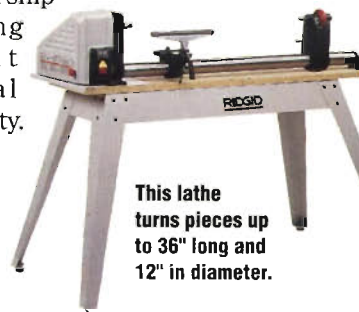
Quiet, smooth and sturdy were the notes I jotted down after I tested this saw for a few minutes. Heavy gauge steel and the regular set of options make it a good value. The additional fence available with the unit is



a solid feature, and so is the lower tire cleaning brush that removes dust from the drive wheel. This is one of two tools that are not manufactured totally in the USA. The other is their basic lathe, which was the one tool in the line that disappointed me. It is a fine piece generally, but the head of the lathe is fixed and will not turn the 180° required for turning large bowls. Perhaps the fact this detail bothered me is a reflection of how well all the other tools introduced at the event were designed. The lathe is well made from a combination of cast iron and steel components. The 36 position indexing head can be used for fluting and ornamental turning.

Old and New

Overall, I have to say the collection of tools rolled out at the Emerson Tool conference (under the Ridgid brand name) was quite impressive. By the volume of tools alone it would have been a significant event ... but there is no debating the general high quality of the machines I saw and tried. They are being marketed exclusively at Home Depot building centers: a partnership providing instant national availability.



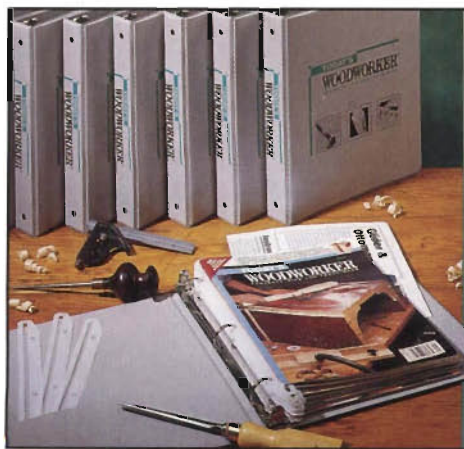
This lathe turns pieces up to 36" long and 12" in diameter.

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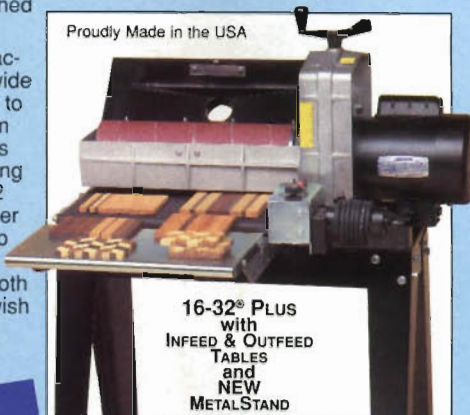
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Getting More Bowls from a Blank: the New Kel McNaughton System

By Bob Colpetzer



The original Kel McNaughton Center Saving System was introduced to the marketplace a couple of years ago through Kelton Industries LTD. of Kaitaia, New Zealand. This system made it possible to save the center of a bowl blank in one piece rather than turning it into shavings.

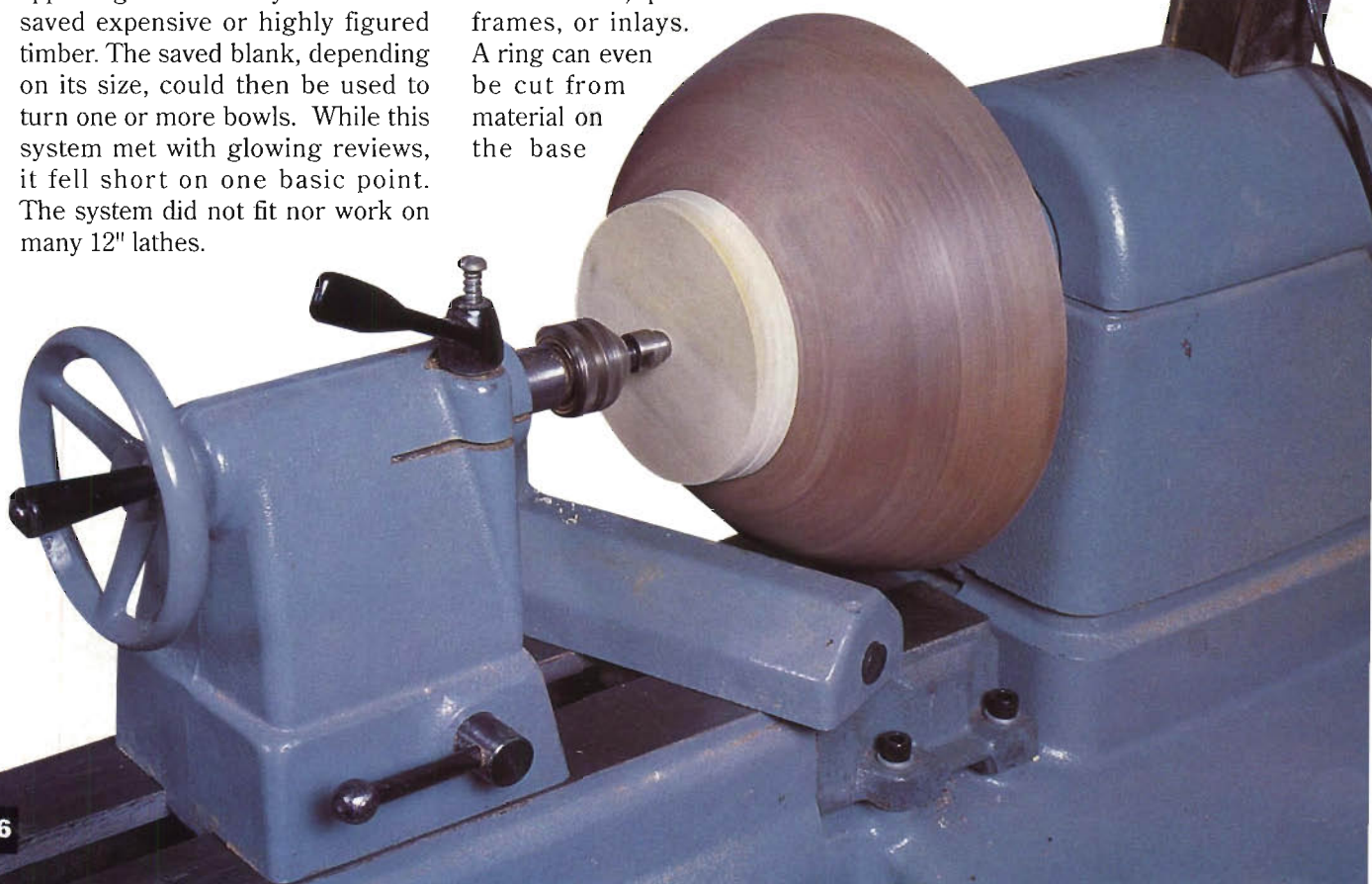
Naturally, this was deemed a very appealing and useful system since it saved expensive or highly figured timber. The saved blank, depending on its size, could then be used to turn one or more bowls. While this system met with glowing reviews, it fell short on one basic point. The system did not fit nor work on many 12" lathes.

Recognizing this shortcoming, Kel McNaughton went back to the drawing board. The outcome was the development of "The New Kel McNaughton Center Saving System." Like the original, the new system comes complete with one straight blade, one small, one medium and one large curved blade and an interchangeable 16" handle. It also has a newly designed tool support enabling it to work on sturdy 12" and larger lathes.

The straight blade can be used with the tool support for basic coring and parting of rings for mirrors, picture frames, or inlays. A ring can even be cut from material on the base

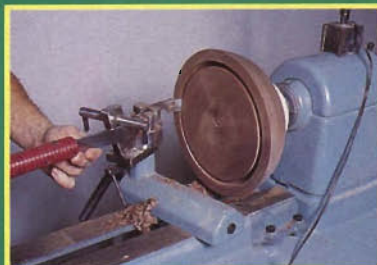
of a bowl blank that normally would be turned to waste.

The three curved blades can be used with the support to release centers 4" to 14" in diameter from bowl blanks. As a general rule, a blank can be saved for each 1" to each 1 1/4" of stock thickness. Kel has also developed a large set of cutters which make use of the same tool support. They cut deeper into thicker bowl blanks and, when used in combination with the standard system, enable the release of centers up to 18" in size.





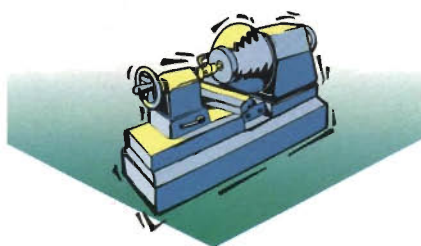
Turn the exterior to rough shape before mounting a face plate.



With the lathe set at a safe speed for the size of bowl blank, advance the tool into the blank.



The center easily breaks from the main bowl blank and can be used to turn another bowl with matching color and grain pattern.



Setting Up and Using the System

Before setting up the system to release the center, you must prepare your bowl blank. I used the same procedure I normally follow in turning bowls. I first fasten my screw chuck or face plate to the face of the bowl, letting the mass of the bowl blank determine which will be necessary for a secure assembly.

With this assembly mounted to the lathe, I turn the exterior of the bowl to rough shape and flatten the base. Giving consideration to the blank's thickness and the base's



Kel's large cutter set includes one straight and two curved blades, a 17" long handle (an inch longer than the original) and a 7" handle extension.

final shape, you can choose either to fasten a face plate directly to the bottom or to glue on a sound face plate block. Always make sure all blanks are securely fastened.

With the base face plate and bowl mounted on the lathe, I flatten the face of the bowl blank and then true and finish turn the outside profile. Now I can replace the tool rest with the McNaughton tool support. I attach the handle to the blade needed to cut the desired curve, thus releasing the blank.

At first, I made a diagram to help determine the blade size, the position of the tool support and the proper tool approach angle. With a little practice and experience, determination of all these variables will become second nature.

With the proper tool handle and tool support in position, locate the tool in the support by passing it under the cross brace and between the support gate pins. Be sure to adjust the tool support so the tool's cutting tip is at the same height or slightly higher than the bowl center. Advance the tool into the blank. To ensure the proper cutting arc, keep the tool raised against the support arm and allow it to slide between the gate pins and swivel in the support. If it's necessary to widen the cut, move the tool handle slightly from side to side or withdraw the tool, allowing the trailing edge of the tip of the tool to cut, slightly widening the original parting cut.

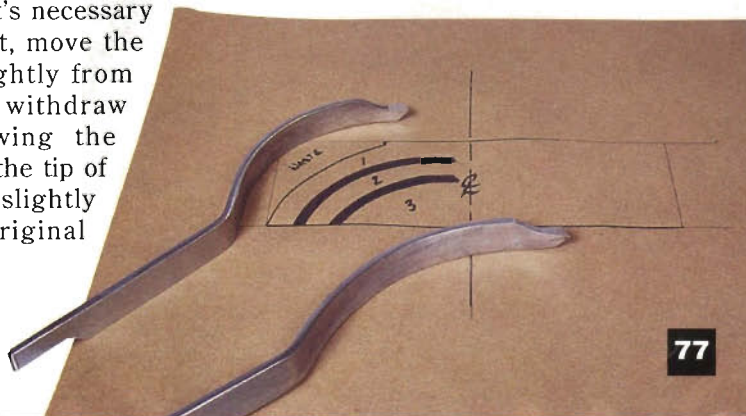
If chips build up, they can be cleared by moving the blade in and out. On deep cuts or in some materials, it may be necessary to stop the lathe to pry out the chips. This is especially important towards the end of the cut, when a lot of force is at work due to friction and the length of blade overhang. If chips and shavings build up at this point, the blade may bend.

Stop cutting before completing the cut to the center so that a 1/2" to 3/4" diameter stub still holds the saved center in place. Release the bowl's saved center by applying side pressure to it. The stub will break along the grain.

With the center released, the bowl can be conventionally finish turned. Reattaching the face of the saved center to a face plate forms the bottom and exterior — and it allows you to repeat the process.

As a final step, the bowls are reverse chucked. Now the bottom of the bowls can be turned, removing the base face plate blocks and shaping their bases to the finished profile.

A paper diagram helped the author visualize the cuts and the impact of changing the position of the tool support and the angle of approach.



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How the System Performed

The new Kel McNaughton Center Saving System proved to be an excellently engineered and designed product. All of the parts were machined impeccably and fit together perfectly. Equally impressive was the ground tooth geometry of the blades. They were sharp right out of the box and required no additional honing in before getting started.

While using the system, I was astonished at how easily and effortlessly a center block could be cut from a bowl blank. When I first tried the system I held the tool handle with white knuckles, expecting to do battle with the tool and turning block.

Much to my amazement, the fight never took place. With the

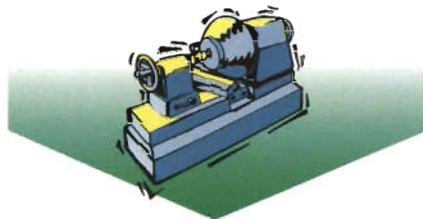
blade held between the pins on the tool support and trapped under the cross brace, the tool was well-supported and always presented to the wood at the proper height and angle. This removes much of the danger associated with making the deep, straight or curved cuts.

Whatever your turning material, you could probably benefit from the Kel McNaughton System. Using the system to obtain two or more bowls from the same expensive or highly figured blanks can be a real savings in dollars. With a locally obtained green wood blank, the center saving system saves considerable turning time simply by removing the center in one pass while still retaining the option of making a set of nesting

bowls with matching color and grain pattern.

The New Kel McNaughton System proved to be a quality tool. After the system's flawless performance, I have to give it my top recommendation.

The standard system runs about \$285.00. The larger set of tools costs \$319.00. Since they use the same tool support, both tool sets can be obtained and supplied with all of the tooling in both — but with only one tool support — for \$419.99. Sets are available from Woodcraft at 1-800-225-1153.



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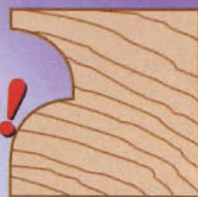
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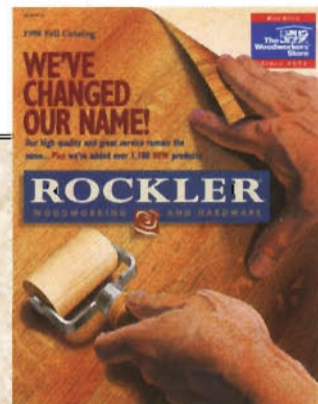
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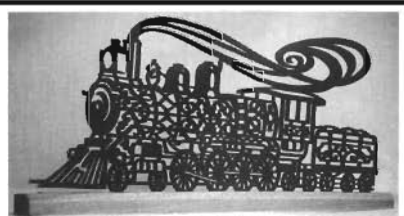
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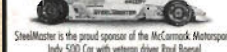


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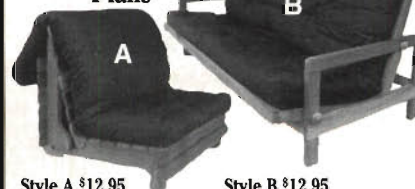
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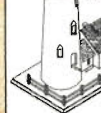
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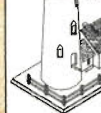
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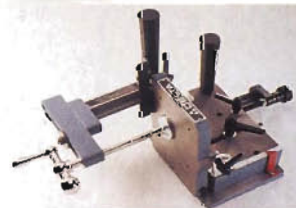
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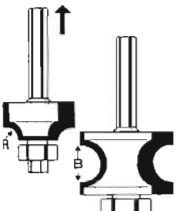
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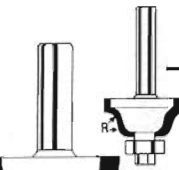
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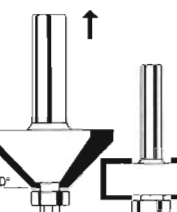
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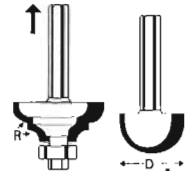
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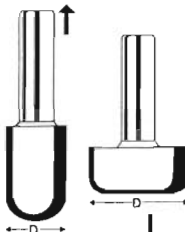


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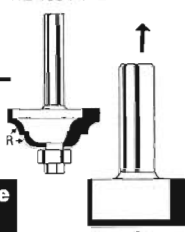


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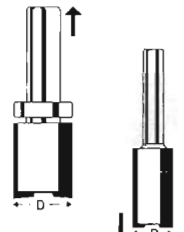
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Pattern Cutting Bit

1/4" Shank • Diameter	
WL-1400 1/2"	\$12.
WL-1401 5/8"	\$12.
WL-1402 3/4"	\$12.
1/2" Shank	
WL-1405 3/4"	\$15.
WL-1406 1-1/8"	\$16.



Straight Bits

1/4" Shank • Diameter	
WL-1001 1/8"	\$10.
WL-1002 3/16"	\$5.
WL-1002-5.5 5.5mm	\$5.

(for undersized 1/4" plywood)

WL-1003 1/4"	\$5.
WL-1004 5/16"	\$5.
WL-1005 3/8"	\$5.
WL-1006 15/32"	\$5.
(for undersized 1/2" plywood)	
WL-1007 1/2"	\$6.
WL-1008 9/16"	\$6.
WL-1009 5/8"	\$7.
WL-1010 23/32"	\$8.
(for undersized 3/4" plywood)	
WL-1011 3/4"	\$9.
WL-1012 1"	\$10.

1/2" Shank

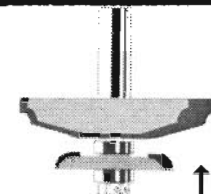
WL-1020 15/64"	\$5.
(for undersized 1/4" plywood)	
WL-1021 1/4"	\$5.
WL-1019 5/16"	\$5.
WL-1022 3/8"	\$5.
WL-1023 7/16"	\$5.
WL-1024 15/32"	\$5.
(for undersized 1/2" plywood)	
WL-1025 1/2"	\$6.
WL-1027 5/8"	\$8.
WL-1028 23/32"	\$8.
(for undersized 3/4" plywood)	
WL-1029 3/4"	\$9.



Corner Lock Mitres

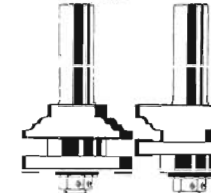
For up to 5/8" material
 WL-1420-2 1/4" shank \$25.
 For 1/2" to 3/4" material
 WL-1420-1 1/2" shank \$30.
 For material 3/4" to 1-1/4"
 WL-1420 1/2" shank \$38.

**For the Shaper
 Lock Mitre WL-1581 \$40.**



Horizontal Panel Raiser with Undercutter • 1/2" Shank

WL-1346 Ogee	\$49.
WL-1347 Traditional	\$49.
WL-1348 Convex (Cove)	\$49.
WL-1359 12° Facecut with Quarter Round	\$49.
WL-1363 Wave	\$49.



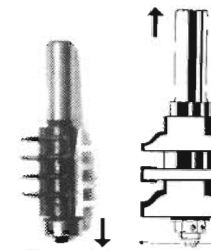
2-piece Rail & Stile Cutter Sets

1/2" Shank Set	
WL-1360 Ogee Profile	\$59.
WL-1361 Roundover	\$59.
WL-1362 Cove & Bead	\$59.

1-piece Rail & Stile Cutter Sets

Just raise the cutter to make the matching cut. No changing or reversing.
 1/2" Shank

WL-1365 Ogee Profile	\$49.
WL-1366 Roundover	\$49.
WL-1367 Cove & Bead	\$49.
WL-1368 Wedge	\$49.
WL-1374 Dbl Roundover	\$49.



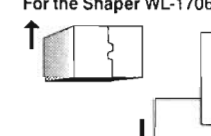
Finger Joiner Router Bit

For the Shaper WL-1580 \$89.

Reversible Glue Joint

WL-1430 1-3/4" Diam \$35.

For the Shaper WL-1706 \$35.



Drawer Corner Lock

Makes drawer side separation virtually impossible
 1/2" Shank
 WL-1435 For 1/2" material \$30.

SHAPER CUTTERS

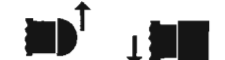
3/4" BORE

Corner Round	
WL-1509 1/8"	\$22.
WL-1510 1/4"	\$24.
WL-1511 3/8"	\$26.
WL-1512 1/2"	\$26.
WL-1513 3/4"	\$30.
WL-1514 1"	\$32.
WL-1515 1-1/4"	\$38.



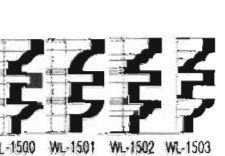
Bead	
WL-1520 1/4"	\$24.
WL-1521 3/8"	\$26.
WL-1522 1/2"	\$26.
WL-1523 3/4"	\$28.
WL-1524 1"	\$30.

Flute	
WL-1530 1/4"	\$24.
WL-1531 3/8"	\$26.
WL-1532 1/2"	\$26.
WL-1533 3/4"	\$28.
WL-1534 1"	\$30.



Rabbeting/Straight

WL-1540 1/4"	\$24.
WL-1541 3/8"	\$26.
WL-1542 1/2"	\$26.
WL-1543 3/4"	\$28.
WL-1544 1"	\$30.
WL-1545 1-1/2"	\$32.
WL-1546 2"	\$48.

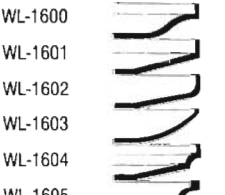


SHAPER CUTTERS 3/4" BORE

1-piece Rail & Stile

Just raise the cutter to make the matching cut. No changing or reversing.

WL-1500 Roman Ogee	\$89.
WL-1501 Roundover	\$89.
WL-1502 Cove & Bead	\$89.
WL-1503 Dbl Roundover	\$89.



Panel Raisers (Shaper Cutter)

3/4" Bore	
WL-1600 Ogee	\$59.
WL-1601 15° Facecut	\$59.
WL-1602 18° Traditional	\$59.
WL-1603 Convex (Cove)	\$59.
WL-1604 12° Facecut with Quarter Round	\$59.
WL-1605 Wave	\$59.



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A Bigger Beanie Bedroom

Enclosed is a picture of my version of the Beanie Babies™ bedroom from issue 52 of *Today's Woodworker*. As you can tell, I changed it a little by daddoing the sides and putting three dowels in every slot to give it more strength. I call it the Beanie Baby Hotel because of its 49 rooms and 98 doors. Despite the expansion, my friend Ruth still doesn't have enough room for all of her Beanie Babies, so I guess it's back to the shop to build an addition for her hotel.

*Jerry Davis
Pennsville, New Jersey*



WWJ responds: Wow! What an expansion. Your mission to provide shelter for all those Beanie Babies is admirable. We'd say you have lodging covered. Now, with this issue's bus project, you can tackle Beanie Baby transportation.



Table Trio

The September/October 1997 *Woodworker's Journal* end table plans made my first attempt at furniture making a lot easier. I made three of the tables and gave them as gifts to my children. They were very pleased with them. Now I have orders for matching dressers! Thanks again.

*Forrest Anderson
East Haddam, Connecticut*

WWJ responds: If all of your projects turn out as well as these, you'll soon have orders for all the furnishings in your children's houses. Good work, Forrest!

More Room for Roses

My wife and I were really impressed with the overall style of your arbor (March/April 97, WWJ). Although I built a copy of your arbor last summer, I decided we should add two side trellises to compliment the arbor and give

more room for additional climbing roses. I thought I'd send you a picture of the finished product. I had a lot of fun making this project and hope others like it are coming up.

*John Baumeister
Richmond, British Columbia*

WWJ responds: Your arbor looks great, John! The side trellises should provide good support for your roses — and it's nice to think about summer gardens during these chilly months.

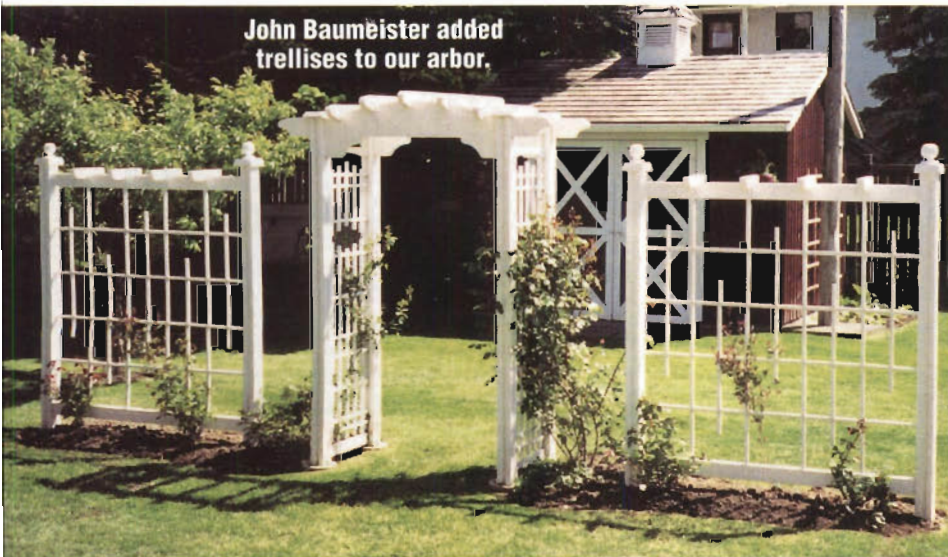
Winner!

John Baumeister is the lucky winner of Bosch's 1278SK compact belt sander with convenient carrying and storage case. The sander works like a detail sander with the removal capacity of a belt sander.



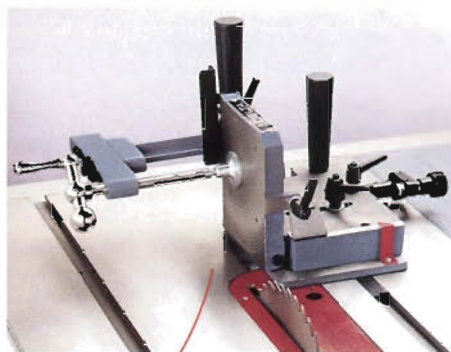
Send your letters and photos to "End Grain" c/o *Woodworker's Journal*, P.O. Box 261, Medina, Minnesota, 55340. If we publish your letter or picture, we'll throw your name in the hat for our free tool drawing. Photos of projects from the *Woodworker's Journal* (WWJ) and *Today's Woodworker* (TWW) are eligible.

John Baumeister added trellises to our arbor.



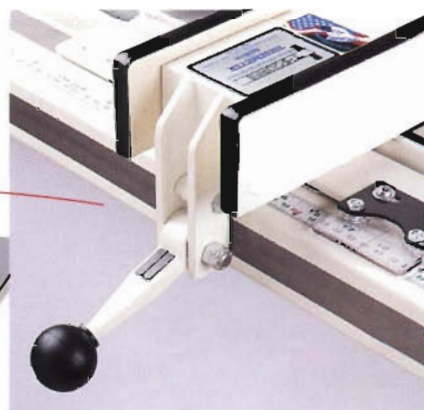
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