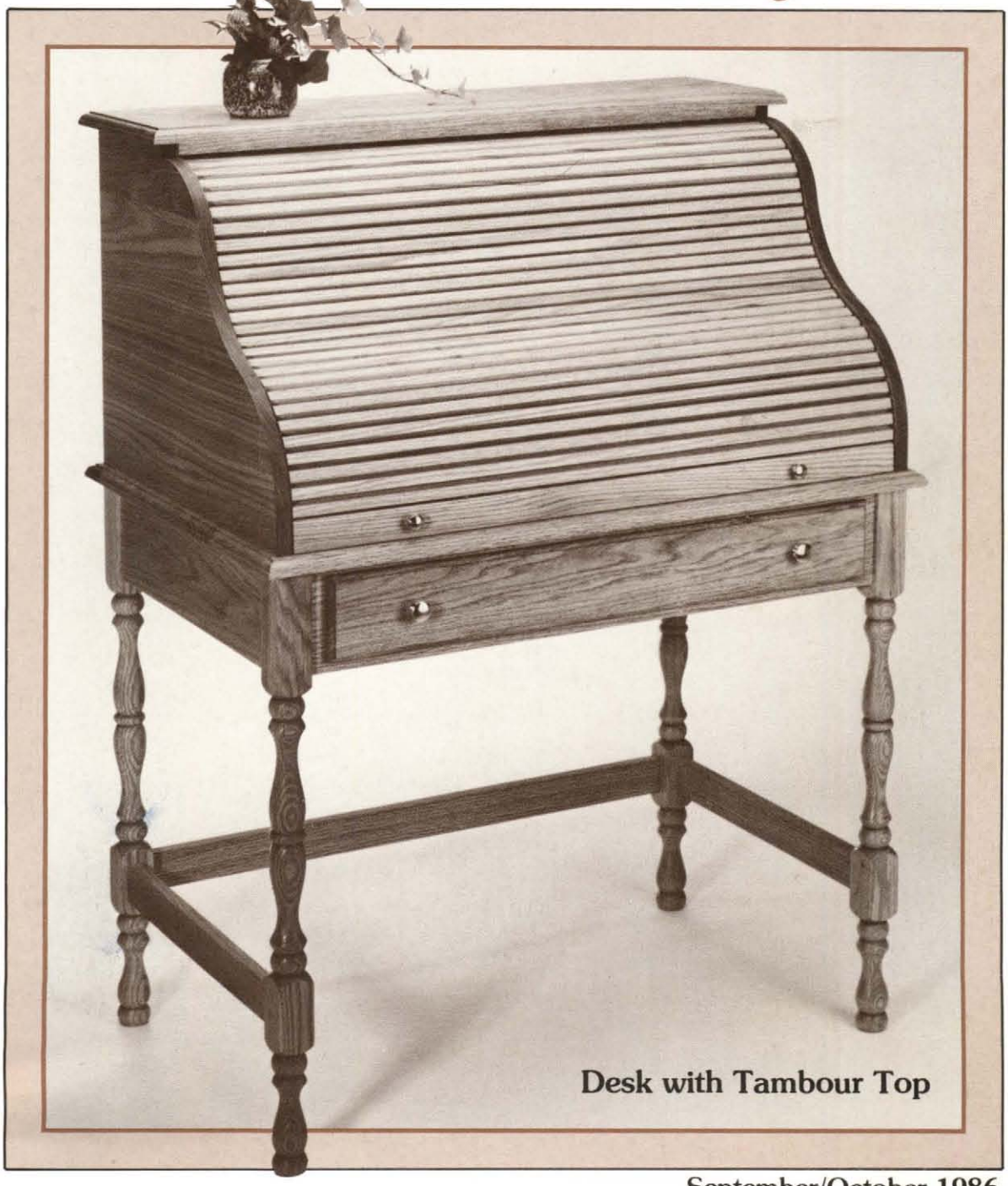
The Woodworker's Journal

Vol. 10, No. 5 $3.00



Desk with Tambour Top

September/October 1986

Included in this issue: Mortar and Pestle • Toy Wagon Coffee Table • Vanity Case • Shaker Drop Leaf Table Blanket Chest • Router Box • Stool • Whale Folk Art

TREND-LINES BEATS ANY AD THIS ISSUE!

MAKITA TOOLS

1100	3 1/4" Planer Kit	$ 179.95
1805B	6 1/8" Planer Kit	297.80
1900BW	3 1/4" Planerw/case	108.65
2030N	12 1/2" Plnr/Jntr	1445.00
2040	15 5/8" Planer	1235.00
2708W	Table Saw W/Carbide Blade	230.80
3601B	Router	119.95
3612BR	3 HP Router	195.25
3700DW	Cordless Trimmer	99.95
3705	Offset Base Laminate Trimmer	129.95
4200N	4 3/8" Circular Saw	114.95
4300DW	Cordless Jig Saw	108.95
4301BV	Vr. Sp. Orbtl Jig Saw	133.25
5007NB	7 1/4" Circular Saw	104.30
5008NB	8 1/4" Circ. Saw	114.00
5081DW	3 3/8" Cordless Saw	114.70
5402A	16" Circular Saw	319.95
6000R	Uni-Drill	104.70
6002DWK	2 Spd Cdlss Driver/Drill	109.95
6010DL	Cordless Drill w/charger light & case	99.95
6010DWK	Cordless Drill w/charger & case	88.95
6010SDW	3/8" Rev. Cdlss Drill	54.50
6012HDW	Cdlss Drill Kit, 2 Sp.	118.40
6070DW	3/8" Cordless Drill, Var. Sp.	69.95
6510LVR	3/8" Drill—Rev.	84.95
6710DW	Cordless Screwdriver	116.95
6800DBV	Drywall Screwdriver	94.70
9045B	Finishing Sander	113.60
9045N	Dustless Sander	108.30
9207SPB	7" Sander Polisher	149.95
9401	4" x 24" Belt Sndr	172.55
98202	Blade Sharpener	179.95
9900B	3" x 21" Belt Sndr	131.75
9924DB	3" x 24" Belt Sndr	143.95
BO4510	Finishing Sander	53.95
DA3000DW	Cordless Angle Drill	111.00
DA3000R	3/8" VSR Angle Drill	109.00
DP3720	3/8" Reversible Drill	54.50
DP4700	Drill Reversible	104.30
GV5000	Disc Sander	63.95
JR3000V	Recipro Saw	129.60
JV2000	Orbtl. Var. Jig Saw	108.50
LS1000	10" Miter Saw w/vise	239.90

AEG TOOLS

BE8RL	3/8" VSR Drill	53.95
BSPE60	Orbtl. Top Handle Jig Saw	$138.90
EZ501	Cordless Screwdvr	39.95
EZ502	Cordless Driver w/adj. handle	54.95
EZ505	Cordless Drill/Driver	79.95
HBSE75S	3" x 21" Belt Sndr	129.95
PC70	7 1/4" Circular Saw	97.95
PC80	8 1/4" Circular Saw	114.95
RSK600	Orb. Recip. Saw	146.95
SBE401RL	3/8" Hammer Drill	55.95
SB220RLD	1/2" Hammer Drill	124.95
SCRIIE	Electronic Drywall Driver	77.95
SSP2800	Recipro Saw, 2 Sp.	105.95
SSPE800	Recipro Saw, VSR	119.95
VS130	1/3 Sheet Orbtl. Sndr	49.95
VSS260	1/2 Sheet Orbtl Sander w/dustbag, rubber sanding plate	120.95

JORGENSEN BAR CLAMPS

(HEAVY DUTY)

		Each	Pkg. 6
No. 7224	24"	17.30	15.70 Ea.
No. 7230	30"	18.10	16.45 Ea.
No. 7236	36"	18.70	16.95 Ea.
No. 7248	48"	20.75	18.70 Ea.
No. 7260	60"	22.65	20.55 Ea.
No. 7272	72"	24.55	22.25 Ea.

JORGENSEN CLAMPS

(MED. DUTY)

No. 3712	12"	5.90	5.35 Ea.
No. 3724	24"	7.30	6.60 Ea.
No. 3730	30"	8.20	7.40 Ea.
No. 3736	36"	8.85	7.95 Ea.

JORGENSEN HAND SCREWS

No. 3/0	3"	8.45	7.60 Ea.
No. 0	4 1/2"	9.90	8.90 Ea.
No. 1	6"	11.30	10.15 Ea.
No. 2	8 1/2"	13.45	12.15 Ea.

JORGENSEN BAR CLAMPS

No. 4512	12"Open	17.45	15.70 Ea.
No. 4524	24"Open	20.85	18.85 Ea.
No. 4530	30"Open	21.90	19.65 Ea.
No. 4536	36"Open	22.90	20.60 Ea.

RYOBI TOOLS

AH115	12 1/2" Plnr-Jntr	$1150.00
AP125	12 1/2" Planer	950.00
AP10F	10" Planer w/spare blade set	399.95
AP10JSF	10" Planer w/spare blade set & Jigsaw	469.95
B7075	3" x 21" Belt Sndr	109.95
B7100	3" x 24" Belt Sndr	120.45
B7200AS	4" x 24" Belt Sndr	145.95
BS360NRS	Hvy Dty Band Saw	1150.00
BS50NA	9 1/4" Band Saw	750.00
JSE-60	Electronic Jigsaw	99.95
R151	1 HP Router	91.95
R-330	2 HP Router	139.95
R-500	3 HP Plunge Router	167.45
RA2500S	10" Radial Arm Saw	395.00
RA2500SD	Radial Arm Saw/Kit	495.00
TR30U	Laminate Trimmer	76.25
TS-251UB	10" Miter Saw w/ Freud LU85M10 Blade	229.00

MILWAUKEE TOOLS

0228-1	3/8" VSR Drill	$ 103.35
0234-1	1/2" VSR Drill	123.50
0375-1	3/8" Rev. Angle Drill	130.00
1107-1	1/2" VSR D Handle	153.95
5660	1 1/2 HP Router	199.95
5680	2 HP Router	236.75
5935	4" x 24" Belt Sndr	238.00
6014	1/2 Sheet Sander	134.95
6215	Electric Chainsaw	159.95
6305	6 1/4" Cordless Saw	152.95
6367	7 1/4" Circ. Saw	129.95
6508	2 Sp. Sawzall w/case	139.95
6539-1	Cordless Screwdriver	69.95
6543-1	1/4" Screwdriver	155.00
6749-1	Magnum Screwdriver	139.95
8975	Heat Gun w/scrapers	89.95

HITACHI TOOLS

CB75F	14 1/2" Band Saw	$1547.80
C6DA	6 1/4" Circular Saw	139.90
C12Y	12" Table Saw	1347.00
DRC-10	Cordless Screwdriver	94.45
F1000A	Planer/Jointer	1378.00
F2OA	3 1/4" Planer	99.00
P50	6 5/8" Planer	279.00
P100F	12" Planer	1043.95
SB-75	3" x 21" Belt Sander 2 sp. w/dust bag	134.95
SB8T	3" x 24" Belt Sander 2 sp. w/dust bag	154.00
SB110	4" x 24" Belt Sander 2 sp. w/dust bag	179.95
TR-6	Laminate Trimmer	89.00
TR-12	3 HP Plunge Router	175.95

PORTER CABLE

100	7/8 HP Router	$ 97.95
309	Laminate Trimmer	90.95
314	4 1/2" Trim Saw	124.95
330	Palm Finish Sander	61.95
352	3" x 21" Belt Sander w/bag	133.95
360	3" x 24" Belt Sander w/bag	196.95
362	4" x 24" Belt Sander w/bag	206.95
367	3 1/4" Planer	139.95
505	Finishing Sander	122.95
518	3 HP Electronic Router	343.95
587	7 1/4" Circular Saw	139.95
655	Direct Line Drywall Driver	94.95
690	1 1/2 HP Router	135.95
695	1 1/2 HP Router/ Shaper	194.95
696	Router/Shaper Table only	104.95
3151	7 1/4" Circular Saw	116.95
7540	Drywall Driver	124.95
7545	H.D. Drywall Driver	129.95
7548	Orb. Jig Saw	139.95
7648	Orb. Jig Saw w/barrel grip	139.95
9627	2 Sp. Tiger Saw Kit	135.95

PONY CLAMP FIXTURES

	Each	Pkg 6
No. 50 3/4" Pipe Clamp	7.30	6.55 Ea.
No. 52 1/2" Pipe Clamp	6.05	5.60 Ea.
No. 1215 (WEB) 15"	6.80	6.35 Ea.
No. 7456 Clamp Pads	2.95	2.50 Ea.

JORGENSEN & PONY CLAMPS

No. 3325 3 Way Edging	5.75	5.10 Ea.
No. 1623 3" Hold Down	7.50	6.30 Ea.
No. 3202HT 2" Spring	2.15	1.90 Ea.

Free Wooden Case

New! Freud Tool Sets

TFWC104	4 Pc. Chisel Sets	$19.95
TFWC106	6 Pc. Chisel Sets	31.75
TFWC110	10 Pc. Chisel Sets	52.95
TFTT108	8 Pc. Lathe Set	53.95
TFCS106	6 Pc. Carving Set	59.50
TFCS112	12 Pc. Carving Set	99.95

BLACK AND DECKER INDUSTRIAL TOOLS

1575	3/8" VSR Scrudrill®	99.95
3051	7 1/4" Wormdrive Saw	139.95
3370-10	3 1/4" Planer	99.95
4010	Palm Sander	49.95
9425	Compound Miter Saw	119.95

DELTA (ROCKWELL) POWER TOOLS

11-072	32" Radial Drill	$ 444.95
11-950S	8" Bench Drill Press	118.95
17-900S	17" Floor Drill Press	279.00
22-651	13" Planer	999.00
23-680	6" Bench Grinder	59.95
23-880	8" Bench Grinder	89.95
23-980	10" Bench Grinder	139.95
28-160	10" Band Saw	149.95
28-243D	14" Band Saw	563.90
28-283D	3/4 HP Band Saw	745.00
28-560	16" Band Saw	389.95
31-730C	Belt and Disc Sndr	1281.00
33-150	Sawbuck	529.00
33-990S	10" Radial Arm Saw	474.50
34-410C	10" Contractor Saw	699.00
34-761	1 1/2 H.P. Unisaw	1395.00
34-782	3 HP Unisaw W/Unifence	1895.00
37-220C	6" Jointer	1250.00
37-255	6" Jointer	495.00
40-500	15" Scroll Saw	99.95
40-601	Electronic Scroll Saw	699.00
43-122S	1 H.P. Wood Shaper	528.95
43-375	3 H.P. Wood Shaper	1499.00
46-140	11" Lathe	433.95
46-541S	12" Lathe	1399.00

All Prices Include Genuine Delta Motors

SUNGOLD X-WEIGHT SANDING BELTS

Sold in packs of 10 only. Outlasts regular belts 2 to 1.

Size	Grit	1 pk,same size & grit	5 pks, same size & grit
3" x 21"	120	$9.80 pk.	8.40 pk.
	100	9.80 pk.	8.40 pk.
	80	10.00 pk.	8.60 pk.
Assortment	60	10.50 pk.	9.20 pk.
of 10 $12.95	50	10.70 pk.	9.40 pk.
	40	11.00 pk.	9.60 pk.
3" x 24"	120	12.00 pk.	9.30 pk.
	100	12.00 pk.	9.30 pk.
	80	12.20 pk.	9.70 pk.
Assortment	60	12.60 pk.	11.20 pk.
of 10 $13.95	50	13.10 pk.	11.50 pk.
	40	13.40 pk.	11.80 pk.
4" x 24"	120	16.80 pk.	14.60 pk.
	100	16.80 pk.	14.60 pk.
	80	17.30 pk.	15.10 pk.
Assortment	60	17.80 pk.	16.40 pk.
of 10 $18.95	50	18.50 pk.	17.00 pk.
	40	18.90 pk.	17.60 pk.

SUN GOLD SANDING SHEETS

9 x 11 Aluminum Oxide C Weight

Grit	Pk of 100
150, 120, 100	$21.95
80	23.70
60	28.90
50	32.05
40	38.30

9 x 11 Non-Loading Silicon Carbide A WEIGHT

Grit	Pk of 100
400, 360, 320, 280, 240, 220, 180	
150, 120	$19.60

FREUD SAW BLADES 10"=5/8" Bore Carbide Tipped 12"=1" Bore.

No.	Size	Teeth	Use	Price
LU72M10	10"	40	General	$33.95
LU73M10	10"	60	Cut-Off	29.95
LU73M12	12"	72	Cut-Off	76.90
LU78M10	10"	80	Plastic	83.50
LU82M10	10"	60	Cut-Off	39.95
LU82M12	12"	72	Cut-Off	85.95
LU84M11	10"	50	Comb.	36.95
LU85M10	10"	80	Cut-Off	59.95
LM72M10	10"	24	Ripping	33.95
DS306	6"	Dado		89.95
DS308	8"	Dado		99.95

We Honor All Freud Specials

If a prepaid price for an identical product in our ad is lower, we match the price and give you a gift certificate worth $5.00 when purchasing from our catalog. Few restrictions apply. **Minimum Order $10.00**

Freight prepaid in all U.S.A. on orders of $35.00 or more.

Note: Under $35.00 add $2.50 per order. Extra charge to Alaska and Hawaii on stationary machines. Truck shipments are street delivery. You must remove machine from truck. Typographical errors are rare but do occur. Any error is subject to correction by Trend-Lines. This ad expires October 31, 1986.

PRICES APPLY TO MAIL AND PHONE ORDERS.
RETAIL STORE SELECTION AND PRICES MAY VARY

FREE CATALOG WITH ORDER OR BY WRITING TO POST OFFICE BOX.

SPECIAL SALE TO READERS OF THIS AD:
You Must Mention This Ad When Ordering
800-343-3248 (USA)
800-322-6100 (Mass.)
617-884-8882 (Non-Order Calls)

TREND-LINES, INC.

375 Beacham St.
P.O. Box 6447C
Chelsea. MA 02150

VISA MasterCard or personal check

Open Mon.-Frl., 8 a.m.-5p.m., 9-5 Sat.

30 DAY MONEY BACK GUARANTEE
Examine any item in your home or shop. If it's not what you expected, return it in original condition for a full refund.

Watco Danish Oil Natural, Medium, Dark, Black, or Colors. $5.70 Qt. $17.65 Gal.

TITEBOND WOOD GLUE $5.75 Qt. $12.95 Gal.

FREE WITH ANY ORDER:

100 PROTECTIVE FELT BUMPERS.

Use on lamps, vases and toys to protect table tops.

Free with any order:
- **1 year (3-4 issues) catalog subscription.**
- **Subscription to Woodworking Trends.**
- **For special prices ask for code WJSO6.**

21 PIECE FORSTNER & BRAD POINT SET

- 7 pc. Forstner Bit Set in sturdy wooden case.
- 7 pc. brad point woodbit set in protective pouch.
- 7 pc. adjusting collars for woodbit set.

YYFB21W **$49.95**

SUPER SAVINGS ON ALL FREUD BLADES

MILWAUKEE SAWZALL

2 Speeds For Superior Performance
MW6508 **139.95**

DELTA CONTRACTORS SAW

$100 REBATE BY MAIL!
RW34410C **$699.00**
With Rebate ***$599.00***
FREE DADO BLADE AND DADO INSERT!

MAKITA BLADE SHARPENER

Handles long planer blades.
MK98202 **$179.95**

DELTA 18" VARIABLE SPEED SCROLL SAW— ONLY $699.00 RW40601

The Woodworker's Journal

SEPTEMBER/OCTOBER 1986 VOLUME 10, NUMBER 5

CONTENTS

The Woodworker's Journal (ISSN 0199-1892) is published bi-monthly in January, March, May, July, September and November by The Madrigal Publishing Co., Inc., P.O. Box 1629, New Milford, CT 06776. Telephone: (203) 355-2694.

Second class postage paid at New Milford, CT 06776 and additional offices.

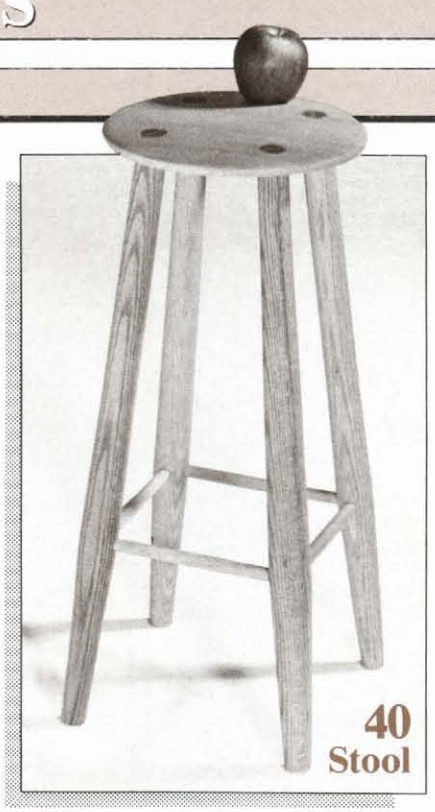
Subscription Rates: In the United States and its possessions — One year (6 issues) $12.00, Two years (12 issues) $22.00. Canada — One year $19.95 (CAD), Two years $35.95 (CAD). Foreign countries — One year $14.00 (USD), Two years $26.00 (USD).

To Subscribe, Renew or Change Address: Write to **The Woodworker's Journal,** P.O. Box 1629, New Milford, CT 06776, including mailing label for renewals and changes. For gift subscriptions, include your own name and address as well as those of gift recipients.

Postmaster: Send Change of Address to **The Woodworker's Journal,** P.O. Box 1629, New Milford, CT 06776.

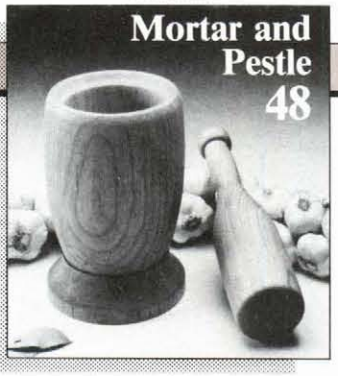
Contributions: We welcome contributions in the form of manuscripts, drawings and photographs and will be glad to consider such for possible publication. Contributors should include a stamped, self-addressed envelope of suitable size with each submission. While we cannot assume responsibility for loss or damage, all materials will be treated with care while in our possession. Payment for the use of unsolicited material will be made upon acceptance. Address all contributions to: *Editor,* **The Woodworker's Journal,** P.O. Box 1629, New Milford, CT 06776.

DEPARTMENTS



40 Stool

PROJECTS



Mortar and Pestle 48

50 Toy Wagon

Shoptalk

Craft Fairs

My father and I used to kid my mother about her inability to drive past any craft fair or flea market, and how difficult it was to pry her loose once she got in. If there had been a bumper sticker available then that said "Warning . . . I Brake For Craft Fairs", we surely would have put one on her car.

Although apparently dormant in my younger days, I know that she passed on her craft fair genes to me, for the compulsion to stop at craft fairs seems to grow stronger in me with each passing year. I really do enjoy them, especially the smaller local fairs where it is easy to chat with the artisans. It's always interesting to talk with woodworkers who are able to make a living at their craft, and often they are willing to share their production and marketing methods.

If you are seriously interested in making wood gift items for sale in art fairs or through retail outlets, you will do well to investigate a monthly newspaper called *The Crafts Report*. This publication is a clearing house for those in the business of selling their crafts and has a lot of useful information including how to cope with the business side of your woodworking. A one year subscription (11 issues) can be obtained by sending a check for $16.75 to *The Crafts Report,* Subscription Dept., P.O. Box 1992, Willmington, DE 19899.

An Auction for the Birds

Earlier this year, I reported on an auction that brought $1,045,000 for an antique piecrust table. Even more surprising was a recent news item stating that $205,000 was paid for a single drake wood duck decoy at an auction out on Cape Cod. The two-day sale of 733 lots from a private collection totaled an incredible $1,435,000. Big business in antique decoys.

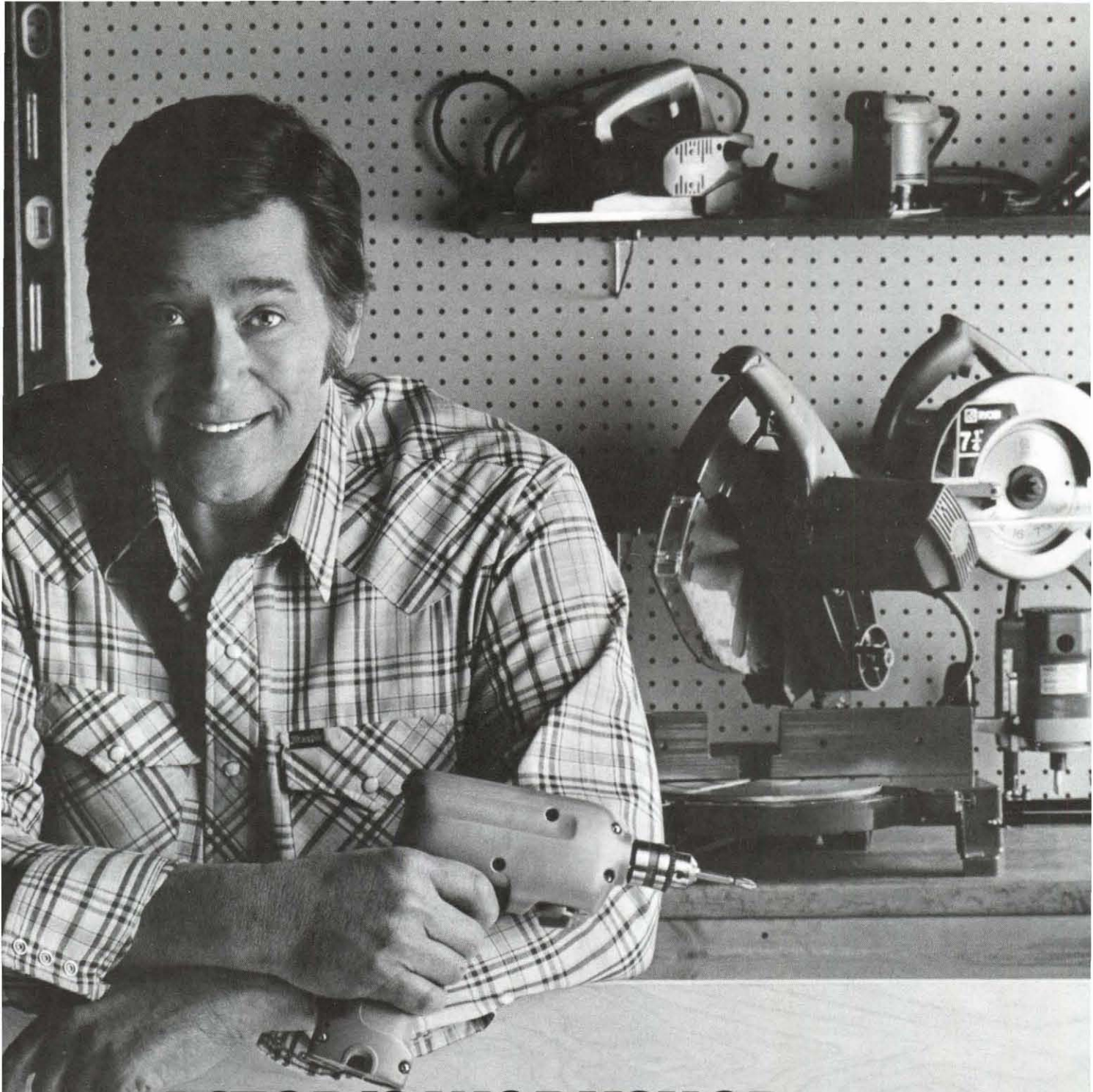
Although the quality of the carving is important, a good decoy is more distinguished by the painting of the plumage. Decoys are fun to carve, and although we've published plans for a couple in past years, we are probably about due for some more decoy and bird carving projects. But first I've got to do a bit of research on what constitutes a really good carving and how we can best show not only the carving process but the painting of the plumage.

A Weird Woodworking Sport

If what I saw on T.V. Saturday afternoon wasn't an hallucination, belt sander engineers may have some new problems to face. What I saw (or what I think I saw) was a belt sander drag race. The "drivers" set their sanders on separate tracks fitted with fences to keep the sanders from running off. At a signal, switches were jammed to "ON", and the sanders, tethered to long extension cords, screamed their way down the track. They traveled at a surprising rate of speed and the race was over in seconds.

One can suppose that successful drivers jealously guard their secrets for souping up the sanders with heavy-duty brush springs, special grits for better traction, etc. It's all in good fun, of course, but I can't really recommend putting your belt sander to such use. Still, I wonder how my old Sears "Chopped Coupe" would stack up against the new Japanese jobs.

Jim McQuillan



ACTOR'S WORKSHOP.

Some of Clint Walker's most polished performances can be seen in his home workshop. Because before he first stepped in front of a motion picture camera, Clint earned his living as a professional contractor.

Today, although he does his building purely for pleasure, Clint Walker still demands professional quality from the materials and tools he chooses. That's why, in this actor's workshop, Ryobi Power Tools play a starring role. Ryobi Power Tools are designed and built to meet the standards of the pros, who give them rave reviews for their durability and affordability.

Whether you're a professional or a serious do-it-yourselfer like Clint Walker, you deserve Ryobi quality. You can take a closer look at Ryobi Power Tools wherever better tools and building supplies are sold.

Made for more than weekends.

RYOBI®

1158 Tower Lane
Bensenville, IL 60106

Letters

In his Shoptalk column on page 4 of your July/August 1986 issue, Jim McQuillan talked about a 3/16 - 17/32 in. countersink that worked especially well. I'm anxious to buy one and give it a try, but I've not been able to locate a source. I've tried several shop supply distributors but have not had any luck. Can you tell me the name of a supplier?

W.W. Cook
Beatrice, Neb.

Several of our readers have written to tell of the same problem. After a few phone calls we were able to come up with a mail-order supplier for the part. It's available from Elisha Penniman, Inc., P.O. Box 10271, 1005 New Britain Ave., West Hartford, CT 06110, telephone: (203) 527-1183. Your order should state that you want the Swiss Precision Instrument countersink part no. 82-232-0.

They will ship it C.O.D. via United Parcel Service (U.P.S.). The cost is $6.30 each plus shipping (which will include a C.O.D. charge). U.P.S. won't deliver to a post office box, so be sure you include a street address.

As someone who is a "beginning woodworker", I have much appreciated your articles (May/June and July/August 1986) suggesting guidelines for buying a first router and bits. I am usually lost when choosing between a $29.95 basic tool and its $299.50 Cadillac version. After reading your articles, I can identify the middle ground between the least expensive but low-powered and the most expensive and more-power-than-I-need routers.

I hope you will prepare the same type of article for other first tools, especially table saws.

Terry J. Hanford
Takona Park, Md.

Since my retirement four years ago, I have been doing furniture repair and refinishing on a limited scale. I have had no problems to speak of with one exception. Last November I stripped and refinished an oval, oak library table. There were two stains on the top, one circular, and one roughly rectangular in shape. Each stain was blue-black to jet black in color. When additional applications of stripper and sanding didn't improve the situation, I tried, for the first time, oxalic acid. I followed the directions closely, I thought. I kept the solution warm, and kept applying additional coats until the stains seemed to disappear. I neutralized with Sal Soda before sanding, and when I was finished, the rectangular spot was gone and the circular spot was barely discernable.

Last week I received a call from the customer asking me to see her. Imagine my chagrin when she showed me the table top. The rectangular spot had returned, now a brown color, and the circular spot had also shown up, part brown and part black.

Could you help me out with this

problem? Didn't I go far enough with the acid? Should I use some different bleaching agent? If so, what? I am learning all the time and am eager to do a good job. Any help you can give me on this would be appreciated.

William T. Myers
Syracuse, N.Y.

Editor's Note: John Olson, who writes our Restoring Antiques column, will handle this one.

I'd say the stains were caused by something made of iron that was left on the table. The iron must have been moist or damp and it probably occurred at a time when there was little or no finish on the table. Under wet and/or humid conditions, the tannic acid in oak will combine with iron to form black insoluable ferric tannate. Application of a saturated solution of oxalic acid changes the black insoluable ferric tannate into ferrous tannate, a colorless soluable chemical compound. If the surface is then thoroughly washed with water to remove all of the ferrous tannate, the bleach will be permanent. However, Mr. Meyers washed his table with a solution of sodium carbonate to, as he said, "neutralize the oxalic acid". Undoubtedly the ferrous tannate remained in and on the oak surface. Since Sal Soda (sodium carbonate) is a mild basic chemical, over a period of time it neutralized the effects of the oxalic acid, and the ferrous tannate reverted to ferric tannate and the stain reappeared. You'll have to strip the table top, rebleach with oxalic acid and then wash the surface thoroughly with water. No attempt should be made to neutralize the oxalic acid.

Since all finishes are permeable to some degree there is another possible answer. If the owner cleaned the table with a solution containing ammonia, a strong basic chemical, it is conceivable that the ammonia could have penetrated the finish and caused the iron stain to reappear.

I'd like to thank you for publishing my plea for a blade guide for my old Shopsmith jig saw in the Readers' Information Exchange column of your July/August 1986 issue. I was given a good solution to the problem, plus an idea that could put me on the path to a replacement blade. I received four responses, which I think is terrific. I only hope that someday I can help somebody else. By the way, I wrote and thanked everyone who responded.

Robert Gibson
Pittsburgh, Penn.

I make and sell wooden towel bars, so I use a lot of ¾ in. diameter dowel stock. I need 24 in. lengths, but the commercially made rods are 36 in. long, so I end up with considerable waste. Recently, I was told that there is a tool available that would enable me to make my own dowel rod. Can you tell me who sells it?

Marvin Kuebler
Deer Creek, Ill.

The Frog Tool Company, 700 West Jackson Boulevard, Chicago, IL 60606 carries a tool they call the Miniature Dowel Factory. It attaches to a lathe or drill press and makes dowels in any size from ¼ in. to 1 in. diameters. We've never used one, so we can't tell you what kind of a job it does. The current price is $98.50. WWJ

Readers' Information Exchange

Looking for an owner's manual for an old band saw? Need a bearing for a hand-me-down table saw? Can't find a source of supply for an odd piece of hardware? Maybe our readers can help. Send along your request and we'll try to list it here — and hopefully one of our readers will have an answer for you. Due to space limitations, we will be unable to list all requests, but we will include as many as we can.

I would appreciate it if your readers could tell me where to get a drive belt (no. 11-2-989720-01) for a 3 in. Sears belt sander, model no. 315.11700.
P. W. Weiler
3550 6th Place N. W., Rochester, MN 55901

I have a Ward's Powr-Kraft tilting arbor table saw, model no. TMG-333A. It may have been made by the Modern Machine Co. for Ward's. I need various parts after my mother backed over it on her way through the garage wall. Can anyone help?
Kevin Hedgspeth
911 W. Plumb St., Ransom, IL 60470

I'm looking for plans for a Victorian Dollhouse like the one advertised on page 10 of the July/August 1982 issue of *The Woodworker's Journal*. I wrote to the company but got my letter back. Does anyone have the plans?
Kenneth Burns
4140 E. Railroad Ave., Cocoa, FL 32926

Could someone help me find plans for a futon bed frame and for waterbed frames?
M.E. Penton
P.O. Box 284, Gautier, MS 39553

I'd like to find a miter gauge to fit the ⅝ in. wide by 3/16 in. deep channel of an old Companion table saw. Many thanks for any help.
Bob Richard
9 Oakland St., Medway, MA 02053

I need parts for my Stanley router, no. H258, ⅞ h.p. Does anyone know who supplies parts for the Stanley power tools?
Stanley W. Metz
639 Derstine Rd, Hatfield, PA 19440

I need several parts for a Duro scroll saw, model no. 84-769, purchased over 30 years ago from Ward's. I'm looking for a guide roller, spring hold-down, lower chuck assembly, locking cam and a cam handle. Is there a source for interchangeable parts for outdated tools?
Laborn Hendrix
2911 W. 15th Ave., Stillwater, OK 74074

I was given an old vise (Massey's no. 17, L G Patent) that is missing the block that locks the vise. It rides on a cam that forces it into a track that runs the full length of the vise. The block also has teeth that mesh with those on the track. On the back of the track are the letters WWR.
Eugene Cooper
3825 N. Shore Rd., Columbia, SC 29206

About 15 years ago, I purchased a Sears carbide sanding wheel. It was a 10 in. metal wheel about ⅛ in. thick with a center hole. It was marketed as a "Karbo-Grit" wheel. I'd like to purchase another one but can't find a supplier. Can anyone advise me?
Robert G. Smith
P.O. Box 3678, Abilene, TX 79604

I need a compatible parts list and source of parts for a Sloan-Ashland Shopmaker 5-in-1 table saw model 75.
Don Mable
2149 East River Rd., Cortland, NY 13045

Requests for Owner's Manuals and Parts Lists

Sears Craftsman planer, model no. 103.1801 ..... *L. Strey*
43 Vernier Rd., Grosse Pt. Shores, MI 48236

Sears Craftsman wood lathe, model no. 113.23881 ..... *Charles E. Bailey*
620 N. 30th St., Herrin, IL 62948

Ward's jig saw, model no. 74FD2355 ..... *C.A. Mayer*
6140 Salmon Way, Pollock Pines, CA 95726

Sears Craftsman bench drill press, model no. 103.23100 ..... *John Mullen*
Box 146-A, Berne, NY 12023

Sears table sander, model no. 113.22541 ..... *Henry Grimes*
4845 Kingsdown Rd., Dunwoody, GA 30338

Sears surface planer (6 in. wide), model no. 103.1801 ..... *John Linney*
44 Sherman St., Belfast, NY 14711

Sears drill press, model no. 103.0303 ..... *L.B. Vinson*
3025 Willow Oaks Dr., Fort Wayne, IN 46809

Sears Craftsman 18 in. throat scroll saw, model no. 103.20720 ..... *Albert Freed*
9717 Horner St., Los Angeles, CA 90035

Sears radial saw, model no. 113.19771 ..... *W.J. Shepard*
1212 Montgomery St., Mt. Vernon, WA 98273

Shopmate jig saw, model no. 1810 Type 1 ..... *Jeff DeFebo*
542 S. Broadway, Apt. H-9, Pennsville, NJ 08070

Sears Craftsman band saw, model no. 103.24280 ..... *Donald O'Bier*
Box 584, Lottsburg, VA 22511

RYOBI TOOLS

		List	Sale
S500A	3x5½ Finish Sander	70	41
SU6200	Finishing Sand. ½ Sheet	142	88
B7075	3x21" dustless Belt Sand.	179	116
B7100	3x24" dustless belt Sand.	208	140
B7200A	4x24" dustless Belt Sand.	269	165
D100VR	3/8" VSR 0-1200 rpm drill	91	49
W640	7¼" 13 amp circular saw	158	99
W740	8¼" 13 amp circular saw	171	109
JS60	Jig Saw-Single Speed	172	99
JSE60	Jig Saw-electronic v/speed	198	123
R150	1 H.P. Plunge Router	138	86
R330	2 H.P. Router	220	138
R500	3 H.P. Router	265	163
E3800	Drywall screwdriver 0-4000	126	79
L120U	3¼ Planer	142	89
BD1020R	3/8" 2-spd Cordless Drill w/free holster-Xtra special buy	148	95
TS251U	10" Mitre Box	300	169
SG1150C	4½" H.D. Mini-Grinder	99	59

YOUR ATTENTION PLEASE!

All Above RYOBI TOOL Prices

Take Additional 10% OFF Sale Prices

MILWAUKEE TOOLS

		List	Sale
0224-1	3/8 drill 4.5A magnum	159	109
0234-1	½ drill 4.5A magnum	159	112
0244-1	½ drill 4.5A magnum	159	115
0222-1	3/8 drill 3.3A 0-100 rpm	146	99
0228-1	3/8 drill 3.3A 0-1000 rpm	129	92
0375-1	3/8 close quarter drill — NEW — 3.5 amp	175	118
0210-1	3/8 cordless drill — NEW — 2 speed	154	95
6539-1	cordless screwdriver — NEW — 190 RPM	84	59
1007-1	½" drill 4.5A D-Hdle	199	145
1107-1	½" drill 4.5A D-Hdle	204	145
3300-1	magnum rt angle drive kit	249	170
3102-1	Plmbrs rt angle drill kit	263	180
1676-1	HD Hole Hawg w/case 2 sp	333	235
5395	3/8 sgle sp hammer drill kt	203	150
5397	3/8 var sp hammer drill kit	208	155
5371-1	HD mag. hammer drill ½"	287	207
5373	HD mag. ham. drill 3/8"	240	175
6511	2 speed Sawzall w/case	181	122
6226	port band saw 2 sp w/case	382	280
6234	TSC band saw port w/case	382	280
6405	8¼" circ. saw 13 amp	179	127
6460	10¼" 15 amp w/case	349	245
6165	12" Chop saw 15 amp 4200 R.P.M.	285	189
6255	v/sp Jig Saw 3.8 amp	199	140
6245	sgle sp Jig Saw 3.8 amp	175	125
6012	⅓ sheet HD Orb. sander	159	110
6014	½ sheet HD orb. sander	169	112
5660	1½ HP router 10 amp	265	175
5680	2 HP router 12 amp	314	220

DRYWALL SHOOTERS

6753-1	3.5 amp 0-4000 rpm **new**	115	79
6747-1	4.5 amp 2500 rpm	144	100
6750-1	4.5 amp 0-4000 rpm	129	90

NEW FROM RYOBI

MODEL AP-10 — 10" Surface Planer
WEIGHS ONLY 58 LBS.
LIST 659.00 — SALE 375.00

MILWAUKEE Super Specials!

★★ BRAND NEW ★★
Model 0212-1 Cordless
Variable Speed 3/8" Drill
LIST...179.00 SALE...125.00

Model 6145 — 4 1/2" Sander-Grinder
LIST...139.00 SPECIAL SALE...85.00

Go Cordless with MILWAUKEE

#6305 — 6¼" Cordless Circular Saw
12 volt — 1 Hour Charge
Cuts (80) 2x4's (Pine)
List Price 195.00 ★ SALE PRICE 119.00

FREUD SAW BLADES

Univ. Bore — Professional Series

CARBIDE TIPPED SAWBLADES

Item No.	Description	Diam.	Teeth	List	Sale
PS203	Gen'l Purp.	7½"	24	27.24	17.50
PS303	Fine cutting	7¼"	40	32.97	20.50

5/8" Bore — Industrial Grade

CARBIDE TIPPED SAWBLADES

Item No.	Description	Diam.	Teeth	List	Sale
LU72M010	Gen-l Purp.	10"	40	68.58	34
LU81M010	Gen-l Purp.	10"	40	69.30	35
LU73M010	Cut-Off	10"	60	79.65	36
LU82M010	Cut-Off	10"	60	86.40	44
LU84M010	Combination	10"	40	70.99	36
LU84M011	Combination	10"	50	74.51	37
LU85M010	Super Cut-Off	10"	80	110.88	62
LM72M010	Ripping	10"	24	64.85	34
DS 306	6" Dado			139.00	92
DS 308	8" Dado			170.00	105
TR 100	3 blades & Dado set			399.00	255

MAKITA CORDLESS FESTIVAL OF VALUES

Model		List	Sale
4300DW	Jig Saw	158	99
5081DW	3⅜" Saw Kit	174	95
5600DW	6½" Circular Saw	224	125
9035DW	Finishing Sander	128	73
6010DWK	3/8" Cordless Drill Kit	152	88
6010SDW	3/8" Cordless Drill	84	45
8400DW	3/8" Hammer Drill	188	105
DA3000DW	3/8" Angle Drill	176	98
6010DL	3/8" Drill w/Flashlight	162	89
6012HDW	3/8" 2 spd Driver Drill w/Bat & Metal Case	178	98
DK1002	3/8" Drill w/Flursnt Lt	164	90
6710DW	Cordless Screwdrvr Kit	148	84

▲DELTA BENCH TOP TOOLS

Model		List	Sale
11-950	8" Bench Drill Press	124	100
28-160	10" Bench Band Saw	158	125
40-500	15" Scroll Saw	105	85
23-680	6" Grinder Bench	62	50
23-880	8" Grinder Bench	99	85

MAKITA TOOLS

		List	Sale
BO4510	Sander	79	43
9900B	3"x 21" belt sander	198	119
9924B	3"x 24" belt sander	189	130
9924DB	3"x 24" b/sand. w/bag	214	130
9035	⅓ sheet finish sander	79	48
9045B	½ sheet finish sander	156	90
9045N	¼ sht fin. sand. w/bag	158	105
4200N	4⅜ circ. saw 7.5 amp	152	93
5008NB	8¼ circ. saw 13 amp	178	105
5201NA	10¼ circ. saw 12 amp	348	215
4300BV	v/sp jig saw 3.5 amp	192	120
4301BV	orb v/sp jig saw 3.5 amp	208	125
JR3000WL	2 sp recip saw w/case	168	120
JR3000V	vs recip saw w/case	178	120

★★★ MAKITA TOOLS ★★★
SPECIAL PROMOTION

LS1000	New 10" Mitre Box	348	198
792210-7A	Carbide Bld for above	45	31
9820-2	Blade Sharpener	244	159
741074-9	60 (coarse) Grdg Whl	33	23
741070-7	1000 (med) Grdg Whl	30	22
741071-5	6000 (fine) Grdg Whl	43	30

1900BW	3¼" planer w/case	154	92
1100HD	3¼" planer w/case	278	160
3608BK	¾ hp router w/case	132	85
3601B	1⅜ hp router	168	115
3700B	½ hp trimmer 28,000 rpm	124	82
BO4530	6" Round Sander	84	48
DA3000	3/8" angle drill	158	105
DP4700	½ v/sp w/rev" 4.8 amp	154	92
HP1030W	3/8 v.s.r. hammer drill w/case	145	98
6300LR	½" angle drill w/rev.	229	152
8419BB-2W	½" s.sp. hammer drill w/case	238	150
GV5000	Disc Sander	79	53
6800DB	2500 rpm 3.5 amp	123	79
6800DBV	0-2500 rpm 3.5 amp	133	89
6801DB	4000 rpm 3.5 amp	123	79
6801DBV	0-4000 rpm 3.5	133	89
2030n	12" planer/jointer	2160	1475
2040	15⅝" planer	1780	1195
1805B	6⅛" planer kit w/case	416	265
JV1600	var. speed jig saw	145	89
JV2000	var. speed orb. jig saw	165	100
5005BA	5½" circular saw 8 amp. with brake	154	98
9207SPC	7" var/speed electronic sander/polisher	209	130
9303BH	4½" sander-grinder kit	146	95
4014NV	var/speed blower	128	79

DOWL JIGS

MODEL	DOWL-IT	List	Sale
1000		32.95	23.95
2000		42.95	32.95

RECORD VICES

52D	7" jaw - 8" Opening	69.00	51.00
52½D	9" Jaw - 13" Opening	92.00	76.00

3M Co. Respirators

#8500	Box of 50 - 10.00-Case of 600	89.00
#8560	Box of 15 - 13.50-Case of 180	135.00

buying from Seven Corners Hdw. . . . is a good Rule to follow.

Model	STANLEY	List	Sale
33-116	PL-316 3/4" x16" Rule	15.95	7.50
33-320	PL-320 3/4" x 20C Rule	16.95	7.95
33-425	PL-425 1" x 25' Rule	18.95	8.95
33-430	PL-430 1" x 30' Rule	20.95	9.95

1986 TOOL CATALOG AVAILABLE
Call Toll-Free 1-800-328-0457 — In Minnesota Call (612) 224-4859
4 WAYS TO BUY: CHECK — MONEY ORDER — VISA — MASTERCARD
SEVEN CORNERS ACE HDW. Inc.
216 West 7th St. · St. Paul, MN 55102 · Est. 1933

TOOLS ON SALE™
AMERICA'S LOWEST PRICED TOOLS
★ PLUS — FREE FREIGHT ★
ON EVERY ITEM

SAW-ATHON by PORTER CABLE

#314	4½" Trim Saw	
List 180		SALE 109
#346-1	6½" Top Hdle	
List 161		SALE 100
#617	7¼" Push Hdle	
List 166		SALE 96
#587	7¼" Speedtronic	
List 199		SALE 125
#315-1	7¼" Top Hdle	
List 166		SALE 96
#368-1	8¼" Top Hdle	
List 176		SALE 110

BELT SANDERS by PORTER CABLE

#363 — 4" x 24" w/o Bag
List - 280 Sale - 185
#362 — 4" x 24" w/Bag
List - 295 Sale -198
#503 — 3" x 24" w/Bag
List - 510 Sale - 350

▲DELTA
#34-410 — 10"
CONTRACTORS SAW
w/Stand & 1½ H.P. Motor
SPECIAL PRICE 679.00
FACTORY
REBATE..... 100.00
579.00
FREE DELIVERY TO
48 STATES

SUPER CORDLESS SPECIALS from BLACK & DECKER

Model	DRILL KITS	List	Sale
1930	3/8" rev/hi speed	165	110
1950	3/8" High Torque	165	110
5930	Reversible Hammer	179	120
1970	3/8 rev/hi torque screwdriver	179	120
1980	Rev/adj. clutch Scrudrill	179	120

BRAND NEW! SUPER SPECIALS from MILWAUKEE

		List	Sale
0214-1	3/8" c/less drive/drill Low 570°F - High 1000°F	159	109
8975	H.D. heat Gun, 11.6A	74	49
5920	belt sander 3x24 w/o bag	289	199
5925	belt sander 3x24 w/bag	309	215
5930	belt sander 4x24 w/o bag	299	209
5935	belt sander 4x24 w/bag	319	214

PORTER-CABLE = NEW ITEMS +

Model		List	Sale
655	Drywall Driver 0-4000 Rev	115	85
367	3¼" Plane 6.5A	170	115
5009	Mortise & Tenon Jig	50	34
351	3" x21" Belt Sander	189	125
352	3" x21" Belt Sndr w/bag	199	135
9810	Cordless Screwdrvr kit	175	115
320	Abrasibe Plane 3A	129	91

★★ ROUTER RIOT ★★ by PORTER-CABLE

Model		List	Sale
100	7/7 H.P. 6.5 amp	141	98
630	1 H.P. 6.8 amp	150	100
690	1½ H.P. 8 amp	194	130
691	1½ H.P. D-Hdle 8 amp	218	145
536	1½ H.P. Speedmatic Double Handle	300	190
537	1½ H.P. Speedmatic Double Handle	315	215
520	3 H.P. Production	460	270
518	3 H.P. Micropressor 5-sp	490	345

TRIMMERS BY PORTER-CABLE

309	3.8 amp laminate trimmer	130	90
310	3.8 amp laminate trimmer	190	135
312	offset base laminate trim	205	140
319	tilt-base laminate trim	215	150

★ X-TRA SPECIALS ★

MAKITA TOOLS

		List	Sale
6010DL	C/less Drill w/flashlight-charger & case	162	90
DP3720	3/8 drill Rev. 0-1800 rpm	90	47
6510LVR	3/8 drill Rev. 0-1500 rpm	116	67
6013BR	½" Drill rev. 6 amp	174	100
5402A	16" Circular Saw-12 amp	468	315
2414	14" Cut Off Saw-13 amp	282	169
3612BR	3 HP Plunge Router	286	175
9401	4x24 belt Sander w/bag	248	160

PORTER-CABLE

		List	Sale
696	H.D. Shaper Table	150	105
695	H.D. 1½ hp Router/Shaper	278	190
399	Drywall Cut-Out Unit	100	70
736	V/Speed *Speedtronic* Band Saw	450	330
7564	½" X.H.D. Drill 8 amp	205	145

BOSCH TOOLS

		List	Sale
1581VS	Top Handle Jig Saw	225	126
1582VS	Barrel Grip Jig Saw	126	118
1604	1¾ H.P. Router	199	118
1942	Heat Gun 650°-900°	99	85
1272	3x24" Belt Sander	259	159
1272D	3x24" Belt Sander w/bag	274	169
1273	4x24" Belt Sander	274	169
1273D	4x24 Belt Sander w/bag	289	179

▲DELTA

		List	Sale
34-010	Motorized Mitre-Box	231	149

★ NEW LOW PRICES ★
PONY CLAMP FIXTURES

Model		List	Sale	Lots of 12
#50	for ¾" Black Pipe	11.23	7.15	79.00
#52	for ½" Black Pipe	9.36	6.10	67.50

JORGENSEN HAND SCREWS

Model	Jaw Length	Open Cap.	List	Sale	Box of 6
#5/0	4"	2"	11.59	7.25	39.15
#4/0	5"	2½"	12.45	8.10	43.75
#3/0	6"	3"	13.36	8.50	45.95
#2/0	7"	3½"	14.36	8.95	48.35
#0	8"	4½"	15.97	9.95	53.75
#1	10"	6"	18.25	11.35	61.25
#2	12"	8½"	20.94	13.60	72.95
#3	14"	10"	26.56	16.75	91.35
#4	16"	12"	34.55	23.75	128.25

JORGENSEN BAR CLAMPS

STYLE 37 — 2½" Throat ¼" x ¾"

Model	Jaw Length	List	Sale	Lots of 6
#3706	6"	7.88	5.50	29.70
#3712	12"	8.73	5.95	32.13
#3718	18"	9.64	6.95	37.53
#3724	24"	10.54	7.35	39.69
#3730	30"	11.76	8.25	44.55
#3736	36"	12.85	8.95	48.33

Who Has The Saws That Cut It Across The Board?
BLACK & DECKER of course!!!

Model	WORM DRIVE SAWS	List	Sale
3050	6½" 12 amp - 4600 rpm	247	169
3051	7¼" 13 amp - 4300 rpm	232	149
3052	8¼" 13 amp - 4300 rpm	247	169
	SUPER SAWCATS		
3047-09	7¼" w/brake - 12.5 amp	226	149
3048-09	8¼" w/brake - 13 amp	240	155
	BUILDERS SAW CAT		
3030	7¼" 13 amp - 5800 rpm	155	100
3035	8¼" 13 amp - 5800 rpm	175	125
3034	7¼" 13 amp - 5800 rpm	162	115
3033	6½" 13 amp - 5800 rpm	162	115
	JIG SAWS		
3157-10	var/sp orb action d/hdl	174	115
3153-10	var/speed 4.5A 0-3100	158	105
3159-10	2/sp orb action barrel grip	178	120
	CUT SAW KITS		
3103	2 sp 6 amp-2400 strokes	163	100
3105	v/sp 6 amp-2300 strokes	170	110
3107	v/sp orb 6A 0-2300 strokes	183	119
4300	Drill Bit Sharpener	289	205
1321	½" drill 450 rpm 6 amp	175	115
4010	Palm Sander	80	48
4015	½ Sheet Finish Sander	160	105
	DRYWALL GUNS		
2034	v.s.r. 0-4000 rpm	121	79
2037	v.s.r. 0-4000 rpm	139	89

"Door Openers" from MAKITA

9501B	4" Grinder Kit	119	55
2708	8¼" Table Saw	348	199
5007NB	7¼" Circ. Saw	158	94

MILWAUKEE BUY OF THE YEAR

Model 6365 — 7¼" Circular Saw
List $159.00 Sale $99.00
Lots of 3 — $289.00

***Brand New* · PORTER CABLE**
Model 7548 Top Hdle Jig Saw
LIST 199 — SALE 129.95
Model 7648 Barrel Jig Saw
LIST 199 — SALE 129.95

PORTER-CABLE

		List	Sale
9548	HD v/s bayonet saw w/case	255	169
9627	2 sp. tiger saw kit 8 amp	193	130
9629	V/sp. tiger saw kit 8 amp	204	135
505	H.D. ½ sheet finish/sander	175	100
330	spd bloc sander ¼ sheet sz	87	54
304	Professional 7" disc sander	169	120
305	Professional 7" polisher	169	120
7511	3/8" xtrahvy v/s drill 5.2 amp	164	115
7554	½" xtra hvy drill 8 amp	210	150
9652	Versa-Plane Kit	419	285
9118	Porta Plane Kit	289	190
	DRYWALL SHOOTERS		
7544	5.2 amp — 2500 rpm	158	105
7545	5.2 amp — 0-2500 rpm	158	105

AEG POWER TOOLS

Model		List	Sale
EZ 501	C/less Scrwdrvr **Brand New**	59	35
EZ 502	C/less Scrwdrvr-190 rpm	98	52
EZ 505	C/less Drill/Driver	139	79
EZ 506	C/less Electronic Dri/Drvr	159	94
EZ 581	C/less Caulk Gun var/sp	179	106
SCR1E	Drywall Screwgun 0-2000	125	74
SCR11E	Drywall Screwgun 0-4000	125	74
BE8RL	3/8" var/sp drill 3.8 amp rev	86	51
BE10RL	3/8" var/sp drill 5 amp rev	125	74
SBE401RL	3/8" Ham Drill v/sp h.d.	88	52
SE2E13RL	½" Ham Drill 2 sp h.d.	169	101
TC25E	Tech Driver v/sp 5 amp	150	89
PC70	7¼" Circular Saw 12 amp	157	93
VS130	Orb Sndr 20,000 OPM 1/3 sh	75	48
VS260	Orb Sndr 25,000 OPM 1/2 sh	156	88
VSS260	Orb Sndr 25,000 OPM w/bag	189	118
Hbse75S	Belt Sander v/sp 3" x 21"	199	118
BSPE60	Jig Saw Orb v/sp 4.6A w/case	214	127
RSK600	Recip Orb Saw 10 amp	229	136

ROTARY HAMMERS

		List	Sale
PHE 16RL	3.8 amp 5/8" capacity in concrete	269	175
PH 210	5.2 amp ¾" capacity in concrete	398	260
PHE 20	Same as above — except var/sp 0-750	418	270
PHD 26	6.3 amp 1" capacity in concrete	495	320
PH 38	7.5 amp 1⅛" capacity in concrete	549	355

All above complete with cases

SKIL TOOLS

		List	Sale
551	5½" Circ. saw 6.5A	99	73
77	7¼" Worm Saw	240	135
367	6½" Worm Saw	239	135
825	8¼" Worm Saw	270	165
807	7¼" Skilsaw 13A-Super	153	100
808	8¼" Skilsaw 13A-Super	172	110
2016-02	3/8" Cordless Drill complete W/Charger, Case & 2 batteries	199	95

Events

We will be glad to list as many events of interest to woodworkers as space permits. Listings are free and may include shows, fairs, competitions, workshops and demonstrations. The issue closing date is the 1st of the 2nd month preceding the cover date (7/1 for September/October; 9/1 for November/December, etc.). Please address announcements to the Events Department.

New England:

Classes at the Brookfield Craft Center include: Woodworking, Sept. 17 - Nov. 5; Woodworking Projects, Oct. 25 - 26. For information, write to the center at P.O. Box 122, Brookfield, CT 06804.

Woodworking World — The New York Show, Sept. 26 - 28, Sheraton Hotel and Towers, Stamford, CT.

The Heartwood Owner-Builder School conducts various classes in woodworking. For Fall schedule, write to the school at Johnson Road, Washington, MA 01235.

Middle Atlantic:

Dr. Tage Frid will be conducting a seminar on making furniture and woodworking jigs, Oct. 18. Contact: Dr. Gabriel Longo, Brookdale Community College, Lincroft, NJ. Phone: (201) 842-1900, ext. 586.

The Hudson Valley Woodcarvers Show will be held Oct. 11 at the Hyde Park Dutch Reformed Church, Hyde Park, NY.

Seminar Oct. 18 on thin-walled hollow form vessels conducted by woodturner David Ellsworth. Upcoming seminars include Windsor Chairmaking, dovetailing, dovetail jigs, and sharpening. For a complete list of seminars and tool demonstrations, write: Olde Mill Cabinet Shoppe, RD 3 Box 547A, York, PA 17402.

East North Central:

Woodworking World — The Chicago Show, Oct. 17 - 19, O'Hare Expo Center, Rosemont, IL.

Chautauqua of the Arts, craft fair and exhibition, Sept. 27 - 28, Madison, IN.

Metro-Detroit Woodworking Show, Sept. 26 - 28, Michigan Exposition and Fairgrounds, Detroit, MI.

American Contemporary Works in Wood national juried exhibition, Sept. 13 - Oct. 12, at the Dairy Barn Southeastern Ohio Cultural Arts Center, Athens, OH.

The Working With Wood Show, Sept. 19 - 21, Dayton Convention Center, Dayton, OH. For information, call: (408) 973-0447.

West North Central:

Twin Cities Woodworking Show, Oct. 11 - 12, Minneapolis Auditorium and Convention Hall, Minneapolis, MN.

The Woodworkers' Store, Minneapolis, MN will be conducting workshops in Sharpening, Veneering, and Marquetry during October. Call (612) 822-3338.

South Atlantic:

Application deadline for a juried craft show in Washington, DC sponsored by the Smithsonian Institute is Oct. 10. For entry forms, call (202) 357-4000.

The Creative Arts Guild's 23rd Festival of the Arts and Crafts, Sept. 27 - 28, Dalton, GA.

A Country Fair Weekend sponsored by the Baltimore Museum of Art and the Maryland Historical Society, Oct. 10 - 12 at the Baltimore Convention Center.

The Southern Highland Handicraft Guild's 39th Annual Fair, Oct. 17 - 19, Asheville Civic Center, Asheville, NC.

Course in functional and sculptural woodworking, instructor Jon Wood, Oct. 6 - Nov. 28. Write to the Penland School, Penland, NC 28765-0037. Phone: (704) 765-2359.

The Waterford Foundation's Homes Tour and Crafts Fair, Oct. 3 - 5, Waterford, VA.

East South Central:

Competition sponsored by the LoHo Gallery: "Build a Better Box" for boxes crafted in any medium. Open to residents of KY, IN, OH, IL, WV, MI, PA. Deadline for entries Sept. 22 - 29. Exhibit Oct. 6 - Nov. 6. Write: LoHo Ltd., 414 Baxter Ave., Louisville, KY 40204.

Mountain:

The Working With Wood Show, Oct. 24 - 26, Phoenix Civic Plaza, Phoenix, AZ. For information, call: (408) 973-0447.

"The Art of Crafts" — Denver Art Museum's 3rd Annual juried sale and exhibition, Sept. 26 - 28, Denver, CO.

Pacific:

The Oregon School of Arts & Crafts conducts Individualized Study Programs in Woodworking. For information, contact Jeffrey McCaffrey, 8245 S.W. Barnes Rd., Portland, OR 97225. Phone: (503) 297-5544.

Handmade Furniture Show sponsored by the World Forestry Center, Oct. 25 - 26, Portland, OR.

The Western Washington Woodworking Show, Oct. 31 - Nov. 2, Seattle Center, Exposition Hall, Seattle, WA.

Workshop Income

Are Your Prices Competitive?

By Brian T. Jefferson

The first step in determining overall market competition is to do a survey of what similar products are selling for. What you want to determine is the average sales price for a product similar to the one you are making.

Let's take wooden toys as an example. If you make a small wooden car and your research indicates that the average retail price for the same size and quality car is $6, that is your market price.

Your research should answer one question: *Can you produce an equal product at the current retail selling price and make a profit?* Keep in mind that most new product ideas never make it to the marketplace, so it's better to find out in the initial stages than after you have invested thousands of dollars.

How do you find out if you can make an item at a profit, assuming you sell it at the current retail price? You first figure out what it costs you to make the item, using the formula: Direct Cost plus Indirect Costs plus Labor equal Production Cost. Again, the wooden toy car is used as an example.

Computing Direct Costs

Begin by listing all the materials used to produce the car:

Wood	21¢
Wheels (4)	20¢
Dowels (for axles)	10¢
Sandpaper	2¢
String	6¢
Varnish	1¢
Total	60¢

The additional costs all come under the heading of overhead, or indirect costs, and include such things as: electricity, heat, office expenses, rent, advertising, travel, etc., and they can really add up.

Indirect Costs

A sample listing of the overhead expenses for a year might look like this:

Utilities	$ 1,200
Mortgage	5,400
Office Supplies	300
Advertising	2,000
Insurance	500
Taxes	2,800
Depreciation	1,200
Professional Services	450
Transportation	1,100
Meals away from home	1,200

Postage	300
Lodging	1,000
Misc.	250
Total	$17,700

Computing Labor Costs

The next step is to add labor costs to indirect costs to determine total operating costs per year.

Let's assume that our toymaker works 2,000 hours a year (40 hours per week for 50 weeks). His annual salary is $20,000, so his hourly wage is $10.

Adding the yearly indirect costs ($17,700) and the annual salary ($20,000), we get a yearly operating expense of $37,700. Dividing that by the number of hours worked, we see that it is costing our toymaker $18.85 an hour to stay in business. He can make 9 cars an hour, so each car is costing him $2.10 in operating costs. (In actuality, our toymaker can complete 12 cars an hour, but he knows from his records that ¼ of his studio time is devoted to non-production activities, such as packing, buying supplies, etc. He, therefore, multiplies his actual hourly production by .75 to get a more realistic production count.) If we add material costs of $.60 per car, we get a total production cost of $2.70 per car.

Our goal here is determining market profitability. Based on the analysis of the wooden car's production cost of $2.70 and a retail sales price of $6, the indication would be that this

It doesn't matter how long you have been a craftsman, you should always do a market price analysis for each new product you develop.

is a profitable item, at least in the retail market (remember that selling costs have not been computed yet). Obviously, this is a simplified version because you need to do a cost analysis of each item in your inventory to determine the profitability of your product line. But the process is the same as used in the car example.

What happens if some or all of your items are so expensive to make that you cannot sell them at the going rate and still make a profit? You have two choices: either don't make those items or reduce your production costs so that the items will be competitive and profitable. You may be able to buy your materials at a more reasonable cost, increase your production efficiency or lower your indirect costs, or . . .

You'll be able to figure that all out for yourself. Just be honest with the figures you use. It doesn't matter how long you have been a craftsman, you should always do a market price analysis for each new product you develop. You should know before you start production of any item whether or not it can compete effectively in the marketplace. WWJ

Our thanks to Timber Press for permission to exerpt this article from Mr. Jefferson's book, Profitable Crafts Marketing: A Complete Guide to Successful Selling. *It's available in paperback from your local bookstore (cost is $10.95) or it can be ordered direct by writing to: Madrona Publishers, P.O. Box 22667, Seattle, WA 98122 (cost is $11.95 postpaid).*

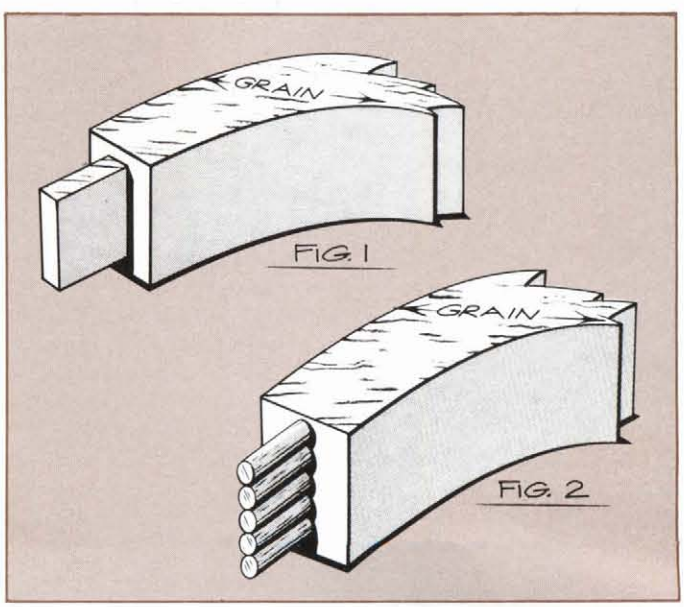
Restoring Antiques

Restoring a Rosewood Chair

by John W. Olson

I recently had the pleasure of repairing and restoring an antique Oriental rosewood chair. The chair is armless, with a straight back, and made of Asian rosewood. It is probably of Chinese origin — I'd guess Hong Kong or Shanghai as it is heavily built and not very graceful. It is typical of other chairs that I have restored that were undoubtedly Chinese.

All joints in the chair are pegged mortise and tenon, but the designer used poor judgment in the layout of the tenons in relation to the grain of the wood, and that created some problems. This was especially true in the tenons on the ends of the curved seat rails. The grain crosses the tenons at a sharp angle which makes an inherently weak joint (see Fig. 1). As a result, nearly all of the tenons in the seat rails of this chair had broken off. Also, one of the side seat rails was missing. Apparently the tenons on both ends had broken off and consequently this member had been lost.



Although the tenon design is not perfect, it probably served well in the environment within which the chair was originally constructed, one in which the humidity was quite high and reasonably stable. Wood, in its natural state, contains comparatively large amounts of moisture and retains upwards of 6 to 10 percent of that moisture even after being kiln dried and allowed to stabilize to ambient conditions. However, the environment of modern dwellings has a

detrimental effect on wooden furniture, especially antique furniture that has spent most of its life in conditions of higher humidity. After a few months in a modern home the wood dries, often changes shape and, over a period of time, becomes brittle. Oriental rosewood seems especially vulnerable to these conditions.

The owner did not wish to invest the time and money to obtain Asian rosewood to make a replacement side seat rail. Consequently, I band sawed a rail from a piece of well seasoned, hard yellow pine with a grain that approximated the other chair members. As it turned out, this was inconsequential as the finish all but obscured the grain of the wood. This plain pine rail restored the structural integrity of the chair and satisfied the owner's request for as economical a restoration as possible.

". . . patience is a virtue when you restore antique furniture."

The seat rails with the broken tenons presented another kind of problem. Because the wood was so brittle, it didn't seem feasible to mortise the end of the seat rail and replace the tenon with a plywood spline. Instead I decided to use several dowels side by side (Fig. 2). The holes for these dowels were drilled one at a time and a dowel glued in with epoxy. First though, I carefully washed out the hole with lacquer thinner. Rosewood is a very oily wood and to make a strong joint it is necessary to remove this oil from the surface layer of wood cells. Each glued dowel was allowed to dry for 24 hours before the next hole was drilled. This procedure preserved the structural integrity of the weak, brittle wood and prevented the possibility of the walls of the holes collapsing. Making a large square mortise or drilling all of the dowel holes at one time would have been a very risky venture. Consequently, this procedure extended over several days but, as I learned long ago, patience is a virtue when you restore antique furniture.

Reassembly was done using epoxy mixed with wood dust from the disk sander to make a paste just thick enough to act as a filler. To insure a good bond, all surfaces were washed with lacquer thinner and then coated with a thin cover of pure epoxy. Each rebuilt tenon was then covered with enough epoxy paste to fill the vacant spaces for a good strong joint. A thorough cleanup job was done before the epoxy set up, so that it would not be necessary to completely refinish the chair.

After the epoxy had hardened (about 24 hours later), any extra glue was shaped to a proper contour with sharp chisels and very fine sandpaper. This work was necessary only in those areas at and near the joints. For the most part, the chair was left as is. The new seat rail was stained to match the color of the chair and then sprayed with a tinted lacquer. A very small sable brush was used to touch up other areas that had suffered during the restoration or from previous hard usage. This was followed with a rubdown using 0000 steel wool and a good carnauba based furniture wax. Final polishing with a soft cloth left a lovely, soft, glowing patina. WWJ

ONLY $9.95 EACH...

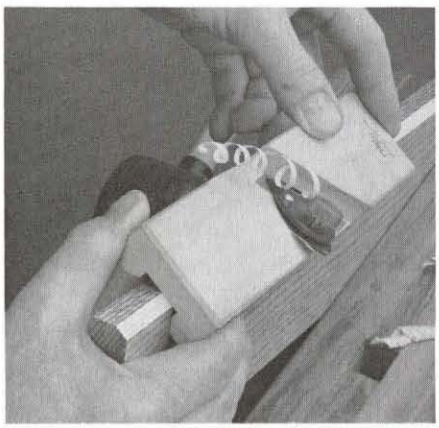
FREE! Stainless Steel Pocket Knife when you order 3 or more items

Flush Mounting
BENCH STOPS

Easy to install, easy to use. Just raise the jaw and press your workpiece against the teeth. Especially useful when positioned opposite a shoulder vise with built-in "dog". **#300-0004**

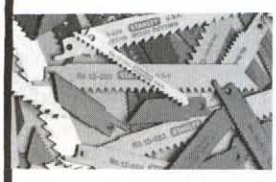
Our Indispensable
HONING GUIDE

Maintains the proper angle for accurately honing any chisel or plane blade up to 3" wide. Complete instructions included. **#103-0140**



Chamfering JOINTER PLANE

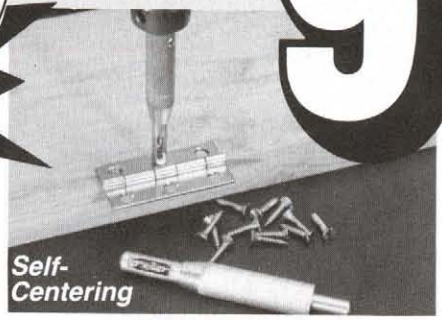
Built-in angles on either side of the 3/4" sole will put a 30° or 60° angle on any edge, accurately joint 3/4" boards. Uses readily available, replaceable breakaway blades (10 extras included). **#109-0410**



LIMITED QUANTITY

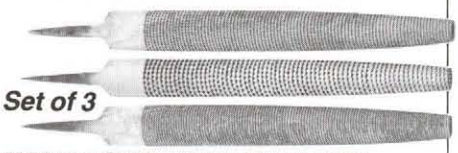
25 Reciprocating
SAW BLADES

25 assorted blades with 1/2" shanks, for cutting wood, plastics, metal. Made by Stanley to fit all recipro saw makes except WEN. Save 50% to 80% off regular retail.
***LESS THAN 40¢ A BLADE!* #117-1960**



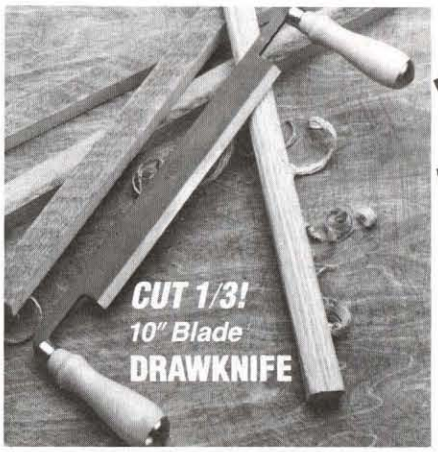
HINGE & BUTT DRILLS

For perfectly centered holes for hinges. 1/4" shanks. Set of 2, for #6, #8, #9 and #10 screws. **#200-2601**

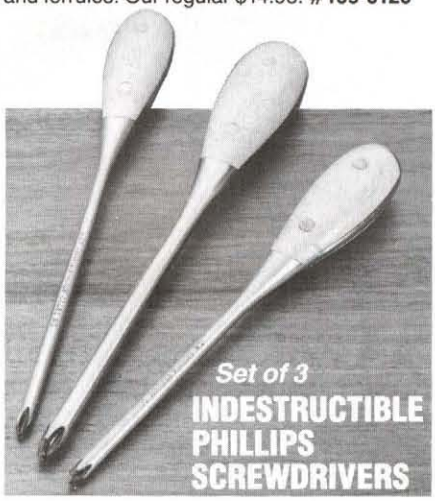


HALF ROUND WOOD RASPS

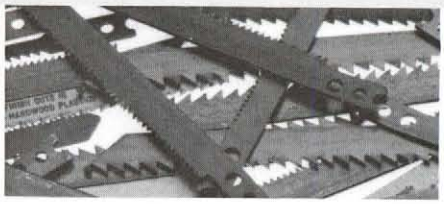
1 each Smooth, Medium and Coarse cut. An extraordinary value from China. **#106-0124**



Has a heavy straight blade for continuous use. Comfortable maple handles with steel caps and ferrules. Our regular $14.95. **#109-0120**



Companions to the 4 piece set. 6", 8" and 10" overall. #1, #2, #3 Phillips. **#102-0045**



45 Assorted
1/4" SHANK SABRE SAW BLADES

For cutting wood, metal, plastic. 60 assorted first quality blades, made in Switzerland and the U.S. Fit all popular sabre and jig saws. **#117-1999**
LIMITED QUANTITY

BRAD DRIVING PLIERS

Set brads into picture frames and moldings up to 3⅝" wide, 1¾" deep. Cushioned slide prevents marring. **#106-0010**

PAIR FORGED PLIERS

British made: Comfort Grips 6" heavy duty Diagonal Cutter 8" Lineman's
#117-2056

Reach where your hand can't. 7¾" aluminum shaft has a magnet on one end, a spring loaded screw holder on the other. For all Phillips and slotted screws. **#300-0015**

The blade and handle are a single forging, with a smooth, oval shaped hardwood grip riveted to each side of the handle for comfort. So tough you can hammer them like cold chisels. Set of 4: 6", 8", 10" and 12" long overall. **#102-0049**

SAVE UP TO 50%! MINIMUM ORDER: TWO ITEMS

22 Piece
PILOT DRILL SET

21 bits, to countersink, counterbore screws sizes 4 to 14. A depth stop is included so you can prevent countersinking if preferred on all but the smallest bits. Less than 70¢ a bit! You get bits for:

#4 & #5 screws	1/2", 5/8", 3/4", 1" long
#6 & #7 screws	5/8", 3/4", 1", 1¼" long
#8 & #9 screws	3/4", 1", 1¼", 1½", 2" long
#10 screws	1", 1¼", 1½", 2" long
#12 & #14 screws	1", 1¼", 1½", 2" long

#200-0125

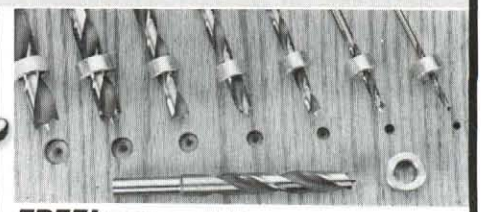
RATCHET TAP WRENCH

All inner mechanisms, ratchet and chuck are correctly heat treated and tempered. Chrome plated. Two jaw. Capacity ⅛"-⅜". **#300-0025**

FACTORY OVERRUN!

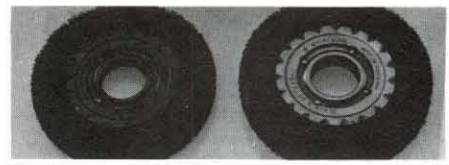
6-Piece **FILE SET**

Made to sell for far more. 10" Double Ended Saw File, 8" Cross Cut File (wedge shape, round back), 8" Mill Bastard File with 2 round edges, 7" X-Slim Taper, 8" x 3/16" Fine Cut Parallel Round File and a 4-in-1 10" Shoe Rasp (combination file and rasp). **#117-1160**



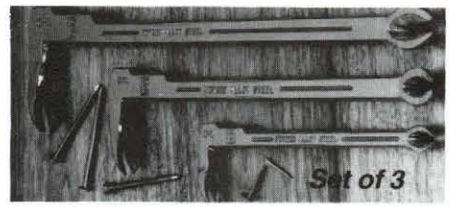
***FREE!** 7 Stop Collars*
14-PIECE DRILL & COLLAR SET

You get 7 drills, 7 stop collars for the price of the drills alone. Brad point bits for straight, accurate holes in wood with no skipping, no skating, no dancing. 1/8", 3/16", 1/4", 5/16", 3/8", 7/16" and 1/2" sizes. **#200-0060**



Pair Black and Decker **6" WIRE WHEELS**

Double thick; ½" bores; Coarse and fine. Industrial quality. **#117-0799**



CAT'S PAW NAIL PULLERS

Two thin, sharp claws on the end will withdraw small finishing nails. The rounded base minimizes marring. Exceptional value. **#105-0579**

Lightweight, Unbreakable
4" LOCKJAW VISE

Made of a virtually unbreakable space age alloy, with a patented, rear tilt jaw for holding irregularly shaped work. Specially configured 4" magnesium jaws. 3" jaw opening.
#300-0745
LIMITED QUANTITY

Set of 6
DENTAL INSTRUMENTS

First quality, stainless steel instruments. For modeling, probing, sculpturing and other delicate work. **#106-0007**

MINIMUM ORDER: TWO ITEMS

SATISFACTION GUARANTEED!

the Fine Tool Shops™

The Fine Tool Shops, Inc., Dept. **WJ96**
20 Backus Avenue, P.O. Box 1262, Danbury, CT 06813

Ship to _____

Address _____

City _____ State _____ Zip _____

CALL TOLL FREE
1-800-243-1037
In Connecticut
797-0772

☐ I've ordered three or more items. Include my FREE Stainless Steel Pocket Knife.

Fill in names, quantities and product numbers of items you are ordering.

Qty.	Item	Prod. #	Price ea.	Total
1	**Stainless Steel Pocket Knife**		**FREE! when you order 3 items or more**	
	☐ Check Enclosed		Subtotal	
	☐ Charge my ☐ Amer Express ☐ VISA ☐ MasterCard		Shipping/Handling	**$ 3.50**
	Account # _____		CT 7½% Sales Tax	
	Exp. Date _____		**TOTAL ENCLOSED**	

☐ Send your Full Color Tool Catalog – **FREE!**

The Beginning Woodworker

Basic Router Operations

Hand held router operations typically require some skill to master. If you are a beginner, carefully read and follow all manufacturer's instructions before starting. The router must be off and unplugged for all bit changes. Make certain that the bit is chucked fully and tightly, *never* set the router down while the bit is still turning, and never rest the router on the bit. Hold the router firmly with *both* hands when starting, and remember the bit must *not* be in contact with the wood when you switch the power on. Allow the router to come up to full speed before bringing the bit into contact with the wood.

Router bits depend on speed to cut, and consequently most routers turn in excess of 22,000 revolutions per minute (rpms). In order to maintain optimum cutting speed, the router must be carefully controlled. Knowing the correct direction in which to "feed" the router, and the proper speed at which to advance it are the two keys to clean and accurate cutting. Of course, elements such as bit characteristics, size, sharpness and condition, plus the type of cut, amount of stock removed, species of wood and grain direction will all impact on the router's operation.

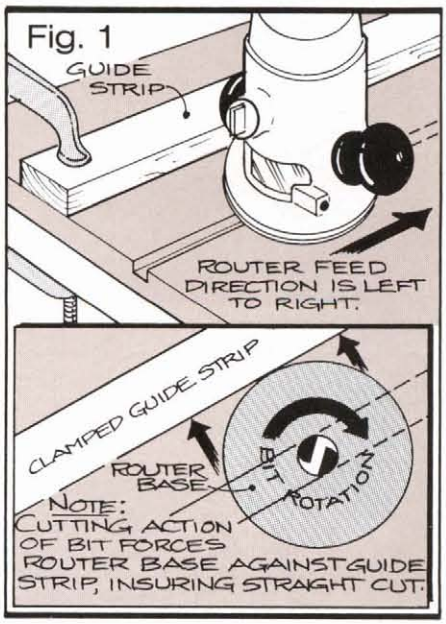
It is for these reasons that the router, more than any other power tool, is a device for which you must develop an instinct or "feel". After many uses, you will develop the ability to correctly vary the pressure and the rate of speed according to the type of wood being used and the specific requirements of an operation, resulting in the cleanest possible cut. If you are unfamiliar with a particular router bit or operation, several test cuts in a piece of scrap wood will serve as valuable practice.

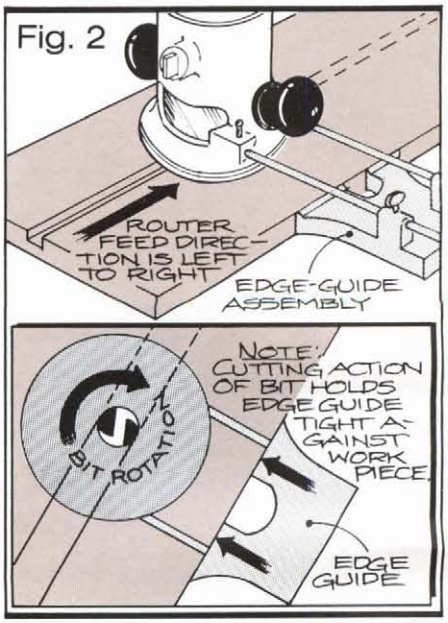
Although there is no substitute for hands-on experience, an explanation and understanding of the concepts behind both the direction of feed and the speed with which the router is advanced are essential.

Feed Direction

The best advice when routing either freehand or with a guide is to feed (advance) the router so the cutter tends to pull itself into the work. The bit always rotates in a clockwise direction when viewed from above the router, and feeding the router in a direction *against* the rotation of the bit will encourage the pulling tendency of the cutter. Since this may sound a little complicated, you may wish to refer to the following illustrations for a clearer understanding. Remember, the feed direction of the router is used to counter the force of the bit rotation.

With A Guide Strip: Fig. 1 shows the router being used with a clamped guide strip to cut a groove. Note that the

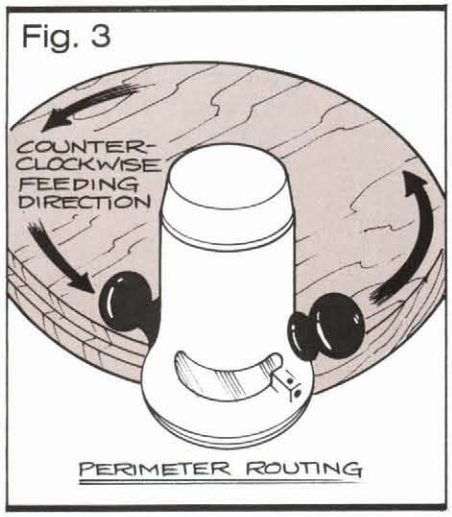




router is moved from left to right. This insures that the bit rotation holds the router base tight against the guide strip.

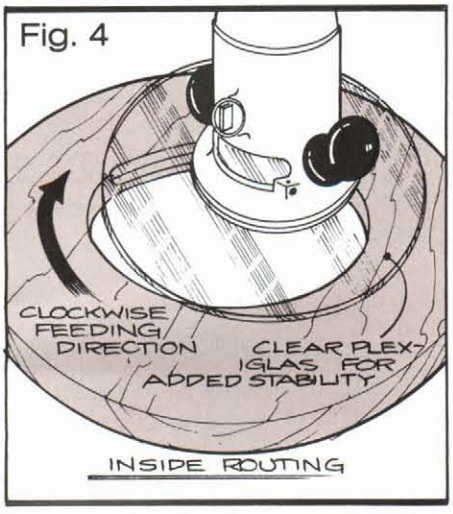
With The Edge-Guide: Fig. 2 shows the router being used in conjunction with the edge-guide attachment to rout a groove. As illustrated, by again feeding the router from left to right, the cutting action of the bit is utilized to help control the router, this time by forcing the edge-guide attachment up tight against the board edge.

Perimeter Routing: As a general rule of thumb, when edge-routing around an *outside* perimeter, either with the



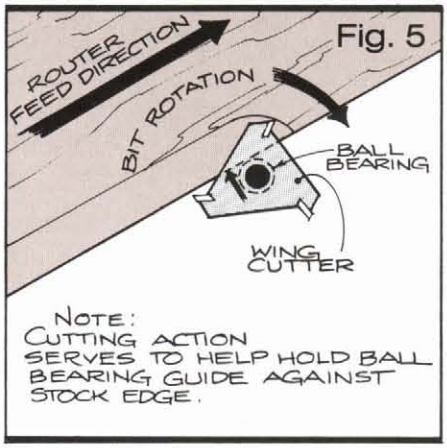
edge-guide or with a piloted or ball bearing guided bit, feed the router in a counterclockwise direction (Fig. 3).

When edge-routing an inside opening as shown in Fig. 4, you must move the router in a *clockwise* direction around the inside perimeter. With some router operations, such as routing wide recesses, the clear sub-

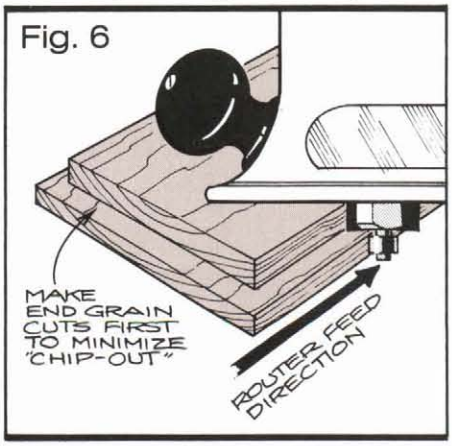


base seen in Fig. 4 can provide the router with much needed additional stability. Remove the existing base plate and replace it with an extra wide base cut from ¼ in. thick acrylic sheet (Plexiglas). The base can be sized as needed to span the recess or opening. Be sure to countersink the mounting screw holes in the Plexiglas base.

Fig. 5 illustrates the principle of how



the cutting action of the bit works to help control the router. Whether you are using a piloted or bearing-guided bit, an edge guide, or a guide bushing, and whether you are making an inside or an outside perimeter cut, this principle of the force of the bit helping to hold the router on line is the same. If you reversed the direction of the router, the bit would tend to grab and run the router along the edge while simultaneously throwing it out and away from the workpiece. This is why router direction is so important. *Tip:* When edge-routing around square or



rectangular boards, it is best to make end or cross-grain cuts first (Fig. 6). With this sequence the side cuts (with the grain) will serve to clean up any chip out or splintering in the corners.

Keep in mind that the general rules for feed direction are exactly that — general. With specialized operations or freehand routing, it is often necessary

(continued on next page)

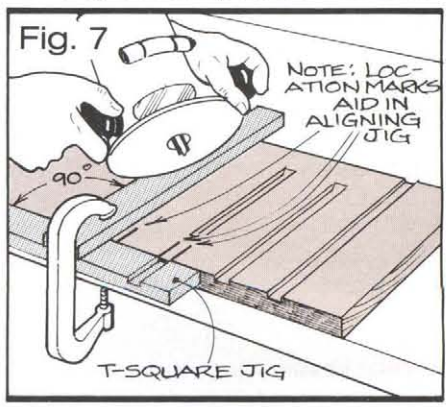
to rout in many directions. With some cuts, for instance, the bulk of the material will be removed by feeding the router in one direction, while a final cut to the line to clean up the cut will be made in the opposite direction.

Feed Rate

The rate of feed or the speed with which the router is advanced is determined by the power of the router, the species of wood, the bit characteristics, and the amount of material to be removed. The ideal rate of feed is that which is not so fast that it labors the router or results in too rough a cut, and not so slow that the bit burns or burnishes the wood. Except with the smallest cutters, there should be a slight constant load on the motor. When using large bits or attempting to remove considerable stock, several depth adjustments and/or passes with the router will be necessary. Attempting to force a bit could result in the bit snapping off or breaking. With experience, you will gain confidence in the various types of router operations, and in the use of the many different available router bits. Since, as noted earlier, so many variables can impact on any one cut or operation, the best advice is to practice in order to develop the confidence that enables the experienced woodworker to know by the sound and feel of the router what is right.

Common Router Operations

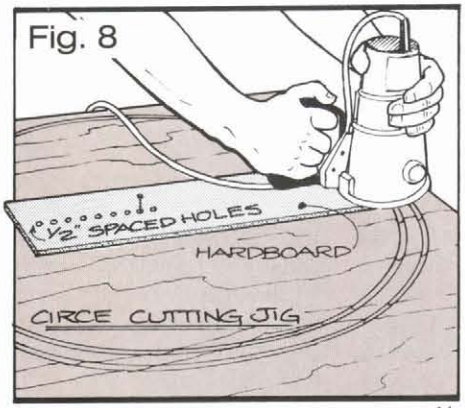
The router can be used for many of the same operations that might otherwise be done on the table saw. Its small size, light weight and maneuverability make it particularly useful when working on large boards that might be awkward, unwieldy or possibly unsafe to handle on the table saw. Many woodworkers prefer the router for its convenience and its relative safety. Additionally, router operations can be controlled to achieve an accuracy not



obtainable with larger tools.

Two frequently used router accessories are the T-square and circle or trammel jigs. Although these can be purchased, it is just as easy to make them in the shop. Fig. 7 shows a shop-built T-square jig being used to rout dadoes. Note how the cut is made through the head of the "T". This helps in positioning the T-square for succeeding cuts. If the length of the "T" leg exceeds 12 in., clamp it at both ends for stability. The T-square is most often used for making dadoes and other cross-grain cuts.

Fig. 8 shows a shop-built circle cutting jig, which is just a section of hardboard (Masonite) to which the router base is secured. A nail serves as the pivot point. Make two circle cutting jigs, a short one for small circles, and a long one for larger circles. With the



large jig, locate and pre-drill holes at ½ in. intervals for the nail pivot. This will enable you to cut different sized circles in one inch increments.

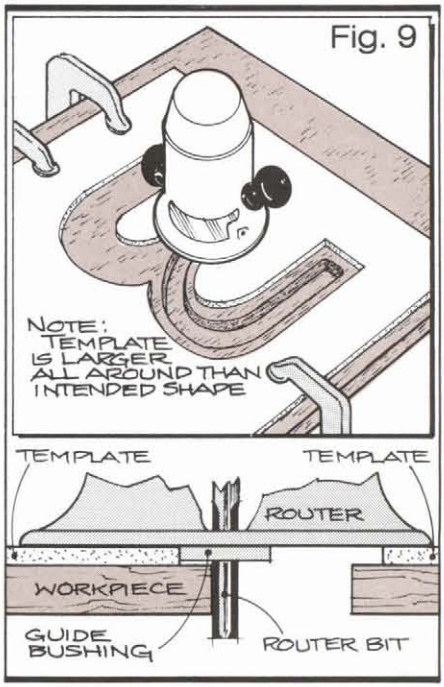
Accessories

The most used router accessory is the edge-guide, which is used to make grooves and dadoes, mold edges, and make decorative cuts parallel to or along the edge of the work. Fig. 2 shows the edge-guide being used. You may wish to screw extension strips to the edge-guide to lengthen the contact area and thereby provide the router with additional stability. Other popular router accessories include the slot cutting guide, which is used to rout parallel grooves, and the guide bushing set.

Guide bushing accessories enable the router to be used with various templates (either commercial or shop-made) to reproduce identical parts, or to make exact duplicate cuts again and again. Templates are especially important when making items on a production basis. Fig. 9 illustrates how the router is

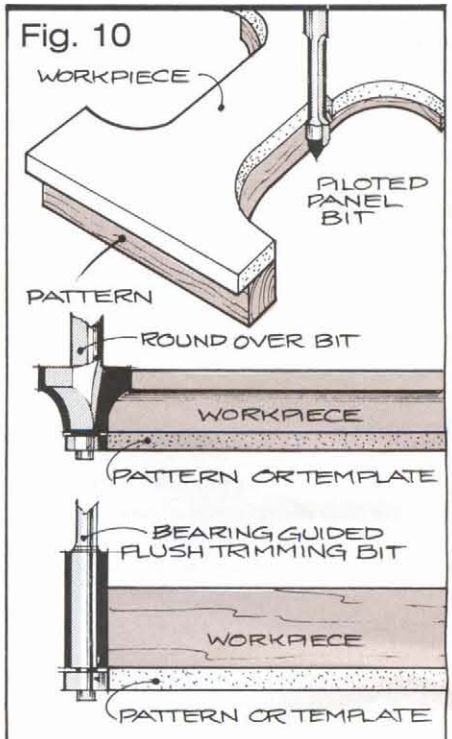
(continued on next page)

used with a template, and includes a cross-sectional view detailing the template, bit and guide bushing. The size or diameter of the router bit will determine the size of the guide bushing,



which in turn will determine how much larger all around the template must be made to achieve the desired final cut. Although you may purchase letter and number template sets, making your own templates can open up an infinite number of creative possibilities and applications for the router.

Ball bearing guided or piloted



molding bits, straight trimming bits, and panel cutting bits can also be used in conjunction with pre-made patterns. Fig. 10 shows various applications. Remember that with these bits, the pattern or template is made the same size as the finished piece.

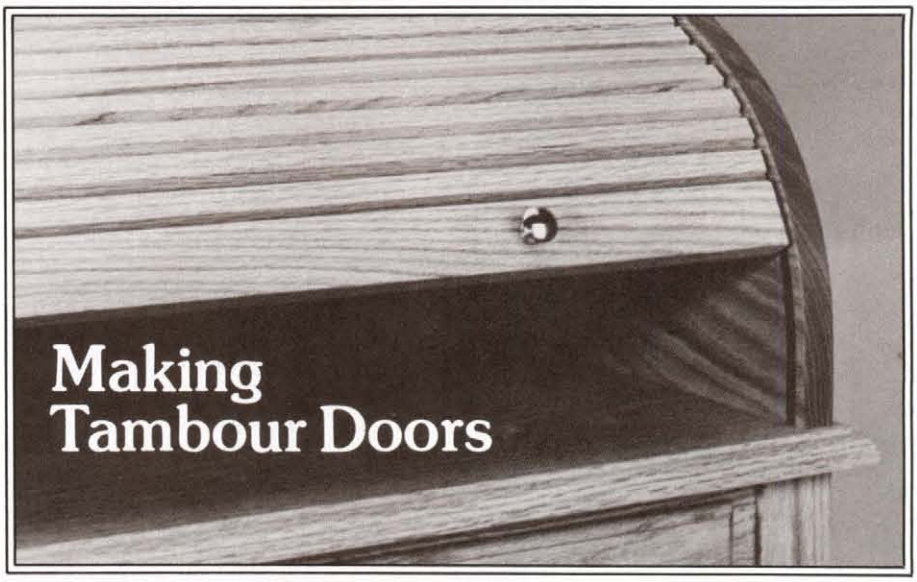
Dovetail cutting fixtures are without doubt one of the most often purchased router accessories. These fixtures are essentially guides enabling the router to cut accurately spaced mating tails and pins. The less expensive dovetail fixtures are not adjustable and provide a pattern for cutting only one size dovetail. The better fixtures are adjustable, and although they too are nothing more than a pattern, their adjustable feature permits the user to creatively space the dovetails, and alter their size to imitate the "hand cut" look. Upon purchasing a commercial dovetail fixture, thoroughly read the manufacturer's instructions, since different fixtures will have different directions. It is advisable to first become familiar with the fixture by testing it out on some scrap wood before committing it to your project stock.

Conclusion

There can be little doubt as to why the router has so quickly become one of the two most popular woodworking tools, second only to the table saw. Tremendous versatility means that it can be used for everything from cutting dadoes, rabbets and grooves in basic carcase construction, to making dovetails for boxes or drawers, to routing letters and repetitive carving with templates, to freehand and purely creative uses. It can cut and mold circles and irregular shapes, mortise, rout recesses, dress up ordinary pieces with a lovely decorative edge, rout for inlays and inserts, chamfer, incise, mold and even cut spline grooves. The various accessories, dovetail fixtures, guides, bushings, bearing-guided and piloted bits all contribute their share of possibilities. Special laminate bits enable the router to be used for work with plastic laminates, and the powerful plunge routers open up even more creative opportunities. There are special jigs and fixtures — among them the pantograph and router lathe — which can be used for duplicate carving, fluting, threading, and other unusual applications. Indeed, woodworkers seem to be forever dreaming up new and unique uses for their routers. WWJ

Next Issue: The Router Table

Special Techniques



Making Tambour Doors

The tambour is one of those special elements that make woodworking so fascinating. Rare indeed is the little boy or girl who does not wonder at the way the tambour of grandpa's rolltop desk works and where it disappears to. Indeed, watching as a well-fitted tambour top or front snakes effortlessly along the hidden grooves can be intriguing, even for adults.

The key words, of course, are "well-fitted". Trying to deal with a tambour that is too tight, too loose, or warped, and that consequently catches, sticks, drags, jams sideways, gets frozen in place, or pops out of its grooves is infinitely frustrating. Although the tambour has been widely used in many different types of furniture ever since its origin in 17th century France, it is every bit as fickle now as it was then. Getting the tambour door right requires careful planning and attention to detail.

Design

There are two specific types of tambour construction: that which is joined by wires, and the fabric backed variety. Although the wired style allows the back of the tambour to be exposed, the fabric backed tambour is better suited to home workshop construction, and we will concentrate on this. The illustrations that accompany this article show the tambour top of the rolltop desk project starting on page 32.

The design of the piece of furniture, the size and shape of the individual tambours, and the size, depth, profile and curve or radius of the tracking groove are all critical elements whose interdependent nature requires that each be precisely worked out and developed with respect to the other.

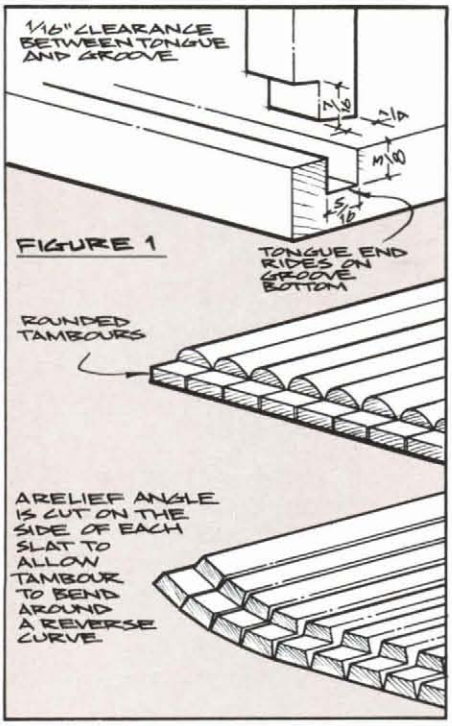
The Carcase

A strong, stable, well constructed carcase is important since the parts into which the tambour grooves are cut must be absolutely rigid and parallel. Remember that you will probably have to design in a false back (or sides for a vertical tambour) both to isolate the tambour from the contents of the case, and to conceal the fabric side from view when the tambour is open.

The Tracking Grooves

The tracking grooves must be layed out with respect to the radius that the tambour can make without binding. The groove must also be layed out so that the length of the tambour when closed fills the required space, and yet retracts as needed when opened. You will note the tambour groove in the desk is layed out so that, when open, the tambour stops one tambour slat shy of the handle. When laying out for the groove one must also consider the weight of the tambour. The groove should at least partially balance the tambour weight between opening and closing, so the tambour does not fall back down when fully opened or require too great an effort to control while opening or closing.

As a general rule for size, tracking grooves should fall within a range



from 3/16 in. to 3/8 in. wide, with the depth dimension usually slightly greater than the width. The groove for the desk is 3/8 in. deep by 5/16 in. wide.

The Tambours

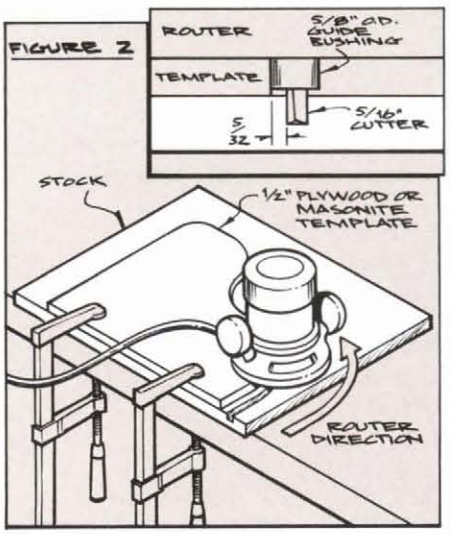
The individual tambours can be made in a variety of shapes, from purely rectangular to half round. The shape of the tambours will be dictated by the general design of the piece, and by factors such as whether or not a reverse curve has been incorporated into the tracking groove. If such is the case, the tambours must have a relief cut on either side sufficient to accommodate whatever the reverse curve may be.

Nearly all tambours are made with a shoulder on the exposed side which serves to conceal the tracking groove. The tambour tongue is typically rectangular or slightly wider than it is thick. Fig. 1 shows various tambours and a detail of a tracking groove. The final tambour length is just slightly less than the actual groove-to-groove dimension. Although on the desk we show a 33¾ in. total tambour length, the actual length will be about 1/32 in. less to provide clearance. The tambour shoulders are 7/16 in. providing 1/16 in. clearance on either side so the shoulders do not scuff the inside of the case sides. The tambour tongue thickness of ¼ in. allows the tambour to pass freely through the various curves in the 5/16 in. wide tracking groove.

Although many simple tambours can be worked out on paper, we strongly recommend making test mock-ups of any unusual or tightly radiused designs. The mock-up need only be of a small section, but it will insure that the design is feasible. After the carcase has been built, it is too late for a design flaw discovery. We used a mock-up to first test the tambours in the desk.

Routing the Tracking Grooves

After laying out your design, you will need to construct a template as a guide in making the tracking groove. Size the template to accommodate a specific guide bushing and the bit you will use. As shown in Fig. 2, our ½ in. thick plywood template is sized 5/32 in. smaller than the inside groove profile and is used with a 5/8 outside diameter guide bushing and the 5/16 in. diameter



straight cutter. As you will note from the Fig. 2 illustration, the router is moved *counterclockwise* around the perimeter of the template. Naturally, for the opposite or left side groove, the counterclockwise router motion must start at the *back end* of the tracking groove. Also note that we rout the tracking groove *before* cutting the carcase sides to shape. This way the final profile of the sides can be cut exactly parallel to the tracking grooves. Remember, make your plywood or Masonite template very carefully, since the tracking grooves will ultimately reflect every little hump or inconsistency in the template. The template must be accurately located and clamped to the sides so that both tracking grooves are exact mirror images of each other and precisely parallel to one and other.

Since it is best that the actual router cuts be as smooth as possible, you do not want to hog out too much stock or labor the router. We used four depth settings to achieve our final 3/8 in. tracking groove depth.

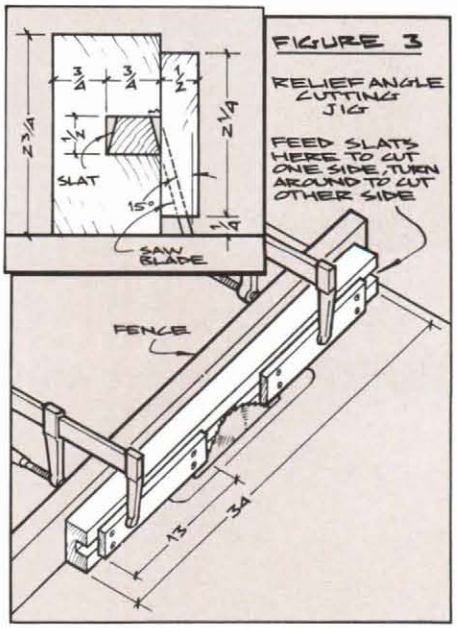
Once the routing is complete, a dowel wrapped with sandpaper can be used to clean out and smooth the grooves. Prefinish the inside surfaces, wax the grooves with paraffin, and assemble the case *before* making the individual tambours. Make certain that *no* glue gets into the grooves, of course.

Making the Tambours

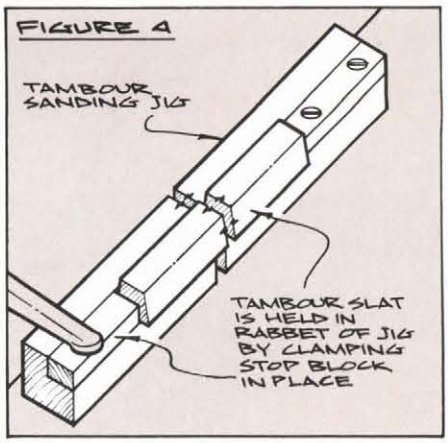
Start with the tambours somewhat longer and wider than the intended final length. We recommend cutting about 30 percent more tambours than you actually require, since some will inevitably have to be discarded due to warping.

After flattening and milling stock to achieve final tambour thickness, allow the boards from which you will rip the individual tambours to acclimate. Then rip the tambours to final width, sticker, and allow to dry for at least 24 hours. Discard any pieces that have warped, twisted, or are otherwise no longer straight.

Since our tracking groove incorporates a reverse curve, the tambours must have a relief angle cut into their sides. Although a router or shaper can be used for this, we chose the table saw. Fig. 3 shows a table saw jig for cutting this relief angle. Note that the saw blade must be set at a 15-degree



(continued on next page)

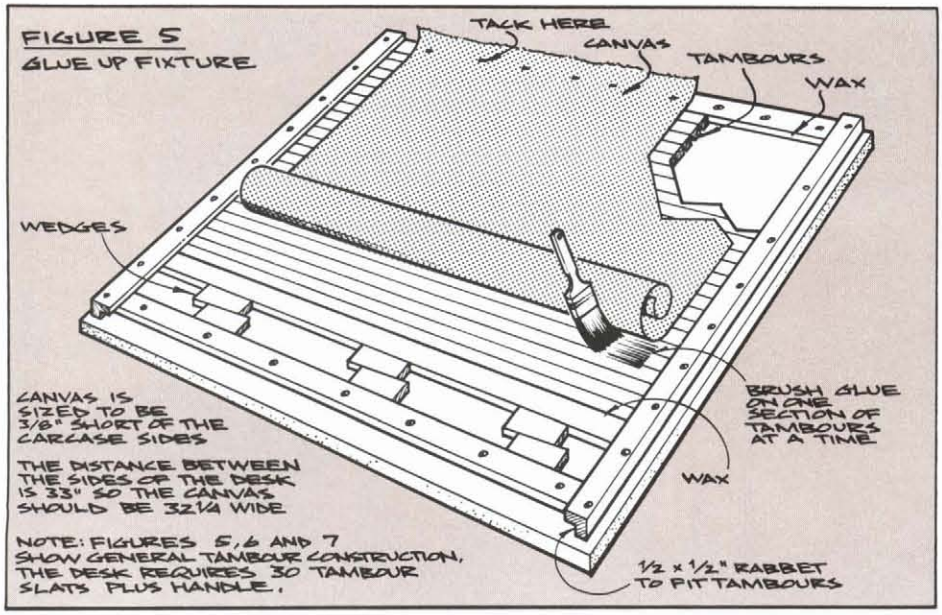


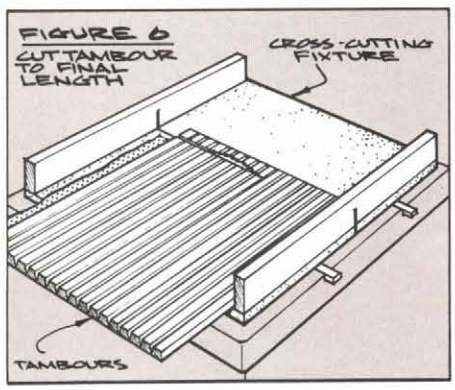
angle, the jig clamped to the saw table, and the blade then raised up slightly into the jig. Slide the tambour through to cut the first side, then reverse it and pass through to cut the opposite side. A second jig (Fig. 4) is made to hold each tambour for final sanding. Sand only the sides, since the face will be sanded after tambour glue-up.

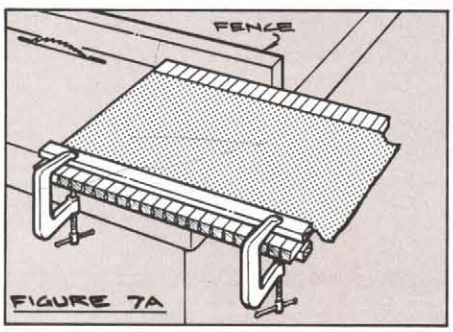
Now make a gluing fixture to hold the tambours in place while the fabric or canvas backing is applied to their back side. Our jig (Fig. 5) is made on a particleboard base. The rabbeted side boards must be positioned to hold the tambours tightly. Cut three end pieces the same thickness as the tambours to fit under the rabbet, and also cut a number of wedges, as shown. If your handle is to be glued up on the canvas, make provisions for it. Our handle is applied after, thereby simplifying the glue-up.

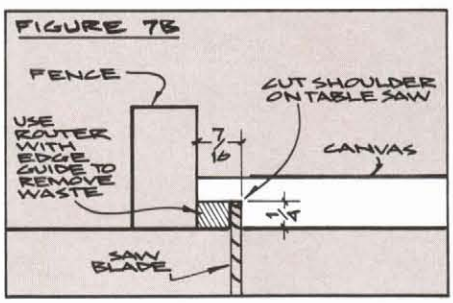
Wax the end pieces as indicated, wedge the tambours up tight, and screw the rabbeted side pieces down securely to hold them flush.

Next, apply the fabric back. We used 10 oz. art canvas, sold at most art supply stores. The canvas is sized to come up at least ⅜ in. short of either carcase side and should overhang several inches on the either end. The extra canvas at the front is needed to apply the handle section. We used melt-type hide glue, since it thickens quickly. Start at one end, positioning and lining up the canvas and tacking it to the end piece. Now brush the hot glue over the first section of three or four tambours, making certain coverage is complete. Press the canvas in place, using a block of wood to work out from the center, smoothing the canvas parallel to the tambours. Peel the canvas back slightly to expose the glue line, then brush glue onto the next three or four tambours, overlapping









the glue to insure total coverage. Continue this process until all the tambours are canvased over. Do *not* stretch the canvas perpendicular to the tambours. Also, do not brush glue on or work the canvas smooth perpendicular to the tambours, as this will tend to force the glue between the individual tambours. Allow the tambour to dry overnight in the glue-up fixture before removing it.

When completely dry, measure the groove-to-groove distance (narrowest point) and cut the tambour to final length on the table saw using the crosscutting fixture shown in Fig. 6. Next, clamp the tambour end that overhangs the table saw (Fig. 7A), set the blade depth, and establish the tongue shoulders as illustrated in Fig. 7B. The waste is cleaned out using the router, a straight bit, and the edge-guide. A sanding block is used to final sand and smooth the tambour tongue.

Test fit and adjust the tambour as necessary. Remember, the tambour shoulder should not rub on the case.

Last of all, make the handle. A variety of handle designs are acceptable. Some are applied while others feature a shaped or extended end tambour serving as a pull. Our handle, which is applied, utilizes a rabbet to conceal the canvas and accept a backing strip. The backing strip actually sandwiches the canvas in the handle rabbet. Location dowels in either end of the handle ride in the tracking grooves to keep it on line. Details of the handle appear in the desk project article.

Using paraffin, wax both the tambour tongues and the tracking grooves before final assembly. Final finish must also be applied before the tambour is mounted. It is best to leave the canvas unfinished for maximum life and flexibility. WWJ

Cabinetmakers' Supplies

As a service to our readers, ***The Woodworker's Journal*** periodically lists sources for various woodworking products. In this issue we are listing companies that specialize in mail-order sales of woodworking supplies, along with a code to indicate some of the products they carry. Code: hand tools (HT), power tools (PT), stationary equipment (SE), hardwoods (HW), veneers (V), hardware (H), clock parts (C), lamp parts (L), books (B), finishing products (F).

Conover Woodcraft Specialties 18125 Madison Road Dept. A88609 Parkman, OH 44080	HT, PT, SE 16 page catalog, $1.00
Constantine 2050 Eastchester Road Dept. 2044K Bronx, NY 10461	HT, PT, SE, HW, V, H, C, L, B, F 116 page catalog, $1.00
Craftsman Wood Service 1735 West Cortland Ct. Addison, IL 60101	HT, PT, HW, V, H, C, L, B, F 144 page catalog, $1.00
The Fine Tool Shops 20 Backus Avenue Dept. WWJ Danbury, CT 06810	HT, PT, B, F 64 page catalog, Free
Frog Tool Co., Ltd. 700 W. Jackson Blvd. Dept. FJX Chicago, IL 60606	HT, PT, H, B, F 108 page catalog, $2.50
Garrett Wade 161 Ave. of the Americas Dept. WWJ New York, NY 10013	HT, PT, SE, B, F 226 page catalog, $4.00
Lee Valley Tools, Ltd. 2680 Queensview Dr. Dept. 1WOODJ Ottawa, Ontario Canada K2B 8H6	HT, B, F 260 page catalog, $4.00
Shopsmith, Inc. 6640 Poe Ave. Dept. 513H Dayton, OH 45414	HT, PT, SE, B Catalog $4.00
Trend Lines 375 Beacham St. Chelsea, MA 02150-0999	HT, PT, SE, H, B, F 56 page catalog, $1.00
Woodcraft Supply Corp. 41 Atlantic Ave. P.O. Box 4000 Dept. WJ Woburn, MA 01888	HT, PT, SE, H, C, B, F 108 page catalog, Free
Woodline/The Japan Woodworker Dept. WJ1 1731 Clement Ave. Alameda, CA 94501	HT, PT, SE, HW, V, B, F 50 page catalog, $1.50
The Woodworkers' Store 21801 Industrial Blvd. Dept. 901 Rogers, MN 55374	HT, HW, V, H, C, B, F 112 page catalog, $2.00
Woodworker's Supply of New Mexico 5604 Alameda, N.E. Albuquerque, NM 87113	HT, PT, SE, V, H, C, B, F 24 page supply catalog 32 page tool catalog $2.00 for both

Back Issues

Vol. 4 No. 5 Sept-Oct '80

Cabinetmaker's Workbench, Cobbler's Bench Coffee Table, 19th Century Cherry Table, Kitchen Utensils, Book Rack, Nuts & Bolts, Nutcracker, Walnut & Glass Bank, Schoolhouse Desk, Booster Seat, *Articles:* All About Wood Chisels; Being Your Own Salesman; Restoring a 19th Century Carved Table.

Vol. 4 No. 6 Nov-Dec '80

17th Century Mantle Clock, Toy Truck, Bud Vase, Grain Scoop, Letter Rack, Phone Memo Caddy, Toy Circus Wagons, Animal Puzzles, Library Stool, Quilt Rack, Ratchet Table Lamp, 18th Century Trestle Table, Lathe Steady Rest, *Articles:* Lap Joints; Pricing Your Work; Correcting a Warped Top.

Vol. 5 No. 1 Jan-Feb '81

18th Century Wall Shelves, Hand Mirror, Cutting Boards, Tic-Tac-Toe Game, 18th Century Vanity, Shaker Pine Cupboard, Tenon Jig, Towel Ring, Matchbox, Corner Shelves, Contemporary Cabinet, Black Forest Clock, Shop Drawing Board, *Articles:* Veneering Basics; Selling Quality; Repairing Loose Joints.

Vol. 5 No. 2 Mar-Apr '81

Child's Rocker, Band Saw Jig, Push-Pull Toy, Half-Round Table, Spoon Rack, Salt and Pepper Shakers, Calculator Stand, Anchor Thermometer, Plant Stand, Oak Writing Desk, 18th Century Chair Table, Shop-Built Handscrew, *Articles:* The Minimal Workshop; Submitting Plans to Magazines; A Finishing Tip for Matching Colors.

Vol. 5 No. 3 May-June '81

18th Century Sleigh Seat, Child's Step Stool, Kiddie Gym, Flying Duck, Dominoes, Trouser Hanger, Mug Rack, Folding Sun Seat, Ship's Wheel Table, Contemporary Buffet, *Articles:* Enlarging and Transferring Patterns; Selling at Fairs; Filling Wood Pores.

Vol. 5 No. 4 July-Aug '81

Longhorn Steer, Bike Rack, Miniature Chest, Doll House Bed, Curio Shelves, Belt Rack, Rocker Footrest, Early American Wall Shelf, Multipurpose Cabinet, Box Cutting Jig, Dish Rack, *Articles:* The Plain Rabbet-Miter Joint; Photographing Your Work; Restoring a Walnut Coffee Table.

Vol. 5 No. 5 Sept-Oct '81

18th Century Rudder Table, Musical Jewelry Box, Colonial Candlestick, Deacon's Wall Shelf, Toy Hippo, Spalted Boxes, 18th Century Tavern Table, Router Jig for Stopped Dadoes, *Articles:* The Locked Miter Joint; Finding Used Equipment; Restoring Hitchcock Chairs.

Vol. 5 No. 6 Nov-Dec '81

Old-Time Ice Box, Victorian Sled, Tile Clock, Wine Glass Holder, Mahogany Wall Shelf, Inkwell, Bagel Slicer, Seal Push Toy, Wooden Combs, Antique Knife Tray, Memo Cube, Fireplace Bellows, Contemporary Shelving, Weather Station, Shop-Built Bar Clamp, *Articles:* Frame and Panel Construction; Casework; Replacing Old Cane.

Vol. 6 No. 1 Jan-Feb '82

Contemporary Sofa Table, Artist's Easel, Candle Box, Laminated Box, Butcher Block Knife Rack, Frog Pull Toy, Infinity Mirror, Japanese Style Table Lamp, Empire Footstool, Desk Caddy, Stepped-Back Hutch, Buckboard Seat, Latticework Cutting Jig, *Articles:* Working with Plywood; Insurance for the Workshop; Some Thoughts on Glues and Gluing.

Vol. 6 No. 2 Mar-Apr '82

Early American Blanket Chest, 18th Century Corner Shelf, Pine Footstool, Cheese Cutting Board, Napkin Holder, Trivets, Coaster Set, Pierced Tin Cabinet, Hutch Clock, Oak File Cabinet, Mahogany Tripod Table, Wall Hung Plant Bracket, *Articles:* Methods of Producing Thin Stock; Some Thoughts on Selling; A Pseudo-Colonial Spanish Chair: Part I.

Vol. 6 No. 3 May-June '82

Country Kitchen Cabinet, Rough-Sawn Cedar Clock, Swinging Cradle, Toy Helicopter, Casserole Dish Holder, Ship's Wheel Weather Station, Octagonal Planter, Tambour Desk, Band Saw Boxes, 19th Century Step-Chair, Sailing Ship Weather Vane, *Articles:* Bench Hooks and Shooting Boards; Bookkeeping: Part I; Pseudo-Colonial Spanish Chair: Part II.

Vol. 6 No. 4 July-Aug '82

Dovetailed Footstool, Toy Chest, Plant Stand, 18th Century Lawyer's Case, Frame and Panel Joint with Decorative Bevel, Collector's Plate Frame, Toy Jeep, Trestle Table and Bench, 19th Century Danish Washstand, Contemporary Wall Valet, *Articles:* Cabinet Scrapers and How to Use Them; Bookkeeping: Part II; Finishing Tips.

Vol. 6 No. 5 Sept-Oct '82

Early American Hanging Corner Cupboard, Breakfast Serving Tray, Veneered End Table, Chess Table, Chest of Drawers, Contemporary Writing Desk, Whale Toy, Laminated Shoehorn, Spaghetti Measure, Candle Holder, Horizontal Boring Jig, Cane Suppliers, Finishing Suppliers, *Articles:* Pinned and Wedged Mortise and Tenon Joints; The Craft Market; More Finishing Tips.

Vol. 6 No. 6 Nov-Dec '82

Lyre Clock, Geodesic Lighting Fixture, Sawhorse Dining Table, Oak Desk Clock, Shaker Wall Shelves, Old-Time Radio Case, Cider Press Lamp, Contemporary Hanging Light Fixture, Firewood Rack, Toy Tool Box, Christmas Tree Ornaments, Willie and Tuna Push Toy, Woodpile Trivet, Circle Cutting Router Jig, *Articles:* All About Box Joints; Don't Sell for Less than Cost; Finishing Tips.

Vol. 7 No. 1 Jan-Feb '83

Workshop Tote Box, Tinsel-Art Mirror, European Spinning Wheel, Key Holder, Dump Truck Toy, Bang-a-Peg Toy, Puzzle, Wall Cabinet with Reverse Glass Stencil, End Grain Table Lamp, Butler's Tray Table, Contemporary Clock, Pine Cabinet, *Articles:* Miter and Spline Joints; The Added Costs of Being in Business; Selecting Clear Finishes.

Vol. 7 No. 2 Mar-Apr '83

Porch Swing, Homemade Jig Saw, Cheval Mirror, Punched Tin Spice Cabinet, Television Stand, Nautical Table Lamp, Wooden Balance, Nesting Cube Tables, Steam Roller Toy, Back Massager, Mailbox, Wall Shelf, Chippendale Mirror, Clock Parts and Suppliers, *Articles:* Flat Miter Joints with the Table Saw and Router; Woodworking for Fun vs. Woodworking for Work; Applying a Clear Finish.

Vol. 7 No. 3 May-June '83

Oak Pedestal Table, Drafting Table, Early American Wall Unit, Folding Snack Table, Pine Corner Cupboard, Toy Car with Boat & Trailer, Letter Opener, Contemporary Serving Tray, Hanging Mirror with Shelf, Carved Eagle, Early American Portable Bookcase, Hardwood Suppliers, *Articles:* Handtools and Table Saw Methods; Record Keeping: The Key to Profitable Costing; A Cure for Loose Legs.

Vol. 7 No. 4 July-Aug '83

Turned Lamp, Decoy Carving, Antique Sugar Chest, Record Album & Tape Cabinet, Chinese Tea Table, Old-World Weather Forecaster, Toy Tractor & Cart, Display Pedestal, Two Planter Projects, Collector's Plate Stand, Hardware Suppliers, *Articles:* Dovetail Joints: Part I; Keep Track of Costs or You'll Be Overtaxed; Some Spraying Techniques; Inlaid Edging.

Vol. 7 No. 5 Sept-Oct '83

Shaker Writing Desk, Modelmaker's Bench, Canning Jar Storage Shelves, Turned Bowl, Oriental Table, Router Table, Band Saw Box, Toy Pumper Firetruck, Toy Airplane, Spoon Rack, Magazine Rack, Bootjack, Furniture Kit Suppliers, *Articles:* Dovetail Joints: Part II; Some Thoughts on Low-Cost, No-Cost Advertising; Correcting Flaws in the Finish; Routed Drawer Pulls; Working Wood Co-operatively.

Vol. 7 No. 6 Nov-Dec '83

Lighted Wall Planter, Roller Stand, Early American Wall Secretary, Dressing Screen, Wine Rack, Shaker Chest of Drawers, Waterbed, Toy Train, Mitten Box, Hooded Doll Cradle, Coal Scuttle, Elephant Push Toy, *Articles:* Basic Drawer Construction and Installation; Display Advertising; Some Repair Hints; Making a Raised Arch Panel.

Vol. 8 No. 1 Jan-Feb '84

Shaker End Table, Medicine Cabinet, Cassette Tape Rack, Captain's Clock, Stacking Storage Unit, Veneer Bracelets, Toy Car Carrier, Infant Bead Toy, French Bread Cutter, 19th Century Kitchen Clock, Early American Trestle Table & Benches, Table Saw Cut-Off Table, Coaster Set, General Woodworking Suppliers, *Articles:* Doweling Details; Sources of Information; Restoring Hopeless Cases; Mirror Image Panels.

Vol. 8 No. 2 Mar-Apr '84

Shaker Wall Clock, Compact Dry Bar, High Chair, Kitchen Canister Set, Colonial Water Bench, Stacking Desk Trays, Wooden Brooches, Toy Bulldozer, Rocking Horse, Contemporary

able, Wall Hung Telephone Cabinet, Pipe moker's Organizer, Clock Parts Suppliers, *Arcles:* Edge-Joining Boards; More Sources of Inormation; More Hope for the Hopeless Cases; Making Cabriole Legs.

Vol. 8 No. 3 May-June '84

ountry Vegetable Bin, Folding Deck Chair, naker Pedestal Table, Wall Hung Display abinets, Wooden Coat Hanger, Toy Car and railer, Paper Towel Holder, Carved Handlirror, Writing Desk, Carved Walking Stick, aminated Clock, Oak and Glass End Table, *Arcles:* How to Lay Out and Make Circular Cuts; Iail Order Selling; Stripping Old Finishes; Carvig the Ball-and-Claw Foot.

Vol. 8 No. 4 July-Aug '84

Vag-on-Wall Clock, Oak Swing, Candy Dispenser, Coffee and End Tables, Tugboat and arge, Lazy Susan, Early American Mirror, Colnial Pipe Box, Sewing Machine Cabinet, Cam lamp, Hamper, *Articles:* What Sells Best?; Iomemade Removers; Buying a Basic Set of Iand Tools; Kerf Bending; Suppliers of Caning & Vood Finishing Products.

Vol. 8 No. 5 Sept-Oct '84

Contemporary Stereo Cabinet, Shaker Woodbox, Bongo Box, Nesting Tables, Shop Trammel, Jacknife Letter Opener, Salt Shaker and Pepper Mill, Toy River Ferry and Car, Toy Top, Cookbook Holder, Hall Table, Grandfather Clock: Part I, *Articles:* Starting a Business: Part I; Applying Filler; Building a Basic Workbench; Making pecialty Moldings with the Table Saw and cratch Beader.

Vol. 8 No. 6 Nov-Dec '84

tickley Chair, Tool Cabinet, Shaker Sewing tand, Lighted Display Pedestal, Teardrop Clock, Pierced Tin Cabinet, Toy Hook and Ladder Fire Truck, Busy Bee Toy, Colonial Doll House, Kithen Organizer, Wine Server, Grandfather Clock, Part II, *Articles:* Starting a Business Part II; Applying the Final Finish; The Fundamentals of Vood; Inlays and Inserts; Gustav Stickley and American Mission Furniture.

Vol. 9 No. 1 Jan-Feb '85

Early American Step Table, Oak Barrister's Bookcase, Parquet Table, Shaker Trestle Table, Bandsawn Wooden Scoops, Toy Biplane, Book Ends, Contemporary Candle Holders, Necktie nd Belt Holder, Keyed Miter Jig, Modular Coffee Table and Bar, Magazine and Book Rack, Contemporary Chest of Drawers, *Articles:* Toys and Children's Articles: An Outline of The Consumer Product Safety Commission Standards; Shellac; Truing and Squaring Lumber; The Fingerjoint Spline; Suppliers of Furniture Kits; The Shakers; Special Section: Back Issue Index.

Vol. 9 No. 2 Mar-Apr '85

Queen Anne Lowboy, Television/VCR Stand, Early American Pine Corner Cupboard, Toy Tool Set, Windspinner, Woodchopper Whirligig, Chinese Puzzle, Cut-off Jig, Blanket Chest, Shaker Harvest Table, Blacksmith's Tool Tray, *Articles:* A Guide to Photographing Your Work; Applying Shellac and Lacquer; Sharpening Plane Blades and Chisels; Installing Machine Woven Cane; American Queen Anne, 1715-1755; General Woodworking Suppliers.

Vol. 9 No. 3 May-June '85

Jacobean Joint Stool, Wall Cabinet with Recessed Finger Pulls, Shaker Desk, Kitchen Cart, Contemporary Wall Clock, Colonial Wall Sconce, Card Box, Towel Bar with Glass Shelf, Marble Race Toy, Cradle, Vanity Mirror, Miter Clamping Jig, *Articles:* Product Liability, Part I; Restoring an Antique Mirror Frame; Coping with Wood "Movement"; Making Recessed Finger Pulls; The Jacobean Period.

Vol. 9 No. 4 July-Aug '85

Gate-leg Table, Computer Desk, Shaving Horse, Stamp Dispenser, Crumb Collecting Breadboard, Toy Trucks, Early American Wall Shelf, Pivot-top Game/Coffee Table, Settle Bench, Shaker Single-Drawer Cupboard, Fold-up Workbench, *Articles:* Product Liability, Part II; Caning and Wood Finishing Supplies; Spray Finishing; Table Saw Basics; Making the Rule Joint; The William and Mary Period.

Vol. 9 No. 5 Sept-Oct '85

Colonial Schoolmaster's Desk, Contemporary Sideboard, Mahogany End Table, Victorian Hall Tree, Cutlery Wall Cabinet, Swing-out Plant Hanger, Prancing Horse Silhouette, Block Puzzle, Iron Caddy, Toy Ironing Board, Early American Water Bench, Wooden Smooth Plane, Shaker Sewing Box, *Articles:* A Craft Fair Visit; How to Use Stick Shellac; A Guide to Circular Saw Blades; Making Bent Laminations; Country Colonial Furniture.

Vol. 9 No. 6 Nov-Dec '85

Moravian Chair, Dulcimer, Oak Dining Table, Shaker Washstand, Marking Gauge, Veneered Wall Clock, 4 x 4 Off-Roader, Teddy Bear Puzzle, Duck Pull-toy, Landscape Cutting Boards, Early American Tall Clock, Pine Desk Organizer, *Articles:* Secrets of Success; Weaving a Fiber Rush Seat, Part I; Table Saw Ripping Problems and Their Solutions; 4-Piece Book Match Veneering; Pennsylvania Dutch Furniture.

Vol. 10 No. 1 Jan-Feb '86

Freestanding Shelf System, Chippendale Bachelor's Chest, Oriental Serving Tray, Country Bench, Antique Knife Tray, Tape Dispenser, Valentine Box, Toy Tow Truck & Car, Shaker Drop-leaf Table, Shop-made Bow Saw, Child's Settle Bench, Plate Shelves, *Articles:* On Getting Paid for Your Work; Weaving a Fiber Rush Seat, Part II; Table Saw Crosscutting: Techniques & Tips; Router-Lathe Fluting: A Shop-made Approach; Chippendale Furniture.

Vol. 10 No. 2 Mar-Apr '86

Zebrawood Veneered End Table, Shaker Oval Box, Microwave Cart, Pin-Hole Puzzle, Tumbling Monkey Toy, Early American Wall Box, Kicking Donkey Whirligig, Shaker Side Table, Wooden Mallets, Federal Period Washstand, Connecticut Shelf Clock, *Articles:* A General Guide to Craft Fairs; Why Wood Warps; Cutting Tapers, Wedges and Other Irregular Shapes with the Table Saw; Unsupported or Hand Steam Bending; ⅜ in. Variable Speed Reversible Drills; Federal Period; Hardware Suppliers.

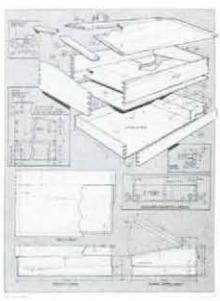
Vol. 10 No. 3 May-June '86

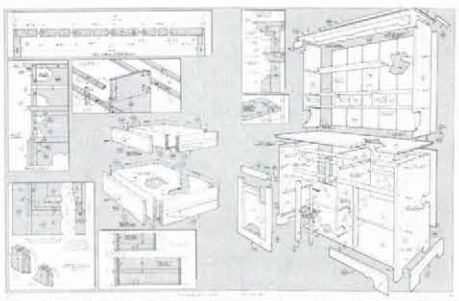
Victorian Whatnot Shelf, Contemporary Lamp, Early American Bench, Steam-bent Clock, Pine Hutch/Cupboard, Canada Goose Basket, Toy Crane, Condiment Holder, Shop Workstation, Parsons Table, Shaker Lap Desk, *Articles:* An Interview with Toymaker Clare Maginley; How to Flatten a Warped Board; A Guide for Choosing Your First Router; Supported Steam Bending; Victorian Period.

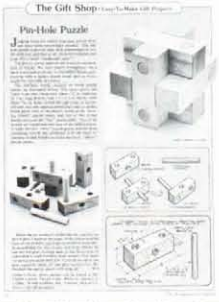
Vol. 10 No. 4 July-Aug '86

Shaker Slat-Back Side Chair, Wall-Hung Display Cabinet, Latticework Planter, Country Bucket Bench, Adirondack Chair, Coffee Mill, Clamdigger's Basket, Box of Shapes Toy, Disk Clock, Tenon Jig, Dictionary Stand, *Articles:* Selecting the Right Project for Production; More About Warped Boards; All About Router Bits; The Sliding Dovetail Joint; Furniture Kits Suppliers.

Back Issue Order Form







ircle the issues you'd like on this order orm and return it with your payment, neck or credit card number in the preddressed envelope provided in this sue.

sues preceding Vol. 4, No. 5 are not vailable. Back Issues are $3.00 each 4.00 Canadian funds), postage includd. CT residents please add 7½% sales ax. Some orders are shipped U.P.S., so ease include your street address.

VOL. IV					5	6
VOL. V	1	2	3	4	5	6
VOL. VI	1	2	3	4	5	6
VOL. VII	1	2	3	4	5	6
VOL. VIII	1	2	3	4	5	6
VOL. IX	1	2	3	4	5	6
VOL. X	1	2	3	4		

Name _____

Street _____

City _____ State/Prov. _____

Zip/Postal Code _____

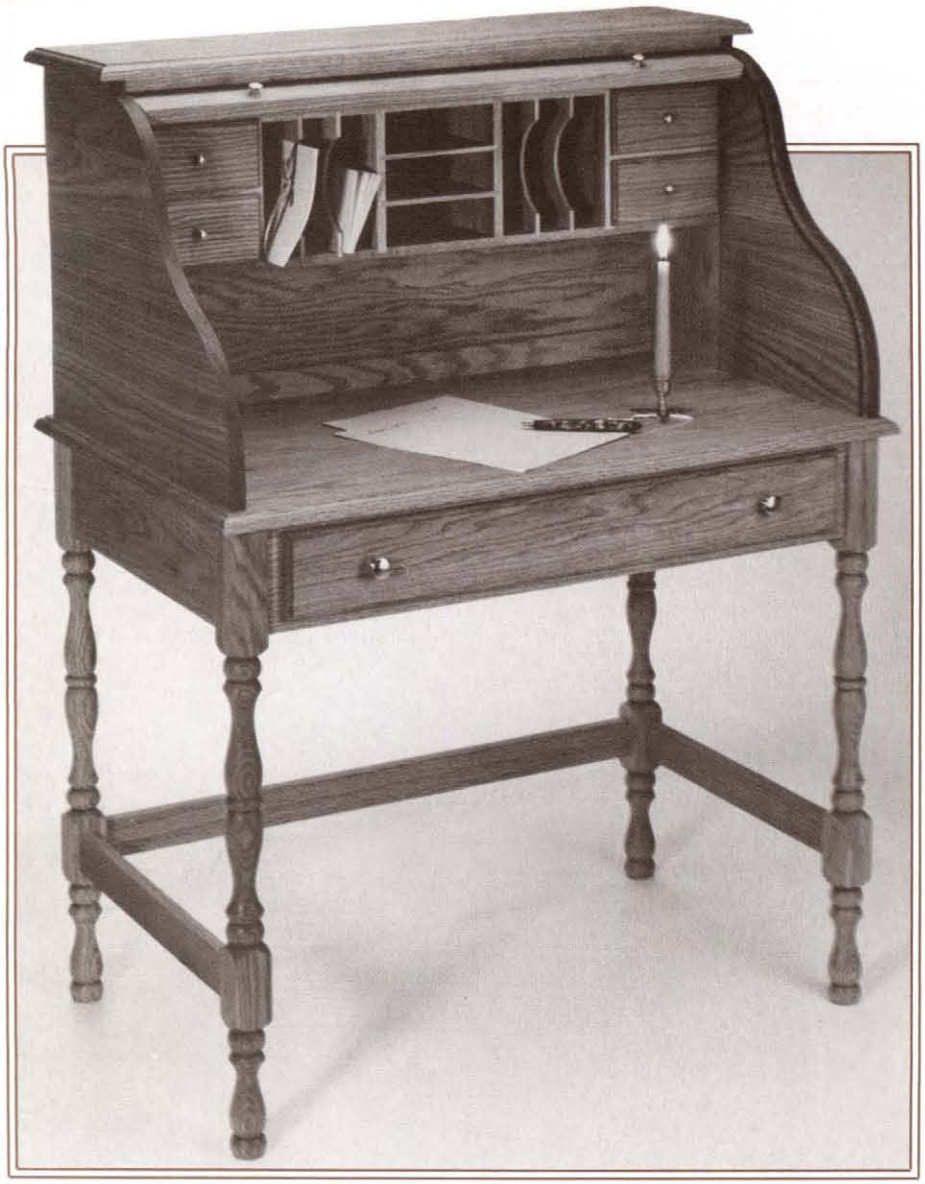
____ Issues @ $3.00 (U.S.) = _____ total enclosed

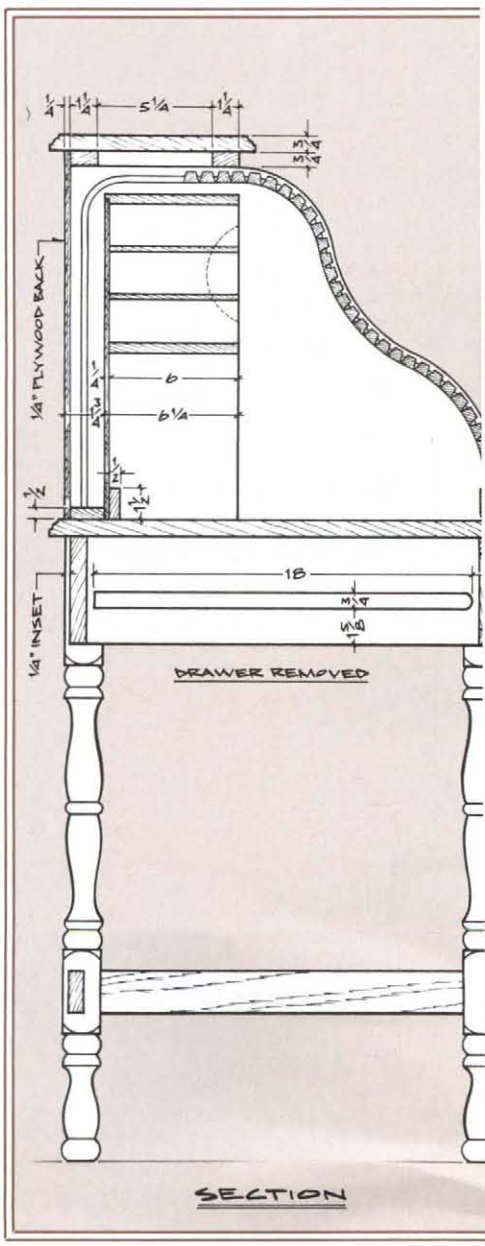
Visa/MC # _____

Credit Card Exp. Date _____

Signature _____

Desk With Tambour Top





Bill of Materials

(all dimensions actual)

Part	Description	Size	No. Req'd.
	Base Section		
A	Leg	1¾ × 1¾ × 29½	4
B	Front Apron Assembly	¾ × 5½* × 32½**	1
C	Back Apron	¾ × 5 × 32½**	1
D	Side Apron	¾ × 5 × 18½**	2
E	Back Stretcher	¾ × 2 × 32½**	1
F	Side Stretcher	¾ × 2 × 18½**	2
G	Liner	¾ × 5 × 18½	2
H	Filler Block	¾ × ¾ × 5	4
I	Side Cleat	¾ × 1½ × 17	2
J	Drawer Guide	¼ × ¾ × 18	2
K	Apron Cleat	¾ × ¾ × 12	2
L	Writing Surface	¾ × 22 × 36	1
M	Drawer Front	½ × 3½ × 28	1
N	Drawer Side	½ × 3½ × 19	2
O	Drawer Back	½ × 3 × 28	1
P	Drawer Bottom	¼ × 27½ × 18¾	1
Q	Drawer Face	½ × 4 × 29½	1
R	Drawer Knob	Brass, 1 in. dia.	2
	Top Section		
S	Side	¾ × 17¼ × 20½	2
T	Front/Back Cleat	¾ × 1¼ × 33	2
U	End Cleat	¾ × 1¼ × 6¾**	2
V	Top	¾ × 9½ × 36	1
W	Back	¼ × 17¼ × 34	1
X	Tambour Stop	½ × 1½ × 33	1
Y	Tambour	½ × ¾ × 33¾	30
Z	Canvas	as needed	1
AA	Handle	⅞ × 1½ × 32⅞	1
BB	Backing Strip	¼ × ⅞ × 32⅞	1
CC	Handle Knob	Brass, ¾ in. dia.	2
DD	Organizer Side	½ × 6¼ × 15¼	2
EE	Organizer Top	½ × 6¼ × 32½	1
FF	Organizer Shelf	½ × 6 × 32½	1
GG	Back Strip	½ × 1½ × 32	1
HH	Vertical Divider	½ × 6 × 7	4
II	Drawer Divider	½ × 6 × 6½	2
JJ	Separators	¼ × 6 × 7	4
KK	Horizontal Divider	¼ × 6 × 6½	2
LL	Divider Back	¼ × 15 × 32½	1
MM	Drawer Front	⅜ × 3 × 6	1/Drawer
NN	Drawer Back	⅜ × 2½ × 6	1/Drawer
OO	Drawer Side	⅜ × 3 × 6	2/Drawer
PP	Drawer Bottom	¼ × 5⅝ × 5 13/16	1/Drawer
QQ	Drawer Face	⅜ × 3¼ × 6½	1/Drawer
RR	Drawer Knob	Brass, ½ in. dia.	1/Drawer

*Width allows extra stock.
**Length includes tenons.

An attractive writing desk has always been an important piece of furniture in the home. Although full-size secretaries and traditional rolltop desks are impressive, their size and complexity place them in a class of projects that only the most ambitious woodworkers will usually attempt. Furthermore, since a full-size rolltop desk occupies a good deal of space, it is often difficult to find an ideal location for one in the average home.

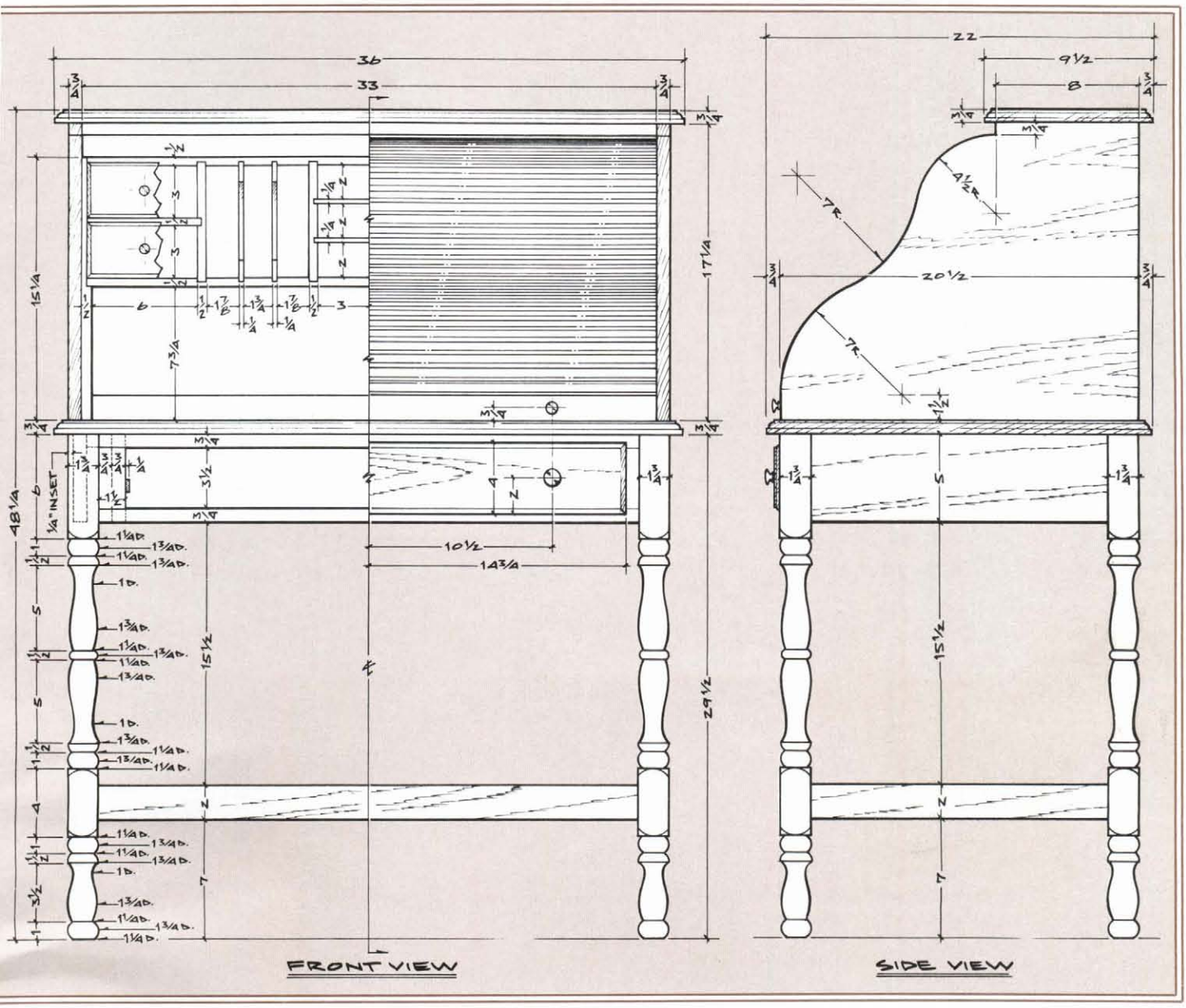
By contrast, this modest-sized writing desk will fit in practically anywhere. In the den, the study, the library, or the living room, a practical writing desk is a most welcome addition. The ample writing surface is large enough for a typewriter, and is great for letter writing, bill paying, or whatever. The tambour front opens to reveal various cubbyholes and drawers for storage of envelopes, correspondence, bills, stamps, and writing implements. The single long drawer below is large enough for full-size paper, manila envelopes, etc.

The tambour top, the dovetailed drawers, and the general construction of the desk require careful attention to detail. Although there are no especially difficult operations involved, when the work on the desk is considered in total, this is a project that is best undertaken by intermediate level to advanced woodworkers.

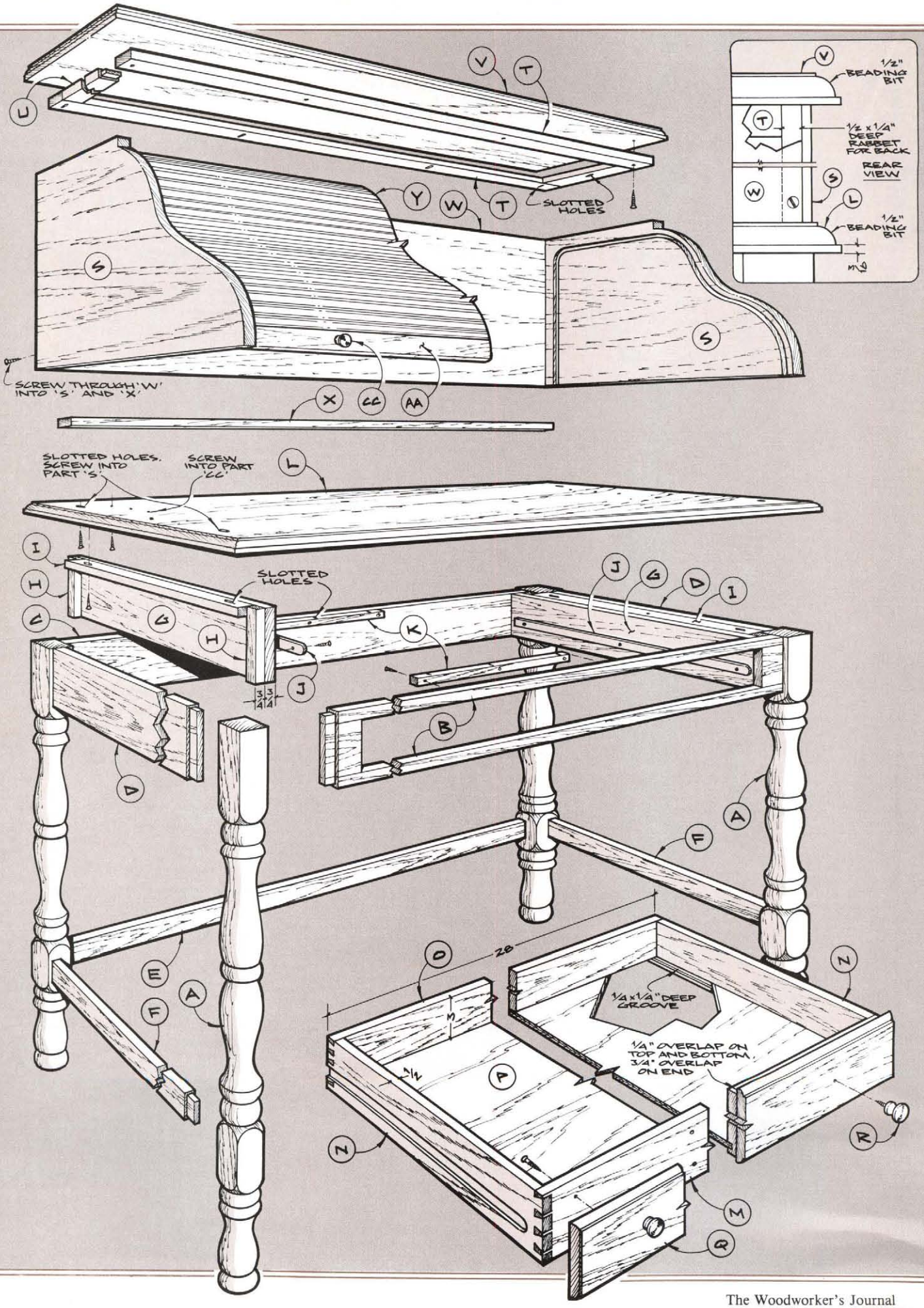
Our desk is made in oak, which we selected because of its strength and stability. A wood with these qualities will help to insure that the tambour continues to operate properly long after the piece has been completed. Although other hardwoods could also be used for the desk, exercise care and select only the best clear, straight-grained material, especially for the tambour section.

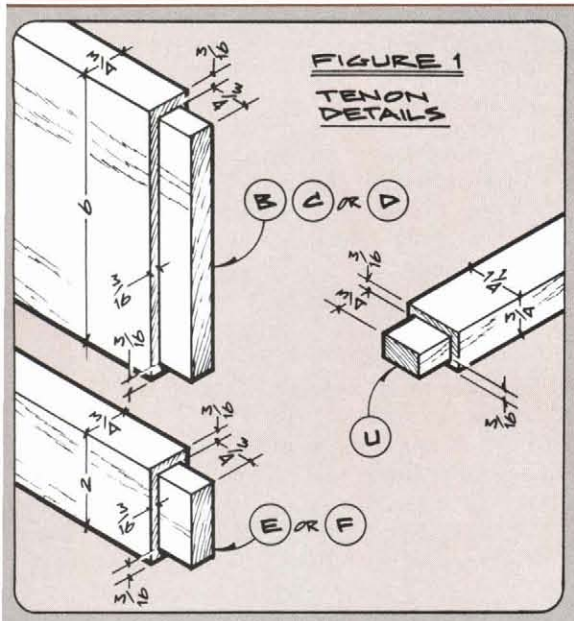
As you will note from the bill of materials, the desk is actually divided into two separate sections, the lower or "base" section, and the upper or "top" section. These two sections are made, assembled, and finished as separate units and are only joined in the end. Approaching the construction in two parts actually helps to simplify the work.

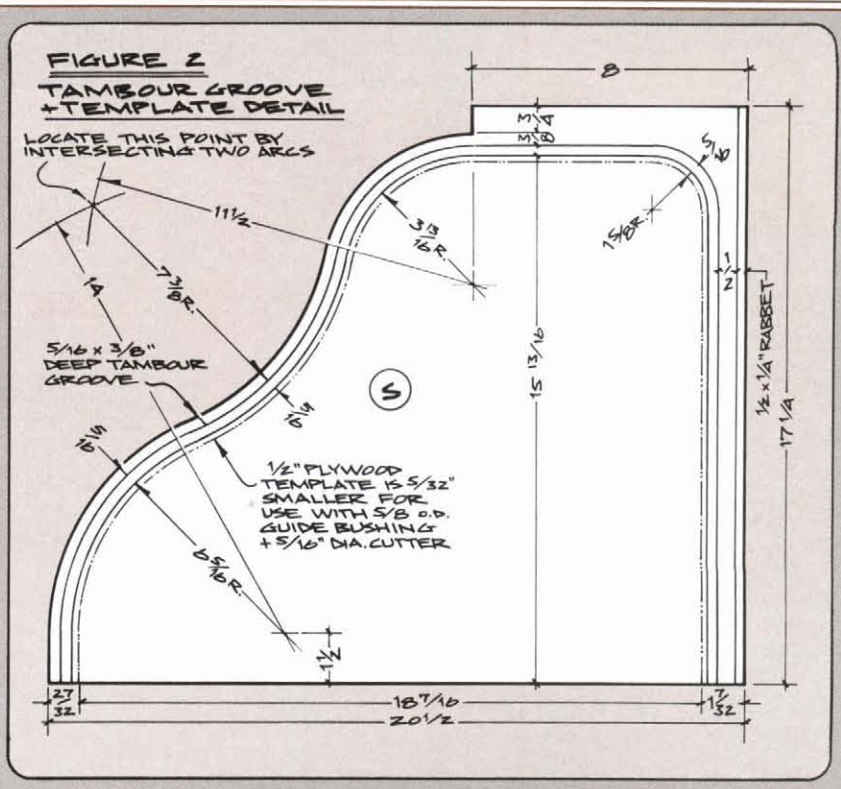
Start with the base section. Mill 1¾ in. square blanks for the four legs (A), allowing extra length as needed for

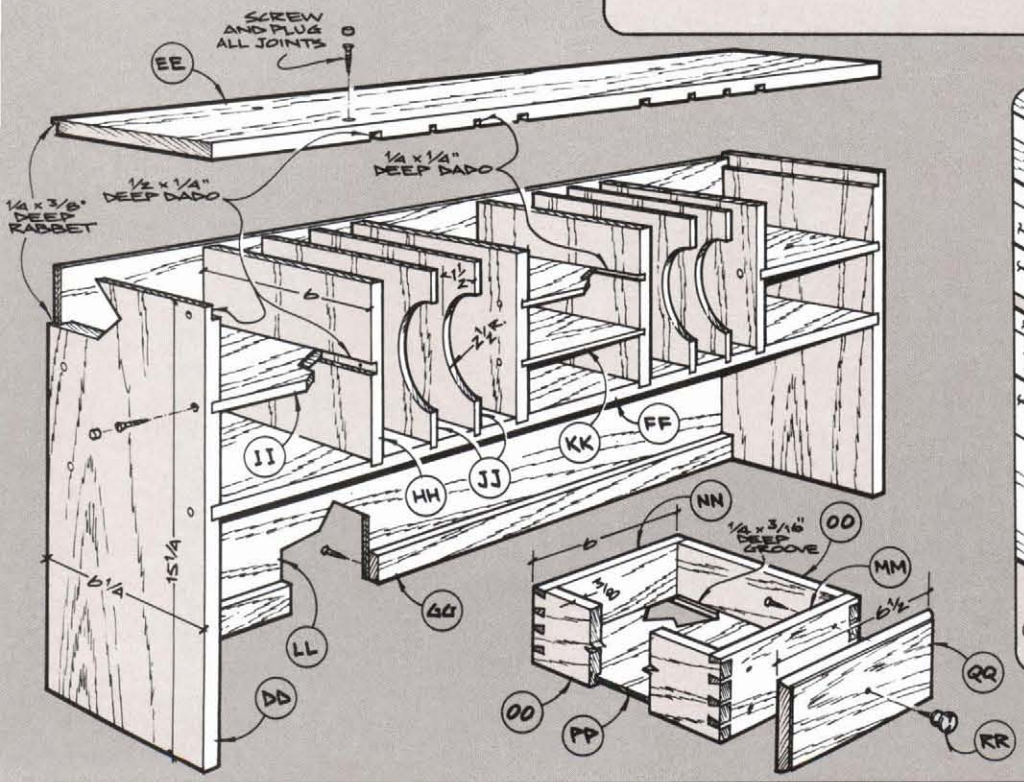


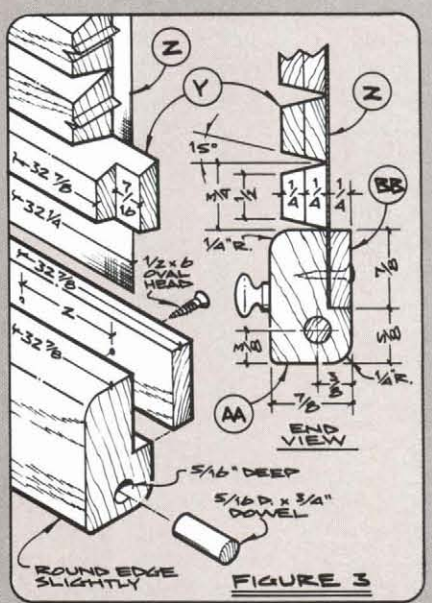
(continued on next page)

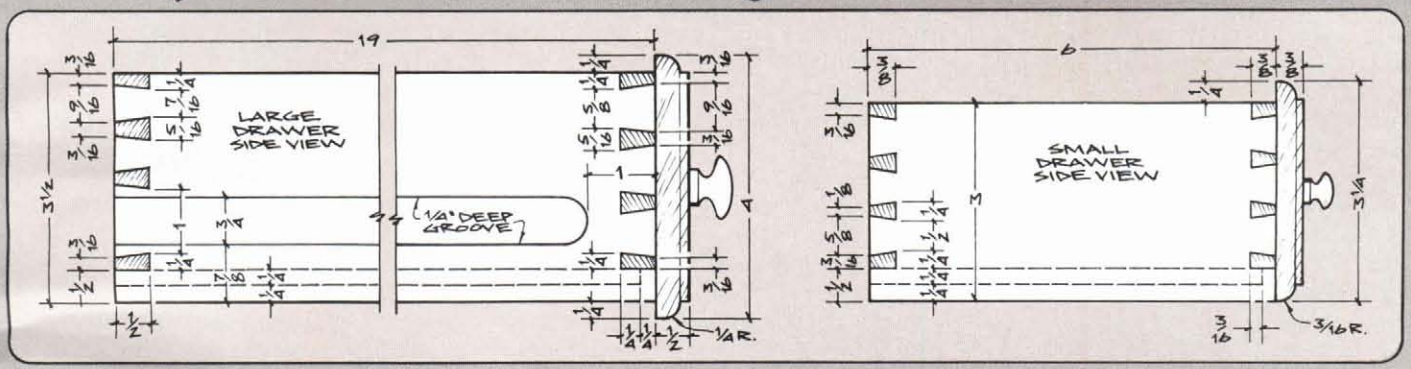

V
T
U
Y
W
T
SLOTTED HOLES
S
S
SCREW THROUGH 'W' INTO 'S' AND 'X'
X
CC
AA
1/2" BEADING BIT
1/2 x 1/4" DEEP RABBET FOR BACK
REAR VIEW
W
S
L
1/2" BEADING BIT
3/16
SLOTTED HOLES. SCREW INTO PART 'S'
SCREW INTO PART 'CC'
L
I
H
C
SLOTTED HOLES
G
H
K
J
J
G
D
I
3/4
3/4
B
D
A
F
E
A
F
O
20
N
1/4 x 1/4" DEEP GROOVE
1/4" OVERLAP ON TOP AND BOTTOM, 3/4" OVERLAP ON END
M
P
3/4
N
M
R
R











(continued on next page)

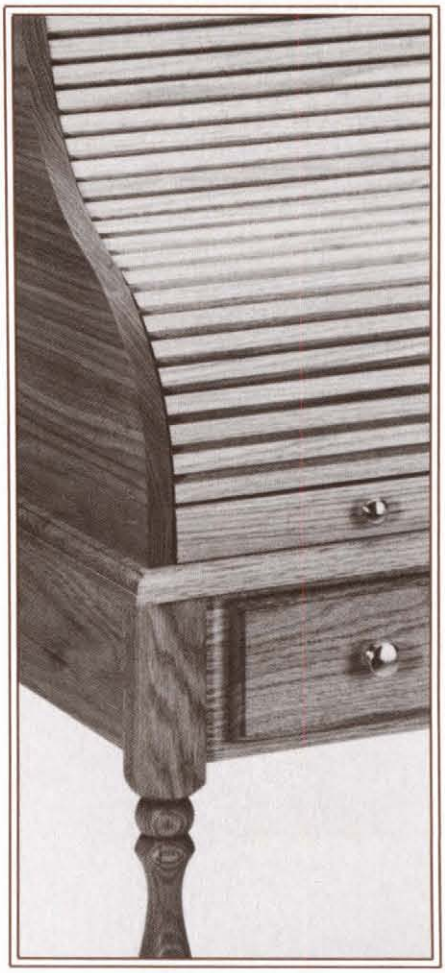
mounting in the lathe. Locate and mortise for the stretchers and aprons, then mount the legs and turn to the dimensions indicated in the front view. By first laying out and establishing the various turning points, you should have little difficulty keeping all four legs consistent. Remember to use sharp skews and gouges and to work carefully, since oak tears out rather easily. Final sand the legs while they are still on the lathe.

Next mill stock for the aprons and stretchers. The front apron (B) is made by ripping a 5½ in. wide board, crosscutting the center section to create the drawer opening, and jointing the edges to obtain the two ¾ in. square strips and the two 3½ in. wide sections on either side of the drawer opening. The additional ½ in. on the part B width dimension allows for the saw kerfs and a light pass of each piece over the jointer. Glue and clamp the front apron parts and, when dry, cut the tenons on the ends using the table saw dado head. Make the back and side aprons (C and D) and the back and side stretchers (E and F), also cutting the tenons on the ends of these parts with the dado head (see Fig. 1 for tenon dimensions). Final sand parts A through F, test fit, glue, and assemble.

Now cut and fit the liners (G), filler blocks (H), side cleats (I), drawer guides (J), and apron cleats (K). Note the slotted holes in the various cleats to accept the top mounting screws. You may now machine and edge glue sufficient stock for the writing surface (L). (To save time, this could be done before starting on the base section). When dry, cut the glued-up writing surface to overall length and width, and use a ½ in. bearing guided beading bit to form the decorative edge on all four sides.

Make and fit the base drawer, consisting of parts M through Q, and final sand and finish all base and base drawer parts. The writing surface is not mounted now, nor are the slotted holes cut into it until after the tambour carcase has been completed.

To make the top section, start by gluing up stock for the sides (S). Then, referring to Fig. 2, make the template that you will use as a guide for the router to cut the tambour groove. Note that our template is 5/32 in. smaller all around than the groove inside, and is used with a ⅝ in. outside diameter guide bushing and 5/16 in. straight cutter. Use the radii shown in Fig. 2 as an aid in laying out for the template and groove. To find the centerpoint of the $3^{13}/_{16}$ in. radius top front curve, measure 8 in. from the back edge and 5¼ in. down from the top edge. To find the $6^{5}/_{16}$ in. radius lower front curve, measure 1½ in. up from the bottom edge and 7 in. back from the front edge. The intersection of a 14 in. radius arc from this point and an 11½ in. radius arc from the previously located point will provide the centerpoint for scribing the 7⅜ in. radius reverse curve. Remember that the template must be sized somewhat smaller than the groove, with the exact dimension depending on the particular router and guide bushing you use. More about routing the groove is included in the Special Techniques article on page 24.



After the groove is complete, saber saw or band saw the carcase sides to shape, and cut the ¼ in. deep by ½ in. wide rabbet that will accept the back. Also cut the front and back cleats (T), and end cleats (U) that comprise a simple frame. Dimensions of the end cleat tenons are shown in Fig. 1. Glue and assemble this cleat frame, and glue the carcase sides in place on either end. Make the top (V), applying an edge treatment with the ½ in. beading bit, and mount the top as shown, fixed at the front edge with the slotted holes in the cleat frame permitting movement toward the back. Cut and fit the plywood back (W) making certain that the sides are parallel. Also glue the tambour stop (X) in place, as shown in the side view.

After making the top carcase, you must build the tambour front, consisting of the tambours (Y), the canvas (Z), the handle (AA), and the handle backing strip (BB). Again, refer to the Special Techniques article on page 24 for a detailed description of how the tambours are machined and laid up with the canvas.

The canvas is 32¼ in. wide to provide clearance on either side so that it will not come near or bind in the grooves. The canvas should be at least 28 in. long, providing overhang on the back end for tacking to the gluing fixture, and an extra ⅞ in. on the front end for mounting the handle. After the canvas has been applied to the tambours, machine the handle and backing strip, and mount by sandwiching the canvas as shown in Fig. 3. Also, drill for and glue in place the location dowels in either end of the handle. *Note:* when making the tambour front, remember that dimensions may vary slightly, and the tambour must be sized to fit the tambour carcase.

The pigeon hole organizer (parts DD through LL) is made by milling ¼ in. and ½ in. stock as needed, then cutting to length and width and rabbeting and dadoing as required. Working from inner assemblies out, construct the organizer. Also make and fit the drawers (parts MM through QQ). *Note:* the organizer should be finished *before* its plywood back is applied.

After oiling and prefinishing all subassemblies, slide the tambour front into the tambour track. Then screw the writing surface to the tambour carcase. *Tip:* a spacer stick between the carcase sides will help keep them parallel. Next, insert the organizer and screw it to the writing surface. Finally, the entire top assembly is screwed to the base.

Mount the various drawer knobs (parts R and RR) and the tambour handle knobs (CC) to complete this project. WWJ

Vanity Case

This lovely table top vanity features a mirror that pivots out as the top is opened while a series of notches allows it to be adjusted at various angles. The mirror simply slides into the closed position when the top is shut. Inside, there are nine storage compartments.

Ours is made from oak with a walnut plywood top and bottom. This project doesn't require a lot of stock, so your materials costs should be reasonably low.

To make the box frame (consisting of parts A, B, C, E, F, and G), you'll need a piece of ⅜ in. thick stock that measures 4 in. wide and 54 in. long. Both the width and length dimensions allow a little extra stock. If you don't have a thickness planer and can't get ⅜ in. thick stock locally, check with a lumberyard or millwork shop as they will often plane thicker stock for a nominal charge. Once thickness planed, set the table saw blade to cut a 45-degree miter, then cross-cut the stock into two pieces 13½ in. long and two pieces 12 in. long. For the case to be square, the miters must be exactly 45 degrees, so it's a good idea to make some test cuts on scrap stock before starting.

Next, use the table saw and a dado-head to cut the ¼ in. wide by 3/16 in. deep groove that runs lengthwise along the top and bottom of each piece. Note that each groove is located ¼ in. from the edge.

The case bottom (D) and the lid top (H) are made from ¼ in. thick walnut plywood cut to 11½ in. wide by 13 in. long. Albert Constantine and Son, Inc., 2050 Eastchester Road, Bronx, NY 10461, sells ¼ in. walnut plywood, good two sides, in sheets measuring 12 in. wide by 48 in. long. The current price is $16.40 per sheet plus $4.00 for shipping and handling.

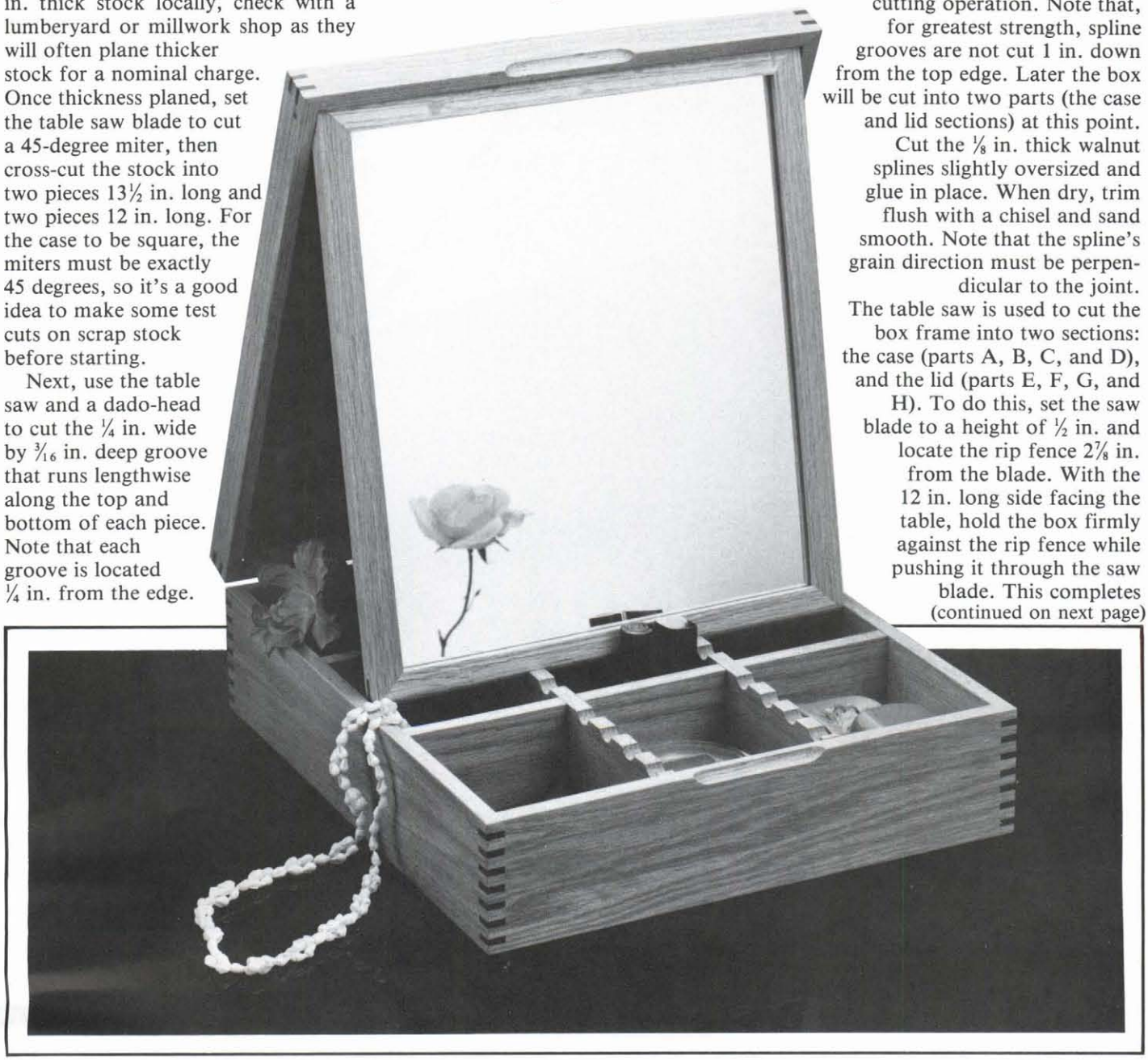
The box frame parts and the top and bottom can now be assembled. First dry assemble the components to make sure everything fits properly. If everything looks okay, disassemble the parts and apply glue to the miters and to the edges of the plywood. Clamp firmly to insure good pressure at the joints and check for squareness. Make any necessary adjustments before setting aside to dry.

The splined mitered construction of the box requires a simple jig (see detail) to cut the spline grooves, which are located ¼ in. apart. Set the saw blade to a height of ¼ in., then locate the rip fence ¼ in. from the blade. With the box frame in the jig, start the saw, then hold the jig against the rip fence and run it through the blade. Cut all four corners on one side, then flip the piece and do the four corners on the other side. Next, readjust the rip fence so that the saw blade is ⅝ in. from the fence and repeat the process. Three more fence adjustments, each one in ⅜ in. intervals, will complete the spline cutting operation. Note that, for greatest strength, spline grooves are not cut 1 in. down from the top edge. Later the box will be cut into two parts (the case and lid sections) at this point.

Cut the ⅛ in. thick walnut splines slightly oversized and glue in place. When dry, trim flush with a chisel and sand smooth. Note that the spline's grain direction must be perpendicular to the joint.

The table saw is used to cut the box frame into two sections: the case (parts A, B, C, and D), and the lid (parts E, F, G, and H). To do this, set the saw blade to a height of ½ in. and locate the rip fence 2⅞ in. from the blade. With the 12 in. long side facing the table, hold the box firmly against the rip fence while pushing it through the saw blade. This completes

(continued on next page)



the first cut. Make the second cut on the opposite side. Make the third cut with the 13½ in. long side facing down, then before making the fourth and final cut on the opposite side, insert a piece of ⅛ in. thick hardboard (Masonite) in the saw kerf to keep it from closing and binding on the saw blade. This technique is illustrated in the Router Box project on page 54.

To make the mirror frame (parts I and J), you'll need about 50 in. of stock measuring ½ in. thick and ¾ in. wide. Cut the stock to length, mitering the ends as shown. Apply glue to the miter joints, then clamp firmly and allow to dry. The jig is once again used to cut the spline groove on each corner, but this time the blade height is raised to 7/16 in. Glue the splines in place and trim flush.

A router with a rabbeting bit is used to cut the ⅜ in. wide by ¼ in. deep rabbet all around the back of the mirror frame (see mirror frame detail). The router bit leaves rounded corners, so a sharp chisel is used to cut them square. To round the top and bottom edges, use the router and a ¼ in. rounding-over bit. The mirror (K) is held in place with glazier's (diamond) points as shown. A pair of ⅛ in. diameter by ¾ in. long brass pins (L) are used to assemble the mirror frame to the inside of the lid.

To make the long dividers (M), rip ⅜ in. thick stock to a width of 3 in., then cut to a length of 12¾ in. Lay out and mark the location of the ½ in. diameter notches for the mirror (the hole centerline will be 2 7/16 in. from the bottom edge), and bore the holes with a Forstner bit. Ripping the stock to a width of 2⅜ in. will result in 3/16 in. deep notches as shown.

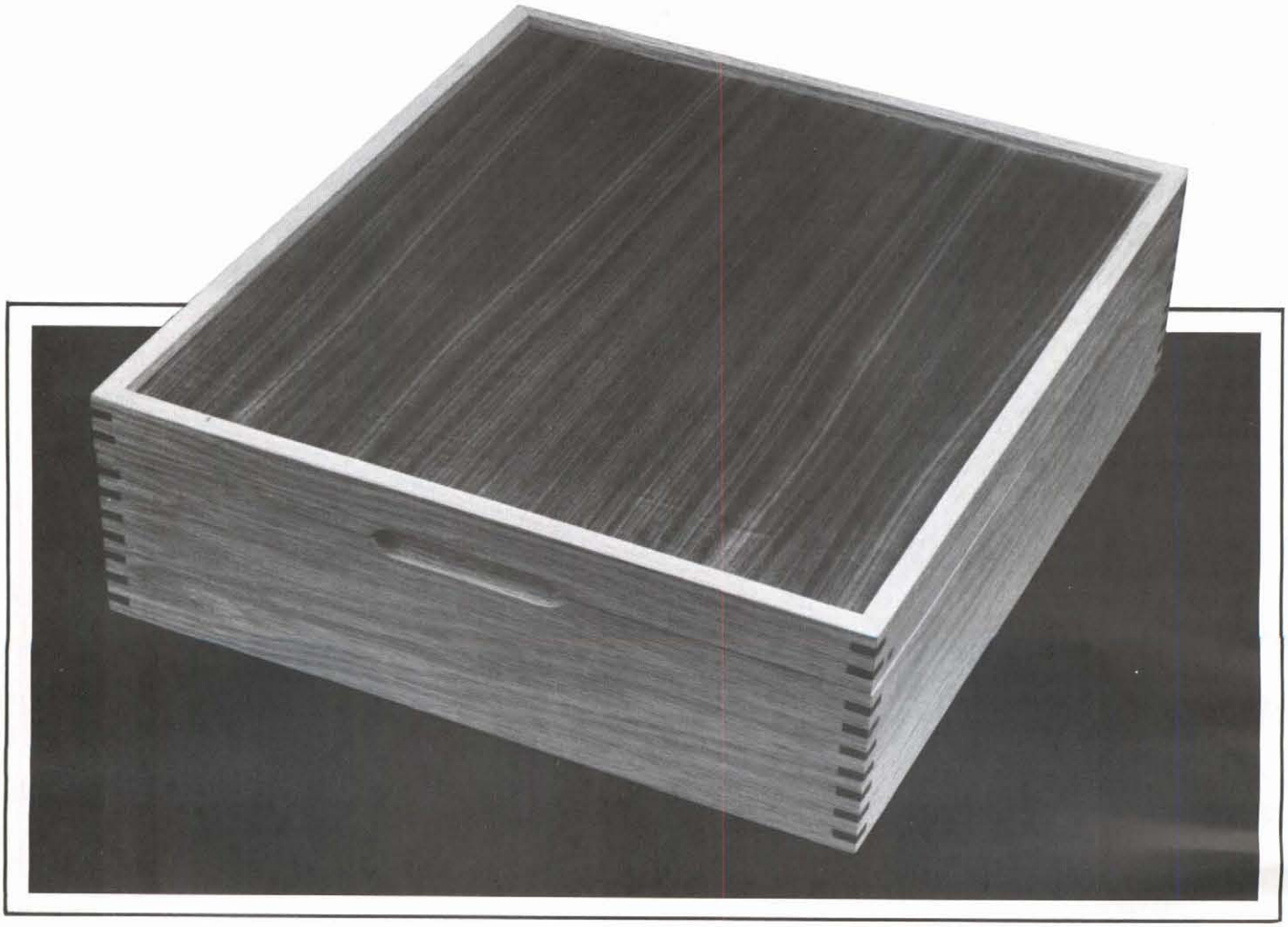
Next, cut the short dividers (N) to length and width. Lay out and mark the location of the notches on both the long and short dividers, then raise the saw blade (or dado cutter) to a height of 1 3/16 in. Use the miter gauge to run the stock through the blade. You'll need to make several passes with the regular saw blade to complete each notch.

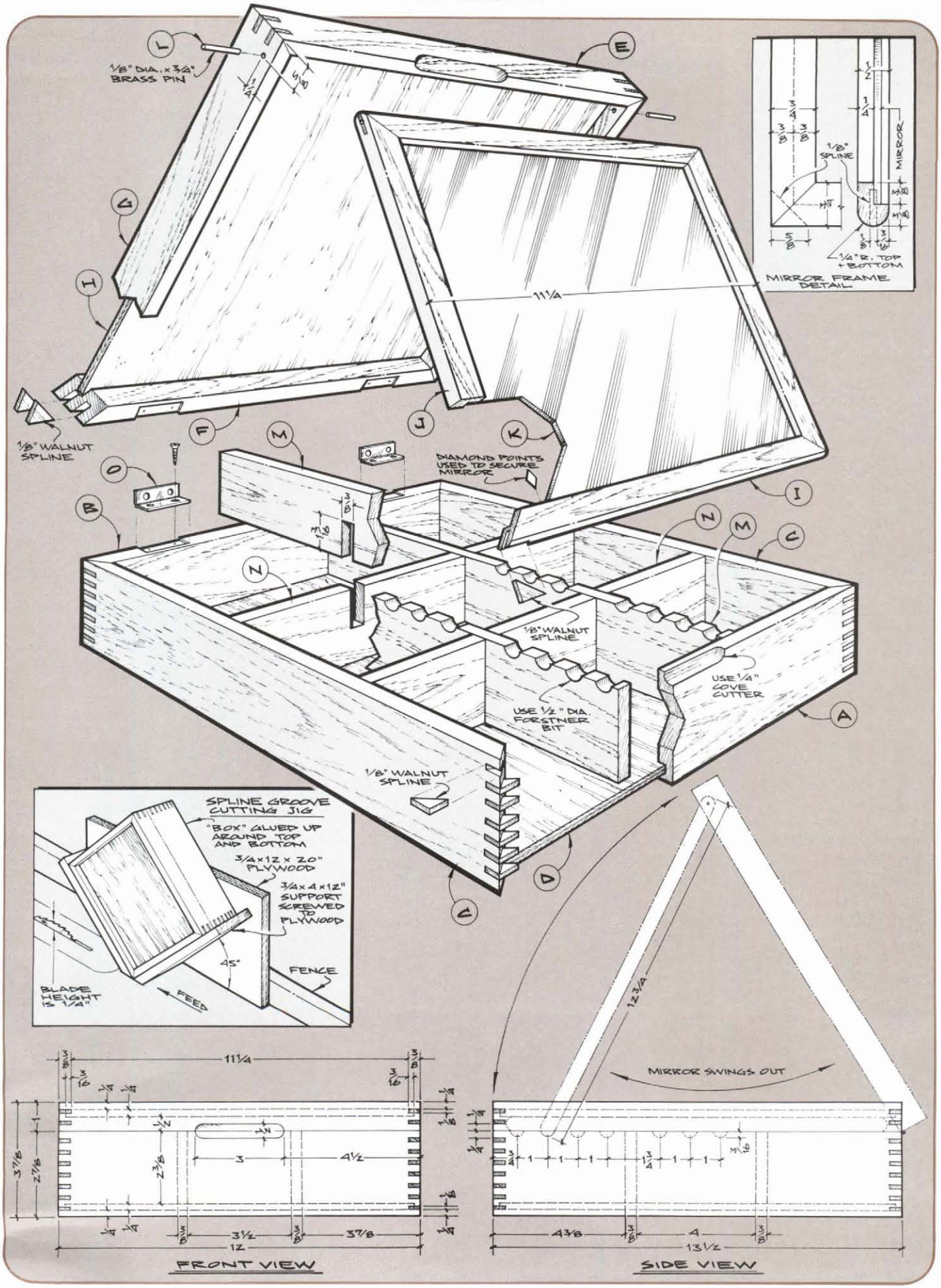
The finger grooves in the front are cut using a ¼ in. cove cutter on the router. Use a chisel to cut the mortises for the two brass hinges (O), then give all parts a thorough final sanding. Two coats of Deft Clear Wood Finish were applied as a final finish. The addition of the two hinges completed the project.

WWJ

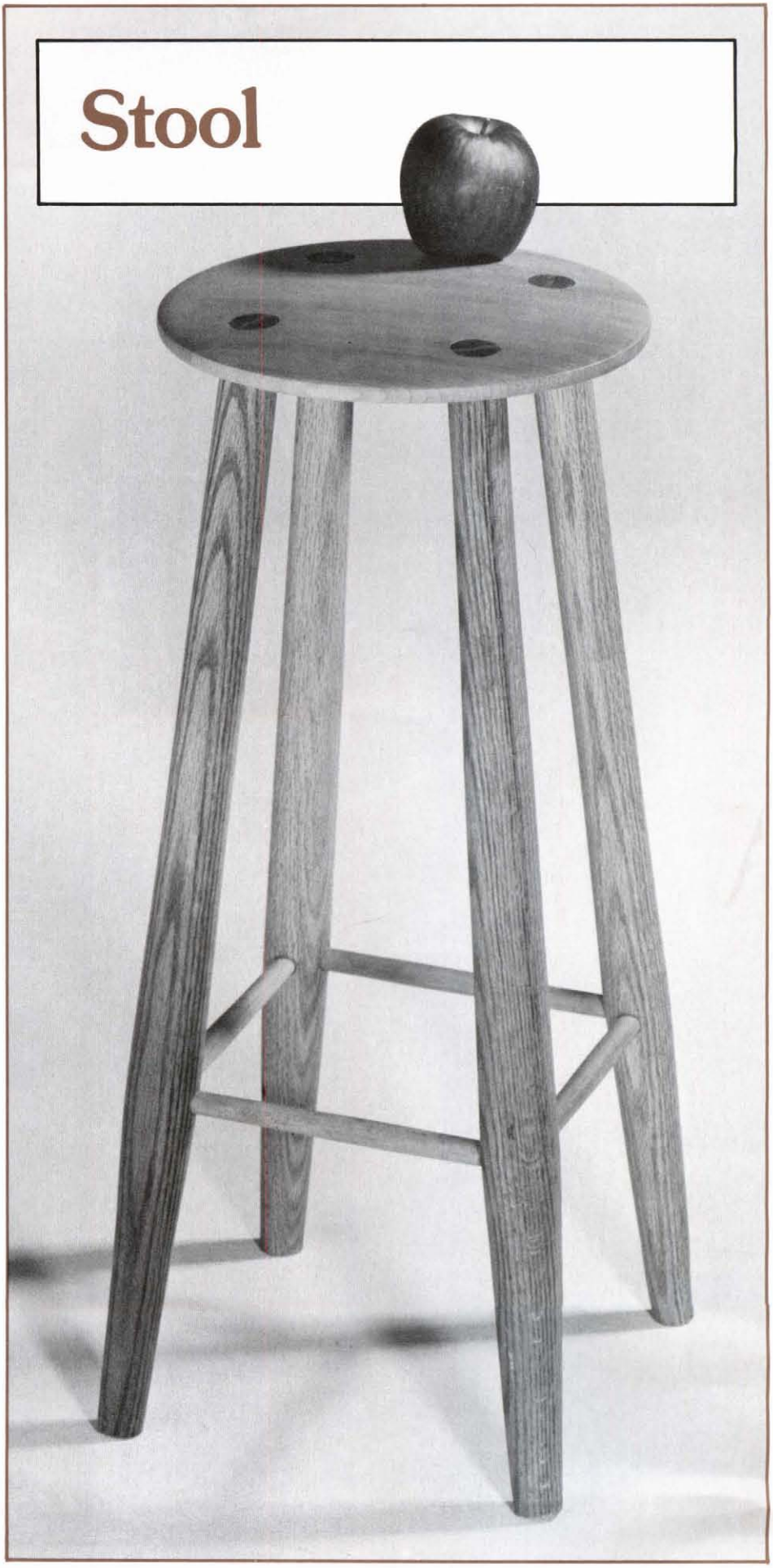
Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Case Front	⅜ × 2⅞ × 12	1
B	Case Back	⅜ × 2⅞ × 12	1
C	Case Side	⅜ × 2⅞ × 13½	2
D	Case Bottom	¼ × 11½ × 13	1
E	Lid Front	⅜ × 1 × 12	1
F	Lid Back	⅜ × 1 × 12	1
G	Lid Side	⅜ × 1 × 13½	2
H	Lid Top	¼ × 11½ × 13	1
I	Mirror Frame End	½ × ¾ × 11¼	2
J	Mirror Frame Side	½ × ¾ × 12¾	2
K	Mirror	⅛ × 10⅜ × 11⅞	1
L	Pin	⅛ dia. × ¾ long	2
M	Long Divider	⅜ × 2⅜ × 12¾	2
N	Short Divider	⅜ × 2⅜ × 11¼	2
O	Hinge	¾ × 1¼	2




1/8" DIA. x 3/4" BRASS PIN
MIRROR FRAME DETAIL
1/8" SPLINE
MIRROR
1/4" R. TOP + BOTTOM
11 1/4
1/8" WALNUT SPLINE
DIAMOND POINTS USED TO SECURE MIRROR
USE 1/4" COVE CUTTER
USE 1/2" DIA. FORSTNER BIT
SPLINE GROOVE CUTTING JIG
"BOX" GLUED UP AROUND TOP AND BOTTOM
3/4 x 12 x 20" PLYWOOD
3/4 x 4 x 12" SUPPORT SCREWED TO PLYWOOD
45°
FENCE
FEED
BLADE HEIGHT 1/4"
12 3/4
MIRROR SWINGS OUT
FRONT VIEW
SIDE VIEW

Stool



A stool provides handy extra seating anywhere. In spite of its fine lines, light weight, and delicate appearance, this small stool is surprisingly sturdy.

Begin by laying up stock for the top. We chose to lay up a butcher block of 1 in. by 1 in. by 11 in. maple, but other hardwoods could be used as well. The butcher block construction provides the top with considerably more strength than if we had turned it from a single width of stock. Once the top is dry, scribe a 10½ in. diameter, and rough cut round using a saber saw or band saw.

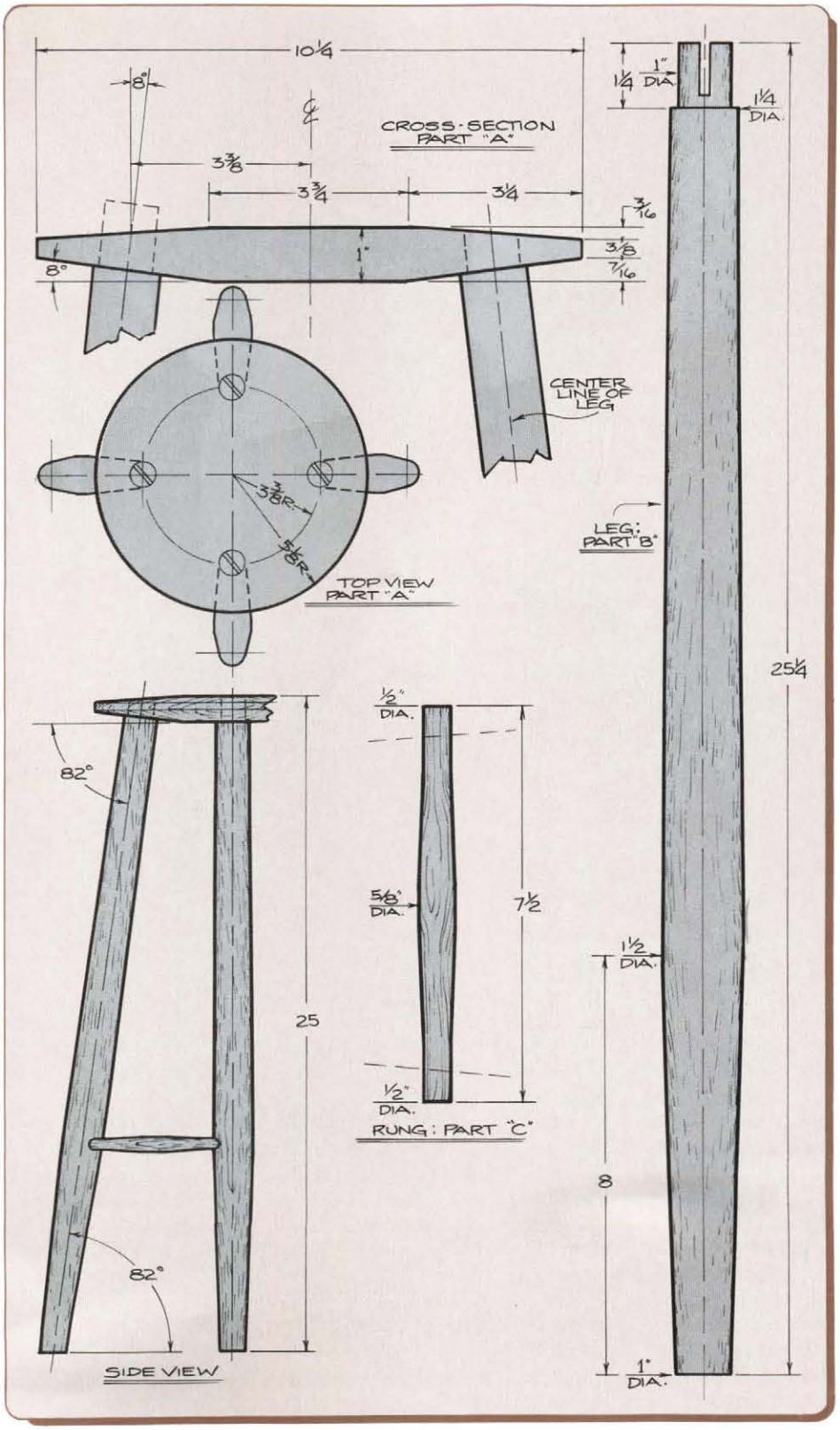
Now attach the seat to the lathe faceplate and turn to the profile shown in the cross-sectional view of part A. It is important that you establish the flat 8-degree taper on the seat bottom, since this flat area aids in the next step, drilling the holes to accept the four leg tenons. Lay out as shown in the top view for these holes, then drill each of the holes with a 1 in. diameter Forstner bit by clamping the top on the 8-degree flat to the drill press table. You will need a backing block under the seat, since the holes are drilled through.

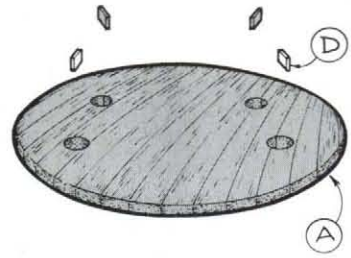
Next, cut 1¾ in. by 1¾ in. by 28 in. long leg turning blanks from oak, mount in the lathe, and turn to a 1½ in. diameter. Index the stock ends and locate for the rung tenon holes 8 in. from what will be the bottom ends of the legs. As shown in the rung mortise drilling illustration, these tenon holes must be positioned 98 degrees apart to accommodate the 8-degree splay of the legs. Construct a simple V-block to hold the leg stock. The leg and V-block are clamped to the drill press table. Note that the V-block must be inclined at 5 degrees to the drill press table. Now, using a ½ in. diameter Forstner bit, drill the ½ in. deep holes that will accept the rungs (C).

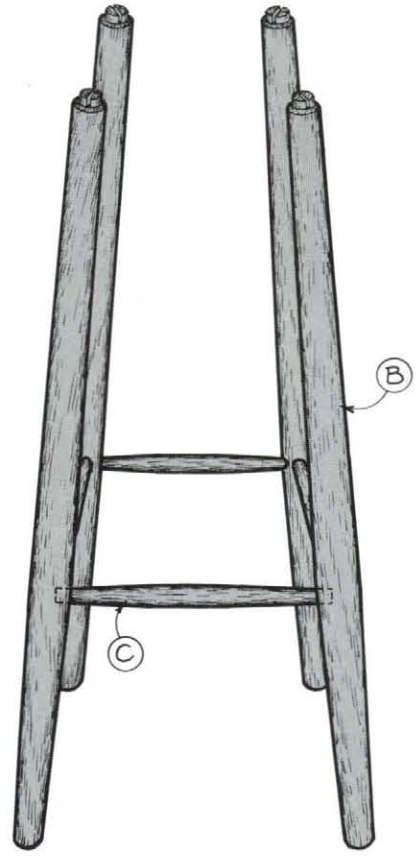
Turn the legs to establish the tapers as illustrated, and turn the 1 in. diameter tenon on the top end of each leg. Also turn the rungs, which taper gradually from ⅝ in. at the center to ½ in. at the ends.

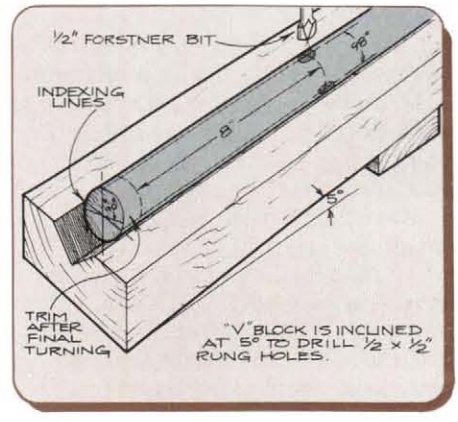
After trimming the legs and rungs to final length, cut a cross-grain kerf 1 in. deep into the ends of the leg tenons. Assemble the stool using glue throughout, and wedge the leg tenons to lock them. These wedges (D) can be made from a contrasting wood that will provide the stool top with an attractive detail. A band clamp will help in clamping up the legs and rungs.

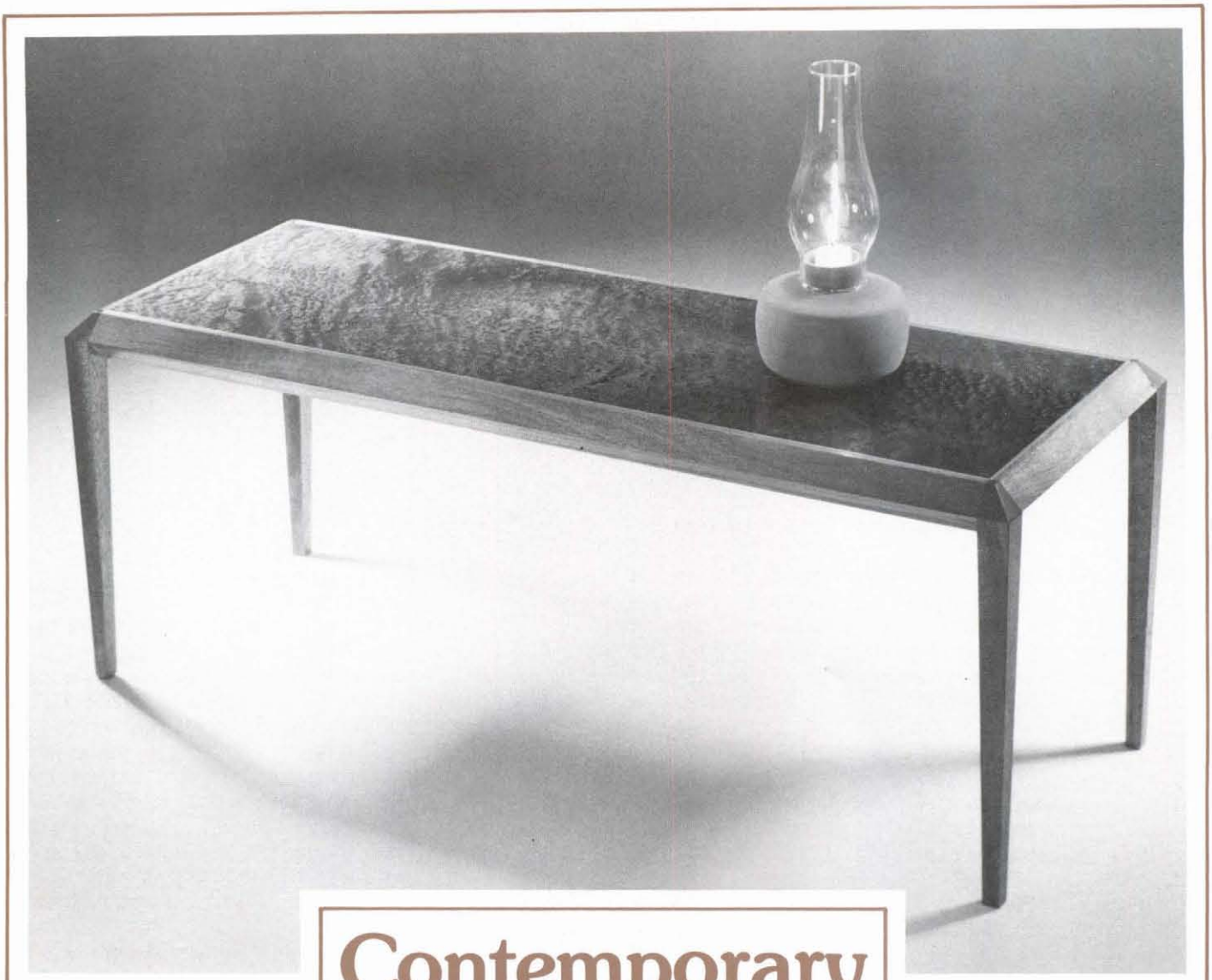
After trimming the leg tenons flush with the seat top, final sand and finish the stool with two coats of Watco Danish Oil. WWJ


10¼
8°
3⅜
3¾
3¼
CROSS-SECTION PART "A"
1¼ DIA.
1" DIA.
3/16
3/8
7/16
1"
8°
CENTER LINE OF LEG
3/8R.
5/8R.
TOP VIEW PART "A"
LEG: PART "B"
25¼
82°
25
½" DIA.
5/8" DIA.
7½
½" DIA.
RUNG: PART "C"
1½ DIA.
8
1" DIA.
82°
SIDE VIEW


D
A


B
C


½" FORSTNER BIT
INDEXING LINES
8
5°
TRIM AFTER FINAL TURNING
"V" BLOCK IS INCLINED AT 5° TO DRILL ½ x ½" RUNG HOLES.



Contemporary Coffee Table

Crisp, clean lines give this elegant little table a light and delicate look that's very pleasing to the eye. We used Honduras mahogany for all solid stock parts, with quilted mahogany veneer covering a birch plywood top. Aluminum angle is incorporated as a structural and decorative element.

The four legs (A) are made first. For each one, cut stock to 1 5/16 in. square by 16 1/16 in. long. Both dimensions allow a little extra material so that later, after assembly, the legs can be trimmed perfectly flush to the side stretchers (B) and the end stretchers (C).

Referring to the mortise detail, lay out and mark the location of the mortises. Note that the dimensions are measured from the top of the leg, which includes the 1/16 in. extra material to be trimmed flush after assembly. Use a sharp chisel to chop out each mortise. To get clean, well-fitted joints, these mortises must be located and cut accurately, so use considerable care here.

As shown in the side and front views, the legs are tapered on the two outside surfaces. If you have one, a table saw tapering jig will come in handy here. If not, lay out and mark the tapers on each leg, then hand plane the stock to the marked line. Start at a point 15/16 in. from the top end (see mortise detail), and taper the stock to 1 1/16 in. at the bottom. This cut, like the ones before it, will leave some extra material to be trimmed off later on.

The 45-degree bevels on the top end of each leg are cut on the table saw. As shown in the mortise detail, the bevel starts 15/16 in. from the top edge. To make the bevels, set the table saw blade to 90 degrees and set the miter gauge to 45 degrees. Make the first bevel with the miter gauge in the left-hand slot, then switch to the right-hand slot to make the second bevel.

For the side and end stretchers you'll need stock that measures 1 1/4 in. thick by 2 in. wide. To insure tight joinery when the table is assembled later on, it's important to have exact cut lengths. This is best done by using stop blocks on an auxiliary fence clamped to the miter gauge. Cut the side stretchers 40 in. long and the end stretchers 13 3/4 in. long.

Lay out the mortises on the ends of each stretcher before cutting them out with a sharp chisel. As with the leg mortises, these need to be located and cut accurately.

To cut the bevel on the lower edge of the stretcher (see stretcher detail), set the saw blade to 48 degrees (measured between the saw blade and the table), then locate the rip

fence ¼ in. from the blade. To cut the bevel on the upper edge of the stretcher, set the saw blade to 45 degrees and locate the rip fence ⅜ in. from the blade. To complete work on the stretchers, use the table saw or router table to cut the ¾ in. wide by 1/16 in. deep rabbet that will accept the aluminum angle (parts I and J).

Cut the wide and narrow splines (parts D and E) from 3/16 in. thick stock and miter one end to 45 degrees (see spline detail). Make sure the grain runs in the direction shown.

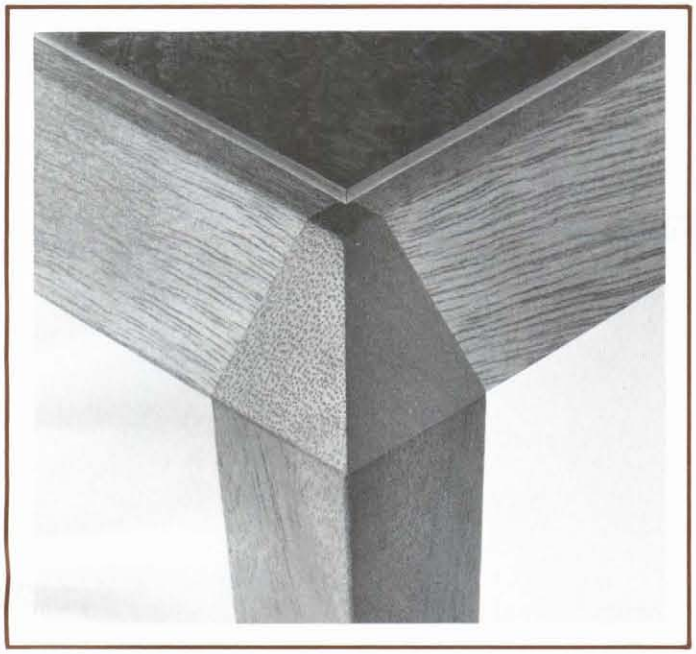
The legs and stretchers can now be assembled. First, though, dry assemble the parts to insure that all components fit to your satisfaction. If everything looks in order, apply glue to the mortises and splines, then apply pressure with bar or pipe clamps. To protect the beveled edge on the leg, we used clamp blocks as shown in the clamping detail. If the stretchers are not square to each other, it will be difficult to get a good fit-up when the top is added, so check for squareness and make adjustments as necessary.

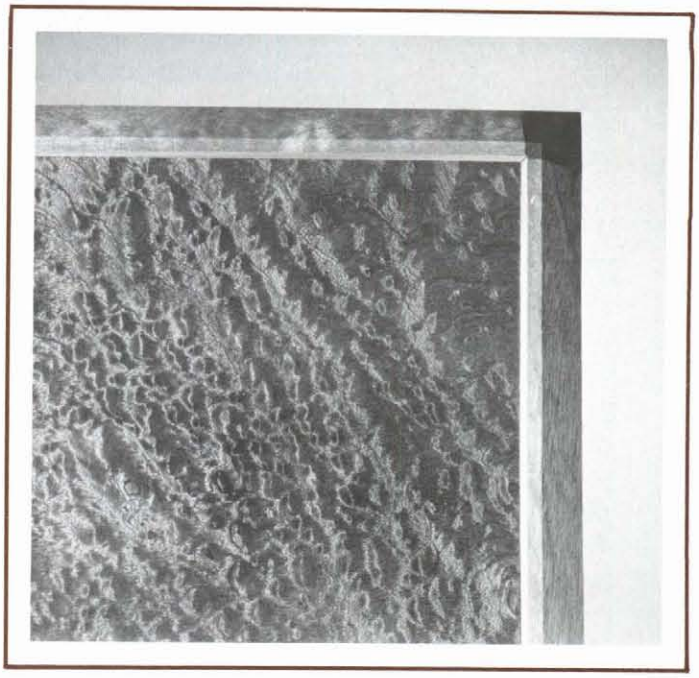
When dry, remove the clamps before cutting the 1/16 in. square by ¾ in. long notch in the corner of each leg. These notches enable the aluminum angle to fit snugly in each corner.

The aluminum angle (parts I and J) can be purchased at just about any hardware store or building supply center. We used a band saw to cut the 45-degree miters on each end. Cut the aluminum a bit longer than necessary, then use the disk sander to smooth the band saw cut. A board clamped at 45 degrees on the disk sander table will help to hold the aluminum at the proper angle.

Drill and counterbore pilot holes in each aluminum angle (see exploded view for their approximate location), then screw the aluminum to the stretchers with ½ in. long by no. 6 flathead wood screws. The ¾ in. by 1/16 in. rabbet in the stretchers comes in handy here as it serves to hold the aluminum in its proper location.

Next, cut the top (F) from ¾ in. birch plywood to a width of 14 in. and a length of 40½ in. The length and width dimensions allow extra stock. As mentioned earlier, we used quilted mahogany veneer for the upper laminate (H). For the lower laminate (G) a lower cost, straight-grained Honduras mahogany was used. Both types of mahogany can be ordered from: Wood Shed, 1807 Elmwood Avenue, Buffalo, NY 14207-2492. Specify that you need a width of at least 14 in. and a length of at least 40½ in.





After the upper and lower surfaces of the veneer are glued to the top, it can be cut to the final length and width. Before cutting, though, carefully measure the exact width and length of the opening for the top, then cut the top to fit the opening. It should be a snug, sliding fit all around. Once satisfied with the fit, remove the top and cut the ¾ in. wide rabbet all around the bottom edge. The depth of the rabbet should be such that the top is flush with the top edge of the aluminum. The top can now be screwed to the bottom leg of the aluminum, again using ½ in. long by no. 6 flathead wood screws.

The top end of the legs can now be sanded flush with the stretchers. The remaining areas of the legs can be planed, scraped or sanded as needed to get the desired taper and a smooth finish.

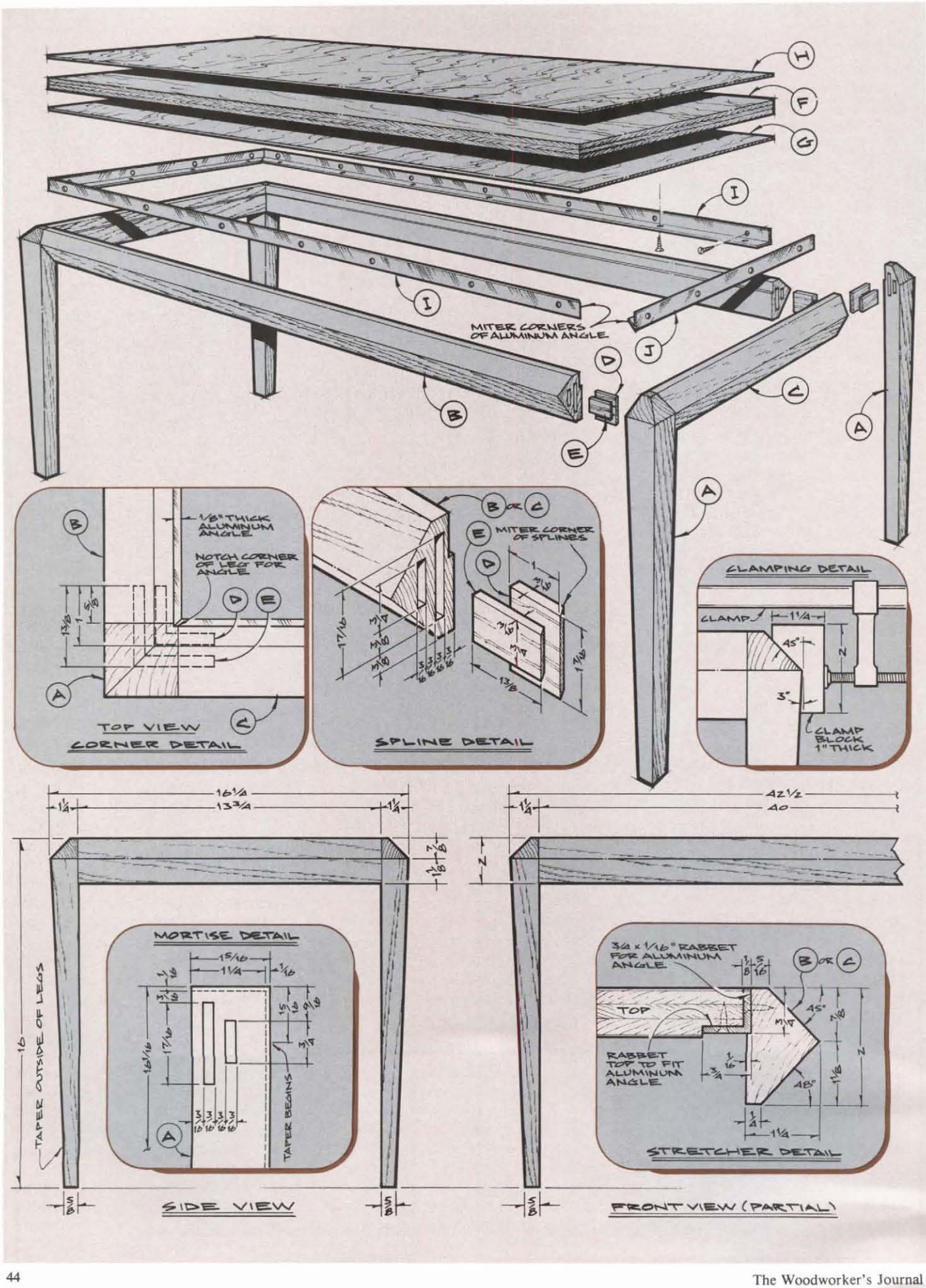
After sanding the stretchers the top can be lightly sanded or scraped with a cabinet scraper. Remember, the veneer is thin so don't overdo it or you risk sanding into the plywood.

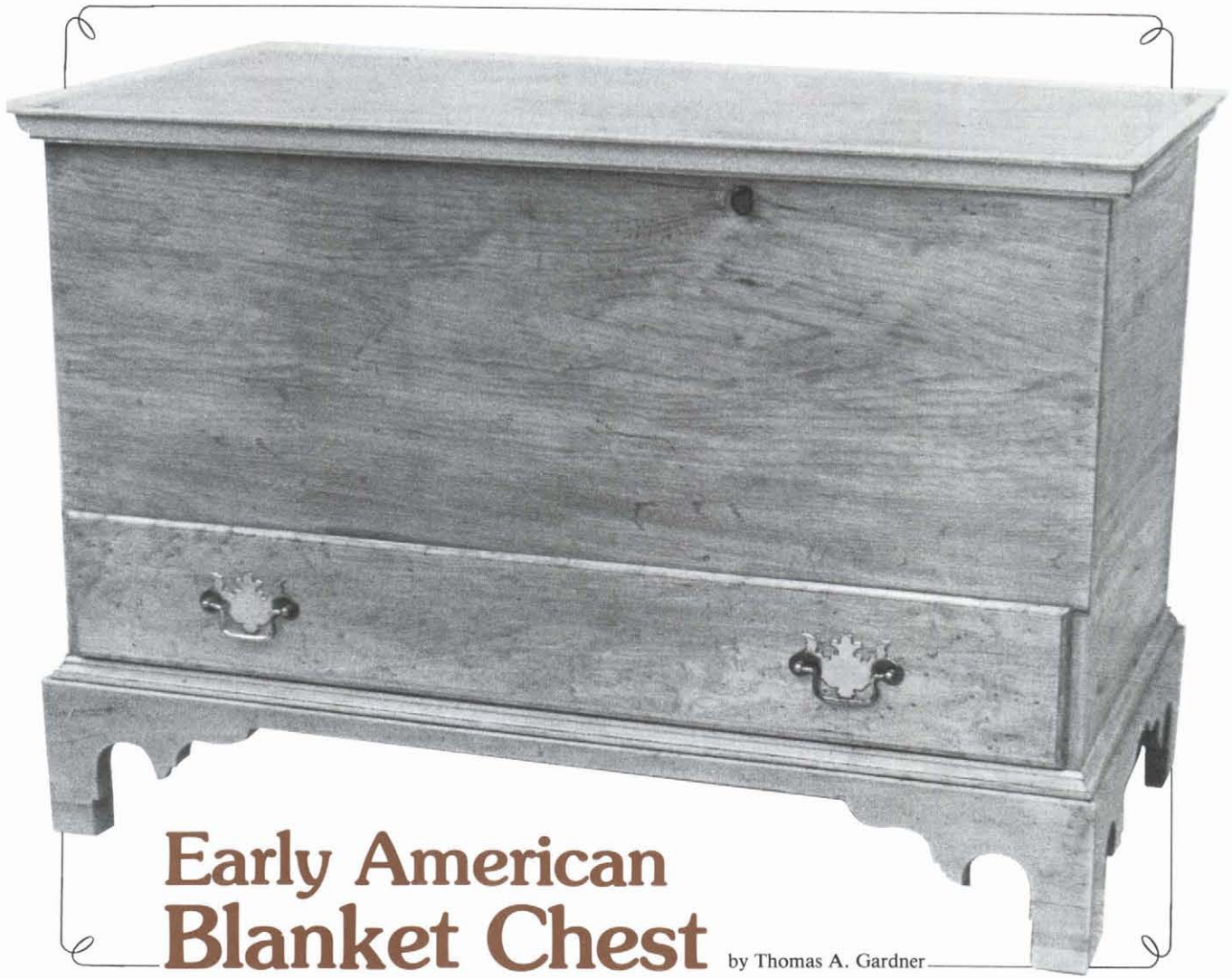
Three coats of a good penetrating oil will produce an attractive final finish.

(continued on next page)

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Leg	1¼ × 1¼ × 16	4
B	Side Stretcher	1¼ × 2 × 40	2
C	End Stretcher	1¼ × 2 × 13¾	2
D	Wide Spline	3/16 × 17/16 × 1	8
E	Narrow Spline	3/16 × ¾ × 1⅜	8
F	Top	¾ × 13⅝ × 39⅞	1
G	Lower Laminate	as required	1
H	Upper Laminate	as required	1
I	Side Aluminum Angle	¾ × ¾ × 40⅛	2
J	End Aluminum Angle	¾ × ¾ × 13⅞	2


H
F
G
I
I
MITER CORNERS OF ALUMINUM ANGLE
J
D
E
B
C
A
A
B
1/8" THICK ALUMINUM ANGLE
NOTCH CORNER OF LEG FOR ANGLE
D
E
A
C
TOP VIEW
CORNER DETAIL
B OR C
E
D
MITER CORNER OF SPLINES
SPLINE DETAIL
CLAMPING DETAIL
CLAMP
1 1/4
45°
N
3°
CLAMP BLOCK 1" THICK
16 1/4
13 3/4
1 1/4
1 1/4
16
TAPER OUTSIDE OF LEGS
MORTISE DETAIL
TAPER BEGINS
A
SIDE VIEW
42 1/2
40
1 1/4
N
3/4 x 1/16" RABBET FOR ALUMINUM ANGLE
B OR C
TOP
RABBET TOP TO FIT ALUMINUM ANGLE
45°
48°
N
STRETCHER DETAIL
FRONT VIEW (PARTIAL)



Early American Blanket Chest

by Thomas A. Gardner

This Early American blanket chest is patterned after a New England chest dated 1792. Chests were common in Colonial and Early American homes since closets were quite rare. Many chests were dated and bore the name or initials of the maker/owner, an idea you may also consider. Although chests such as this often featured a false drawer front, our drawer is fully functional. The space above the drawer is called a well.

Authentic chests of this period were constructed entirely of solid stock, typically maple, walnut, birch, butternut, cherry, pine — or whatever wood was handy. The solid-stock-throughout construction did not present a wood movement problem, since early homes, with little insulation and no central heating, were not subject to the prolonged dry winter heat produced by modern heating systems. To eliminate any potential problem with wood movement, our design specifies plywood for the well and carcase bottom panels, and for the drawer bottom.

Although the photo shows authentic moldings cut by hand with a molding plane, we have called out more common moldings that enable you to fashion the decorative edge with the router and readily available beading bits.

You will need to glue up stock for the sides (A), back (B), front (C), and top (M). After cutting to size, use the dado head to cut the ⅜ in. by ¾ in. wide rabbets in the sides to accept the back. Notch the sides to accept the front, using the table saw to cross-cut as near to the notch end as possible, and then clean out the rest with the chisel. Next, cut the rabbet in the bottom ends of the sides and back to accept the carcase bottom (E). Rabbet the front to accept the well bottom (D) and sides, and cut the ⅜ in. by ¾ in. grooves in the sides and back into which the well bottom will fit. Cut the well bottom and carcase bottom to size from ¾ in. cabinet grade plywood (make certain these are perfectly square), test assemble, and then glue-up parts A through E. Also cut, fit, and glue the drawer spacers (F and G) in place. Remember to check that the carcase bottom fits flush with the sides along the front, and trim back as needed if it does not.

Now referring to the various grid patterns, lay out the profiles of parts H, I, and J on 1 in. thick stock. After cutting these parts to length and width, rabbet the base front to accept the base sides. Then, using the saber saw, jig saw, or the band saw with a narrow blade, cut out the illustrated profiles of these parts. Note the difference in the foot width of the front and side base profiles.

Test fit, glue, and clamp the base parts in place, taking care that location is right. A pencil line, scribed ¾ in. up from the bottom edge of the sides, will serve as a helpful guide. Note that the two base back parts are tacked with finishing nails through H, and are also screwed up into the carcase

(continued on next page)

bottom (see base detail). Add the cleats (K and L) as shown to provide additional backing and strength for the base parts. The end of the cleats are all rounded over (see exploded view) to make them less visible.

Make the top (M) next. Select good, clear, straight-grained boards to minimize wood movement problems in the material you will joint and edge-glue for the top. As indicated in the top edge molding detail, a ¼ in. thick by ½ in. long tongue is cut on both ends of the top to fit into a corresponding groove cut into the end moldings (N). Use a ½ in. beading bit, as shown, to fashion the decorative edge on the end molding and on the top front molding (O), and drill out and slot the "breadboard" top end moldings. These moldings are fixed at the front end to permit any expansion or contraction in the solid stock top toward the back exclusively. The breadboard end treatment for the top is designed to eliminate any chance of the end moldings coming off due to expansion and contraction in the top over the years. If you don't mind substituting a hardwood plywood for the top, the breadboard end feature can be eliminated. Another alternate top treatment is to use solid stock, eliminate the molding entirely, and apply the decorative edge bead directly to the top.

Mortise for the 3 in. hinges (W) and mount the top. There should be ample clearance for the molding at both the sides and front. Referring to the base molding detail, use a ⅜ in. beading bit to cut the decorative edge in parts P and Q, miter as shown and glue in place.

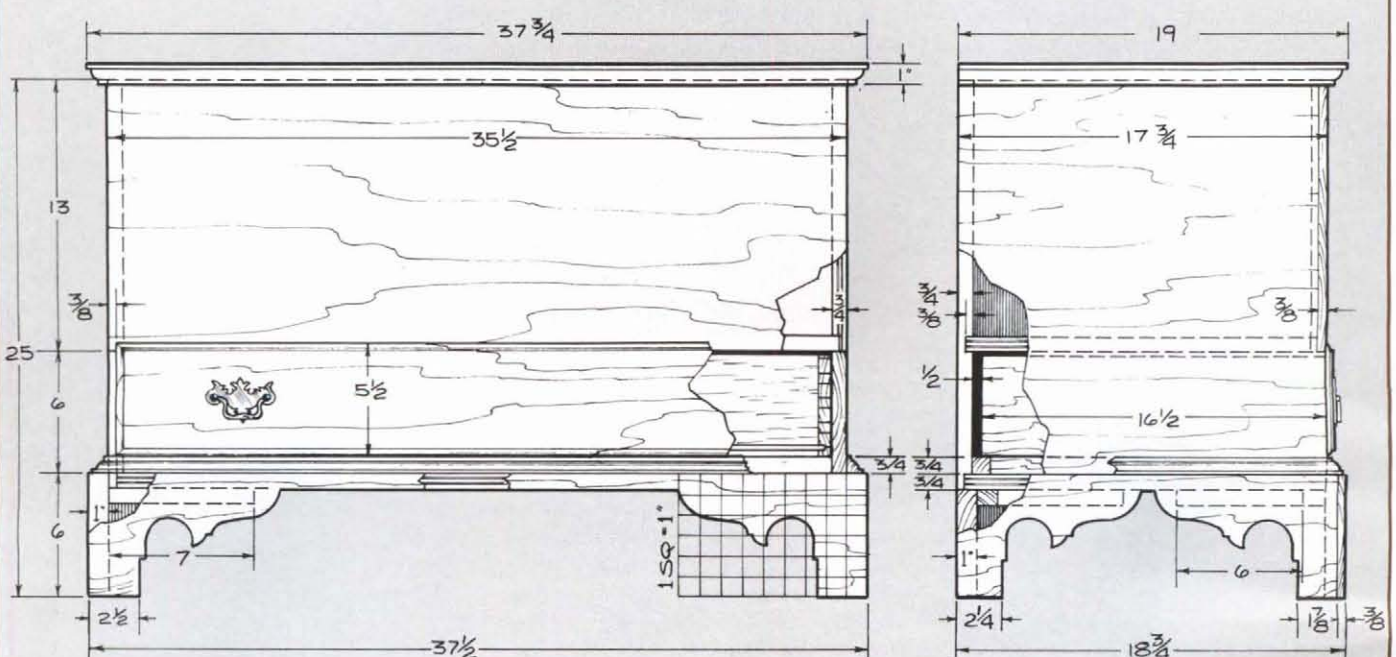
Make the drawer sides (R), back (S), front (T) and bottom (U). Although we used hand cut dovetail construction on the front (refer to the dovetail layout), the drawer may also be simply rabbeted and bradded throughout. We used a plywood bottom, which fits neatly into the ¼ in. by ¼ in. grooves cut into the front, sides, and back.

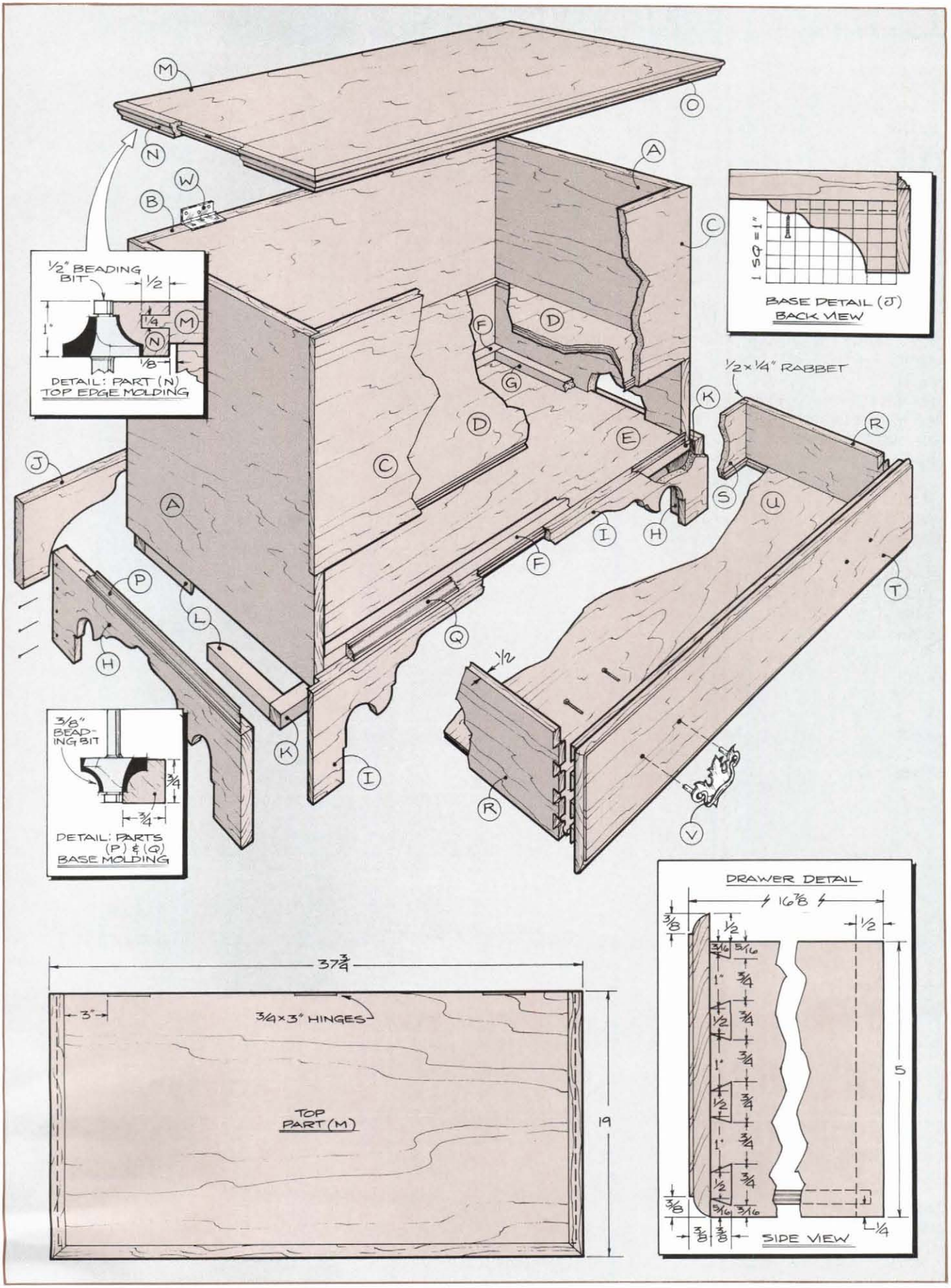
We prefer a natural oil finish, however antiquing kits offer the woodworker who desires that "authentic" look an attractive alternative. Old-fashioned milk paint is another option you may wish to consider. Last of all, mount the solid brass period drawer pulls (V), which provide the right final touch. WWJ

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Side	¾ × 19¾ × 17¾	2
B	Back	¾ × 19¾ × 34¾	1
C	Front	¾ × 13 × 35½	1
D	Well Bottom	¾ × 17 × 34¾	1
E	Carcase Bottom	¾ × 17⅜ × 34¾	1
F	Long Drawer Spacer	¾ × ¾ × 34	2
G	Short Drawer Spacer	¾ × ¾ × 15½	2
H	Base Side	1 × 6 × 18⅜	2
I	Base Front	1 × 6 × 37½	1
J	Base Back	1 × 5¼ × 9	2
K	Long Cleat	¾ × 1 × 7	4
L	Short Cleat	¾ × 1 × 6	4
M	Top	¾ × 18 × 36¾	1
N	Top End Molding	1 × 1 × 19	2
O	Top Front Molding	1 × 1 × 37¾	1
P	Base Side Molding	¾ × ¾ × 18½	2
Q	Base Front Molding	¾ × ¾ × 37	1
R	Drawer Side	½ × 5 × 16½	2
S	Drawer Back	½ × 5 × 33½	1
T	Drawer Front	¾ × 5½ × 34¾	1
U	Drawer Bottom	¼ × 16⅛ × 33½	1
V	Drawer Handles*	3 in. polished brass	2
W	Hinges	¾ × 3 in.	3

*Available from: Paxton Hardware, Ltd., 7818 Bradshaw Rd., Upper Falls, MD 21156. Order part no. 806.



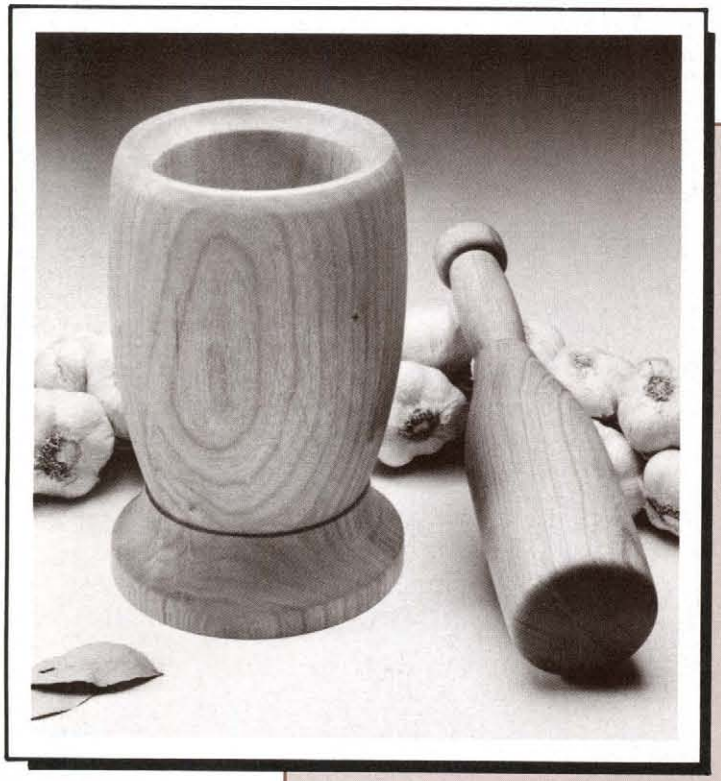

M
O
N
W
B
A
C
½" BEADING BIT
½
¼
1"
⅛
DETAIL: PART (N)
TOP EDGE MOLDING
1 SQ = 1"
BASE DETAIL (J)
BACK VIEW
F
D
G
½×¼" RABBET
K
R
J
D
E
C
S
U
A
I
H
F
T
P
L
Q
H
½
K
I
R
V
3/8" BEADING BIT
¾
¾
DETAIL: PARTS (P) & (Q)
BASE MOLDING
DRAWER DETAIL
16⅞
⅜
½
½
5
1"
¾
¼
SIDE VIEW
37¾
3"
¾×3" HINGES
TOP
PART (M)
19

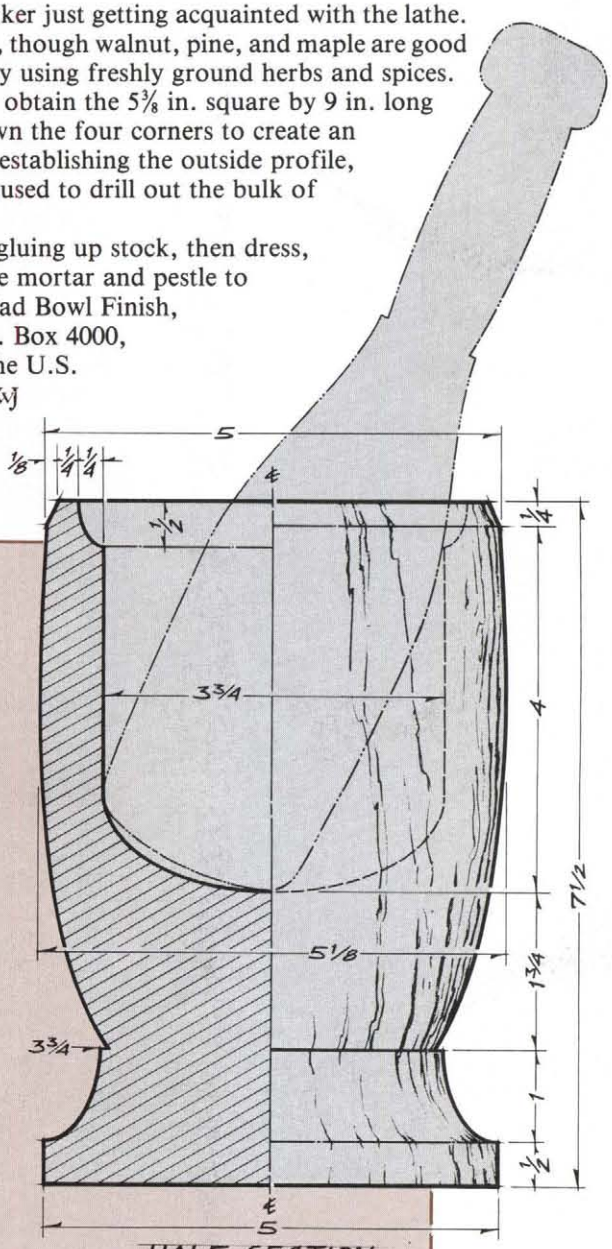
Mortar and Pestle

A mortar and pestle is an ideal turning project for the woodworker just getting acquainted with the lathe. Ours, which is based on an antique design, is crafted in cherry, though walnut, pine, and maple are good alternate choices. In the kitchen, it will come in handy if you enjoy using freshly ground herbs and spices.

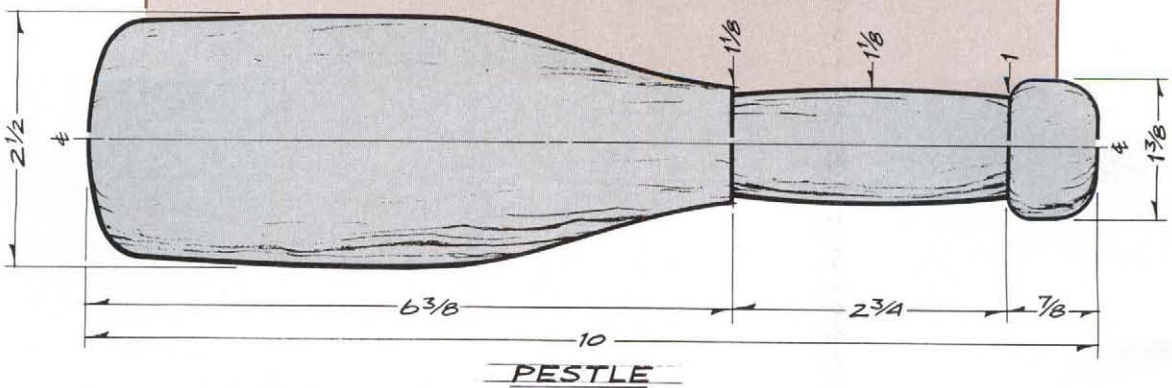
Start by gluing up three pieces of 2 in. thick stock, sufficient to obtain the 5⅜ in. square by 9 in. long turning square required for the mortar. Square one end, dress down the four corners to create an octagon, find the center, and mount on the lathe faceplate. After establishing the outside profile, use the round nose to clean the inside. *Tip:* A Forstner bit can be used to drill out the bulk of the inside waste, cutting down on your turning time.

Make the 2¾ in. square by 12 in. long pestle turning square by gluing up stock, then dress, center, mount and turn to the indicated dimensions. Trim both the mortar and pestle to their final lengths, and finish with a non-toxic finish. Behlen's Salad Bowl Finish, sold by Woodcraft Supply Corporation, 41 Atlantic Avenue, P.O. Box 4000, Woburn, MA 01888, is a good one. Once dry, it is approved by the U.S. Food and Drug Administration for use in contact with food. WWJ

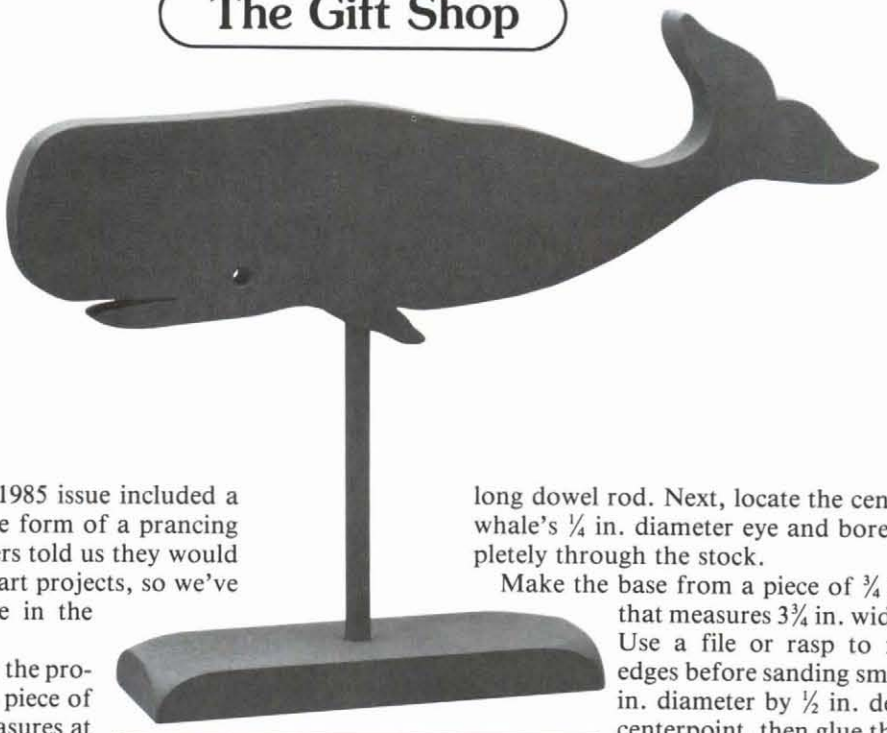




HALF SECTION
MORTAR



PESTLE



Whale
Folk Art Silhouette

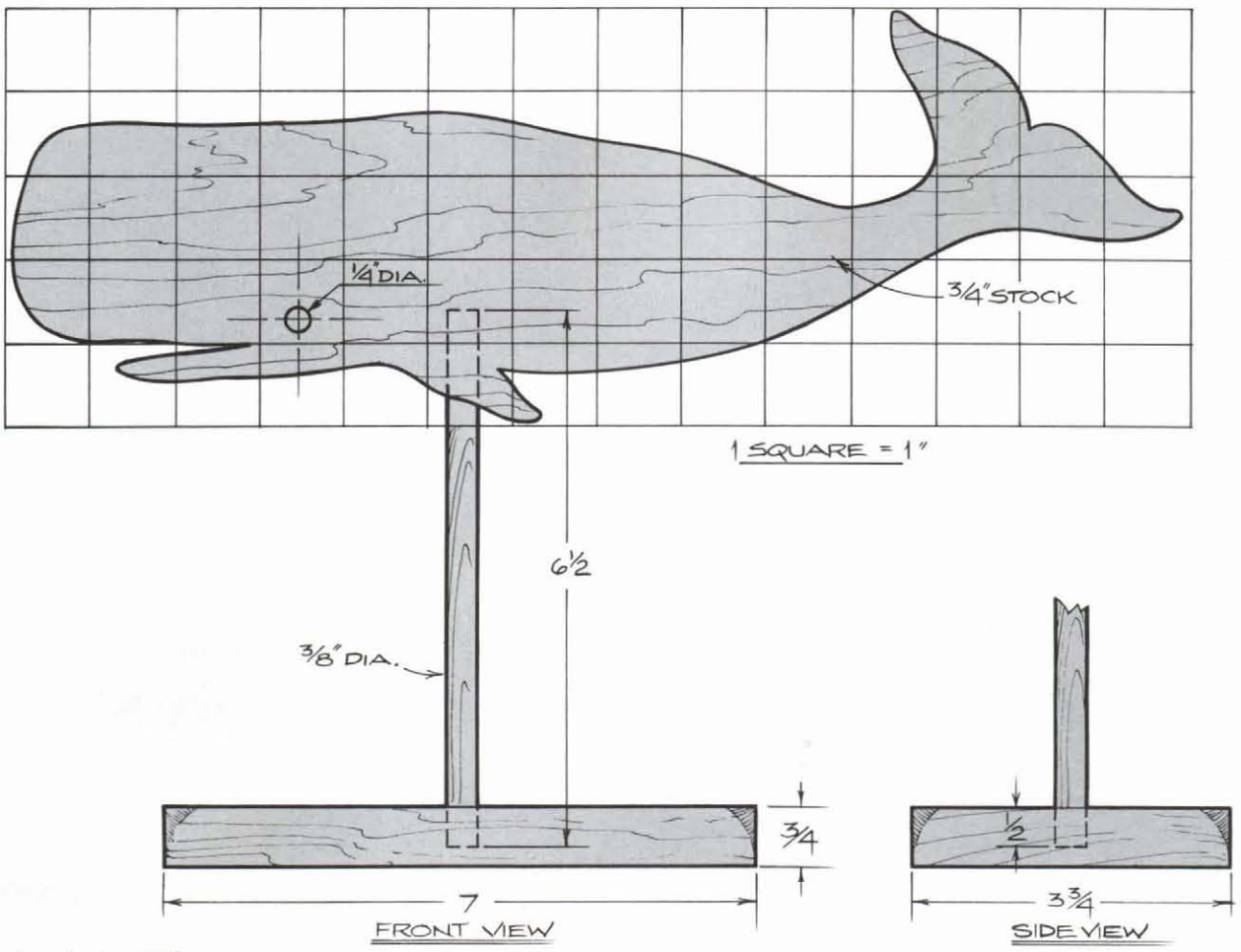
Our September/October 1985 issue included a folk art silhouette in the form of a prancing horse. A number of our readers told us they would like to see more of these folk art projects, so we've added another here, this one in the shape of a sperm whale.

To make the whale, transfer the profile from the grid pattern to a piece of ¾ in. thick pine stock that measures at least 5 in. wide and 14 in. long. Use a band or saber saw to cut just outside of the waste side of the marked line, then sand exactly to the line. Bore a ⅜ in. diameter hole to a depth of about 1¼ in. to accept a ⅜ in. diameter by 6½ in. long dowel rod. Next, locate the centerpoint of the whale's ¼ in. diameter eye and bore the hole completely through the stock.

Make the base from a piece of ¾ in. thick stock that measures 3¾ in. wide by 7 in. long. Use a file or rasp to round the top edges before sanding smooth. Bore a ⅜ in. diameter by ½ in. deep hole at the centerpoint, then glue the dowel rod in place.

Final sand all parts before painting or staining. We finished our whale with two coats of flat gray paint, but any color paint or stain will be acceptable.

WWJ



Toy Wagon

This sturdy wagon provides room for a sizable supply of blocks, stuffed animals, books, or any other valued possession that a toddler might enjoy hauling around the house. Except for the birch dowel pins and the plywood bottom, all parts are made from maple, a wood that's both hard and durable.

Make the sides (A) and ends (B) first. Cut ¾ in. thick stock to a width of 4 in. and a length of about 54 in. The length dimension allows for some extra stock. Use the dado cutter to cut a ¼ in. by ⅜ in. rabbet all along one edge, then use the regular saw blade to crosscut the stock into four pieces: two pieces 16 in. long (for the sides) and two pieces 9¼ in. long (for the ends). Following this, the dado head is once again used, this time to cut the ⅜ in. by ¾ in. rabbet on each end of the sides.

Now, cut the bottom (C) from ¼ in. thick birch plywood, making sure the cuts are square. After giving each part a thorough sanding, the sides, ends, and bottom can be assembled. Apply glue to all mating surfaces, then apply pressure with bar or pipe clamps. Check for squareness before setting aside to dry overnight.

You'll need 1½ in. thick stock to make the back axle (D) and the front axle (E). Rip the back axle to a width of 2¾ in. and the front axle to a width of 2 in., then cut both parts to a length of 7½ in. At a point ¾ in. from the bottom edge of each axle (see side view) bore a ½ in. diameter hole to a depth of 1 in. on each end. On the front axle, use a dado cutter to cut the two ¾ in. by ¾ in. dadoes at a point 2⅛ in. from each end (see front view). At the centerpoint of the top edge (see cross section, front axle assembly) bore a ⅜ in. diameter hole through the front axle. Then, on the top edge counterbore the hole to ⅞ in. diameter by ½ in. deep; on the bottom edge counterbore the hole to 1⅛ in. diameter by ¾ in. deep.

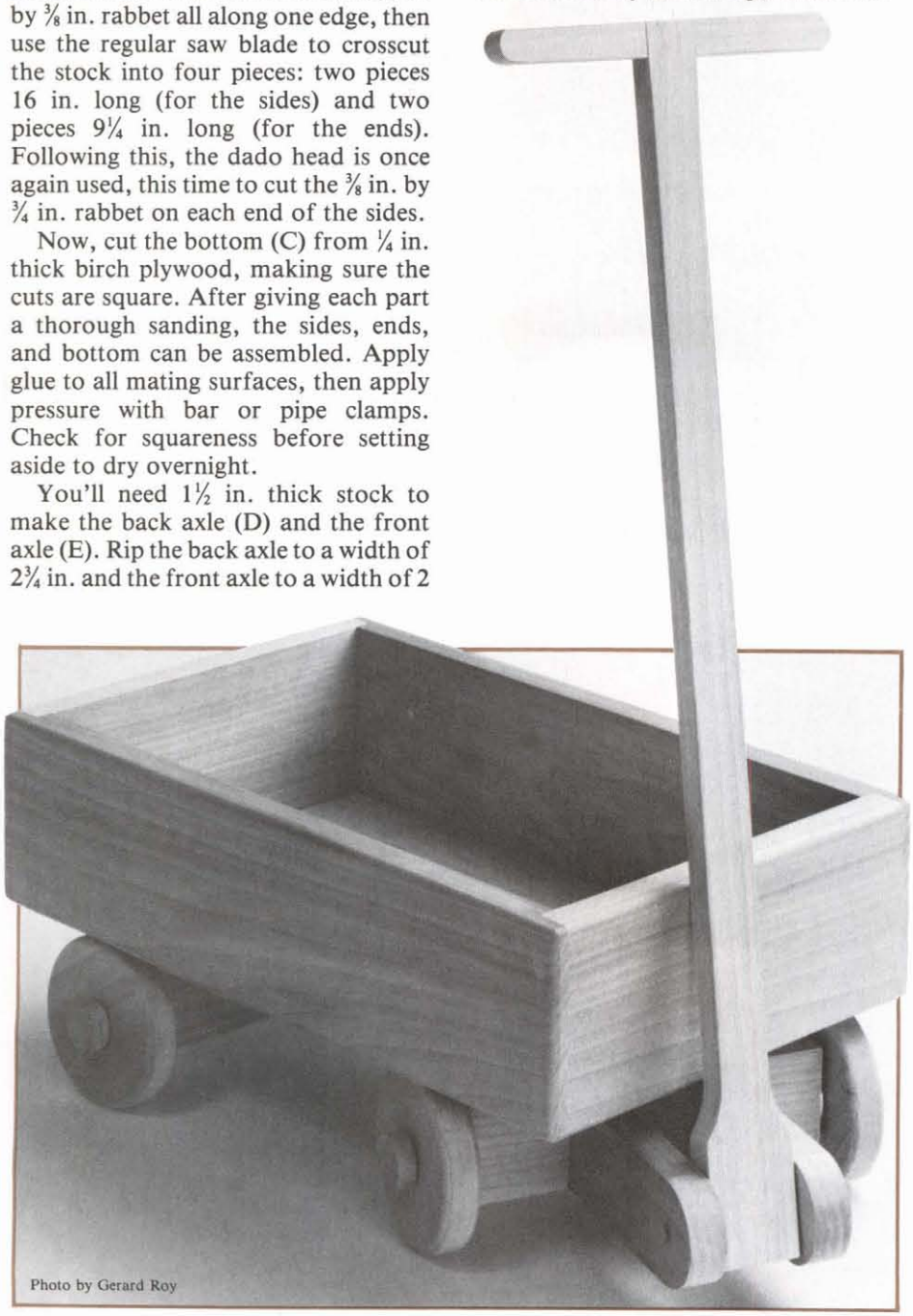


Photo by Gerard Roy

To make the spacer (F), cut ¾ in. thick stock to 3½ in. square. With a compass scribe a 3 in. diameter circle, then use a band or saber saw to cut it out. Stay just outside the marked line, and after the cut is complete, sand the rough edge exactly to the line. Bore a ⅜ in. diameter hole at the centerpoint, then counterbore the hole to ⅞ in. diameter by ¼ in. deep. Assemble a ⅜ in. diameter by 2½ in. long carriage bolt to the spacer (see exploded view), then add a 1¼ in. diameter washer and nut to hold it in place. The spacer can now be glued to the underside of the bottom. For maximum glue strength, be sure the grain direction of the spacer runs parallel to the grain direction of the bottom. Clamp firmly to insure a good glue bond.

Cut the two yokes (G) to length and width from ¾ in. thick stock before rounding over the front end with a band or saber saw. Sand smooth before gluing and clamping to the front axle as shown. When dry, bore pilot holes and assemble two 1¾ in. by no. 8 flathead wood screws in the end of each yoke.

Make and assemble the handle shaft (H) and the handle (I) as shown. The base of the handle shaft is joined to the yoke with a pair of 1¼ in. by no. 8 flathead wood screws. Fully tighten the screws then back off about one turn to allow the handle shaft to pivot freely.

Glue and clamp the back axle to the underside of the bottom. When dry, the front axle is assembled to the carriage bolt with a 1 in. diameter washer and a locking nut (most hardware stores carry them).

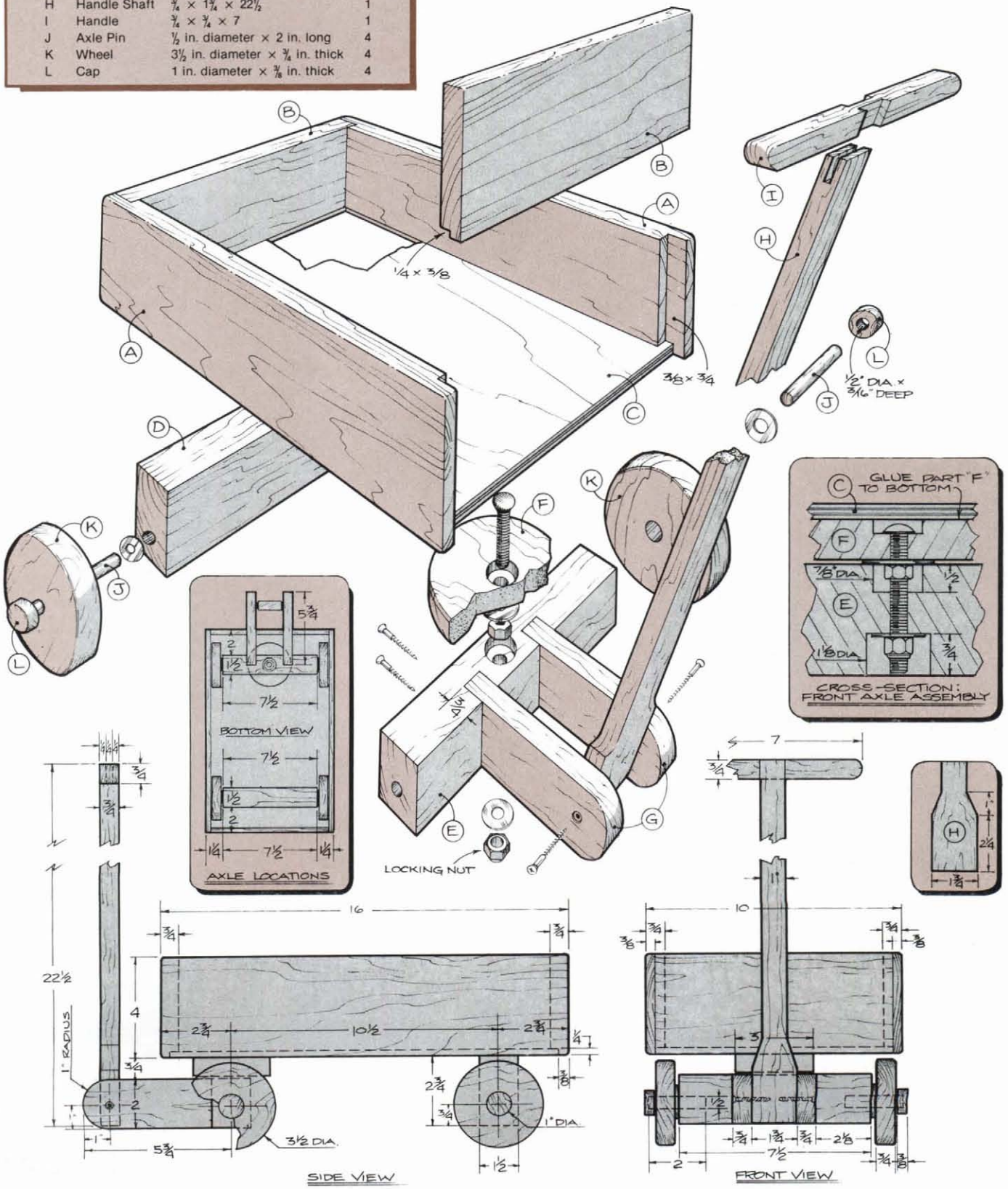
To make the axle pin (J), cut ½ in. diameter birch dowel stock into four pieces, each piece 2 in. long. Glue into the axle holes as shown.

The four wheels (K) can be turned on the lathe or cut out on the band or saber saw. The cap (L) can be made in the same manner before boring a ½ in. diameter by 3/16 in. deep hole in each one. Assemble a washer to each axle pin, then add the wheel. The cap is then glued in place. Avoid any glue squeeze out which could cause the cap to stick to the wheel.

Round over all sharp edges before final sanding. No final finish is necessary. WWJ

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Side	¾ × 4 × 16	2
B	End	¾ × 4 × 9¼	2
C	Bottom	¼ × 9¼ × 15¼	1
D	Back Axle	1½ × 2¾ × 7½	1
E	Front Axle	1½ × 2 × 7½	1
F	Spacer	3 in. diameter × ¾ in. thick	1
G	Yoke	¾ × 2 × 5¾	2
H	Handle Shaft	¾ × 1¾ × 22½	1
I	Handle	¾ × ¾ × 7	1
J	Axle Pin	½ in. diameter × 2 in. long	4
K	Wheel	3½ in. diameter × ¾ in. thick	4
L	Cap	1 in. diameter × ⅜ in. thick	4



Cranberry Rake

Even though much of the commercial cranberry crop is harvested by machine, the old-fashioned cranberry rake is still used to some extent. This miniature version of the cranberry rake is ideal for displaying dried flowers or for storing some small odds and ends. A small hole bored through the back enables it to be hung on a wall. The tines are made from birch dowel stock, while the remaining parts are made from pine.

To make the two sides (A) you'll need to hand plane thicker stock in order to get the ⅜ in. thickness. Next, cut the stock to a width of 3 in. and a length of 5⅝ in., then transfer the grid pattern from the drawing to the stock. Cut out on the band or jig saw, staying just outside the marked line, then sand exactly to the line. The front (B) and the bottom (D) are also made from ⅜ in. thick stock.

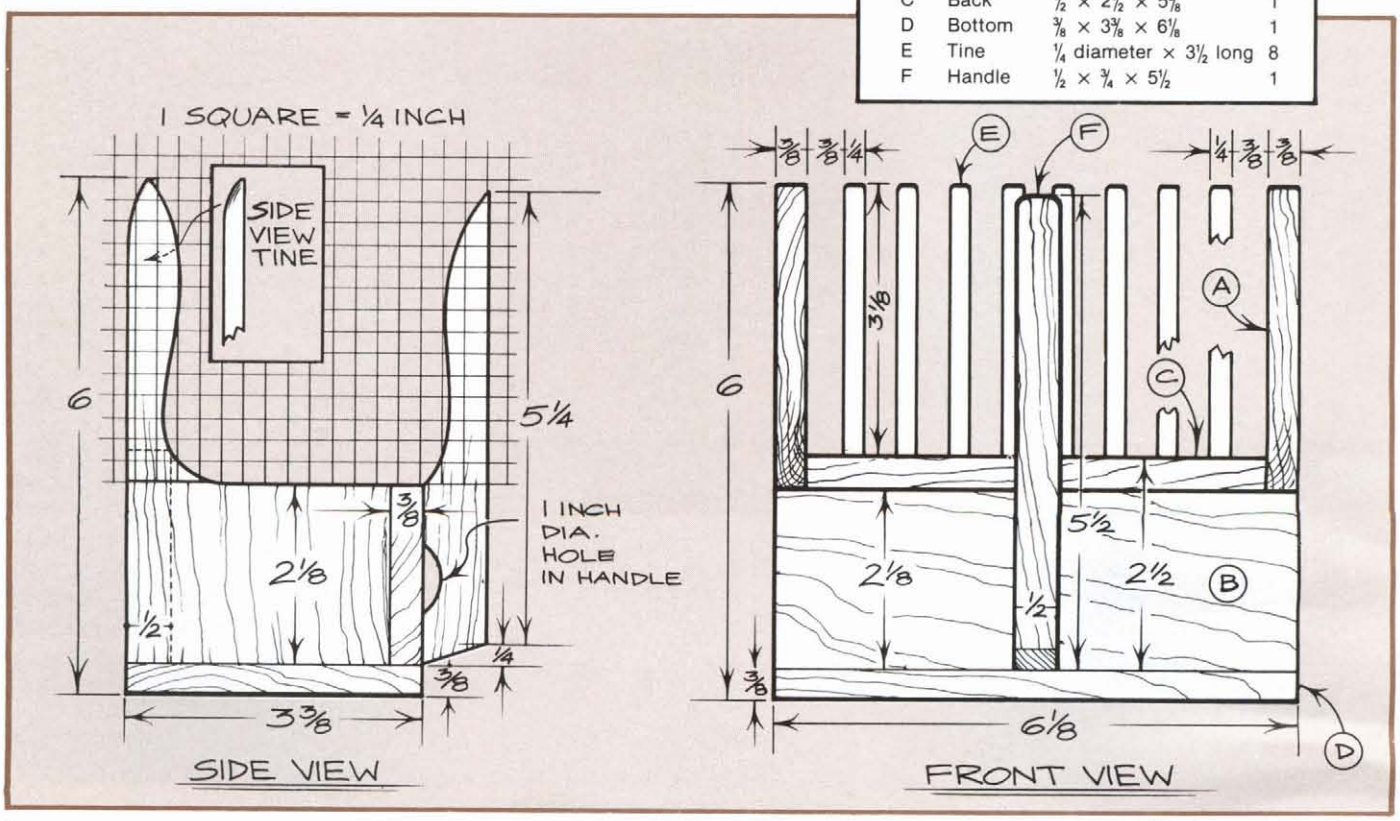
To make the back (C), cut ½ in. thick stock to length and width, then lay out and mark the location of the ¼ in. diameter by ⅜ in. deep holes to accept the tines (E). Cut the tines to a length of 3½ in. before gluing in place. When dry, clamp the back in a vise, then use a belt sander to bevel the end of each tine.

Make the handle as shown, then attach it to the front with glue and a pair of finishing nails driven from the back side. Now assemble the front, back, sides, and bottom with glue and countersunk finishing nails. Fill the countersunk holes and sand smooth.

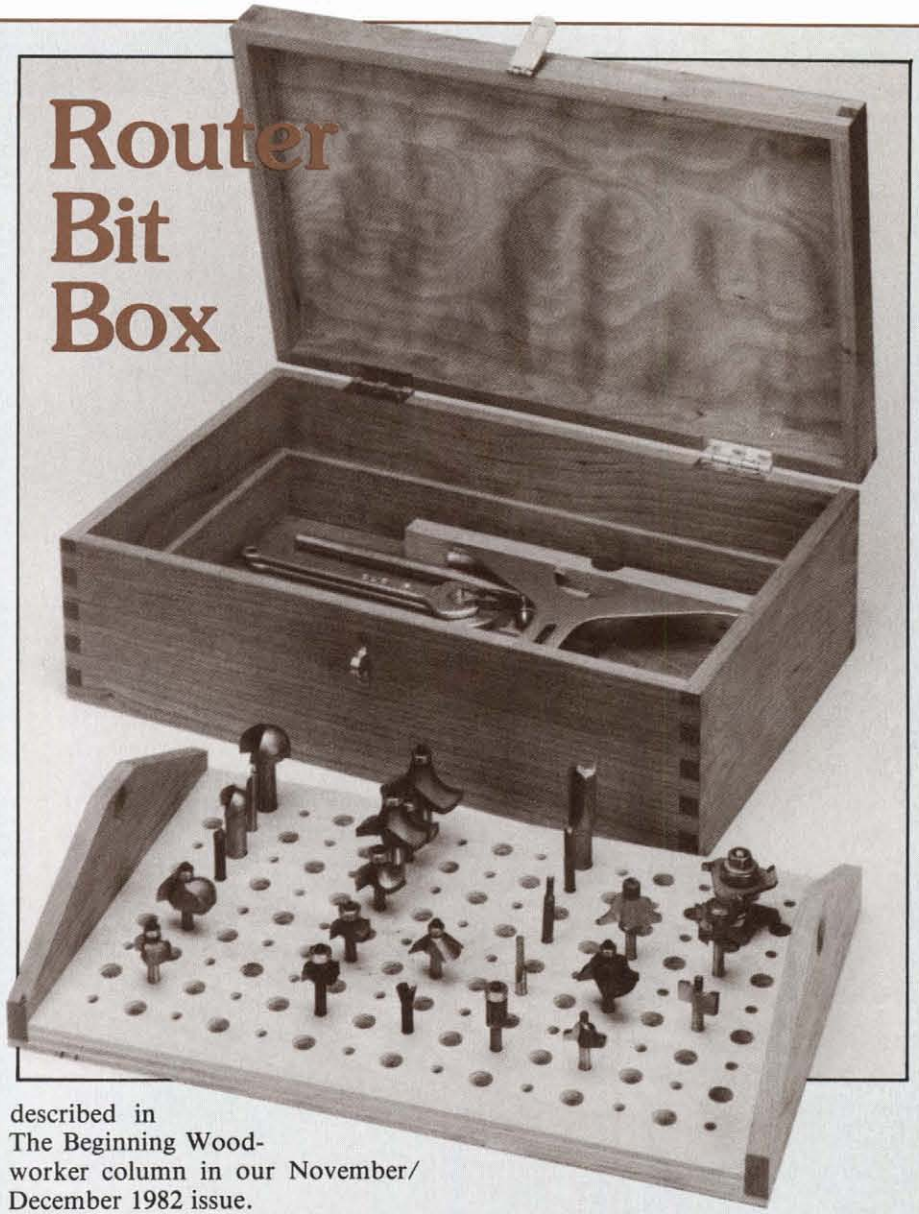
Final sand all parts before staining. Allow the stain to dry thoroughly, then apply two coats of a penetrating oil.

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Side	⅜ × 3 × 5⅝	2
B	Front	⅜ × 2⅛ × 6⅛	1
C	Back	½ × 2½ × 5⅜	1
D	Bottom	⅜ × 3⅜ × 6⅛	1
E	Tine	¼ diameter × 3½ long	8
F	Handle	½ × ¾ × 5½	1



Router Bit Box



Organize all your router bits and accessories in this handy storage case. There's room for up to 135 bits, plus space underneath for storing your edge-guide, router wrenches, guide bushings, and most any other accessories you have. We show holes bored for ¼ in. and ½ in. shanks, but the diameters can be changed to suit your particular needs.

The finger joints create a strong, attractive case, but a simple butt or rabbetted joint can be substituted if desired. Except for the birch plywood, we used cherry for all parts, although other kinds of wood, even pine, are acceptable.

To make the box frame (consisting of parts A, B, C, D, E, and F), you'll need a piece of ½ in. thick stock that measures 6⅜ in. wide and 60 in. long. Both the width and length dimensions allow a little extra stock. Next, crosscut the stock into two pieces 18 in. long and two pieces 11½ in. long.

Using the router, cut a ¼ in. by ¼ in. groove in each piece to accept the bottom (H). On the 18 in. lengths, this groove must be stopped at a point ¼ in. from each end. Use a hand chisel to square the rounded corners at the ends of the grooves. On the 11½ in. lengths, the groove is not stopped but rather it is cut along the entire length of the stock.

Still using the router, cut the ¼ in. by ¼ in. rabbet along the top edge of each piece to accept the top (G). Like the groove, the rabbet on the 18 in. lengths must be stopped ¼ in. from each end, while the rabbet on the 11½ in. stock is cut along the entire length of the stock.

The finger joints can now be cut on each end. Although they can be cut individually using a regular saw blade on the table saw, you'll save time by using a finger joint jig in conjunction with a dado cutter. This easy-to-make jig was described in The Beginning Woodworker column in our November/December 1982 issue.

Next, cut the bottom (H) from ¼ in. thick birch plywood. Make sure the corners are square. Once the bottom is cut, dry assemble the four frame parts and the bottom. If all looks okay, apply a thin coat of paste (Butcher's) wax to the inside corners of the frame. We it simplifies clean up if any glue squeezes out during assembly. The wax can be removed with acetone before the final finish is applied.

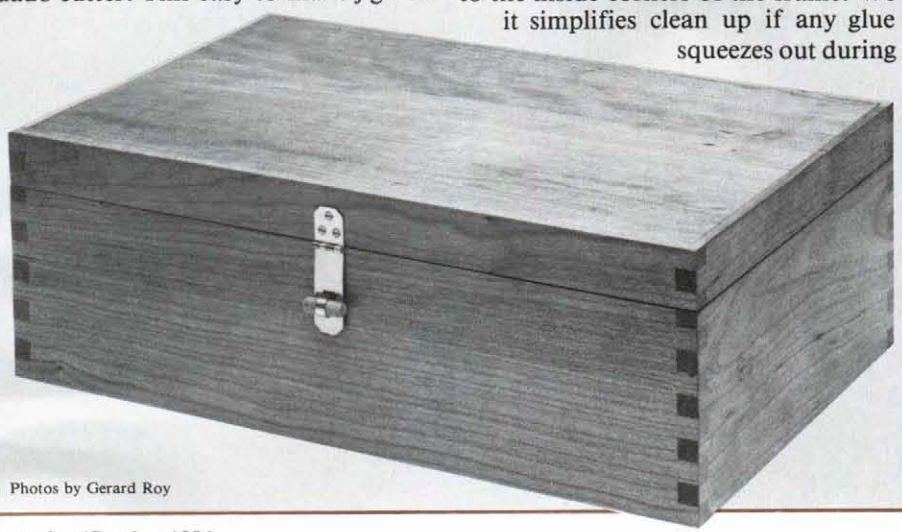
Disassemble the dry fit-up, then apply a thin coat of glue to the fingers and to the edges of the plywood. Clamp firmly to insure a good glue bond and check for squareness. Set aside to dry overnight.

When dry, remove the clamps, then measure the opening for the ¼ in. thick birch plywood top (G). This must be an exact fit, so make the measurements with care. It's a good idea to cut the stock slightly oversized so that one or two subsequent trimming cuts can be made to get the top to fit just right.

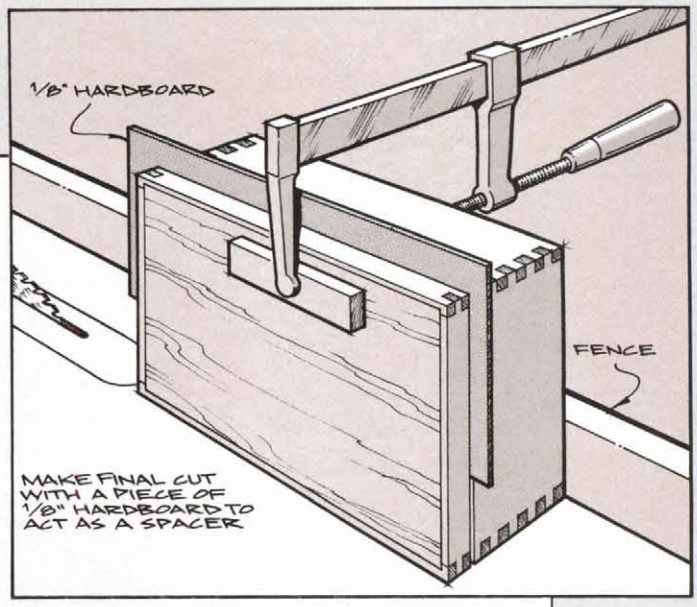
Once the top is cut to your satisfaction, apply glue to the rabbet and assemble it to the frame. Use clamps to apply pressure, then set aside to dry.

The table saw is used to cut the frame around its perimeter, thus

(continued on next page)



Photos by Gerard Roy



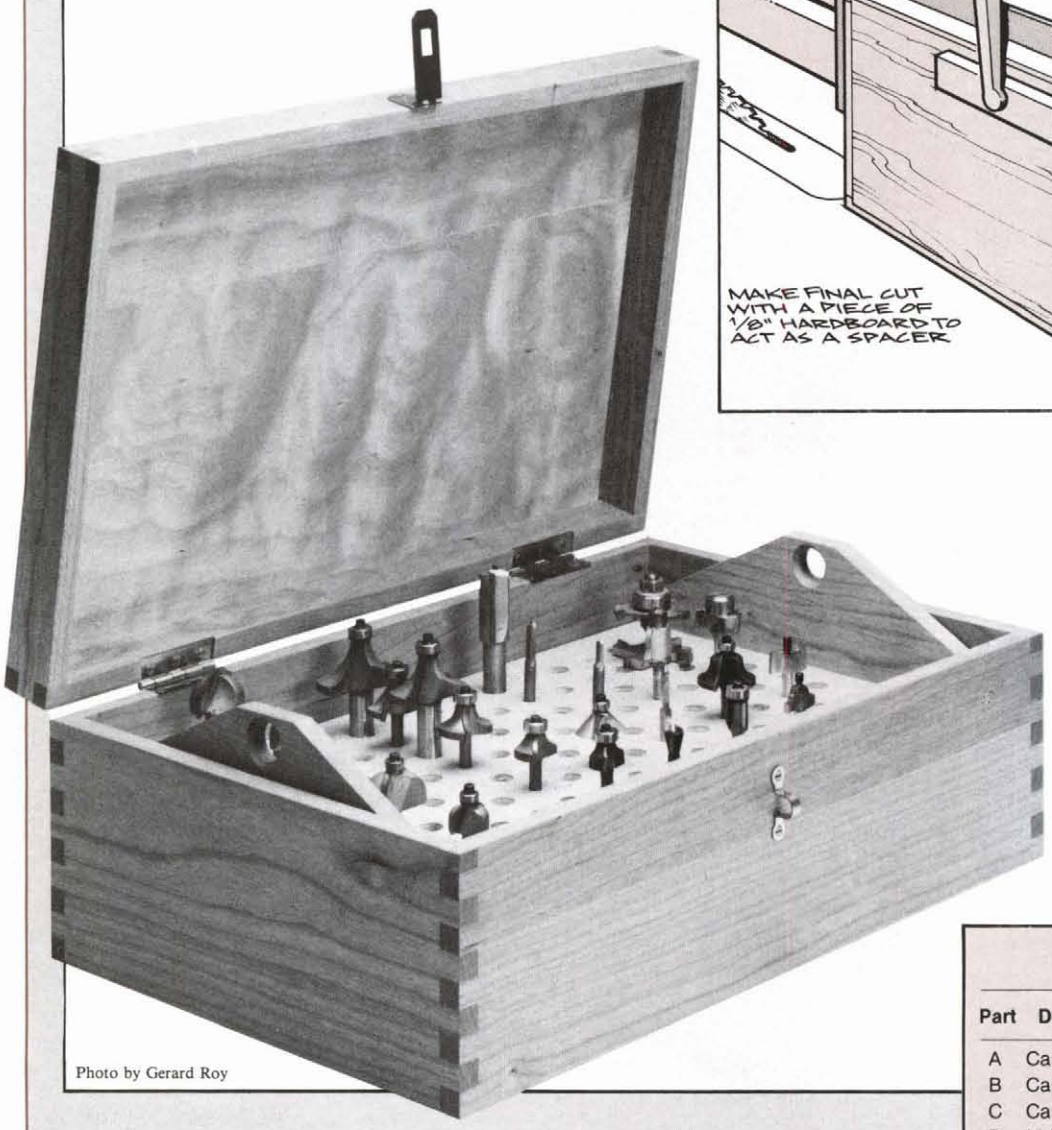


Photo by Gerard Roy

creating the case (parts A, B, C, and H) and the lid (parts D, E, F, and G). To do this, raise the saw blade to a height of ⅞ in. and locate the rip fence 4⅞ in. from the blade. Now, with one of the 11½ in. long sides on the table and the bottom against the rip fence, run the frame through the blade to make the first cut. Following this, flip the box so that the other 11½ in. long side is face down on the saw table and repeat the cut. The third and fourth cuts are made with the 18 in. long surface on the table. When making the fourth and final cut, insert a piece of ⅛ in. thick hardboard between the saw kerfs. The hardboard will keep the kerf from closing up and binding on the blade. Use a clamp to hold it in place as the cut is made (see illustration). When locating the fence for the cuts that will remove the top from the case, the saw blade should cut a kerf that is centered on the glue line between the third and fourth finger joints (from the top edge). After sanding, the third and fourth finger joints will be reduced to about ⅜ in. thickness.

The front and back spacers (I) and the side spacers (J) can now be cut to size and glued in place. Use glue sparingly to avoid squeeze-out along the top edge.

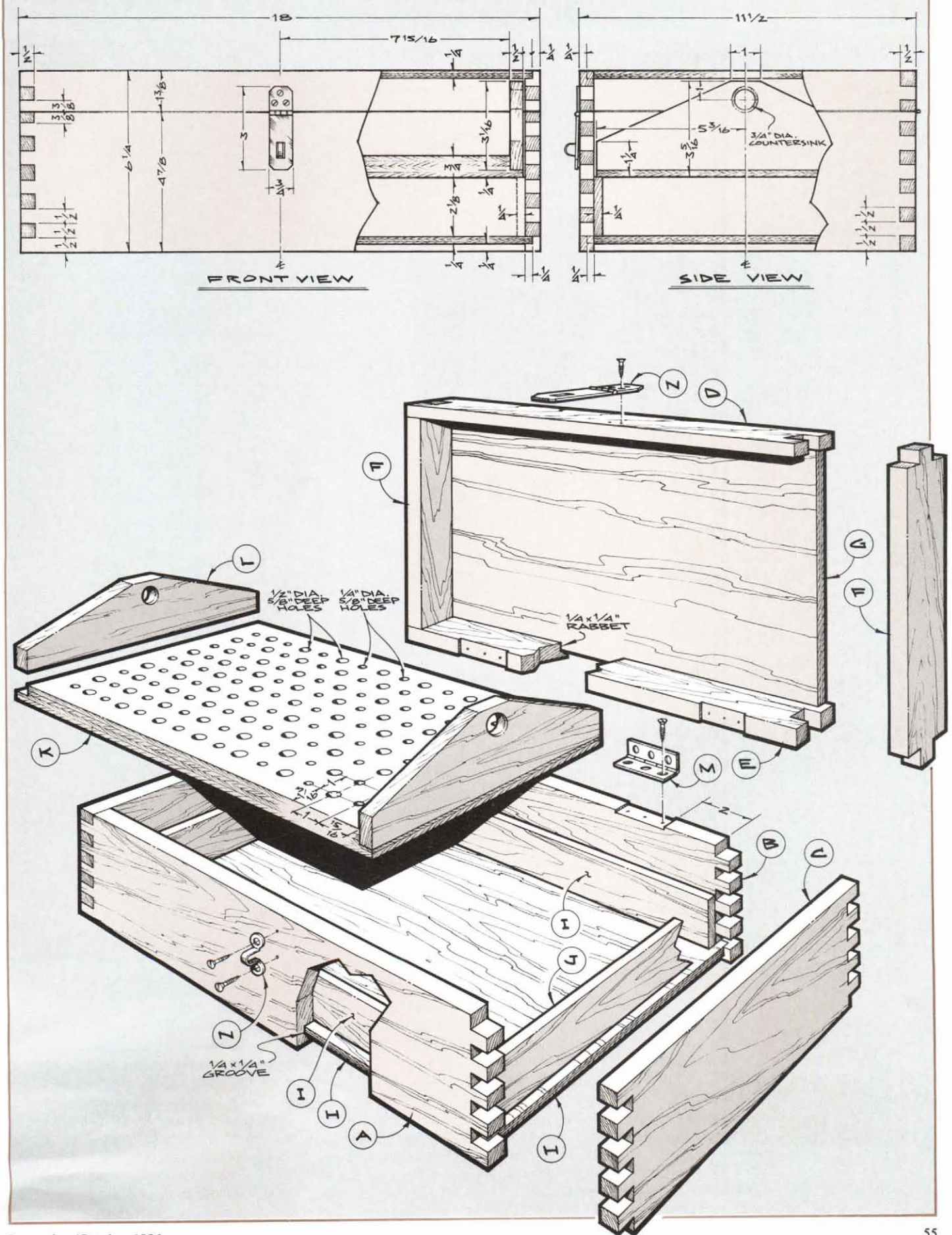
The holder (K) is made from ¾ in. thick birch plywood. If you have a 17/64 in. diameter twist drill bit, it makes an ideal hole for ¼ in. shank router bits. The holder handle (L) is simply glued to the ½ in. by ½ in. rabbet cut in the ends of the holder.

Final sand, then add the hinges (M) and the hasp (N). We use a ¼ in. diameter wooden peg to keep the lid closed, but a padlock can be added if desired. Two coats of polyurethane varnish will make a good final finish.

WWJ

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Case Front	½ × 4⅞ × 18	1
B	Case Back	½ × 4⅞ × 18	1
C	Case Side	½ × 4⅞ × 11½	2
D	Lid Front	½ × 1⅜ × 18	1
E	Lid Back	½ × 1⅜ × 18	1
F	Lid Side	½ × 1⅜ × 11½	2
G	Top	¼ × 11 × 17½	1
H	Bottom	¼ × 11 × 17½	1
I	Front/Back Spacer	¼ × 2⅛ × 17	2
J	Side Spacer	¼ × 2⅛ × 10	2
K	Holder	¾ × 10⅜ × 16⅞	1
L	Holder Handle	½ × 3 1/16 × 10⅜	2
M	Hinge	1 × 2	2
N	Hasp	¾ × 3	1


18
7 15/16
11 1/2
FRONT VIEW
SIDE VIEW
3/4" DIA. COUNTERSINK
1/2" DIA. 5/8" DEEP HOLES
1/4" DIA. 5/8" DEEP HOLES
1/4 x 1/4" RABBET
1/4 x 1/4" GROOVE
Z
D
F
G
E
T
K
M
B
C
I
J
A

SHAKER

Single Drop-leaf Table

This small single drop-leaf table, made from butternut, is part of the collection at Hancock Shaker Village in Hancock, Massachusetts. The original incorporated what appeared to be a handmade brass leaf support, but since such a piece of hardware would be difficult to make and impossible to buy, we've substituted a traditional wooden design.

Several of the parts are made from either ⅜ in. or ⅝ in. thick stock. If you don't have a thickness planer, your local millwork shop or lumberyard may be able to plane down thicker stock for you. Although the original is butternut, we've seen similar Shaker tables in both pine and cherry.

The four legs (A) can be made first. Rip each piece to a 1⅜ in. square and cut to a length of about 28 in. Using the lathe, taper each leg to the dimensions shown in the front and side views. Note that the taper starts at a point 8 in. from the top end of the leg. Establish the 26⅛ in. overall length while on the lathe, then remove the piece and make the final cut with a hand saw.

Next, on each leg, lay out and mark the location of the various mortises. As shown in the side view, the two left side legs have mortises cut to accept the two side aprons (B) and the end apron (C), while the two right side legs have mortises cut to accept the side aprons and the two stretchers (D). Refer to the tenon detail for all mortise dimensions.

To make the side and end aprons, you'll need a 50 in. length of ⅝ in. thick by 5¾ in. wide stock. Use a router and a 3/16 in. beading bit to cut the beading along the full length of the bottom edge, then crosscut the stock into two 19 in. lengths (for the side aprons) and one 11 in. length (for the end apron). The tenons are cut to the dimensions shown in the tenon detail. They can be cut on the table saw, either with the dado cutter or by making repeated passes with a regular saw blade.

The left side apron has a long notch cut in it to accept the leaf support (E). Cut the notch with a band or saber saw, then use sandpaper to smooth the saw marks. The leaf support can now be cut to fit the notch.

The two stretchers can be made next. Use the router table and a 3/16 in. beading bit to cut the bead on the lower stretcher only. When making the beading cut on the router table, be sure to use a push stick and keep hands away from the cutter. The tenons are cut on the table saw to the dimensions shown in the tenon detail.

After a thorough sanding, the legs,

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Leg	1⅜ × 1⅜ × 26⅛	4
B	Side Apron	⅝ × 5¾ × 19*	2
C	End Apron	⅝ × 5¾ × 11*	1
D	Stretcher	⅝ × 1 × 11*	2
E	Leaf Support	⅝ × ¾ × 12	1
F	Long Side Cleat	¾ × 1 × 18	1
G	End Cleat	¾ × 1 × 10	2
H	Short Side Cleat	¾ × 1 × 2½	2
I	Drawer Runner	¾ × 1⅛ × 19½	2
J	Drawer Front	¾ × 3¾ × 10	1
K	Drawer Side	⅜ × 3¾ × 19¾	2
L	Drawer Back	⅜ × 3¾ × 10	1
M	Drawer Bottom	⅜ × 9⅝ × 19½	1
N	Drawer Knob	see detail	1
O	Top	⅝ × 14¾ × 30	1
P	Leaf	⅝ × 12⅜ × 30	1
Q	Hinge	2⅞ × 1½	2

*Length includes tenons.

aprons, and stretchers can be assembled. First dry assemble the parts to insure that all components fit to your satisfaction. If everything looks in order, apply glue to the mortises and tenons and apply pressure with bar or pipe clamps. Check for squareness and make adjustments if necessary, then set the project aside to dry overnight.

To make the cleats you'll need to rip ¾ in. thick stock to 1 in. widths. Cut the long side cleat (F) to an 18 in. length, the two end cleats (G) to 10 in. lengths, and the two short side cleats (H) to 2½ in. lengths. As shown in the exploded view, slotted holes are cut in each cleat: three in each long side cleat, two in the end cleats, and one in each of the short side cleats. Note that the slots are cut across the grain in the side cleats and parallel to the grain in the end cleats. Each slot, which measures 3/16 in. wide by ½ in. long, can be made by boring two or three 3/16 in. diameter holes, then forming an elongated hole with a round file. Once the slots are cut the cleats can be glued to the aprons. When gluing, make sure the top edges of the cleats are flush with the top edges of the aprons.

To make the two drawer runners (I), rip ¾ in. thick stock to a width of 1⅛ in., then cut the stock into two pieces, each one about 21 in. long. The length dimension allows for some extra stock. Use the router table and a 3/16 in. beading bit to cut the bead as shown. Following this, flip the stock over and, using a ⅜ in. straight bit, cut the ¼ in. by ⅜ in. groove as shown in the end view detail. Now trim the parts to a final length of 19½ in., then use the table saw and dado cutter to cut the ¾ in. by ¾ in. notch on each end. With the notches cut, the runners can be glued in place.

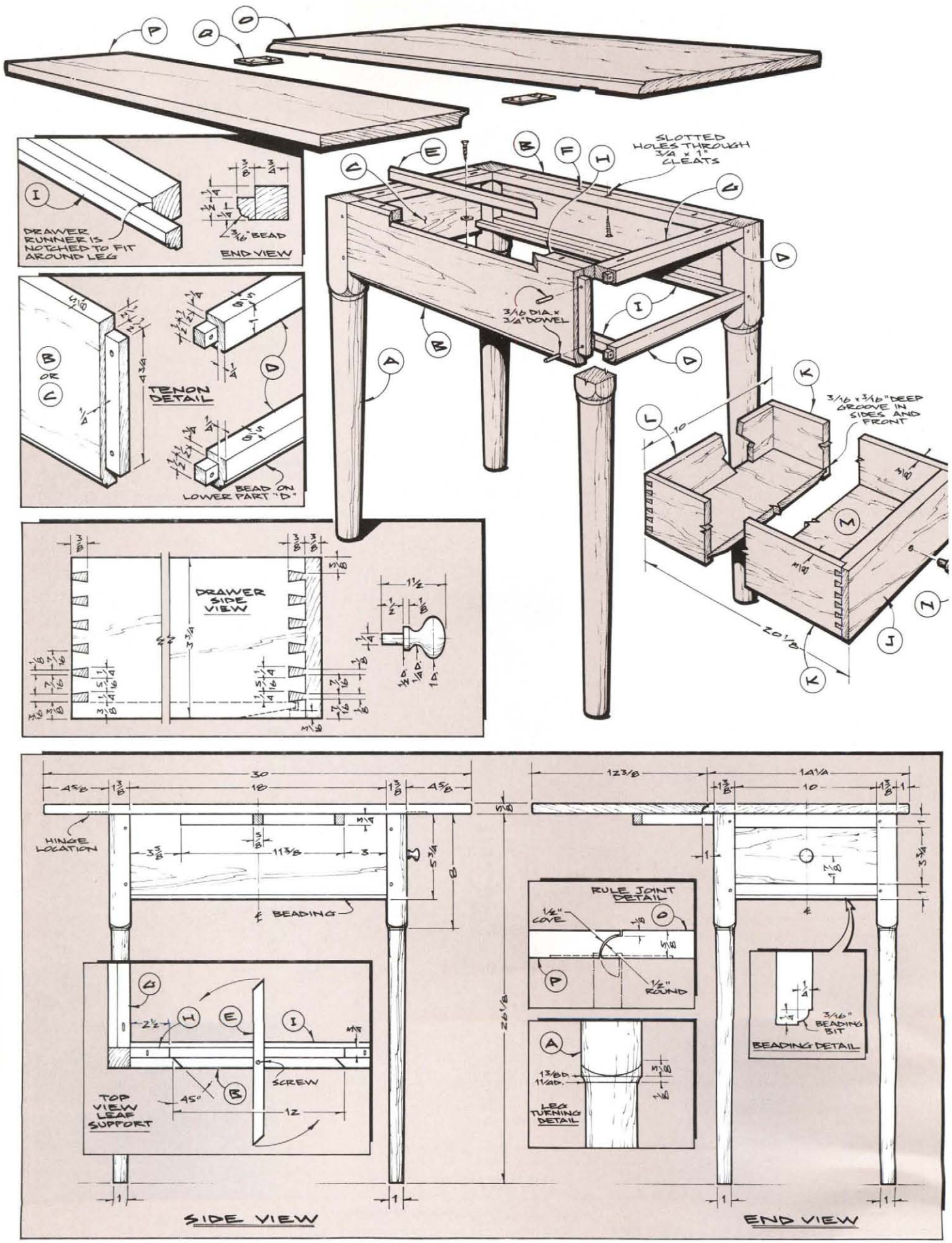
You'll probably need to edge-glue stock in order to get the widths necessary for the top (O) and the leaf (P). Allow a little extra both on the length and width so that later, after the glue has dried, the stock can be trimmed to the exact dimensions. The rule joint is cut using the router in conjunction with ½ in. round-over and cove bits. For a detailed discussion on how to cut this joint, refer to the Special Techniques article in our July/August 1985 issue. The two drop-leaf hinges (Q), which are mortised in place, are available from Woodcraft Supply, 41 Atlantic Ave., Woburn, MA 01888 (order part no. 16R42-PH, current price $6.75 per pair, postpaid).

The drawer (parts J, K, L, M, and N) is made as shown. Note that the bottom is made from ⅜ in. thick solid stock and that the grain runs from front to back. Since the bottom must be free to expand with changes in humidity, it cannot be glued into the groove all around. Instead, only apply a narrow band of glue (about 1 in. long) at the midpoint of the front and back edges. This will serve to hold the bottom in place while allowing movement on each side of the glue area.

Final sand all parts then join the top to the base with 1¼ in. by no. 8 round head wood screws driven up through the slotted holes in the cleats. A washer under the screw head will prove helpful.

A good penetrating oil makes an attractive final finish for a piece like this. A vigorous rubdown with a soft cloth will complete the project. WWJ

(continued on next page)

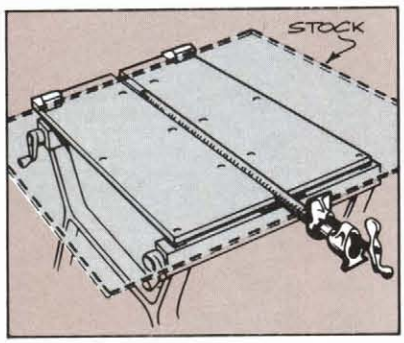

SLOTTED HOLES THROUGH 3/4 x 1" CLEATS
3/16 DIA x 3/4" DOWEL
3/16 x 3/16" DEEP GROOVE IN SIDES AND FRONT
DRAWER RUNNER IS NOTCHED TO FIT AROUND LEG
3/16" BEAD
END VIEW
TENON DETAIL
BEAD LOWER PART "D"
DRAWER SIDE VIEW
HINGE LOCATION
BEADING
RULE JOINT DETAIL
1/2" COVE
1/2" ROUND
3/16" BEADING BIT
BEADING DETAIL
TOP VIEW LEAF SUPPORT
SCREW
LEG TURNING DETAIL
SIDE VIEW
END VIEW

Shop Tips

Pegboard hooks get loose and often fall out when removing a tool. I've found that a dab of hot-melt glue from a glue gun will hold them in place. Should you need to change the location of the hook, just cut through the glue with a sharp knife.

James Ganotes
Los Angeles, Calif.

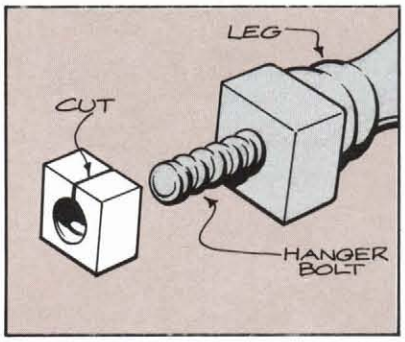
Clamp a pipe clamp between the jaws of your Black and Decker



Workmate and you'll have a means to hold wide stock. Remember to remove the pipe clamp's tail-stop before clamping it to the Workmate.

Joe Henion
Philadelphia, Penn.

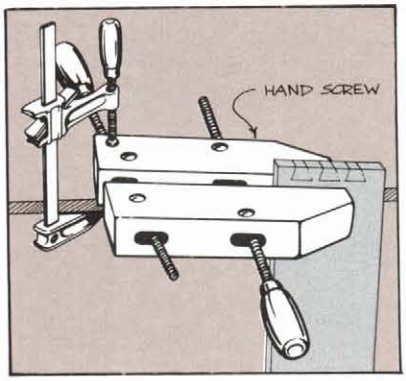
I was recently faced with the task of salvaging hanger bolts from the ends of some chair legs. A pair of pliers would damage the threads, so a better



way was needed. To solve the problem, I found a nut with a matching thread, then used a hacksaw to make a cut to the center. The nut was threaded to the hanger bolt, then it was clamped in a vise so that the saw cut closed up. I was then able to turn the chair leg and unscrew the hanger bolt.

Ed Anthony
St. Louis, Mo.

A hand screw clamped to a bench or tabletop makes a useful auxiliary vise for small parts.



Toys with wooden axles will roll smoothly if a thin coat of paraffin wax is added to the axles before assembly.

THE WOODWORKER'S MARKETPLACE

The Woodworker's Marketplace

101 · GIFT & NOVELTY · PATTERNS

This wonderful packet contains 101 FULL SIZE PATTERNS of Gifts, Novelties, Lawn Figures, Bird Houses, Shelves, Action Windmills, Alphabets, and many more things. Just trace and saw out. Plus "Make Money Jig Sawing" Only $7.00 Prepaid 1st Class for this big packet.

MASTERCRAFT PLANS WEST, Dept. 95W
P.O. Box 625, Redmond, WA 98073

Woodworkers - Carpenters - Boat Builders

THE LARGE 24" BEVEL SQUARE

Hardwood construction
All brass inlay & hardware

Call (503)347-3814 or send for free brochure

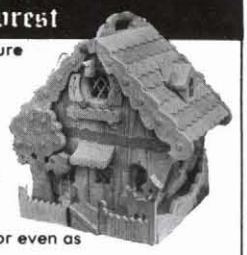
Sea Breeze Woodworks
P.O. Box 867, Bandon, OR 97411

HOMECRAFT VENEER

DOMESTIC AND IMPORTED VENEERS

Over 140 varieties of Veneers. Complete Line of Tools for Veneering, Laminating and Marquetry.—Cements and Glues. Simplified Veneering Instructions and price list sent for $1.00. **HOMECRAFT VENEER**
901 West Way; Latrobe, Pa. 15650

From An Enchanted Forest



An heirloom miniature house. The ultimate tole painting project or a delightful gift for Christmas and birthdays. 17" high. Easy, full-size plans. Reduce plan size for a jewelry box or bird feeder or expand plans for larger dolls or even as a backyard playhouse.

Full-size plans	$9.50
Postage and handling	.50
Assembled & ready to finish	145.00 ppd
Catalog (free w/order)	1.00

Forest Street Wood Designs
538 Holiday Dr.
Brigham City, Utah 84302

OVER 34 YEARS MANUFACTURING LATHE-TOP WOOD TURNING DUPLICATORS

Ours is the only ORIGINAL Duplicator of its kind. Be a professional in minutes. New wide base model.

LITERATURE $1.00
Refundable with first order

TURN-O-CARVE TOOL CO. P.O. Box 8315-WJ Tampa, FL 33674

KID'S CONVERTIBLE

IT'S A DESK, BENCH AND TOY CHEST ALL IN ONE! As a desk and bench, there's room enough to seat two children. Made from veneer plywood it becomes a fine piece of solid furniture for kids to enjoy for years.

PLANS & INSTRUCTIONS: $4.00.
We'll ship immediately and include a catalog of our other unique and functional projects.

BALLART DESIGN 4606 S. 600 EAST, #621
SALT LAKE CITY, UTAH 84107

Furniture Refinishing

Earn $500 - $1000 in a single day!

Part-time, full-time opportunity. ***FREE*** catalog stripping, repairing, refinishing, mirror resilvering, veneering supplies & systems. Complete training provided.

Send $1 for postage & handling to:
MINUTEMAN, INC., Dept. 06
115 N. Monroe St., Waterloo, WI 53594

HORTON BRASSES

Nooks Hill Road P. O. Box 120 WJ
Cromwell, CT 06416 (203) 635-4400

HORTON BRASSES are authentic copies of 17th, 18th, 19th & early 20th century pulls.

Mfrs. of Cabinet & Furniture Hardware for Homes & Antiques.

Send $2.00 for a Catalogue.

NATIVE AMERICAN HARDWOODS

WALNUT, BUTTERNUT, CHERRY
CURLY & BIRD'S-EYE MAPLE
Most Other Domestic Woods

- **EXTRA WIDE/EXTRA THICK STOCK**
- **TURNING SQUARES/BLOCKS**
- **QUARTERSAWN/BOOKMATCHED LUMBER**
- **SPALTED LUMBER/BLOCKS**
- **THIN STOCK**
- **FLOORING/PANELING**

NO MINIMUM
WHOLESALE & RETAIL

Comprehensive Listing—$1 (Refundable) (716) 942-6631

NATIVE AMERICAN HARDWOODS LTD.
R1, W. VALLEY, N.Y. 14171

Brand Your Work

Self-Heating U.L. Listed

Personalize your wood and leather products or handicrafts with the easy to use Craftmark™ Branding Tool. Choose from four brand-ing marks: **Logo • Maker's • Owner's • Custom**

For more information write:
Wall Lenk Corporation Dept. WJ96
P.O. Box 3349, Kinston, North Carolina 28502-3349

Sleeveless DRUM SANDER

NO PRE-MADE SLEEVES TO BUY

ECONOMICAL — Simply cut sandpaper from standard size sheets
UNIQUE — Twist of key tightens sandpaper to drum.
SPONGE RUBBER backing insures long wear of sandpaper

1" x 3" long	$13.50
2" x 3" long	$15.50
2½" x 3" long	$16.00
3" x 3" long	$17.50
1" and 2½" Above $27.00	
Above 4 Drums $55.00*	
⅜" x 3" long	$14.50
2½" x 4½" long	$21.00
3" x 4½" long	$22.50
2½" x 6" long	$25.50
3" x 6" long	$27.50

Add $2.50 Per Order For Shipping

AVAILABLE WITH:
½" Bore with ½" or ¼" shaft
½-20 RH Thread except ⅜" x 3"
⅝" Bore except ¾" x 3" and 2" x 3"

USE ON:
Drill Press
Small Motor
Lathe, Combo-Tools,
Radial Saw, ¼" Drill

MONEY BACK GUARANTEE

Send Check or Money Order to:
SINGLEY SPECIALTY CO. INC.
P.O. BOX 5087J, GREENSBORO, N.C. 27403
CALL: (919) 852-8581

FEEL THE DIFFERENCE

Discover the modern efficiency of the premier high grade carbide tipped circular saw blades from **FTI.**

Custom Track thin kerf blades offer amazingly low resistance performance for processing premium grade hardwoods, laminates, plastics, and aluminum.

EXPERIENCE

- SUPER LOW CUTTING RESISTANCE
- HALF THE WASTE
- LESS CHIP-OUT
- QUIETER RUNNING

while saving time, materials, and effort.

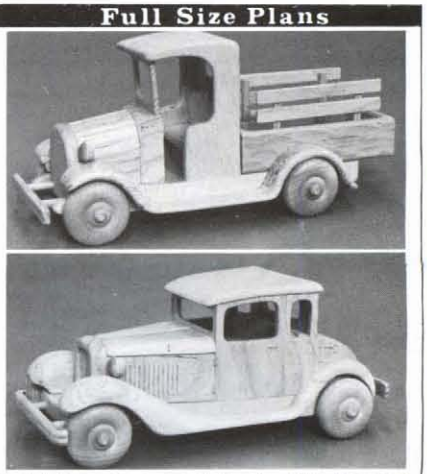
Custom Track
...You'll immediately feel the difference.

Available from:

FTI FINE TOOL IMPORTS

P.O. Box 3271, Chico, California 95927
Dealer Inquiries Invited Phone (916) 891-1686

Full Size Plans

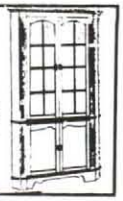


Build these two great **Fords.** The Model A is 11". The Pickup is 12". Two plans per set. **Plan No. 18006....$8.50** Catalog $1.00 or free with order. Visa/MC (516) 462-6228

ARMOR, Dept. H, Box 445, E. Northport, NY 11731

The Woodworker's Marketplace

SAVE $100'S ON CORNER CABINET! FULL-SIZE PLANS



& easy directions for 2 widths: 41" & 49", with 6 shelves, some adjustable, and with or without glass doors on top. Only $11. Money-back guarantee. Send for FREE illustr. furn. list.

FLEXIPLANS, Dept. DZ
48 Lowell St., Westwood, NJ 07675

Full Size Plans

Children can ride **BIG TRAIN** by sitting on the box car. This is not the usual pull toy. The engine is 31" long and the box car and caboose are each 20" in length. Great fun. **Plan No. 18007....$12.50** Catalog $1.00 or free with order. Visa/MC (516) 462-6228

ARMOR, Dept. H, Box 445, E. Northport, NY 11731

TABLE STROKE SANDER

6 Models $595.00 — $695.00 *BALL*
Deluxe $750.00 — $1200.00 *BEARING*
Sand 38" x 6' & 8'
Sidestroke & String Sanders Available, Kits $45 to $570.

(Less Motor) F.O.B.

® McCall House, Box 1950-C
Lenoir, N.C. 28645 704-758-1991

Wood Classics

Send $1.00 for Catalog

Parts / Plans / Kits
Wood Classic
P.O. Box 389 / Everson, Washington 98247

WOOD PARTS

TOY, FURNITURE, CRAFT & GAME
Wheels • Spindles • Balls • Knobs • Shaker pegs • And more!
Since 1927! Send $1.00 for Catalog.
BROWN WOOD PRODUCTS CO.
P.O. Box 8246WJ, Northfield, IL 60093 • (312) 446-5200

MAKE WHIRLIGIGS WOOD TOYS

100's of plans, parts, kits, books, finishes & supplies for whirligigs, toys, classic autos, swing sets, doll houses, crafts & furniture. Also toy, craft, game & furniture parts in maple, oak, walnut & cherry. Bulk prices available. Color catalog subscription $1. (614) 484-4363.
Cherry Tree Toys, Box 369-431, Belmont, OH 43718

17¾" long

DUCK KITS
$9.00 Precut Kit
just assemble & paint
$15.00 Uncut Kit
just cut, assemble & paint

RECANE YOUR HEIRLOOM CHAIRS

Full line of caning & basketry materials & supplies —
Weaving Cane **Woven Cane**
Flat, Oval & Round Reeds
Fibre & Genuine Rush **Danish Seat Cord**
Raffia, Rattan, Seagrass **Hoops & Handles**
20-page illustrated catalog with complete information, prices, order form: $1

CANE & BASKET SUPPLY CO.
1281-WJ Cochran, Los Angeles, CA 90019

FREE CATALOG

Decoy and Wood Carvers Wishbook

Basswood Cork Bandsaw Blades
Tupelo Chisels Patterns

P. C. English Enterprises, Inc.
906 Lafayette Blvd., P.O. Box 7937 Dept. WJ3
Fredericksburg, VA 22404 (703) 371-1306

Over 200 craft books, most under $4.00! FREE DOVER CRAFT CATALOG

Fully illustrated guide to over 200 popular books, most under $4.00, on woodworking, stained glass, stencils, decoupage, weaving, more. Absolutely **FREE!** No obligation. Write Dover Publications, Dept. A158, 31 E. Second Street, Mineola, NY 11501.

CRAFTSMEN EQUIP YOUR SHOP AT GREAT SAVINGS

Catalog of 150 + Plans, $1 Refundable, or $3 with Sample Plan of our Universal Clamping System

A wide variety of plans from complete machines to hand tools for school, commercial or home shops. Featuring attachments for wood and metal cutting lathes, saws, drills, etc., plus things to make of wood and metal.

WOOD-MET SERVICES
2314 W. SHOFF CIR. W.J.
PEORIA, IL 61604

SWINGING CRADLE

EASY TO MAKE WITH

Full-Size Plan

Authentic spindle design straight out of Colonial America. Plans show alternate construction with panel sides. Perfect for baby or use for magazines. Size: 20" x 39" x 30" high.
Order plan #166 .....$9.00

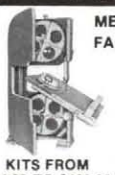
CATALOG
180 diff., full-size prof.
furniture plans—$2.00
(catalog free with order)

FURNITURE DESIGNS, Dept. JS-96
1827 Elmdale Ave., Glenview, IL 60025

Discover a new world of satisfaction and creativity with your bandsaw making small, unique bandsaw boxes for fun and profit. This unpublicized, little-known technique is guaranteed to delight you as you easily turn common inexpensive lumber and scraps into valuable utility boxes for home and office. High demand in gift shops, stationery stores and craft fairs. Fully illustrated instruction booklet of 15 original and profitable designs. Satisfaction absolutely guaranteed. Send $10.00 to: BOX-ART, Dept. J, Box 8069, Woodridge, IL 60517.

POWER TOOLS

SAVE $50 TO $500



METAL PARTS KITS AT LOW FACTORY DISCOUNT PRICES FOR

- 12-IN. BAND SAW
- 18-IN. BAND SAW
- WOOD SHAPER
- 6-IN. BELT SANDER
- 10-IN. TILT/ARBOR SAW
- LATHE/DRILL PRESS COMB.

$5.00 per Plan

KITS FROM $34.99 TO $189.99

Easy to follow step-by-step plans. Photos. No machining, no welding. Build your own sturdy frame. Full scale patterns. 98,000 kits sold. Send $6 for plans, brochure and prices or $1 for brochure and prices. Order kits on Visa or MasterCard.

GILLIOM MFG., INC. MONEY BACK GUARANTEE
1700 Scherer Pkwy. Dept. WJ609
St. Charles, Mo. 63303 Phone (314) 724-1812

THIN HARDWOOD SIX PACKS

CLEAR — KILN DRIED — SURFACED 4 SIDES
IN OUR KILNS — OUR 4 SIDED PLANER

Each pack contains 6 square feet of one thickness — one species — pieces are 2 to 4 feet long and 3½ to 7 inches wide.

PRICES FOR 6 SQUARE FEET

Thick.	Walnut	Cherry	Red Oak	White Oak	Poplar	Shipping Handling
¼"	$18.55	$17.35	$17.35	$19.85	$15.55	$3.82
⅜"	$21.95	$19.40	$18.40	$21.70	$16.65	$4.93
½"	$25.30	$22.70	$21.70	$23.15	$18.40	$5.95
¾"	$28.80	$26.10	$24.12	$24.84	$20.52	$9.84

To Order: Circle dollar amount above — add shipping and handling — check or money order only please.
Mail to: **BERGERS HARDWOODS**
Route 4, Box 195, Bedford, Virginia 24523
Virginia residents please add 4½% sales tax

— If not satisfied, price refunded on return of wood —

Name _____
#/Street _____
City/Town _____
State _____ Zip _____
Amount Enclosed _____ CK MO

Other exact sizes available — please ask

SHAKER PEGS CANDLE CUPS MUG PEGS

$17.95 per 100, prepaid.
Wide selection of other wood products.

Catalog $2.00 or free with order.

Benny's Woodworks
P.O. Box 656, Dept. WJD1
Antioch, TN 37013
(615) 331-8384

Shaker Peg Mug Peg

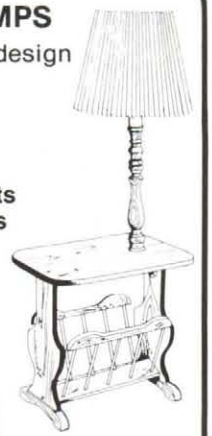
Candle Cup

HEIRLOOM LAMPS

Unique Triple-duty design

— Magazine Rack
— End Table
— Floor Lamp

- **Patterns and Parts**
- **Easy to Build Kits**
- **Completely Finished Lamps**



AMERICAN HEIRLOOMS
114 South Cumberland Street
Morristown, TN 37814

Write Today for Your Free Catalog!

The Woodworker's Marketplace

CLASSIFIED

The Classified Rate is $1.20 per word, payable with order. Minimum ad length is 15 words, and the deadline date is the 25th of the 3rd month preceding the issue (10/25 for the January/February issue). Send copy (count each word and initial) and check to ***The Woodworker's Journal,*** *Classified Dept., P.O. Box 1629, New Milford, CT 06776.*

Musical Instrument Kits, unusual selection from St. Croix Kits, 423-J South Main Street, Stillwater, MN 55082. Send $1.00 for catalog.

Swing: Comfortable old-time platform family lawn swing. Detailed, illustrated plan with material list. Send $5.00 to: Edward G. Mason, 8322 S. Howell Ave., Oak Creek, WI 53154.

Henry Taylor Tools since 1834 — Carving tools and turning tools. Send $1.00 for complete catalog. The Wood & Shop, Inc., 5605 N. Lindbergh, St. Louis, MO 63042. (314) 731-2761.

Club presidents — may write for free information regarding woodworking seminars and demonstrations available to clubs. Richards' Woodworking & Consulting Services, 410 W. Harrison St., Lewisburg, OH 45338.

Two new 1986½ catalogs. Template catalog has everything for the do-it-yourself scroll sawer including saw blades, templates, patterns, etc., $3.00. Wood-cuts catalog has every kind of precut wood cut-out of ducks, bears, "Welcome Friends", and hundreds of others to make difficult craft projects easy, $4.00. Both catalogs $6.00 refundable with order. Nostalgia Factory, 315 Beech, Liberal, KS 67901.

Router Bits — over 450 different shapes and sizes to select from. Available in High Speed Steel, Carbide Tipped, and Solid Carbide from ⅛" to ¾" shanks. Save up to 60% off on sale, clearance and close-out items. For complete catalog send $2.00 (refundable) to: Byrom International, Dept. WJ2, Box 246, Chardon, OH 44024. Dealer Inquiries Invited.

Clock Cutters — Attention Clock Builders: Professionally drill clock works hole on your drill press with the "Clock Cutter". Adjustable from 3" to 6". $49.95 plus $2.00 shipping. The Tool Company, 1306-G South Commercial, P.O. Box 629-W, Harrisonville, MO 64701. (816) 884-2679.

Midwest hardwoods, most varieties, kiln dried, S2S. SASE for price list. John White, Route 5, Box 233, Centralia, IL 62801.

Plans for unique cassette tape storage cabinet. Holds 84 tapes. Adaptable for video cassette tapes. Original design. For complete instructions send $3.00 plus a business-size SASE to Woodworks of Art, 6107 W. Britton Ave., Phoenix, AZ 85033.

Start Moneymaking Woodcraft Business making "easy-quick" toys, gifts, novelties. Free details. Williams, 3600 San Sebastian, Tucson, AZ 85715.

Private lathe lessons, beginner or advanced, my place or yours. Gablecraft, #308, 7125 S.W. 47th St., Miami, FL 33155 (305) 662-6091.

Wood Cutouts (indoor/outdoor) patterns/instructions — "Pilgrim Pals"; "Nativity Family"; Santa/Reindeer" — $6.00 each; three $15.00. (Check/-Visa/MC). Catalog 50¢. Fourth Dimension WW9, 85 Helmar Drive, Spencerport, NY 14559.

Wood moulding knives made for Belsaw type planer molders. Custom knife grinding specialist. Wanager Custom Knives, 536 East B, Kingman, KS 67088. (316) 532-5391.

Learn woodturning. Why have a machine you cannot use? Two days intensive instruction in bowl and/or spindle turning. Write: Russ Zimmerman, RD #3 Box 242, Putney, VT 05346.

CLASSIFIED

Lumber kiln plans, kits. 24 bd-ft lumber packages: Walnut $79.00, Cherry $65.00, Oak $63.00, Maple $55.00. Surfaced ¾" all clear one face useable lumber 3" and wider. 2' - 6' lengths. Also wide clear Walnut to 14" × 6'. Information SASLE: DE, 68 Schuyler, Belmont, NY 14813. (716) 268-5101.

Musical instrument kits — dulcimers, hammered dulcimers, banjos, mandolins and more. Color brochure 56¢ stamp. Folkcraft Instruments, Box 807-K, Winsted, CT 06098. (203) 379-9857.

Bandsaw Owners: Produce over $100.00 per day making bandsaw puzzle boxes. Plans $5.95, includes 4 styles. Bennett Wood Products, Route 8, Box 680-S, Pensacola, FL 32506.

Walnut $1.50/BF, Butternut, Oak, Cherry, Maple, $1.00/BF. Custom kiln drying, 100 BF minimum. (304) 294-5737.

Waterbed and bedroom furniture catalog of plans, $2.75. Over 50 beautiful selections! Kraemer Furniture Designs, P.O. Box 33, 1350 Main St., Plain, WI 53577.

Secrets of experienced woodworkers. Valuable information can tell what magazines won't! $4.85. Secrets, Box 45-D, Halbur, IA 51444.

At Last! It's here. "The Woodfinishers Notebook". Facts. The no-nonsense approach to finishing your project. $4.95 plus $1.00 p & h. P.O. Box 244, Williamsville, NY 14221.

Catalog Full-Size Furniture Plans — $2.00. Refunded with first order. Traditional, Early American, over 180! Furniture Designs, Inc., Dept. CJ-96, 1827 Elmdale Avenue, Glenview, IL 60025.

Quartz clock movements from $1.75. Epoxy resin $16.00 gallon. Oak $1.50 sq. ft. Components, cutouts and more! Catalog $3.00 (credited). Clocks, POB 980-E, Andover, NJ 07821.

Unique! 5 animal patterns for wooden puzzles. $3.00. W. Dunn, 9322 Vanderpoel, Chicago, IL 60620.

Dollhouse builder's supply catalog. $2.00 (credited first order). LeMunyan's, Dept. WJK, Rt. 1, Troutman, NC 28166-9728.

100 country folk patterns. Create small wooden country creatures for gifts or profit. Includes finishing tips and ideas for use. Only $5.95. Dakota Wind, Box 866-WJ, Jamestown, ND 58402.

Woodcrafts. Veteran craftsman has experienced $1,000.00 craft shows. Will send plans for 6 best-selling wood items for $5.00. Bennett Wood Products, Route 8 Box 680-S, Pensacola, FL 32506.

Thin hardwoods, 1/32" to ¼" thick, cherry, walnut, butternut, oak, etc. Large SASE. Shaker Miniatures, Dept. WJ, 2913 Huntington Rd., Cleveland, OH 44120.

Sources for several hundred gift shops that sell only handmade items — you too can cash in if you know how — all that and more, much more in our all new resource/catalog/information directory. Free details. Steebar, P.O. Box 463W, Andover, NJ 07821.

Post Office Box Bronze Doors: No. 1 $5.00, No. 2 $7.50, No. 3 $10.00 plus $1.00 each shipping. Bank kits from $22.00. SASE: Hubbert Woodcrafts, P.O. Box 1415, Fletcher, NC 28732.

Native and imported hardwoods, power tools, books, supplies. "A complete woodworker's store, staffed by woodworkers." The Hardwood Connection, 420 Oak Street, DeKalb, IL 60115. (815) 758-6009.

Matsushita 3/32" thin kerf Ultra -80 10 × 80 teeth × ⅝" bore. $49.95 postpaid. Boone Wholesale, 5330 S.W. Lower Drive, Lake Oswego, OR 97034.

Bandsaw Boxes! Create profitable jewelry boxes, mini-drawers, note trays . . . more! Fourteen plans/full-size patterns plus brochure. Only $7.00. Accents (XJ-96), Box 262, Danvers, MA 01923.

Chair caning supplies — cane webbing, rush, splint, ash, rawhide, cord. Catalog $1.00 (refundable). Caning Shop (WJ), 926 Gilman, Berkeley, CA 94710.

Woodworkers: Make $100.00 every Saturday with your shop scraps! Complete instructions $3.50. Cedartree, Box 744L, Oregon City, OR 97045.

Over 50 "Folk Art" Patterns! Create profitable "Country Cut" woodworking designs. Hundreds of unique projects! Patterns plus brochure. Only $7.00. Accents (CJ-96), Box 262, Danvers, MA 01923.

Make wooden toys, whirligigs, classic autos, swing sets, doll houses, crafts, furniture with our plans, parts, kits, supplies. Color catalog subscription $1.00. (614) 484-4363. Cherry Tree Toys, Belmont, Ohio 43718-0369.

Brass combination lock post office box doors: #2 size — $7.50 each post paid. Clayton, 1500 Huntcliff Way, Clinton, MS 39056.

5 little cars. Easy to make from scrap. Great low-price selling item for shows. Send $3.50 for plans to: Paul J. Hoyt, 9 Fairmount Blvd., Garden City, NY 11530.

Dulcimer builders supplies — precision milled and fine sanded dulcimer and hammered dulcimer woods. Cherry, Walnut, Paduk, Rosewood, Birdseye and Curly Maple. Sitka Spruce, W.R. Cedar; related hardware, strings, and accessories. 56" stamp for brochure. Folkcraft Instruments, Box 807-W, Winsted, CT 06098. (203) 379-9857.

Build Wood Toys From Our Original Designs. Workbench, doll accessories, excavator, and much more. Parts, plans, kits, tools, and other supplies. Send $1.00 for catalog. Distinctive Wood Design, 1542 Ridge Rd., Homewood, IL 60430.

Birch Shaker or mug pegs $10.50 per 50, Oak Shaker pegs $3.00 per 10, Oak gallery spindles $3.50 per 25, Maple gallery spindles $3.00 per 25, smokestacks $6.00 per 25, people $3.50 per 25, wood drums or barrels $2.25 per 10, bean pot candle cups $6.50 per 25, (Maple wheels per 100) 1" $4.25, 1½" $6.50, 2" $14.25, 2½" $23.50, Spoked wheels with axle pegs per 8, 2" $5.00, 2½" $7.50, 3" $8.50. Add $3.25 for orders to $35.00, over $35.00 add $4.25. Visa & MC accepted $25.00 minimum, Catalog $1.00 free with order, K & K Woodcrafters, RD 4, Box 270A, Scotia, NY 12302. (518) 374-1981.

Stainless steel and brass, screws and bolts. Small quantities, free catalog. Elwick, Dept. 611, 230 Woods Lane, Somerdale, NJ 08083.

Create an heirloom with full-size wooden toy patterns, kits, parts, wood clamps, and books. Over 100 classics to contemporary designs. Catalog $1.50. Toy Designs, Box 441-N, Newton, IA 50208.

Turn $4 material into $39.95 (woodworking) — details 50¢ — Pine Shop, 897-3 Mammoth, Manchester, NH 03104.

Shopsmith® Owners. Aluminum table warped? Detailed drawings and instructions to correct. $3.00. Resource-Tech, P.O. Box 845, Walworth, WI 53184.

Child's Easel . . . Doll Cradle . . . Toy Box. Detailed plans. Full-size patterns. Brochure $1.00. ADW-P, Route 6, Box 114A, Iowa City, IA 52240.

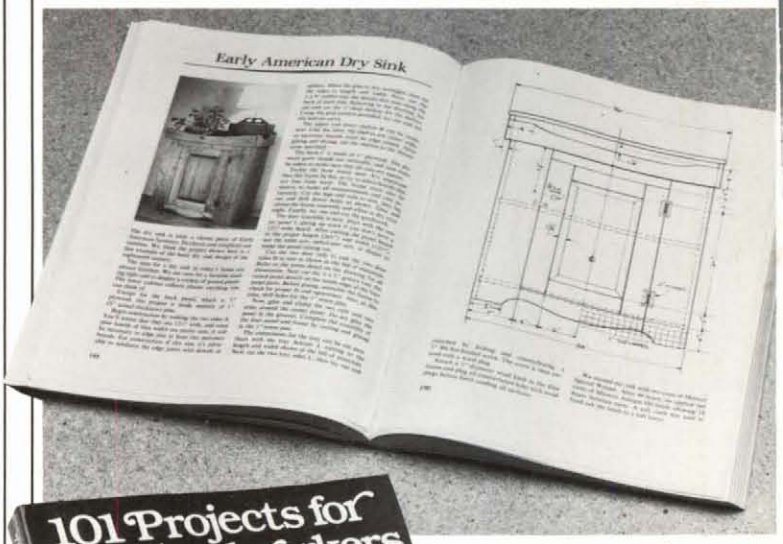
Blueprints . . . 77 outstanding barns. Many sizes, types. Minibarns, garages/workshops. You-build catalog, $4.00 (refundable). Ashlandbarns, 990WJ Butlercreek, Ashland, OR 97520.

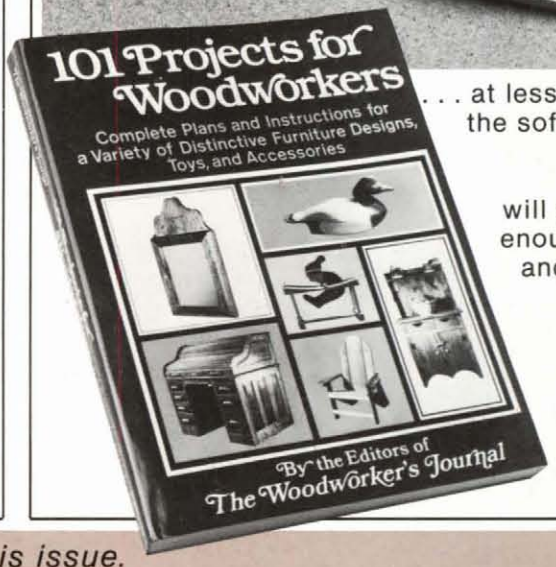
Build a 13" power-feed drum sander. Easy, no welding. Save $100's. Plans $10.00, or free information. RPM Products, 3002 W. Griswold, Phoenix, AZ 85051.

Protect your issues

Handsome binders hold 12 issues, open flat for easy reference and are priced at only $9.95 each; 3 for $27.95. Compact box cases, which hold 12 or more issues, are only $7.95 each; 3 for $21.95, plus postage and handling.

How can you miss?





. . . at less than 15¢ a plan, the softcover edition of **101 Projects for Woodworkers** will provide you with enough plans for fall and winter — *plus!* $14.95 plus postage and handling.

. . . See order forms bound into this issue.

Next issue . . .

Here are a couple of the projects we've lined up for the November/December 1986 issue of

The Woodworker's Journal

Rabbit Pull Toy

Early American Wash Stand

. . . and more