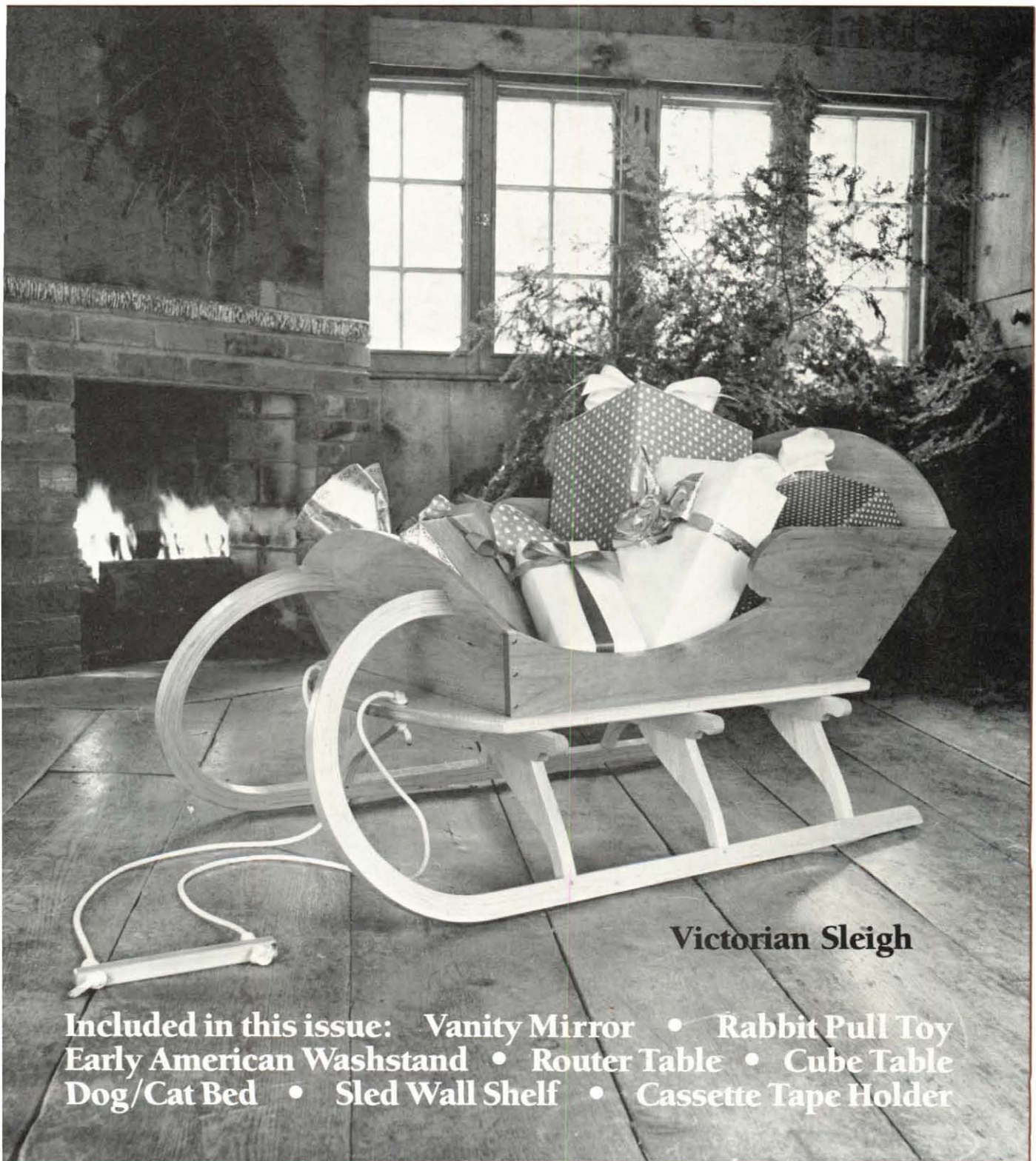


The Woodworker's Journal

Vol. 10, No. 6 \$3.00



Victorian Sleigh

Included in this issue: Vanity Mirror • Rabbit Pull Toy
Early American Washstand • Router Table • Cube Table
Dog/Cat Bed • Sled Wall Shelf • Cassette Tape Holder

November/December 1986

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
3612B	3 HP Router	
	W/Square Base	205.25
3700DW	Cordless Trimmer	99.95
3705	Offset Base Laminate Trimmer	129.95
4300DW	Cordless Jig Saw	108.95
4301BV	Vr. Sp. Orbtl Jig Saw	133.25
5007NBA	7 1/4" Circular Saw	109.30
5008NBA	8 1/4" Circ. Saw	122.00
5081DW	3 3/8" Cordless Saw	114.70
5402A	16" Circular Saw	319.95
6000R	Uni-Drill	104.70
6002DWK	2 Spd Cordless 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. Cdss Drill	54.50
6012HDW	Cdss 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	108.30
9045N	Dustless Sander	113.60
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
B04510	Finishing Sander	53.95
DA3000DW	Cordless Angle Drill	111.00
DA3000W	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	239.90

AEG TOOLS

BE8RL	3/8" VSR Drill	\$ 59.95
BSPE60	Orbtl. Top Handle Jig Saw	138.90
EZ501	Cordless Screwdr	39.95
EZ502	Cordless Driver w/adj. handle	54.95
EZ505	Cordless Drill/Driver	79.95
EZ509	Cdless Hammer Drill	139.95
EZ560	Cordless All-Pro Driver/Drill	114.95
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
S8220RLD	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

JORGENSEN BAR CLAMPS (HEAVY DUTY)

No.	Size	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.	Size	Each	Pkg. 6
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.	Size	Each	Pkg. 6
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.	Size	Open	Each	Pkg. 6
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	\$1197.95
AP125	12 1/2" Planer	1021.55
AP10X	10" Planer	
B7075	& Jigsaw	399.95
B7100	3" x 21" Belt Sndr	138.90
B7200AS	3" x 24" Belt Sndr	121.65
BS360NR	4" x 24" Belt Sndr	177.20
B550N	Hvy Dty Band Saw	1197.30
JSE-60	9 1/4" Band Saw	650.00
R151	Electronic Jigsaw	116.35
R-300	1 HP Router	97.40
R-330	2 HP Router	179.05
R-500	3 HP Plunge Router	167.45
RA2500	10" Radial Arm Saw	375.80
RA2500SP	Radial Arm Saw/Kit	475.10
TR30U	Laminate Trimmer	79.20
TS-251UB	10" Miter Saw w/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
C15FB	15" Miter Saw & 2 Blades: 1 Carbide, 1 Steel	449.95
DRC-10	Cordless Screwdriver	94.45
F1000A	Planer/Jointer	1378.00
F20A	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	134.95
SB8T	2 sp. w/dust bag	
	3" x 24" Belt Sander	154.00
SB110	2 sp. w/dust bag	
	4" x 24" Belt Sander	179.95
TR-6	2 sp. w/dust bag	
TR-12	Laminate Trimmer	89.00
	3 HP Plunge Router	175.95

PORTER CABLE

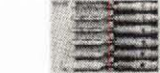
100	7/8 HP Router	\$ 97.95
309	Laminate Trimmer	90.95
314	4 1/2" Trim Saw	124.95
330	Palm Finish Sander	61.95
352	3" x 21" Belt Sander w/bag	133.95
360	3" x 24" Belt Sander w/bag	196.95
362	4" x 24" Belt Sander w/bag	206.95
367	3 1/4" Planer	139.95
505	Finishing Sander	122.95
518	3 HP Electronic Router	343.95
587	7 1/4" Circular Saw	139.95
655	Direct Line Drywall Driver	
	1/2 HP Router	94.95
690	1 1/2 HP Router/Shaper	135.95
695	Router/Shaper Table only	194.95
696	7 1/4" Circular Saw	104.95
3151	Drywall Driver	116.95
7540	H.D. Drywall Driver	124.95
7545	Orb. Jig Saw	129.95
7548	Orb. Jig Saw w/barrel grip	139.95
7648	All-American Router	139.00
9100	2 Sp. Tiger Saw Kit	135.95

PONY CLAMP FIXTURES

No.	Size	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.	Size	Open	Each	Pkg. 6
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

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
TFC106	6 Pc. Carving Set	59.50
TFC112	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
11-950	8" Bench Drill Press	118.95
17-900	17" Floor Drill Press	279.00
22-651	13" Planer	999.00
23-680	6" Bench Grinder	59.95
23-700	Wet/Dry Grinder	129.95
23-880	8" Bench Grinder	89.95
23-980	10" Bench Grinder	139.95
28-160	10" Band Saw	149.95
28-243	14" Band Saw	563.90
28-283	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
33-990	10" Radial Arm Saw	474.50
34-410X	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
43-122	1 H.P. Wood Shaper	528.95
43-375	3 H.P. Wood Shaper	1399.00
46-140	11" Lathe	433.95
46-541S	12" Lathe	1399.00

All Prices Include Genuine Delta Motors

SUNGOLD X-WEIGHT SANDING BELTS

Size	Grit	1 pk. same size & grit	5 pks. same size & grit
3" x 21"	120	\$9.80 pk.	8.40 pk.
	80	9.80 pk.	8.40 pk.
	60	10.00 pk.	8.60 pk.
	40	10.50 pk.	9.20 pk.
	30	10.70 pk.	9.40 pk.
	20	11.00 pk.	9.60 pk.
	10	12.00 pk.	9.30 pk.
	8	12.20 pk.	9.70 pk.
	6	12.60 pk.	11.20 pk.
	5	13.10 pk.	11.50 pk.
	4	13.40 pk.	11.80 pk.
	3	16.80 pk.	14.60 pk.
	2	16.80 pk.	14.60 pk.
	1	17.30 pk.	15.10 pk.
	0	17.80 pk.	16.40 pk.
	0	18.50 pk.	17.00 pk.
	0	18.90 pk.	17.60 pk.

SUN GOLD SANDING SHEETS

Grit	100	120	150	200	240	280	320	360	400	460	500	600	800	1000	1200	1500	2000	2400	3000	4000	5000	6000	8000	10000	12000	15000	20000	30000	40000	50000	60000	80000	100000	120000	150000	200000	300000	400000	500000	600000	800000	1000000	1200000	1500000	2000000	3000000	4000000	5000000	6000000	8000000	10000000	12000000	15000000	20000000	30000000	40000000	50000000	60000000	80000000	100000000	120000000	150000000	200000000	300000000	400000000	500000000	600000000	800000000	1000000000	1200000000	1500000000	2000000000	3000000000	4000000000	5000000000	6000000000	8000000000	10000000000	12000000000	15000000000	20000000000	30000000000	40000000000	50000000000	60000000000	80000000000	100000000000	120000000000	150000000000	200000000000	300000000000	400000000000	500000000000	600000000000	800000000000	1000000000000	1200000000000	1500000000000	2000000000000	3000000000000	4000000000000	5000000000000	6000000000000	8000000000000	10000000000000	12000000000000	15000000000000	20000000000000	30000000000000	40000000000000	50000000000000	60000000000000	80000000000000	100000000000000	120000000000000	150000000000000	200000000000000	300000000000000	400000000000000	500000000000000	600000000000000	800000000000000	1000000000000000	1200000000000000	1500000000000000	2000000000000000	3000000000000000	4000000000000000	5000000000000000	6000000000000000	8000000000000000	10000000000000000	12000000000000000	15000000000000000	20000000000000000	30000000000000000	40000000000000000	50000000000000000	60000000000000000	80000000000000000	100000000000000000	120000000000000000	150000000000000000	200000000000000000	300000000000000000	400000000000000000	500000000000000000	600000000000000000	800000000000000000	1000000000000000000	1200000000000000000	1500000000000000000	2000000000000000000	3000000000000000000	4000000000000000000	5000000000000000000	6000000000000000000	8000000000000000000
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The Woodworker's Journal

NOVEMBER/DECEMBER 1986 VOLUME 10, NUMBER 6

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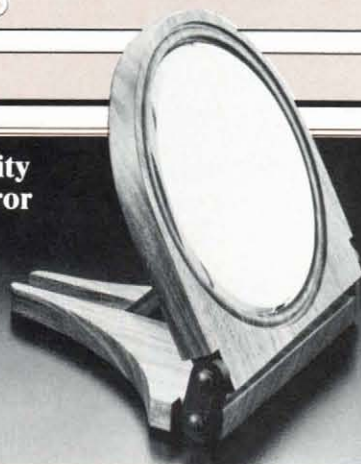
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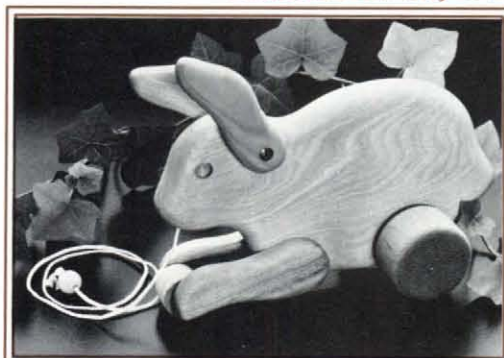
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A New Book

As I write this in mid-September, we are about two weeks away from completing work on a new book. It's called *Contemporary Woodworking Projects* and its author is our long-time associate Paul Levine. The idea for the book was conceived almost five years ago, but it wasn't until early this year that a concerted effort was made to bring all the loose ends together and get it finished.

There's a good mix of large and small projects in the book . . . forty in all, many of which have never before been published, and they range from a cutting board to a white oak credenza. All projects are within the abilities of a woodworker with moderate experience and average shop equipment. The book also introduces two unique joints that are not only strong but provide the projects on which they are used with a distinctive look. I think you'll be pleased with both the content and the overall appearance of the book.

Contemporary Woodworking Projects is in softcover form (which makes for a reasonable price) and we expect to have a good supply on hand by December 1st. We'll start shipping orders on a first come-first served basis, so those orders received before December 1, 1986 can be guaranteed delivery before Christmas. The price is \$14.95 plus a shipping and handling charge of \$1.25, and you'll find an order form on page 8.

Beating the Bushes

In the last issue I mentioned that, as a woodworker, I've always enjoyed visiting craft fairs and seeing what other woodworkers are doing. I'm particularly fascinated by those gifted individuals who have managed to overcome design and production problems and are able to make all or a good part of their living by selling handcrafted items at these fairs.

Most of these woodworkers attribute their success to products of unique design and superior workmanship. Fortunately for all of us, many are willing to share their ideas, and such is the case with Robert Leung, a superb woodturner from Oakland, California.

While scouting around the big American Craft Enterprises "Craftfair" at West Springfield, Massachusetts, our associate editor Dave Peters was impressed by Mr. Leung's display of handcrafted items and prevailed upon him to share with our readers the design and interesting method of making the lovely adjustable mirror shown on page 40. We hope to continue visiting these craft fairs and "beating the bushes" for more best selling designs by American woodworkers.

Jim McQuillan

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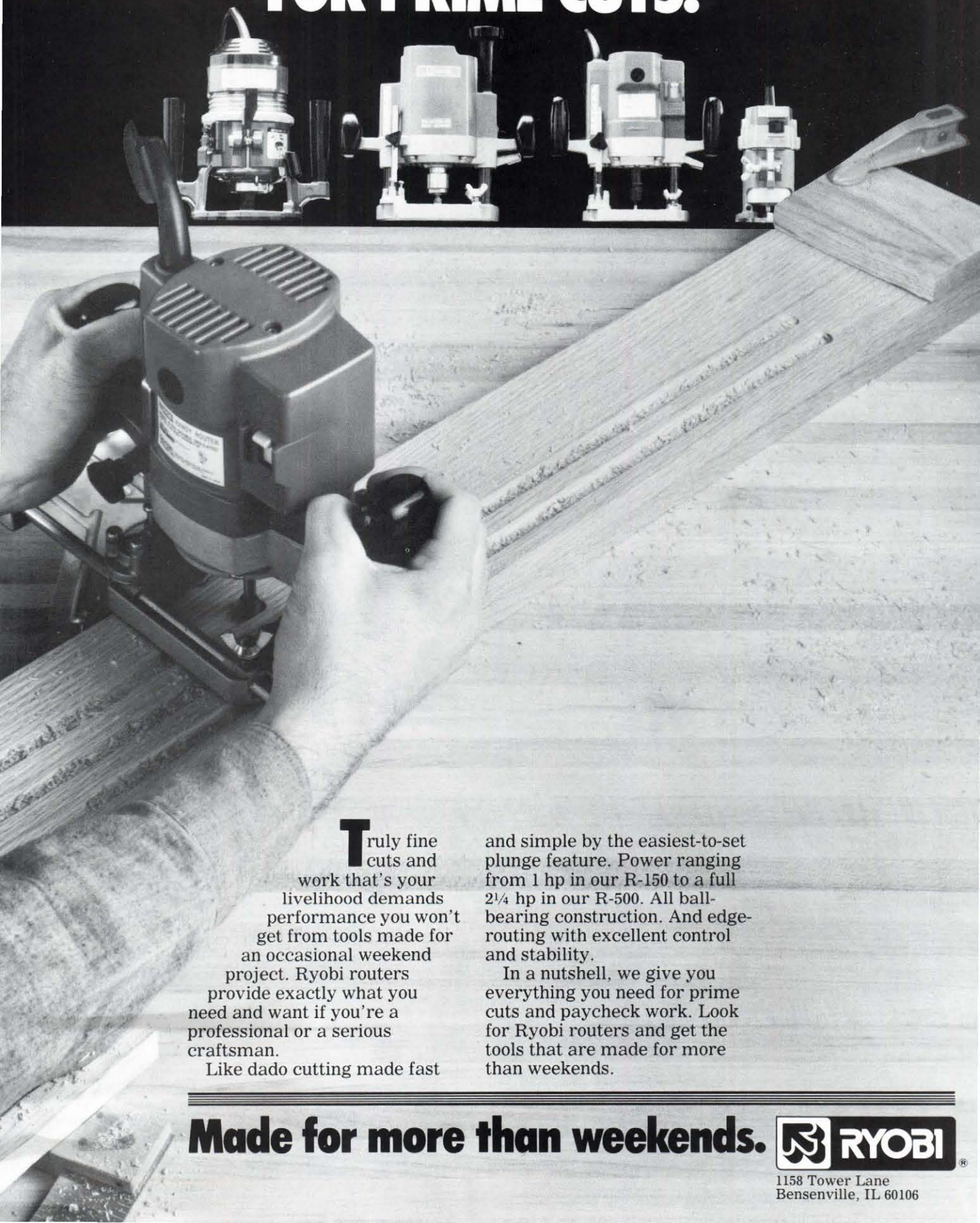
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Letters

The Adirondack chair project in your July/August issue looks exactly like one I have that was built over 30 years ago. Your article said that it is very comfortable, and that I can verify after using mine all those years. I'm sure anyone who tackles this project will be well rewarded.

C.R. Arthur, Purvis, Miss.

My wife and I recently made two of the Adirondack chairs featured in your July/August issue. We followed your directions to the letter, including the use of drywall screws. The chairs turned out beautifully and we gave them as gifts to some dear friends of ours.

Two weeks later though, I learned that there was "black stuff" coming off the screws and staining the wood. The drywall screws were rusting, so to solve the problem we replaced them with stainless steel flathead wood screws.

Guy and Gale Johnson, Riverdale, Ga.

An alternative to Mr. Anthony's idea for removing headless bolts (Shop

Tips, September/October 1986) is to thread two nuts and tighten one against the other. The result is as strong as if a nut were welded to the bolt. Using one wrench on the lower nut, it is easy to remove the bolt. One advantage of this method is that it can be used in applications where it is impossible to bring work to a vise.

Pierre Messerli, Pacifica, Calif.

Those foam finishing brushes (often sold under the trade name "Poly-Brush") can still be put to good use after the finishing job is over. I've found that if you peel the foam it exposes a plastic tab that makes an excellent glue spreader. The plastic can be trimmed to suit various applications such as dado slots or rabbet grooves. Also the wooden brush handles, which have a diameter of either $\frac{3}{8}$ in. or $\frac{1}{2}$ in., can be used as dowel stock.

Richard G. Goar, Great Falls, Mont.

I'm looking for plans for a Martin birdhouse. Can you help?

Louis Manning, Shelbyville, Ky.

Plans for a Martin birdhouse are available from U-build, 15241 Stagg Street, P.O. Box 2383, Van Nuys, CA 91409.

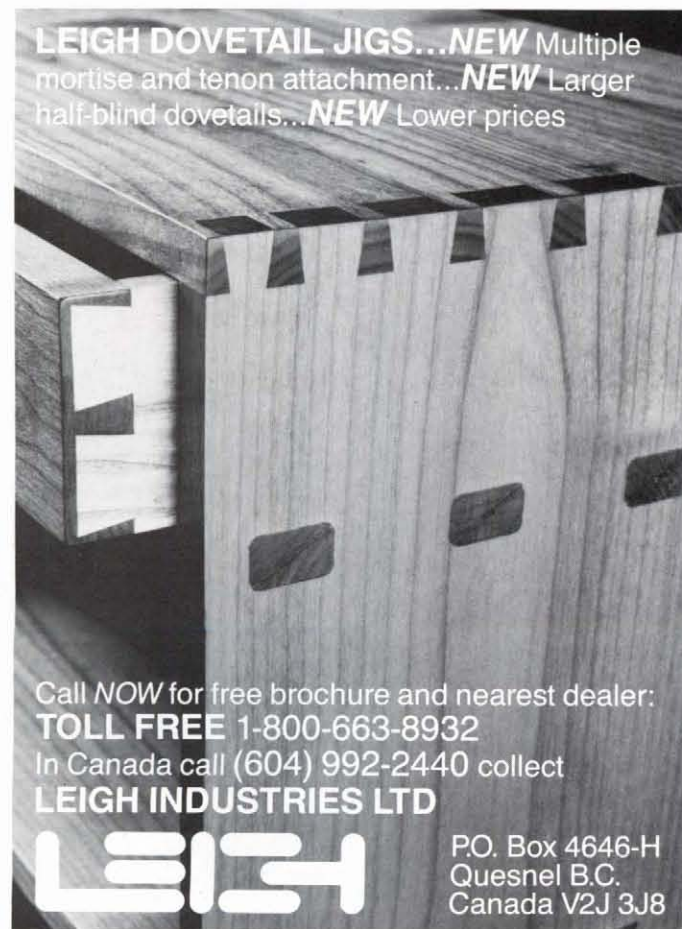
I would like a pattern or information about how to build a Dutch windmill. Do you know of a source?

Alvin Daye, Markesan, Wis.

Mastercraft Plans West, P.O. Box 625, Redmond, WA 98073, sells plans for windmills measuring four to six feet high. Write to them for ordering information.

I thought you might be interested to learn that I have made seven of the tape dispensers you featured in the January/February 1986 issue. I used a variety of woods including rosewood, walnut, padouk, and oak. The rosewood was my favorite because it was heaviest, and that enabled me to tear off a new piece of tape with one hand without the dispenser sliding around the desk. I also minimized this problem by gluing a thin ($\frac{1}{16}$ - $\frac{1}{8}$ in.

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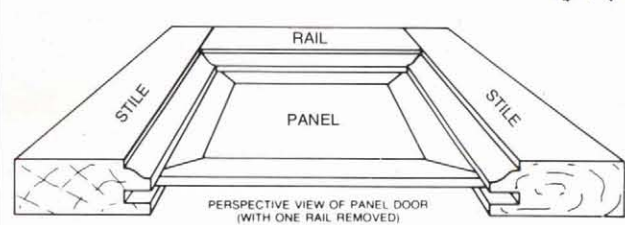
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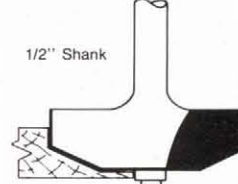
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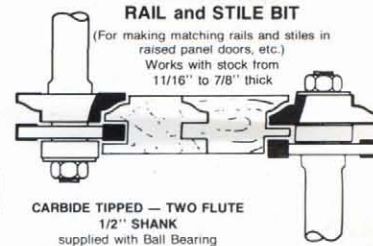
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thick) piece of rubber to the bottom of the dispenser.

Several coats of Watco Danish oil were used as a final finish, and everyone thinks they are beautiful. I hope you continue to include good projects like this in your Gift Shop section.

Robert S. Reser, Roseville, Mich.

In the September/October 1986 issue you gave Elisha Penniman Inc. as a source for the $\frac{3}{16}$ - $\frac{1}{2}$ countersink at a cost of \$6.30 each plus shipping.

I received the item this week and you should know that the price has increased to \$9.35 plus shipping.

Even at this price it really does the job of making perfect countersinks in all types of wood.

Donald R. Chapman
Woodland Hills, Calif.

I would like to take exception to The Beginning Woodworker article in your July/August 1986 issue titled "All About Router Bits".

In the article you state that thicker

carbide indicates a higher quality bit. An old saying "Don't judge a book by its cover" sure is true of router bits, which our firm has manufactured and distributed for over 35 years. A thick piece of carbide does not constitute a higher quality bit. All it offers the owner is the opportunity to have it resharpened more often. This "convenience" is usually paid for in the initial price of the bit. A thicker piece costs more. The quality of a router bit is determined by its overall attention to craftsmanship and detail. Such things as brazing quality, centerless grinding of the shank, teflon coating, the use of first run, new bearings, tolerance, specifications of concentricity, proper heat-treating of the carbide tool body, the Rockwell hardness and, most important, the grade of carbide used determines the quality of the bit. Big, "thick" pieces of carbide can break off or chip just like "thin" carbide tools. Tools can snap at the shanks, and bearings can sound and feel like old washing machines.

You need a balance between thick and thin. If the carbide is too thin, you're subject to the cutting edge breaking down because of not having enough support or back up. On the other hand, an excessive, too thick piece of carbide is a waste of money for you won't get your value out of it, and it may cause resistance in use. After many grinds, the hook angle may depart from the original design. Deterioration of the shank and body can not be repaired. Many people advertise retipping, but fail to inform the user of the tool's material, body, and shank life expectancy.

"You get what you pay for" is very true when it comes to router bits. Your readers should ask themselves not only what they are buying, but whom they are buying from. Most manufacturers, such as Byrom, offer the user quality and workmanship guarantees. Byrom and its dealers offer back-up technical advice on the proper use of these tools.

Dan Walter

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690 1 1/2 H.P. 8 Amp	194	124
691 1 1/2 H.P. D-Hdle	218	129
536 1 1/2 H.P. Speedmatic	300	184
537 1 1/2 H.P. D-Hdle Speed	315	189
518 3 H.P. 5 Speed	490	323
520 3 H.P. 15 Amp	460	298

*** TRIMMERS ***

309 3.8 Amp	130	84
310 3.8 Amp	190	124
312 3.8 Amp Offset Base	205	133
319 3.8 Amp Tilt Base	215	138

*** ROUTER/SHAPER ***

695 H.D. 1 1/2 H.P. Router/Shaper	278	190
696 H.D. Shaper Table	149	104

*** SANDERS ***

351 3x21 w/o Bag Belt	189	125
352 3x21 w/Bag Belt	199	130
503 3x24 x-tra HD Belt w/Bag	510	338
504 3x24 x-tra HD Belt w/o Bag	495	328
360 3x24 w/Bag Belt	280	185
361 3x24 w/o Bag Belt	260	175
362 4x24 w/Bag Belt	295	198
363 4x24 w/o Bag Belt	280	185
304 Prof. 7" Disc Sander	169	114
303 Paint Remover	220	155

*** SAWS CIRCULAR ***

587 7 1/4" Speedtronic 14.5 Amp	199	125
315-1 7 1/4" Top Hdle 13 Amp	166	96
617 7 1/4" Push Hdls 13 Amp	166	96
345-1 6 1/2" Top Hdle 12 Amp	161	100

*** SAWS CIRCULAR ***

Model	List	Spec.
368-1 8 1/4" Top Hdle 13 Amp	176	110
314 4 1/2" Trimsaw 4.5 Amp	180	109
9314 4 1/2" Trimsaw Comp w/cs	208	139
*** SAWS BAYONET ***		
7548 Top Hdle H.D. elec. V/Sp.	199	128
6748 Barrel Grip H.D. elec. V/Sp.	199	128
7648 H.D. Top Hdle 4 Amp	163	110
548 X-tra H.D. V/Sp. 3.5 Amp	235	155
9548 X.H.D. V/Sp. 3.5 Amp w/cs	255	169

*** SAWS RECIP ***

9629 V/Sp. 8 Amp Comp. w/cs	204	133
9627 2-Sp. 8 Amp. Comp w/cs	193	124

*** DRILLS ***

666 3/8" H.D. V/Sp. T. Hdle 4 Amp	165	115
620 3/8" H.D. 4 Amp 1000 R.P.M.	124	85
621 3/8" H.D. V/Sp. 0-1000 R.P.M.	130	84
7510 3/8" X-tra H.D. 5.2 Amp	160	109
1000 R.P.M.		
7511 3/8" X-tra H.D. 5.2 Amp	164	102
0-1000 R.P.M.		
7514 1/2" X-tra H.D. V/SP. 0-750	169	114
R.P.M.		

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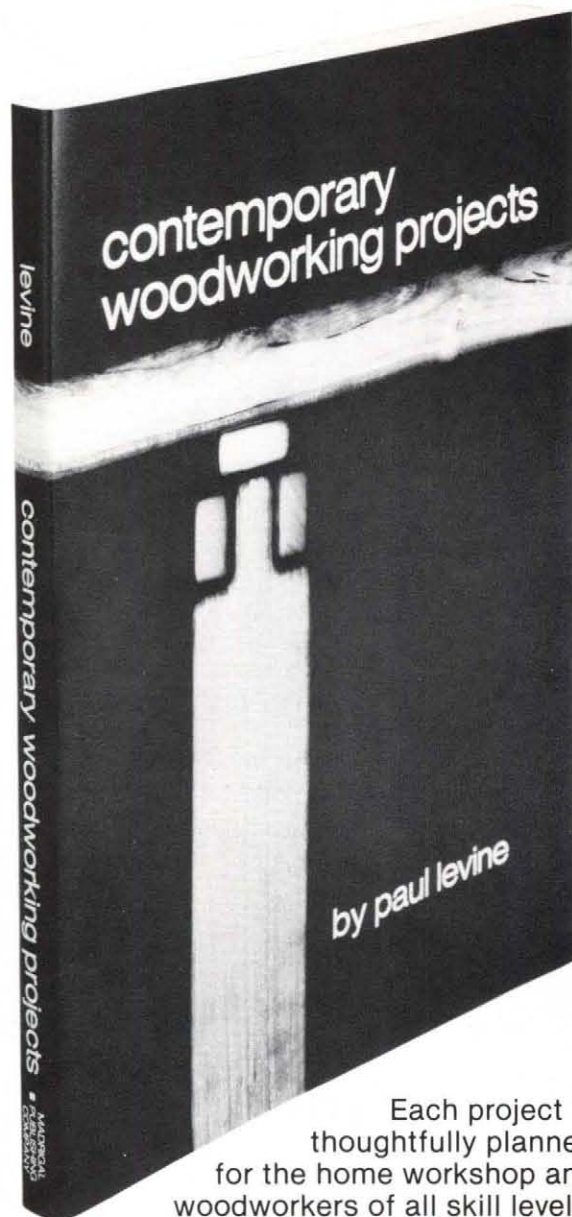
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Readers' Information Exchange

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'd be grateful for any help in locating plans for a "Rocking Dory".

Frederick Brundick
705 Long Bar Harbor Rd.
Abandon, MD 21009

I would like to purchase a Craftsman 12 in. band saw model no. 103.0103 for parts. No motor needed.

Albert Wellbrock
6601 La Roche Ave., Savannah, GA 31406

I'm really in a bind. I need help in locating a new source for snap cap covers. I ran out of snap caps half way through a job and D.R.I. no longer sells them. They are plastic covers that snap over a plastic finish washer on a screw.

Raymond Altermatt
5110 N. Kildare Ave., Chicago, IL 60630

I would like to possibly purchase any or all attachments for the old Shopsmith ER-10. Would also be willing to consider the base machine.

J.H. Gehman
7001 White Eagle Dr.
Fort Wayne, IN 46815-7950

Requests for Owner's Manuals and Parts Lists

Craftsman (King-Seeley Corp.) 4 in. jointer, model no. 103.23340

Walker-Turner (The Driver Line) 10 in. band saw

Walker-Turner (The Driver Line) 24 in. scroll saw Roger Smith
1105 Forestview Drive, Louisville, KY 40219

Sears scroll saw, model no. 103.0407 William K. Frase
1144 S. State St., Dover, DE 19901

Sears Craftsman saber saw, model no. 315.27731 Robert T. Cragg
400 Broadmeadow Rd., Rantoul, IL 61866

Sears 4 in. stationary belt sander, model no. 103.08011 D. Mayeron
1927 Russell, Berkeley, CA 94703

Duro Master table saw 8 ft., model no. FG 3013 Norman Althoff
71 Grand Central Avenue, Amityville, NY 11701

Sears Craftsman wood lathe, model no. 103.23881

Sears Craftsman jigsaw, model no. 103.20720 A.J. Busch
Rt. 3 Box 292C, Campobello, SC 29322

Ward's Powr-Kraft 9 in. band saw, model no. 94TTN2316A

Ward's Powr-Kraft wood lathe, model no. FD2002A

Sears Craftsman 12 in. jigsaw, model no. 103.2179

Sprunger 4 1/2 in. jointer, model no. 25596J4 Anthony M. Glaser, Jr.
12 Lancaster Place, Huntington Station, NY 11746

Walker Turner 16 in. wood & metal band saw, serial no. 22-639.

Sears Craftsman 3-wheel band saw, model no. 103.24550 Alex Lincoln
Box 1777, Kamuela, HI 96743

Sears Craftsman wood lathe, model no. 103.23070 Donald Z. O'Bier
Box 584, Lottsburg, VA 22511

I have a lathe made by Delta that is similar to the current model 43-140, but does not have the gap bed. It has 11 in. swing and 36 in. between centers. I need a manual and parts list for it. I also have an Atlas stationary jigsaw, model no. 9340 and need the manual and parts list. I'll be glad to pay for copying and mailing costs.

Thomas O'Brien
4115 Highknoll Lane, Seabrook, TX 77586

I was given a Duro jigsaw, model no. B-629-XO. I need instructions and parts list, or if someone knows the length and type of blade it uses and where they can be bought, I'd appreciate the help.

Sherman Hebrank
2216 Terrace Hill, Highland, IL 62249

I need a source for 6-8 1/2 in. plain blades for a Sears 18 in. jigsaw, model no. 103.23151.

Ricky Kortyna
2349 Beaufort Ave., Pittsburgh, PA 14226

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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:

The annual Holiday Craft Sale at the Brookfield Craft Center in Brookfield, CT will take place Nov. 28 - Dec. 24.

Classes at the Brookfield Craft Center include Making A Spindle Table, Nov. 8 - 9, Hollow Turning and Miniatures, Nov. 15 - 16; For information, write to the Center at P.O. Box 122, Brookfield, CT 06840.

Middle Atlantic:

Seminar on Ornamentation of Chippendale and Federal Periods (inlay & carving) Nov. 1; demonstrations of Inca power tools Nov. 8, Dec. 6 (in Phila.) and Dec. 13 (in York), sponsored by the Olde Mill Cabinet Shoppe, RD 3 Box 547A, York, PA 17402.

East North Central:

Booth space is available at the annual Christmas Arts and Crafts Fair at Southern Illinois University in Edwardsville. The fair will be held Dec. 3 - 4. Deadline for entry is Nov. 6. Late applications will require late fee. Call (618) 692-2178 for information.

West North Central:

The Woodworkers' Store, Minneapolis, MN will be conducting workshops in Touch-Up and Refinishing, Router Techniques, Caning, and Hand Tool Joinery in November. Call (612) 822-3338 for details.

South Atlantic:

Woodworking World — The Carolina Show, Nov. 21 - 23, Charlotte Civic Center, Charlotte, NC.

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

East South Central:

Arrowmont School of Arts and Crafts will be accepting applications until Jan. 17, 1987 for assistantship positions for the period from Mar. 9 - Apr. 3, 1987. For application and information write to the school at P.O. Box 567, Gatlinburg, TN 37738.

Scholarships are available for courses at the Ar-

rowmont School of Arts and Crafts. For application and information, write to the school at P.O. Box 567, Gatlinburg, TN 37738.

"Space: New Form, New Function", a national juried exhibition, will be on display at the Arrowmont School of Arts and Crafts in Gatlinburg, TN Oct. 25 - Jan. 24.

West South Central:

Entry deadline for "Made in the Shade", the 19th Annual Louisiana Crafts Council juried exhibition, is Nov. 1. The exhibit is open to residents of AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, TX, VA, WV. Send LSASE to K.B. Davis, 1717 Stanford Ave., Baton Rouge, LA 70808.

The 25th Anniversary Exhibition of the Louisiana Crafts Council will be held Nov. 2 - Dec. 18 at the Tammany Art Assoc., 129 N. New Hampshire, Covington, LA 70433.

Pacific:

The Working With Wood Show, Dec. 5 - 7, Disneyland Hotel, Anaheim, CA. For information, call: (408) 973-0447.

Rosewood Tool Supply will be sponsoring workshops in woodturning, framemaking, joinery, finishing, carving and sharpening. For information, write to them at 1836 Fourth St., Berkeley, CA 94710, or call (415) 540-6247.

Woodtec '86 — The Woodworking Industries Technical Conference, Nov. 20 - 22, Pasadena, CA. Contact Diane Stone, 1516 So. Pontius Ave., Los Angeles, CA 90025; (213) 477-8521.

Woodworking Workshops for Women. Contact Debey Zito, 103 Wool St., San Francisco, CA 94110.

Northern California Woodworking Show, Nov. 21 - 23, San Jose Convention Center Exhibit Hall, San Jose, CA.

Wooden Toy Show, Nov. 28 - 30; Holiday Woodcarving Show, Dec. 5 - 7, sponsored by the World Forestry Center, 4033 S.W. Canyon Rd., Portland, OR 97221; (503) 228-1367.

Courses and training programs in precision woodworking, cabinetmaking and fine furniture are held at Everett Community College, 801 Wetmore Ave., Everett, WA 98201-1327. Address inquiries to Mr. George Herrmann.

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Timbers' Woodproject Directory is a series of woodworkers' guides to projects and patterns. Each guide is organized by project, like tables, wooden toys and children's furniture, shelves, whirligigs, household furniture, homemade tools, etc. Everything can be made in your own workshop. Each guide lists and illustrates 64 projects. More than half of the projects are found in one or more of the magazines listed above. The rest are found in books or woodworking patterns. Find these books or magazines in your local library, or, we show you how to order the magazine back issues, books, and patterns. Plus, many project photocopies are available, FREE!

Perhaps you would like to build a desk for your den. Order Timbers' Woodproject Directory, "Desks." 64 desk projects and illustrations are shown. Listed is a "Shaker Desk," Sept.-Oct., 1983, Woodworkers Journal, page 39. Find Woodworkers Journal at your local library OR the guide tells how to order the back issues.

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Cabinetmakers' Supplies

Clock Parts

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 clock parts. Most will carry such components as movements, dials, hands, numerals and miscellaneous clock hardware. Some also offer plans and kits.

Armor Products

Box 445, Dept. FJ
East Northport, NY 11731
Catalog \$1.00

California Time, Inc.

P.O. Box 93004
Long Beach, CA 90809
Catalog free

Cas-Ker Company

P.O. Box 14069
Cincinnati, OH 45214
Catalog \$1.00

Craft Products Company

2200 Dean Street
Dept. WJ6N
St. Charles, IL 60174
Catalog free

Emperor Clock Company

Emperor Industrial Park
Dept. 2193
Fairhope, AL 36532
Catalog \$1.00

Otto Frei & Jules Borel

P.O. Box 796, Dept. WJ
Oakland, CA 94604
Catalog \$2.00

Klockit, Inc.

P.O. Box 629, Dept. WJ116A
Lake Geneva, WI 53147
Catalog free

S. LaRose

234 Commerce Place
Greensboro, NC 27420
Catalog \$2.50

Mason & Sullivan

586 Higgins Crowell Road
Dept. 3997
West Yarmouth, MA 02673
Catalog \$2.00

Newport Enterprises

2313 West Burbank Boulevard
Burbank, CA 91506
Catalog free

Turncraft Clock Imports

7912 Olson Memorial Highway 55
Dept. WJ1186
Golden Valley, MN 55427
Catalog \$3.00

Viking Clocks

The Viking Building
Foley, AL 36536
Catalog free



RYOBI TOOLS		
S500A	3x5 1/2 Finish Sander	70 41
SU6200	Finishing Sand, 1/2 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	7 1/4" 13 amp circular saw	158 99
W740	8 1/4" 13 amp circular saw	171 109
J560	Jig Saw-Single Speed	172 99
J560	Jig Saw-electronic v/speed	198 123
R150	1 1/4" 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	3/8" Planer	142 89
B01020R	3/8" 2-sp Cordless Drill	148 95
W	free holster-Xtra special buy	
TS251U	10" Miter Box	300 169
SG1150C	4 1/2" H.D. Mini-Grinder	99 59

YOUR ATTENTION PLEASE!
All Above RYOBI TOOL Prices
Take Additional 10% OFF Sale Prices

MILWAUKEE TOOLS		
0224-1	3/8" drill 4.5A magnum	173 109
0234-1	1/2" drill 4.5A magnum	173 112
0244-1	1/2" drill 4.5A magnum	173 115
0222-1	3/8" drill 3.3A 0-100 rpm	159 99
0228-1	3/8" drill 3.3A 0-1000 rpm	139 92
0375-1	3/8" close quarter drill	
	— NEW — 3.5 amp	191 118
0210-1	3/8" cordless drill	
	— NEW — 2 speed	189 95
6539-1	cordless screwdriver	
	— NEW — 190 RPM	99 59
1007-1	1/2" drill 4.5A D-Hide	217 145
1107-1	1/2" drill 4.5A D-Hide	222 145
3300-1	magnum rt angle drive kit	271 170
3102-1	Plmbrs rt angle drill kit	287 180
1676-1	HD Holve H/w/cse 2 sp	363 235
5395	3/8" sgle sp hammer drill	203 150
5397	3/8" var sp hammer drill	208 155
5371-1	HD mag hammer drill	213 207
5373	HD mag hammer drill	262 175
6511	2 speed Sawzall w/case	197 122
6226	port band saw 2 sp w/case	416 280
6234	TSB band saw port w/case	416 280
6405	8 1/4" circ saw 13 amp	191 127
6460	10 1/4" 15 amp w/case	380 245
6165	12" Chop saw 15 amp	
	4200 R.P.M.	311 189
6255	v/sp jig Saw 3.8 amp	217 140
6245	sgle sp jig Saw 3.8 amp	191 125
6012	1/2" sheet HD Orb. sander	173 110
6014	1/2" sheet HD orb. sander	184 112
5660	1 1/2" HP router 10 amp	289 175
5680	2 HP router 12 amp	342 220

DRYWALL SHOOTERS
6753-1 3.5 amp 0-4000 rpm new 125 79
6747-1 4.5 amp 2500 rpm 157 100
6750-1 4.5 amp 0-4000 rpm 141 90

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Variable Speed 3/8" Drill
LIST... 209.00 SALE... 125.00
Model 6145 — 4 1/2" Sander-Grinder
LIST... 149.00 SPECIAL SALE... 85.00
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#6305 — 6 1/4" Cordless Circular Saw
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List Price 229.00 ★ SALE PRICE 119.00

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Univ. Bore — Professional Series
CARBIDE TIPPED SAWBLADES
Item No. Description Diam. Teeth List Sale
PS203 Gen'l Purp. 7 1/2" 24 27.24 17.50
PS303 Fine cutting 7 1/4" 40 32.97 20.50
3/8" 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 8" 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	3 3/8" Saw Kit	174 95
5600DW	6 1/4" 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	98
DK1002	w/Bat & Metal Case	178 98
6710DW	3/8" w/Fluorint Kit	164 90
	Cordless Screwdriver Kit	148 84

LEIGH DOVETAIL JIGS		
Model	List	Sale
T051A	149	125
T051AL	219	195
D1258-12	299	245
D1258-24	359	275

MAKITA BRAND NEW X-TRA SPECIAL		
Model	List	Sale
5007NBA	7 1/4" Saw w/Elec. Brake	186 115
5008NBA	8 1/4" Saw w/Elec. Brake	212 130

MAKITA TOOLS		
Model	List	Sale
804510	Sander	86 43
9900B	3"x 21" belt sander	218 119
9924B	3"x 24" belt sander	208 130
99240B	3"x 24" b.sander w/bag	234 130
9035	1 1/2 sheet finish sander	88 48
9045H	1 1/2 sheet finish sander	184 90
9045H	1 1/4 sht fin. sand, w/bag	184 105
4200H	4 1/8 circ. saw 7.5 amp	168 93
5008NB	8 1/4 circ. saw 13 amp	198 105
5201NA	10 1/4 circ. saw 12 amp	398 215
4300BV	v/sp jig saw 3.5 amp	218 120
4301BV	orb v/sp jig saw 3.5 amp	230 125
JR3000WL	2 sp recip saw w/cse	188 120
JR3000W	vs recip saw w/case	198 120

★★ MAKITA TOOLS ★★		
SPECIAL PROMOTION		
LS1000	10" Miter Box	368 198
792210-7A	Carbide Bld for above	49 31
9820-2	Blade Sharpener	268 159
741074-9	60 (Chapene) Grdg Whl	33 23
741070-7	1000 (med) Grdg Whl	31 22
741071-5	6000 (fine) Grdg Whl	43 30
19008W	3 1/4" planer w/case	178 92
1100HD	3 1/4" planer w/case	312 160
3608BK	3/4 hp router w/case	132 85
3601B	1 3/8 hp router	198 115
3700B	1/2 hp trimmer	
	28,000 rpm	148 82
804530	6" Round Sander	90 48
DA3000	3/8" angle drill	188 105
DP4700	1/2 v/sp w/rev 4.8 amp	172 92
HP1030W	3/8 v/sp 1/2" hammer drill	
	w/case	158 98
6300LR	1/2" angle drill w/rev	268 152
84198B-2W	1/2" s.p. hammer drill w/case	268 150
GV5000	Disc Sander	98 53
6800DB	2500 rpm 3.5 amp	134 79
6800DBV	0-2500 rpm 3.5 amp	144 89
68010B	4000 rpm 3.5 amp	134 79
6801DBV	0-4000 rpm 3.5 amp	144 89
2030H	1/2" planer/jointer	2380 1475
2040	15 1/8" planer	1930 1195
1805B	6 1/8" planer kit w/case	466 265
JV1600	var. speed jig saw	162 89
JV2000	var. speed orb. jig saw	188 100
5005BA	5 1/2" circular saw	176
	8 amp, with brake	98
9207SPC	7" var/speed electronic sander/polisher	238 130
9303BH	4 1/2" sander-grinder kit	146 95
4014NV	var/speed blower	138 79

DELTA — BRAND NEW		
Model	List	Sale
34-080	10" Miter Box w/rotary table	279 179
	Repeat of a Sellout	
DELTA — SUPER SPECIAL		
40-601	18" Electronic v/sp scroll saw — complete	1117 679

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SUPER CORDLESS SPECIALS from BLACK & DECKER		
Model	List	Sale
1930	3/8" revhi speed	165 110
1950	3/8" High Torque	165 110
5930	Reversible Hammer	179 120
1970	3/8" revhi torq. screwdrill	179 120
1980	Revadj. clutch Screwdrill	179 120

BRAND NEW! SUPER SPECIALS from MILWAUKEE		
Model	List	Sale
0214-1	3/8" c/less drive/drill	189 109
8975	H.D. heat Gun, 11.6A Low 570°F - High 1000°F	81 49
5920	belt sander 3x24 w/o bag	315 215
5925	belt sander 3x24 w/bag	326 209
5935	belt sander 4x24 w/bag	348 214

STATIONARY TOOL SELL-A-THON from MAKITA		
Model	List	Sale
2020	8" Longbed Jointer with elec. brake 12A	1700 850
2040	15 1/8" Planer 13A	1780 1150
2030	12" Planer-Jointer	1980 1150
2030N	12 1/2" Plan-Jnt w/elec. brake	2160 1350

RYOBI		
Model	List	Sale
BS50N	7" Band Saw	995 585
BS360NR	12" Band Saw	1936 1150
RA2500	10" Radial Arm Saw	536 385
AP-125	12 1/2" Planer	1680 950
AH-115	12 1/2" Planer-Jointer	2195 1245

DEWALT by BLACK & DECKER		
Model	List	Sale
3436	12" Dewalt Radial Arm Saw	1550 1240
7790	12" Contractors Rad. Arm Saw	1045 835
7749	10" Deluxe Radial Arm Saw	606 486
7779	10" Contractors Rad. Arm Saw	710 568
3486	8" Rip & Crosscut Panel Saw	1034 827

DELTA		
Model	List	Sale
34-621	Contractors Saw w/o motor 9"	551 425
34-710	Super 10" Saw — 1 H.P.	621 475
15-091	15" Floor Model Drill Press	510 395
15-090	15" Bench Model Drill Press	510 395
11-072	32" Radial Drill Press	409 300
22-651	RC33-13" Planer — 2 H.P.	1729 1195
46-110	11" Lathe w/Stand w/o Motor	448 350
33-150	Sawback-Frame & Trim Saw	707 499
33-990	Deluxe — 10" Radial Saw	630 475
33-890	12" Rad. Saw w/1 1/2 H.P. Mtr	1422 950
28-283	4 1/4" Band Saw comp.	
	3 1/2 H.P. Motor & enc. std.	970 670
28-243	14" Band Saw w/open steel std less motor	621 475
28-560	16" Motorized Band Saw comp. w/stand	467 349

★ X-TRA SPECIALS ★		
MAKITA TOOLS		
Model	List	Sale
6010DL	C/less Drill w/flashlight-charger & case	174 90
DP3720	3/8" drill Rev. 0-1800 rpm	98 47
6510LVR	3/8" angle drill Rev. 0-1500 rpm	136 67
6013BR	1/2" Drill rev. 6 amp.	198 100
5402A	16" Circular Saw-12 amp	518 315
2414	14" Cut Off Saw-13 amp	308 169
3612BR	3 H.P. Plunge Router	318 175
9401	4x24 belt Sander w/bag	268 160

BOSCH TOOLS		
Model	List	Sale
1581VS	Top Handle Jig Saw	225 126
1582VS	Barrel Grip Jig Saw	126 118
1604	1 3/4 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

★ NEW LOW PRICES ★		
PONY CLAMP FIXTURES		
Model	List	Sale
#50	for 3/4" Black Pipe	11.23 7.15 79.00
#21	for 1/2" Black Pipe	9.36 6.10 67.50

JORGENSEN HAND SCREWS		
Model	List	Sale
#50	4"	11.59 7.25 39.15
#40	5"	12.45 8.10 43.75
#30	6"	13.36 8.50 45.95
#20	7"	14.36 8.95 48.35
#10	8"	15.37 9.95 53.75
#1	10"	16.25 11.35 61.25
#2	12"	20.94 13.60 72.95
#3	14"	26.56 16.75 91.35
#4	16"	34.55 23.75 128.25

JORGENSEN BAR CLAMPS		
Model	List	Sale
343706	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	List	Sale
3050	6 1/2" 12 amp - 4600 rpm	247 169
3051	7 1/4" 13 amp - 4300 rpm	232 149
3052	8 1/4" 13 amp - 4300 rpm	247 169

SUPER SAWCATS		
Model	List	Sale
3047-09	7 1/4" w/brake - 12.5 amp	226 149
3048-09	8 1/4" w/brake - 13 amp	240 155

BUILDERS SAW CAT		
Model	List	Sale
3030	7 1/4" 13 amp - 5800 rpm	155 100
3035	8 1/4" 13 amp - 5800 rpm	175 125
3034	7 1/4" 13 amp - 5800 rpm	162 115
3033	6 1/2" 13 amp - 5800 rpm	162 115

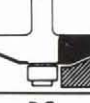
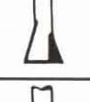
JIG SAWS		
Model	List	Sale
3157-10	var/sp orb action d/hdl	174 115
3153-10	var/speed 4.5A 0-3100	158 105
3159-10	2-sp orb action barrel grip	173 100

MILWAUKEE BUY OF THE YEAR		
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List	\$169.00	Sale \$99.00
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MORE MAKITA TOOLS		
Model	List	Sale

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	#01	COVE 1/4" R	1/4"	1"	1/2"	\$13.00
	#02	3/8" R	3/8"	1 1/4"	9/16"	14.00
	#03	1/2" R	1/2"	1 1/2"	5/8"	15.00
	#04	ROUND OVER 1/4" R	1/4"	1"	1/2"	15.00
	#05	3/8" R	3/8"	1 1/4"	5/8"	16.00
	#06	1/2" R	1/2"	1 1/2"	3/4"	19.00
	#07	ROMAN OEGEE 5/32" R	5/32"	1 1/4"	15/32"	18.00
	#08	1/4" R	1/4"	1 1/2"	3/4"	20.00
	#11	3/8" RABBETING	Deep 3/8"	1 1/4"	1/2"	14.00
	#09	1/8" (KERF) SLOT CUTTER		1 1/4"	1/8"	14.00
	#10	1/4" (KERF) SLOT CUTTER		1 1/4"	1/4"	14.00
	#12	45° CHAMFER	45° Angle	1 1/2"	5/8"	15.00
	#15	RAISED PANEL	20° Angle	1-5/8"	1/2"	25.00
	#35	1/4" V Groove 90°		1/4"	1/4"	8.00
	#36	3/8" V Groove 90°		3/8"	3/8"	9.00
	#37	1/2" V Groove 90°		1/2"	1/2"	11.00
	#16	3/8" Dovetail 9°		3/8"	3/8"	7.50
	#17	1/2" Dovetail 14°		1/2"	1/2"	8.50
	#18	3/4" Dovetail 14°		3/4"	7/8"	10.50
	#19	CORE BOX (ROUND NOSE) 3/8" Core Box	3/16"	3/8"	3/8"	11.00
	#20	1/2" Core Box	1/4"	1/2"	11/32"	14.00
	#21	3/4" Core Box	3/8"	3/4"	5/8"	18.00
	#22	GROOVE FORMING OEGEE 1/2" Grooving Ogee		1/2"	3/8"	16.50
	#23	3/4" Grooving Ogee		3/4"	7/16"	21.00
	#24	1/4" Straight Bit		1/4"	3/4"	7.00
	#25	5/16" Straight Bit		5/16"	1"	7.00
	#26	3/8" Straight Bit		3/8"	1"	7.00
	#27	1/2" Straight Bit		1/2"	1"	7.00
	#28	3/4" Straight Bit		3/4"	1"	10.50
	#13	1/2" FLUSH TRIM		1/2"	1"	8.50
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Workshop Income

Wholesale and Discount Sources of Supply

Each day the mail brings a fresh stock of letters from readers to our desks, many with requests for sources of information, plans and materials. Over the years a fair number of these letters have been from readers seeking wholesale, bulk or quantity sources of supply for everything from toy parts to casein glue.

When one is strictly a hobby woodworker, the cost of materials may not be especially important, but for the production woodworker every item must be costed out and accounted for. For example: a toymaker who normally pays 10¢ a wheel, can save \$16 on the manufacturing cost of a 100 toy car production run if he purchases the wheels in quantity at 6¢ a piece.

The same toymaker, who typically uses a quart of glue that costs \$10 and a quart of a finishing product that sells for \$12 to assemble and finish the 100 toy cars, can save an additional \$9 per production run by purchasing these items in a quantity that reduces the per quart cost for the glue to \$6 and the finish to \$7. The savings for the wheels, glue and finish now total \$25 per production run, and bulk purchasing of dowel stock for axles, sandpaper, and other materials can result in substantial additional savings.

There is no questioning the financial advantage of purchasing materials and supplies wholesale, in quantity or bulk. The problem is usually in locating sources.

The following is a brief partial listing of suppliers. Some of the sources listed are in fact wholesalers, or can put you in touch with a wholesaler. Others may offer discounts for quantity, bulk, or have minimum orders.

Hardwoods, Plywoods, Veneer

- American Plywood Association, P.O. Box 11700, Tacoma, WA 98411; (206) 565-6600.
- Hardwood Plywood Manufacturers Association, P.O. Box 2789, Reston, VA 22090; (703) 435-2900.
- Kountry Kraft Hardwoods, RR 1, Lake City, IA 51449; (712) 464-8140.
- McFeely's Hardwoods and Lumber, P.O. Box 3, 43 Cabell St., Lynchburg, VA 24505; (804) 846-2729.
- American Woodcrafters, P.O. Box 919, Piqua, OH 45356; (513) 773-7411.
- Woodshed, 1807 Elmwood Ave., Buffalo, NY 14207; (716) 876-4720.

Hardware

- Paxton Hardware Company, 7818 Bradshaw Road, Upper Falls, MD 21156; (301) 592-8505.
- Meisel Hardware Specialties, P.O. Box 258, Mound, MN 55364; (612) 472-5542 or 1-800-441-9870.
- The Wise Company, 6503 St. Claude Ave., Arabi, LA 70032; (504) 277-7551.
- Horton Brasses Company, Nooks Hill Rd., P.O. Box 95, Cromwell, CT 06416; (203) 635-4400.

Finishing Supplies

- Industrial Finishing Products, Inc., 465 Logan St., Brooklyn, NY 11208; (718) 277-3333.

- Finishing Products, 4611 Macklind Ave., St. Louis, MO 63109; (314) 481-0700.
- Woodfinishing Enterprises, 1729 N. 68th St., Wauwatosa, WI 53213; (414) 871-0440.

Toy Parts

- Cherry Tree Toys, Inc., So. Jefferson St., Belmont, OH 43718; (614) 484-1746.
- Brown Wood Products Company, P.O. Box 8246, Northfield, IL 60093; (312) 446-5200.
- Woodworks, 4013A Clay Ave., Fort Worth, TX 76109; (817) 281-4447.

As we noted earlier, this is only a partial list. Many other general woodworking supply mail-order outlets, such as Constantine's, 2050 Eastchester Rd., Bronx, NY 10461, (800) 223-8087; The Woodworkers' Store, 21801 Industrial Blvd., Rogers, MN 55374, (612) 428-4101; and Bob Morgan Woodworking Supplies, 1123 Bardstown Rd., Louisville, KY 40204, (502) 456-2545, offer special prices and professional or percentage discounts based on the size of your order.

The term wholesale usually requires purchases or orders of substantial size. Many true wholesalers will not deal with small "backyard" or "basement" workshop production operations whose average order may be for tens or hundreds, but not thousands of a given item. You may also have to open an account and have a resale tax number to qualify for wholesale discounts.

Many of the suppliers included in the above listing are actually retailers, but offer trade, quantity, bulk or minimum order discounts. Of course, one need not be a professional or production woodworker to take advantage of such savings. The hobby woodworker is just as eligible for these discounts so long as he meets the necessary minimum order size or quantity limits.

Obtaining discounts or price reductions that will enable you to cut production costs often requires creativity or initiative on your part. If you use a lot of sandpaper, try buying your paper by the box rather than in single sheets or small packs. Screws, fasteners, drawer slides, door hinges, veneer, caning and practically anything can be purchased in quantity. Most lumber suppliers offer discounts for large board-foot purchases, and you can often negotiate a special price with local or mail-order suppliers on an individual order basis. Nearly all clock part catalogs also offer discounts for quantity purchases.

If you are having an especially difficult time locating a particular wholesale or discount source, as a last resort you may try the Thomas Register, a national listing of manufacturers that should be available at your local library. While the product manufacturer may not be able to sell to you directly, he will in all likelihood be able to provide you with a list of wholesalers or distributors handling that particular product.

In woodworking, as with almost everything else, it pays to shop around and compare prices. Don't limit yourself to local suppliers when a mail-order source can offer a healthy discount by eliminating one or more of the middle men. Remember, some research, a few telephone calls, and a little of your time may turn out to be an investment that pays significant dividends.

Wwj

WOODWORKERS HARDWARE WHOLESALE ORDER FORM

Pt. No. Price Pt. No. Price Pt. No. Price

Pt. No.	Price	Pt. No.	Price	Pt. No.	Price
WOOD WHEELS					
W075 100	3/4" \$3 50/100				
W087 100	7/8" \$4 70/100				
W100 100	1" \$6 00/100				
W125 100	1 1/4" \$8 00/100				
W150 100	1 1/2" \$11 00/100				
W175 100	1 3/4" \$15 60/100				
W200 100	2" \$19 50/100				
W225 20	2 1/4" \$7 30/20				
W250 20	2 1/2" \$8 80/20				
W275 20	2 3/4" \$10 20/20				
WHEEL PEGS					
AP1 fits 1"-2"	\$4 10/100				
AP5 fits 2 1/4"-2 3/4"	\$1 98/20				
1741	4" PLASTIC SPOKE WHEEL				
	\$ 90/ea				
LITTLE PEOPLE 2-3/8" Birch					
LP3	Men \$2 46/10				
LP4	Women \$2 46/10				
TOY CARGO					
433 Pickle Barrel	\$2 31/10				
434 Oil Drum	\$2 31/10				
435 Milk Can	\$2 15/10				
JIGGLE EYES					
88060	1/4" \$1 40/144				
88010	3/8" \$1 70/144				
88120	1/2" \$2 10/144				
88200	4/5" \$4 35/144				
BIRCH PEGS					
MGPI	\$ 27/ea				
3-3/8"	\$25 00/100				
7227	\$ 28/ea				
3 1/2"	\$26 00/100				
1770	\$ 18/ea				
3-3/8"	\$13 00/100				
1771	\$ 17/ea				
2 1/2"	\$14 40/100				
MINI PEG					
SKP1M	\$ 11/ea				
1 1/4"	\$7 60/100				
SKP2	\$ 30/ea				
Oak	3 1/2" \$28 00/100				
BIRCH SPINDLES					
S6	5 1/4" \$ 42/ea				
S85	9" \$ 72/ea				
S110	11" \$ 17/ea				
GALLEY SPINDLES					
S1 Birch	1-1/8" \$ 10/ea				
S10ak	1-1/8" \$ 12/ea				
S4 Birch	1 1/2" \$ 17/ea				
S40ak	1 1/2" \$ 24/ea				
DOWEL PIN					
1142	Birch \$1 90/100				
1/4" x 2"	\$8 75/500				
1382	\$2 00/100				
3/8" x 2"	\$9 25/500				
GAME PEGS 3/16"x1"					
316N	\$1 10/100				
	\$9 95/1000				
SCREW HOLE BUTTONS					
1432	3/8" \$1 76/100				
Birch	\$7 50/500				
1434	1/2" \$1 76/100				
Birch	\$8 00/500				
1452	3/8" \$3 70/100				
Oak	\$15 50/500				
1454	1/2" \$3 80/100				
Oak	\$16 00/500				
WOOD CANDLE CC1					
	\$ 31/ea				
BRASS CANDLE 718					
	\$18 00/100				
BRASS 878					
	\$2 16/10				
CLOCK MOVEMENT W/HANDS					
Q-82	1-4 \$6 48/ea				
5-9	\$5 10/ea				
10-24	\$4 55/ea				
25+	\$3 95/ea				
CLOCK DIAL 1772					
	\$1 80/ea				
CORD SETS					
CS6	6" \$1 00/ea				
CS8	8" \$1 10/ea				
PUSH-THRU LAMP SOCKET 940					
	\$1 49/ea				
LAZY SUSAN BEARINGS					
LC3	3" \$6 99/ea				
LC4	4" \$1 00/ea				
LC6	6" \$2 05/ea				
12C	12" \$5 99/ea				
CLIPBOARD CLIPS					
L5	3" \$ 55/ea				
ST6	6" \$ 75/ea				
MAGNETIC STRIP 120A 120"x1/2"					
	\$ 40/Roll				
CORK SHEETS					
C31 8 1/2"x11"	\$ 60/ea				
PLASTIC GLASS					
357 5"x7"	\$ 35/ea				
380 8"x10"	\$ 65/ea				
314 11"x14"	\$1 20/ea				
SHELF PINS					
S17	\$5 40/100				
RING HANGER 1612					
	\$2 15/10				
BRASS PLATED PICTURE HANGER S23					
	\$4 70/100				
TRIANGLE HANGERS					
6290	1/2" \$3 25/100				
6291	3/4" \$3 45/100				
6292	1" \$4 55/100				
SAW TOOTH PICTURE HANGERS					
S59	1-5/8" \$4 17/100				
S60	2 1/4" \$4 50/100				
406 Self Fastening PRONG HANGER 6288					
	\$2 75/100				
SOLID BRASS CUP HOOKS					
812	1/2" \$6 70/100				
858	5/8" \$7 60/100				
834	3/4" \$8 60/100				
835	7/8" \$8 70/100				
836	1" \$10 60/100				
6" BRASS & PORCELAIN HOOKS					
6417 Three Prong \$5 85/ea					
6416 Two Prong \$2 97/ea					
BLACK HAMMER HINGE W/SCREWS					
1730	\$1 62/2				
	\$7 17/10				
BRASS PLATED HINGES					
910	1" \$1 30/10				
928	1 1/2" \$2 25/10				
Screws for Above F124					
	\$2 40/100				
PRODUCTION SCREWS					
6277	1 1/4" #6 \$1 70/100				
6278	1-5/8" #6 \$1 90/100				
6279	2" #6 \$2 50/100				
6282	3" #8 \$4 75/100				
CARPENTERS GLUE E705					
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81150 150gr	\$16 80/100				
81120 120gr	\$16 90/100				
81100 100gr	\$17 20/100				
81080 80gr	\$11 50/50				
81060 60gr	\$11 60/50				
81050 50gr	\$11 70/50				
81234 Assort	\$16 50/70				
SANDING BELTS					
1700 120gr	\$12 20/10				
1701 80gr	\$13 00/10				
1702 50gr	\$13 50/10				
1703 36gr	\$14 65/10				
3"x24"					
1704 120gr	\$13 10/10				
1705 80gr	\$13 50/10				
1706 50gr	\$14 60/10				
1707 36gr	\$15 85/10				

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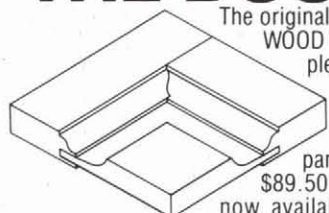
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Restoring Antiques

Sandpaper Abrasives

Most finishing operations begin with a thorough sanding, yet surprisingly few woodworkers know much about the various kinds of sandpaper abrasives that are on the market today. However, an understanding of what is generally available can make it easier to choose the abrasive that best serves your needs.

The term sandpaper, as it's used today, refers to any type of finely ground abrasive that is glued to a paper or cloth backing. The manufacturers label any such product a "coated abrasive", but just about everyone else still calls it sandpaper, and that's not likely to change in the near future.

Sandpaper is made by grinding an abrasive material into fine particles, then sifting them through a series of graded screens so that all the particles of like size are collected. These same-sized particles, called grits, are then glued to the paper or cloth back. Woodworkers have four sandpaper abrasives to choose from: flint, garnet, aluminum oxide, and silicon carbide.

Except for flint, a numbering system is used to grade the grits according to size — the smaller the number, the larger (coarser) the grit. The smallest number is 12 followed by 16, 20, 24, 30, 36, 40, 50, 60, 80, 100, 120, 150, 180, 220, 240, 280, 320, 400, 500, and 600. Keep in mind, though, that not all abrasives are available in every grade. Most furniture sanding is done in the 50 to 220 grit range, although a few finishes are sanded using the 240 to 600 grits.

Flint sandpaper is simply graded as coarse, medium, fine, and very fine. Generally speaking, this system corresponds to the numbered system as follows: coarse — 50, 60; medium — 80, 100; fine — 120, 150, 180; very fine — 220, 240, 280. Manufacturers of other abrasives will often label their packages using the same or similar designations, apparently thinking it is easier for us to understand. Should you want to know what grit number it is, just look on the back side of the sheet as most manufacturers stamp the number there.

Here's a brief summary of the common woodworking abrasives:

Flint — A naturally occurring member of the quartz family. It's less expensive than other abrasives, but it tends to wear quickly. You usually end up paying more in the long run. However, it can be cost effective if you are using it to remove paint, varnish, or any other finish that quickly clogs any sandpaper. If you have to toss a clogged sandpaper long before it's dull, you may as well throw out flint.

Garnet — This reddish-yellow, naturally occurring mineral is harder than flint with a sharper cutting edge. It's more expensive than flint, but it lasts considerably longer. It is commonly used to sand between finishing coats.

Aluminum Oxide — A man-made, gray-brown abrasive that will last longer and cost more than garnet. It is extremely tough and resistant to wear. It is probably the most widely used of all the woodworking sandpapers.

Silicon Carbide — This man-made abrasive is harder than aluminum oxide. Bluish-black in color, it is widely used with a waterproof backing for wet sanding with water or finishing liquids.

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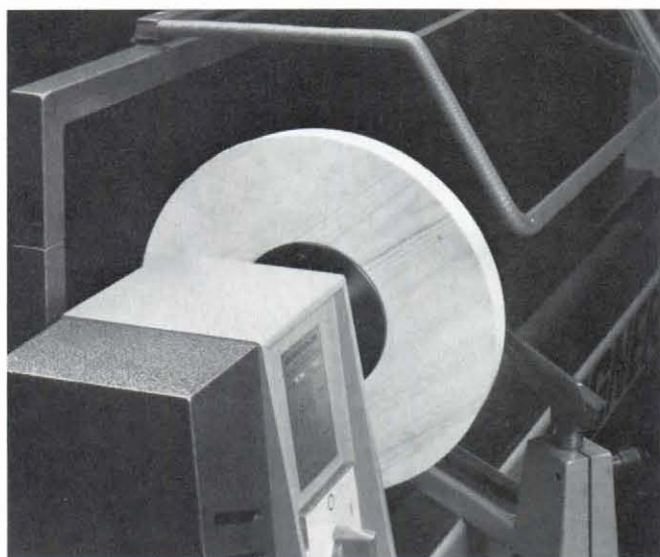
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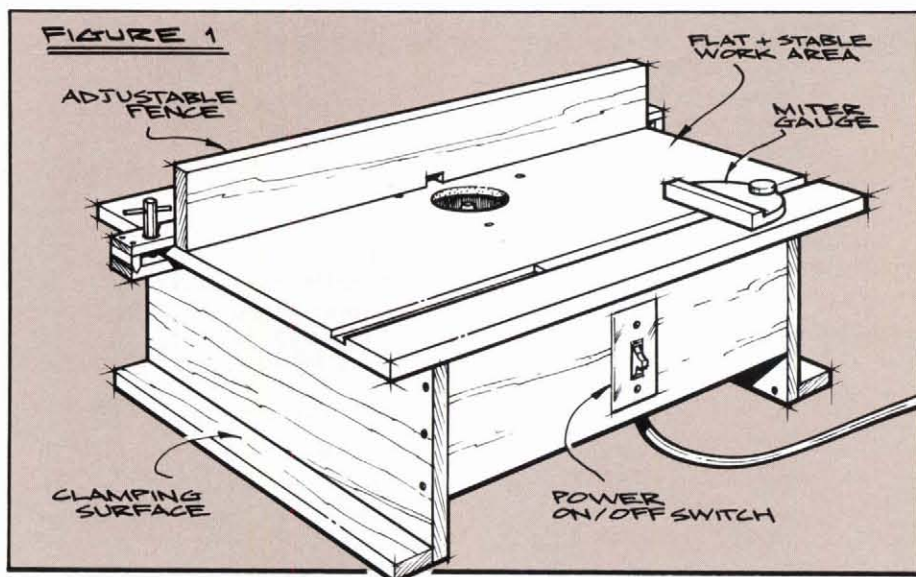
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The Beginning Woodworker

Using The Router Table



This feature concludes our series on the router. As most woodworkers who own a router know, although the router by itself is useful for many purposes, by mounting the router beneath a flat surface or "table", a great variety of additional uses and applications become possible. Also many common handheld router operations are easier to accomplish on the router table.

The router table is especially handy for operations on small workpieces. While with large boards or surfaces one simply clamps the stock securely and then uses the router in a handheld operation, this is not practical with small pieces. It is much easier to handle the piece and use the router table as a base for the operation instead.

The primary advantages of the router table are convenience, control, and accuracy. With small workpieces and narrow edges, the router table provides a solid bearing surface, and therefore greater control. The stability that the router table affords is particularly important when routing irregular shapes, perimeters and edges. The table effectively eliminates the problems of tipping, gouging and digging in that are common with handheld operations. This results in improved

accuracy, a vital element in quality woodworking.

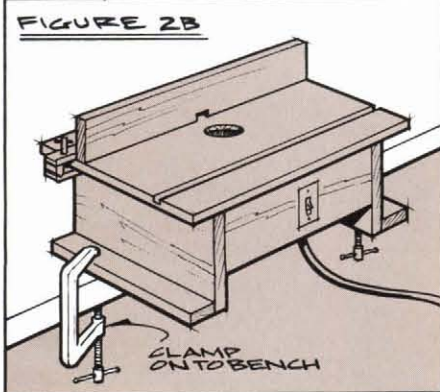
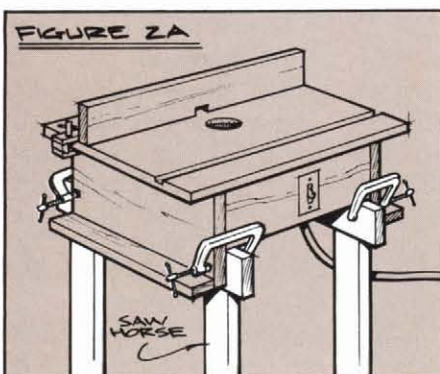
As we shall see, the router table is important for a broad variety of operations including rabbeting, dadoing, edge-forming, mortising, smoothing edges, tenoning, slotting, and cutting spline grooves and finger joints. Although a fair number of these operations could also be accomplished with the table saw, the router table is in many cases a safer, more practical method. The router table is also useful for panel raising, routing the edges of circular shapes, jointing, cutting dovetails and other more specific or special applications. For certain tasks, such as cutting stopped dados and grooves or making multiple identical cuts, the router table is easier and faster to set up than using the router in its portable mode.

The Router Table

A good router table is essential. While many inexpensive commercial router tables are available, these tables are generally inferior to a quality user-made table, such as the one we feature on page 45. The commercial tables are small and lightweight (usually constructed of plastic, stamped sheet

metal, or inexpensive alloys) and although they might be acceptable for the hobbyist just starting out, the typical woodworker quickly outgrows their capability and requires a larger, better made work surface.

A full-featured router table should provide an absolutely flat and stable work area, and should be equipped with an easily adjustable fence, a miter gauge, and an electrical on/off switch (Fig. 1). Our table has all these features, and can be mounted either on a pair of sawhorses or clamped to the workbench (Fig. 2A and 2B). The



sawhorse mounting is recommended since it places the work surface at an ideal height. However, the workbench mounting or an accommodation where the table is clamped to angle irons or braces on the end of the workbench, making it level with the bench surface, is also acceptable. Whichever mounting you select, make certain that the router table is fastened securely to provide a level, stable work surface.

The plastic laminated router table surface we show has several advantages. First, the laminate effectively seals the plywood substrate or core against moisture, eliminating any

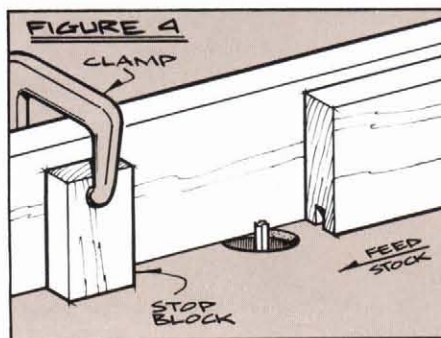
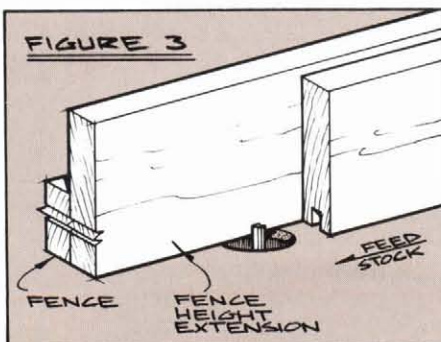
chance for the surface to warp. Second, the smooth texture of the laminate eases the movement of stock, and also provides an ideal erasable surface for making location or registration marks with a pencil.

Capability

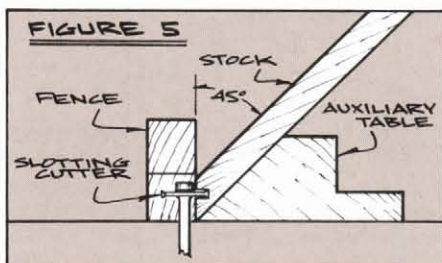
The same principles of bit rotation and direction and rate of feed hold true for the router table as they did for handheld router use. (See *The Beginning Woodworker*, September/October 1986). Remember that the direction of feed is generally into or against the bit rotation, and that the rate of feed of the stock through or across the cutter should be constant.

Using the Fence

The fence is used for any kind of edge forming or detailing on straight edged stock. It is important that the fence be straight and sturdy, and in the case of a one-piece fence, that it have a clearance for the bit or cutter. The fence also serves as a guide for cutting spline grooves, mortises, tongues, and for edge detailing on both sides of material, particularly in situations where the first cut would remove the area on which a bearing guide must ride for the opposite side cut. As shown in Fig. 3, a height extension for

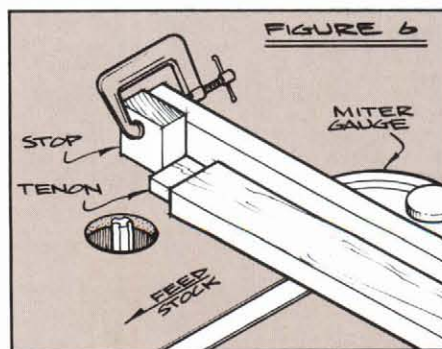


the fence is helpful for certain operations. Since our router table features an extra high fence, an extension is unnecessary except in the most extreme cases. The Fig. 4 illustration shows a stopblock in place, used for cutting identical stopped grooves. Fig. 5 shows an auxiliary table angled at 45 degrees, which is used in combination with the fence for cutting spline grooves in the sides of a box. Note that in all these illustrations, the direction of feed is from right to left. This right-to-left feed direction holds true for most router table fence operations.



With setups involving both the fence and miter gauge, the fence must be parallel to the miter gauge slot; with operations involving the fence alone, one must only determine the correct distance between the bit and the fence. Our general recommendation is to avoid using the fence in conjunction with the miter gauge.

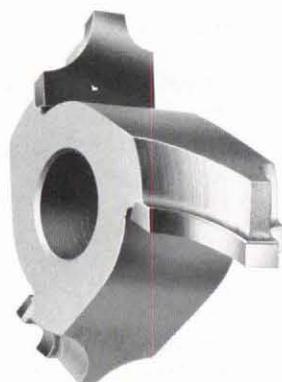
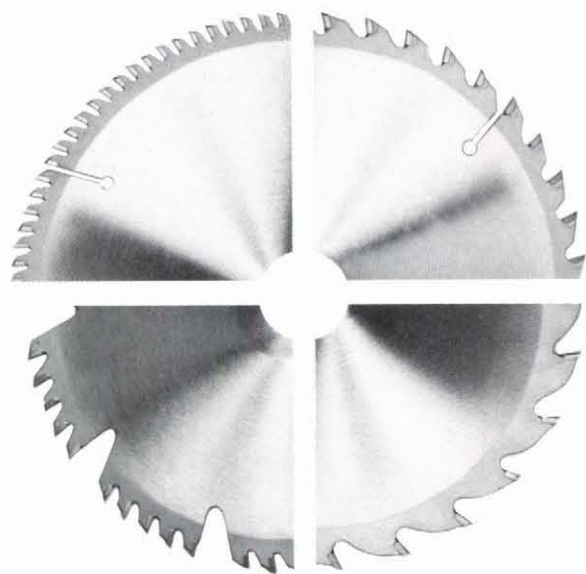
Using the Miter Gauge



The miter gauge is primarily used for rabbeting, dadoing, dovetailing, and cutting finger joints and tenons. The miter gauge provides the support and control needed to insure an accurate cut. Stopblocks can be used in conjunction with the miter gauge when a cut is repeated, such as is illustrated in

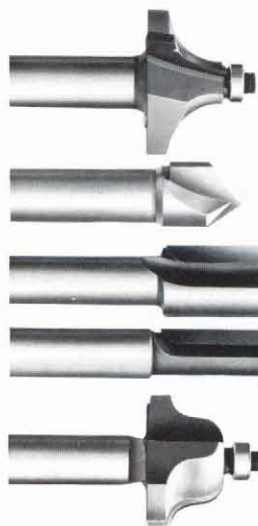
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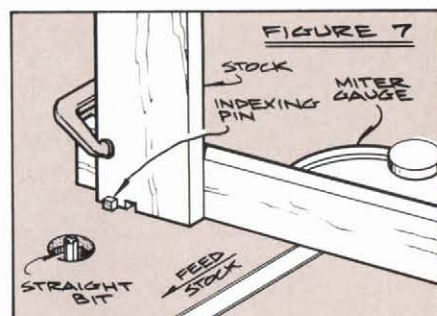
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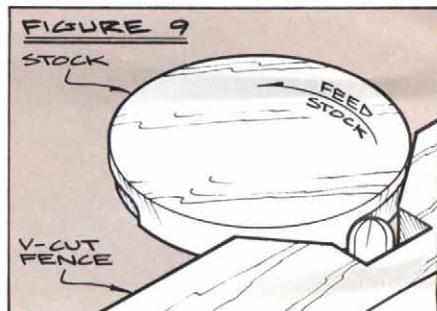
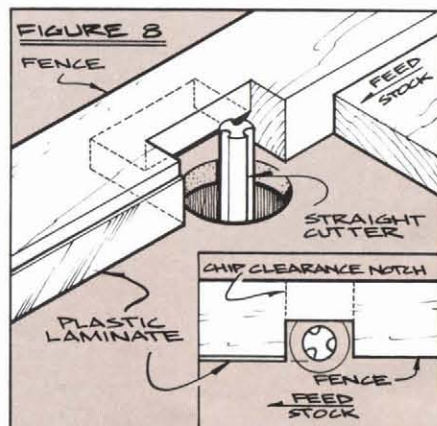
Fig. 6, which shows the miter gauge being used to establish the shoulders on a common tenon. Fig. 7 illustrates the miter gauge being used to cut finger joints.



Special Setups

The variety of operations that are possible on the router table covers a broad range. Many require special setups that you may devise yourself for a one-time use, while others are fairly common. Several of the more useful setups are shown in Figs. 8, 9, and 10.

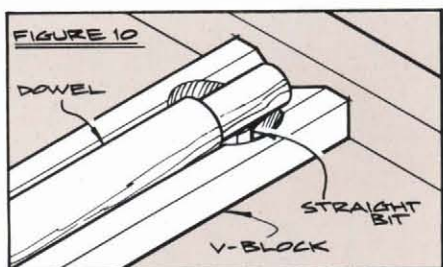
Fig. 8 shows a jointing fence, which is a straightedged board with a section of plastic laminate bonded to the outfeed half. Use a straightedge to set the jointing fence so the laminate is flush with the cutter. A large diameter



straight or spiral cutter is recommended for the bit.

The Fig. 9 illustration shows a board fence with a simple V-cut. This setup permits the use of pilotless bits for edge forming round or circular shapes.

Fig. 10 shows a V-block for round tenoning and shaping. This device can be used in combination with any number of different bits to create useful and decorative applications for standard dowel stock. The V-block is glued and screwed to a hardboard base which is clamped to the router table. A stopblock can be used to locate repetitive cuts. The V-block setup is not a substitute for a lathe, but can come in handy for small work such as making chess pieces and toys. The Fig. 10 illustrations show the device being used with a straight bit to cut round tenons. Utilizing the same V-block setup, bearing-guided bits can be used to decorate or shape the ends of dowel stock.



In this brief article we have really only scratched the surface of the many possible uses for the router table. Cutting raised panels, dovetails, and blind mortises, and using the various bearing-guided bits are other practical applications.

Special bits and accessories (either shopmade or purchased) will also increase capability. The use of a 1/2 in. collet router will enable you to use the router table for making frame and panel doors, and other jigs can be used in conjunction with commercial router tables for shaping contoured edges.

Although the router table is generally a very safe work surface, we recommend that you always follow established safety procedures, wear protective eyeglasses, and keep fingers well away from the bit or cutter. Remember, the router table must be clamped firmly or securely anchored before attempting any operations.

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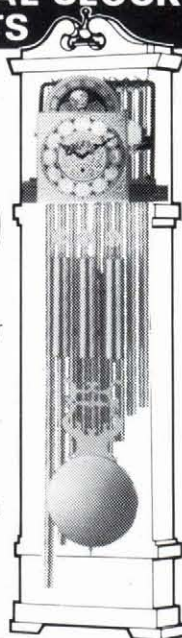
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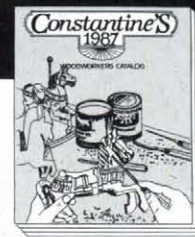
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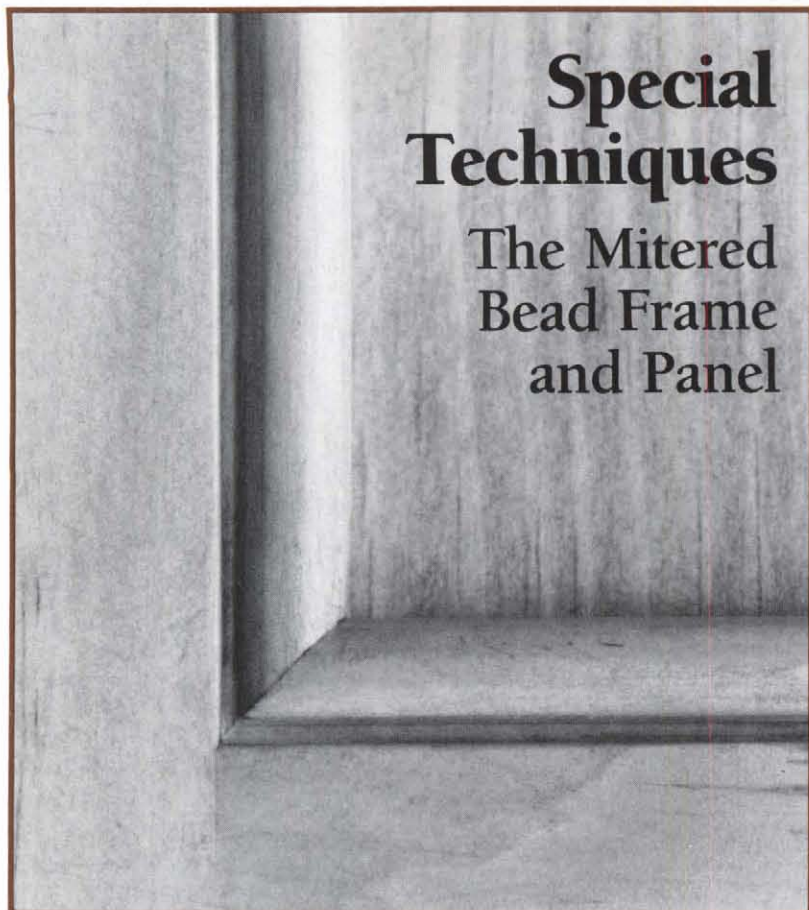
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Special Techniques

The Mitered Bead Frame and Panel



in the stiles and rails, particularly along the edges that will be molded. Stock must be at least $\frac{3}{4}$ in. thick for this technique.

Step 1. Most frame and panel construction features tenoned rails and mortised stiles. After ripping material to width, crosscutting to length, and cutting the mortises in the stiles and the tenons on the rail ends, the molded bead is applied. This can be accomplished with the table saw and molding head by using one bead of the beading cutter as shown in Fig. 1A, or you can make a scratch stock and apply the bead by hand (Fig. 1B). A section of an old saw blade can be cut and filed to shape the scratch stock cutter. For more information on making and using the scratch stock, refer to the Special Techniques article in our September/October 1984 issue.

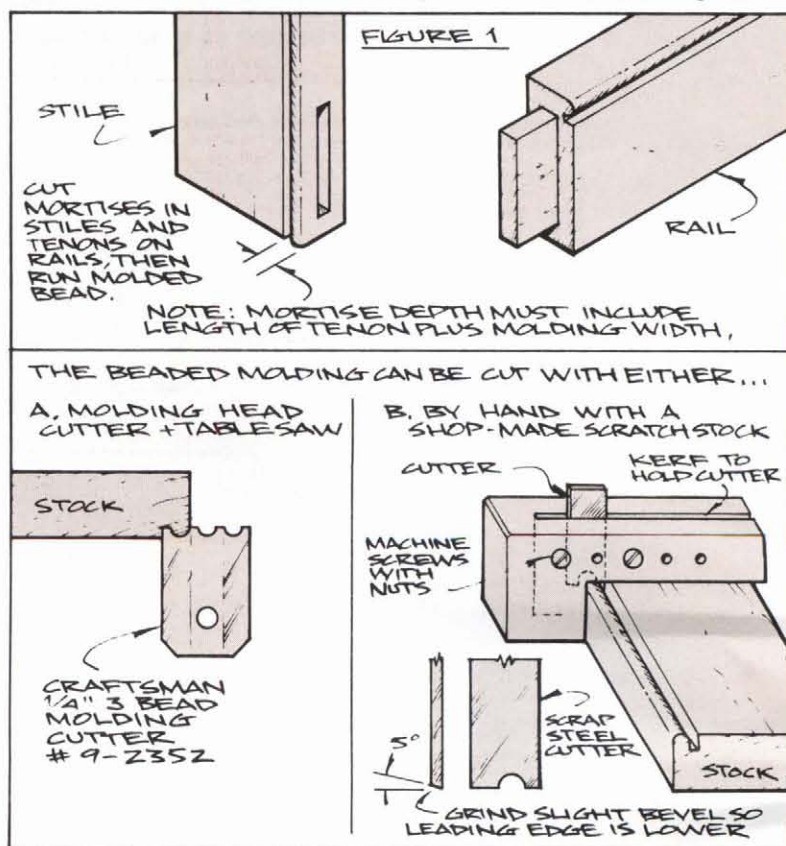
Whether you use the scratch stock or the molding head method of applying the bead, it is important that the bead be no more than $\frac{1}{8}$ in. high, and flush with the face of the stiles and rails. This is important, since on $\frac{3}{4}$ in. thick stock with a $\frac{1}{8}$ in. high bead and a $\frac{1}{4}$ in. wide centered panel groove, only $\frac{1}{8}$ in. of material will remain between the groove and the bead.

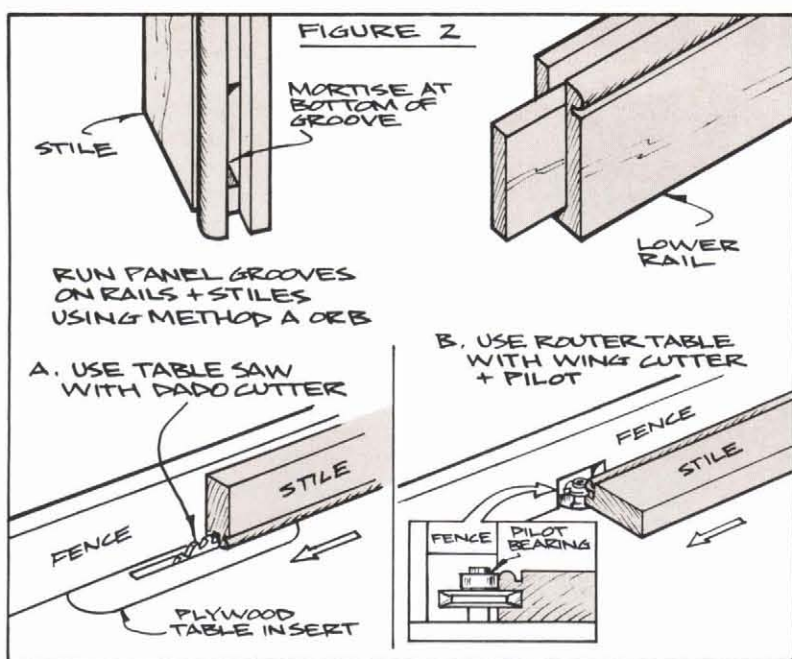
Step 2. With the beaded edge form-

The mitered bead frame and panel is a simple yet elegant special technique that can be used to enhance any frame and panel construction. We have found that this beaded detail looks especially good on Shaker, Colonial, Early American and Contemporary projects where clean lines and basic construction are complemented nicely by the addition of the half-round bead.

While at first glance it appears as though the bead is applied directly to the panel, in fact it is a molded and mitered edge on the stiles and rails. The panel itself is simply cut to size from solid stock or plywood. A solid stock rabbeted raised panel could also be used, if you prefer.

There are several ways to cut the mitered bead. One can use the molding head and table saw, or the same result can be achieved using the old hand methods of work with a scratch stock and chisel. The following instructions and illustrations include an explanation of both methods. *Note:* Careful selection of stock is important, especially with pine which is likely to have knots. There should be no knots



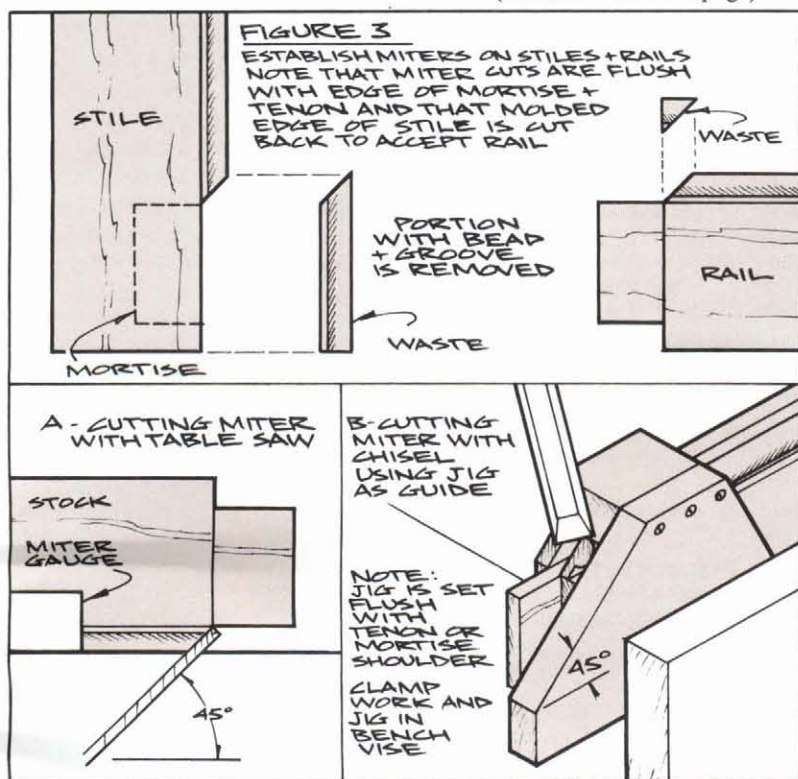


ed, you must now run the grooves that will accept the panel. Use either the table saw and dado head (Fig. 2A) or the router equipped with a wing cutter (2B). The bead is best applied *before* the panel grooves are cut, since machining the bead after these grooves have been cut may cause the narrow beaded edge to break off under the stress of being cut.

Step 3. Now, the 45-degree miters must be established on the inside edges

of the stiles and rails. Start by using the bevel square to lay out and mark for these miter cuts. The miters can be cut either by hand or with the table saw. If you use the hand method, first cut off the waste with a back or dovetail saw, staying on the waste side of the line. Then use the jig shown in Fig. 3B to trim the bead miter flush to the scribed line. By making the simple one-sided jig, as illustrated, different stock thicknesses can be accommodated, and

(continued on next page)



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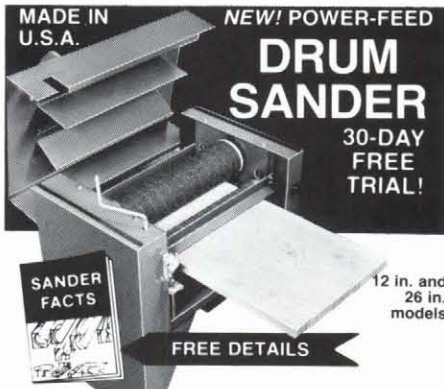
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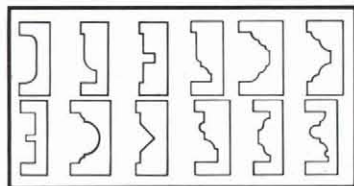
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you will be able to use the jig for frame and panel mitering on other projects as well.

To miter the bead on the rails using the hand method, clamp the stock and jig securely in the bench vise, cut the bead back and then pare it flush to the 45-degree jig face using the chisel. Note that the jig is aligned with the shoulder of the tenon.

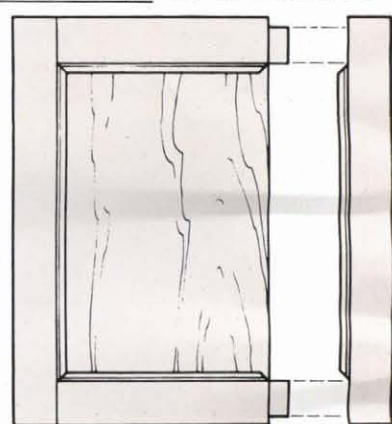
To miter the beaded stiles, again clamp the stock securely in the 45-degree miter jig. After using the backsaw to rough cut the miters, staying well on the waste side of the line, trim the bead flush to the jig face with the chisel. As illustrated, the end of the miter cut is located exactly flush with the edge of the mortises.

The table saw can also be used to establish the miter on the rails and stiles. Use the miter gauge, and set the blade to 45 degrees as shown in Fig. 3A.

Whether you use the hand or machine method of establishing the miter cuts on the beaded frame edge, accurate layout of the miters is vital. A miscalculation or error in locating and cutting the miters could show up as an unsightly gap when the frame is assembled. When in doubt, it is better to remove less than more. The miters can always be pared back slightly for a better fit, but once the stock has been removed, it can never be replaced.

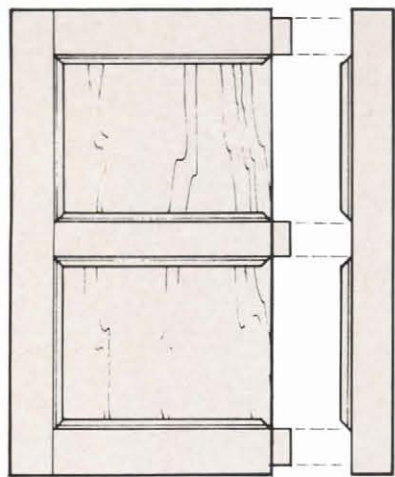
With basic single panel frame-and-panel construction (Fig. 4A), the ends of the stiles are cut back to accept the rails. In the case of stacked double panels, the stiles must also be mitered, cut back, and mortised to accept a center rail (4B), while with side-by-side double panels it is the rails that must be mitered, cut back, and mortised to accept a center stile (4C). Of course with divided panels the center rail or stile

FIGURE 4A—SINGLE PANELS

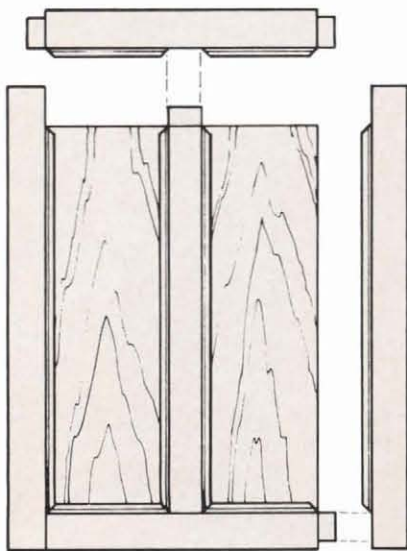


must be beaded and mitered on both edges. Follow the same step-by-step procedure outlined above to bead and miter these center rails or stiles.

4B - STACKED PANELS WITH CENTER RAIL



4C - SIDE BY SIDE PANELS WITH CENTER STILE



The mitered bead frame and panel is a unique treatment. In addition to the lovely pine hamper on page 26 of this issue, the same technique was used successfully to highlight a charming Shaker style pine cupboard featured in the January/February 1981 issue. The same basic technique can also be used to make glass panel doors. Simply substitute a rabbet for the panel groove, glass for the panel, and add a retainer molding to secure the glass.

Whatever your choice of project or style, the mitered bead is an accent element that is easy to make, either by hand or machine. This is one special technique that even the novice woodworker should have little trouble mastering.

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Early American Hamper

This Early American style hamper makes use of the elegant beaded frame and panel special technique described on page 22 of this issue. The beaded detail nicely complements the clean lines of this piece. Although we constructed the hamper from pine, with pine plywood panels, a hardwood such as cherry or maple would be a handsome alternative. Solid stock may be substituted for the plywood panels, if you prefer.

Start by getting out $\frac{3}{4}$ in. stock for the hamper carcass. Now refer to the

Special Techniques article for instructions on how to cut the mitered bead on the front stiles (A), front rails (B) and the center stile (C). Take care when mitering the beads on these parts so as to not break the narrow bead off. The $4\frac{1}{2}$ in. radius shaped end of the front stiles (see front view) is cut away on the band saw before the front frame and panels are assembled. Although the width dimension of our pine plywood panels (D) reflects the actual groove-to-groove dimension, if you plan to use solid stock panels, allow $\frac{1}{16}$ in. on either side of the panels to accommodate seasonal dimensional changes.

Lay up and clamp stock for the sides (E) and top (G) next. While waiting for these parts to dry, make the back assembly, consisting of parts H, I, J, and K. Refer to the front view grid pattern for the profile of the upper back rail (H). You will note that the tenons on parts I and J are $\frac{3}{8}$ in. thick as opposed to the $\frac{1}{4}$ in. thick tenons on the front frame. The slightly larger tenons provide the back assembly with a little extra strength and rigidity since there is no center stile for added support. As shown in the back view, the back stiles taper from $1\frac{1}{2}$ in. to $1\frac{1}{4}$ in. at the bottom. The $\frac{1}{4}$ in. thick perforated hardboard for the back and bottom panels (K and L) is sold at most building supply stores.

Cut out the shaped profile of the feet at the bottom end of the sides, and the stepped profile at the top end of the sides (see side view). The 1 in. wide by 5 in. long handle cutout in the sides can be made by first using a 1 in. diameter Forstner bit to establish the handle ends, then saber sawing the waste, smoothing, and finally rounding over with the router equipped with a $\frac{1}{4}$ in. radius ball bearing guided round-over



bit. Mortise the sides to accept the tenon on the ends of the cleat (F), and use the router equipped with a bearing-guided rabbeting bit to cut the $\frac{3}{8}$ in. by $\frac{3}{8}$ in. rabbet on the front and back edges of the sides as shown. The router equipped with a $\frac{3}{8}$ in. straight bit and the edge guide is then used to rout the corresponding $\frac{3}{8}$ in. by $\frac{3}{8}$ in. groove in the front and back frame and panel assemblies. Note that the grooves for the sides in the front frame stop $\frac{3}{4}$ in. from the top end of the front stiles. Measured from the floor, the tongue on the sides and the corresponding groove in the front and back frames will measure $29\frac{1}{4}$ in. long.

Now use the router equipped with a $\frac{1}{4}$ in. diameter straight bit to cut the $\frac{1}{4}$ in. by $\frac{1}{4}$ in. groove in the front and

back frames and the sides to accept the bottom panel (L). Clamp a straight-edge to the work as a guide for the router, always locating the straight edge the exact same distance from the bottom end of the sides and front and back assemblies. This will insure an even bottom panel groove.

Assemble all the hamper parts except the top (G). The top is now cut to fit precisely (see top view), and then mounted to the cleat (F) with two hinges (M). If the hamper is positioned so the lid would bump against the wall when open, it may be a good idea to add a lid support.

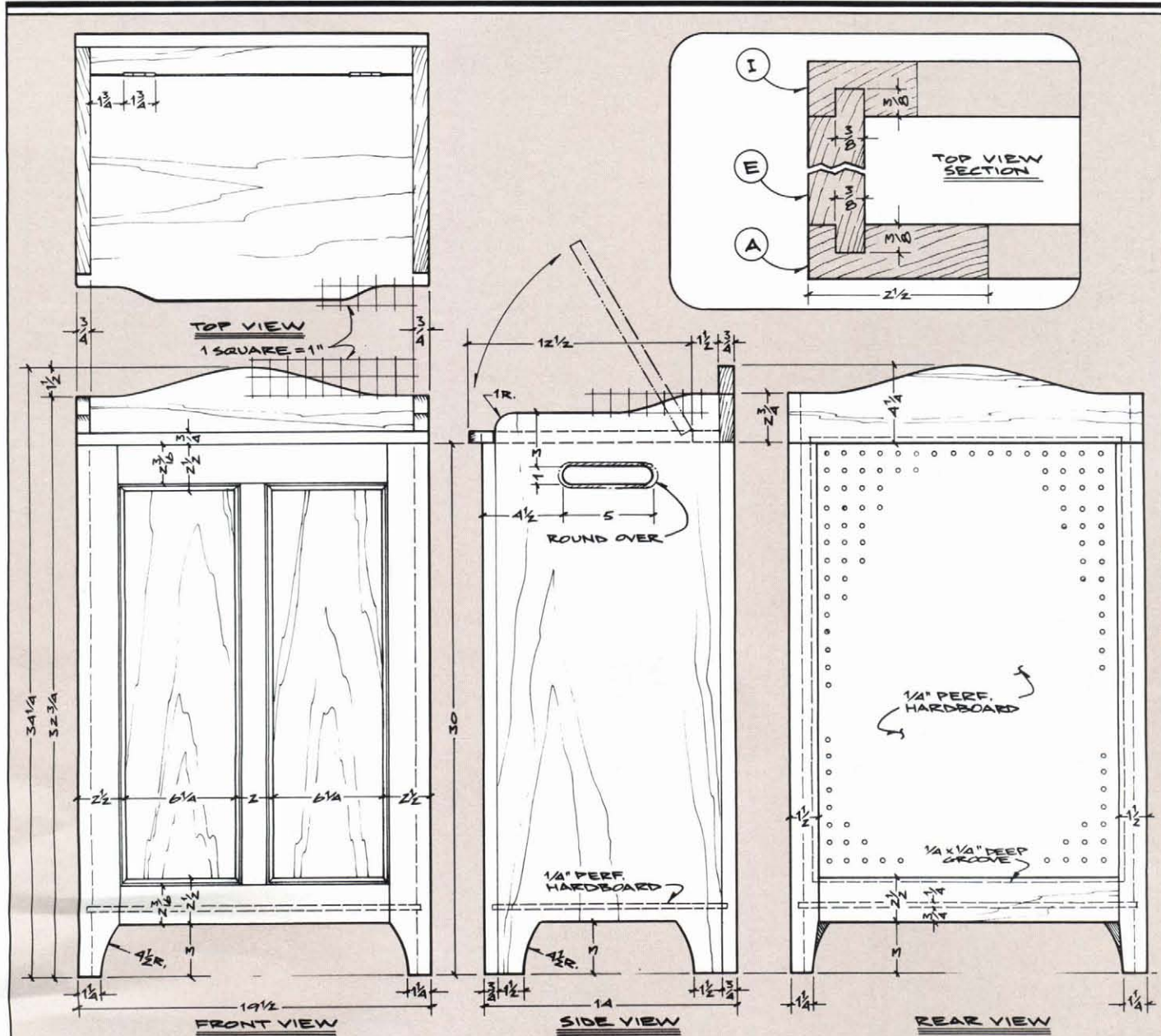
Final sand before applying your favorite stain. Two coats of polyurethane will provide a final finish with good moisture resistance. **Wwj**

Bill of Materials

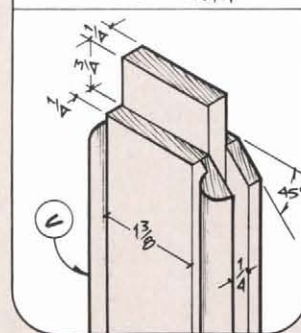
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Front Stile	$\frac{3}{4}$ x $2\frac{1}{2}$ x 30	2
B	Front Rail	$\frac{3}{4}$ x $2\frac{1}{2}$ x $16\frac{5}{8}$ *	2
C	Center Stile	$\frac{3}{4}$ x 2 x $24\frac{1}{8}$ *	1
D	Panel	$\frac{1}{4}$ x $6\frac{7}{8}$ x $22\frac{5}{8}$	2
E	Side	$\frac{3}{4}$ x $13\frac{3}{4}$ * x $32\frac{3}{4}$	2
F	Cleat	$\frac{3}{4}$ x $1\frac{1}{2}$ x $18\frac{3}{4}$ *	1
G	Top	$\frac{3}{4}$ x $12\frac{1}{2}$ x $19\frac{1}{2}$	1
H	Upper Back Rail	$\frac{3}{4}$ x $4\frac{1}{4}$ x $19\frac{1}{2}$	1
I	Back Stile	$\frac{3}{4}$ x $1\frac{1}{2}$ x $30\frac{3}{4}$ *	2
J	Lower Back Rail	$\frac{3}{4}$ x $2\frac{1}{2}$ x 18*	1
K	Back	$\frac{1}{4}$ x 17 x 25	1
L	Bottom	$\frac{1}{4}$ x $18\frac{1}{2}$ x 13	1
M	Hinge	$1\frac{3}{4}$	2

*Dimension includes tenons.



(continued on next page)



Cube Table

by Paul Levine

This cube table represents just about the most elementary table design possible. Except for the groove cut into the eight frame members (A) to accept the top and bottom tongue, both parts A and the four legs (B) are identical. The key splines in each corner locate the frames and legs, and simplify the assembly process.

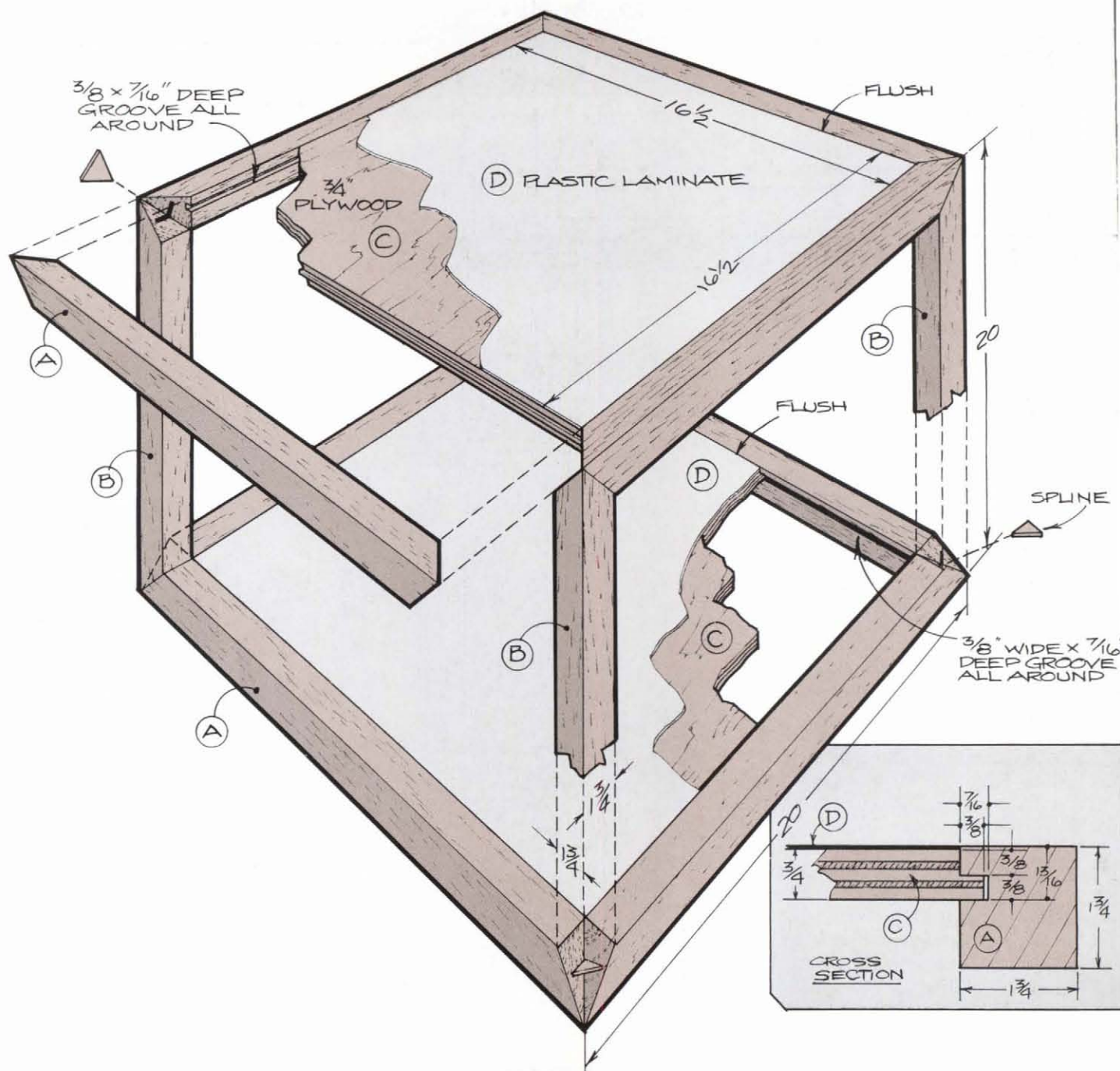
As its name implies, the table is in fact a cube. Although the table I show here is 20 in. square, by altering the length of the frame and leg pieces, and correspondingly the size of the laminated plywood top and bottom, the table could be made either larger or smaller. I might remind you that for this project, as with most other contemporary work, all cuts and joinery must be precise. A poorly fitted joint will not only look unsightly, it will not provide maximum strength. The addition of the key spline in all the corners reinforces the joint and serves as a valuable aid in the glue-up and assembly process.

Begin by making parts A and B. I used oak, but most any hardwood would be fine. Start with $1\frac{3}{4}$ in. square stock about 22 in. long. The extra length allows for waste when cutting the miters. All the parts A and B ends are cut in the same manner with adjacent 45-degree miters. With the table saw miter gauge in the right hand slot, cut the first 45-degree miter (see mitering detail, Step 1), then flip the piece to the adjacent face (Step 2) and cut the second 45-degree miter (Step 3). Reverse the workpiece (keeping face A up) and cut the first 45-degree miter on the opposite end (Step 4). Flip the piece so face A is away from you (Step 5), and cut the last miter (Step 6). Repeat this procedure on all ends of parts A and B.

Next, cut the identical $\frac{1}{8}$ in. wide key spline grooves in the ends of parts A and B, as shown in the key spline detail. Note that the spline groove location is $1\frac{1}{4}$ in. from the tip. Make a simple V-groove block as illustrated in the key spline groove cutting detail. An auxiliary rip fence (needed for the Sear's table saw) is clamped to the table, and the workpiece (parts A or B) is then clamped to the V-block. A V-clamp block will protect the

(continued on next page)





workpiece edge. Set the saw blade at a 55-degree angle to the table, and adjust the height to $1\frac{1}{8}$ in. (measure from table to point of high tooth), which will result in a $\frac{3}{8}$ in. deep kerf being cut into parts A and B. Repeat on each end until all the key spline grooves have been cut.

The triangular splines, which are cut from $\frac{3}{8}$ in. plywood, will measure about $1\frac{3}{8}$ in. on all three sides. Size the splines a little bit under, however, to insure that they do not prevent the

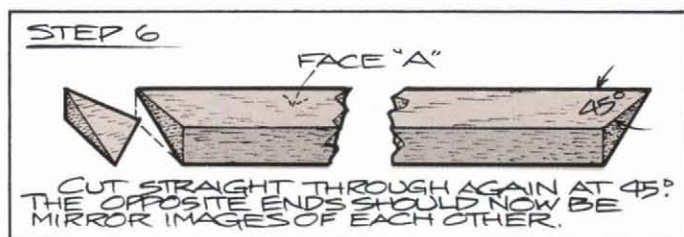
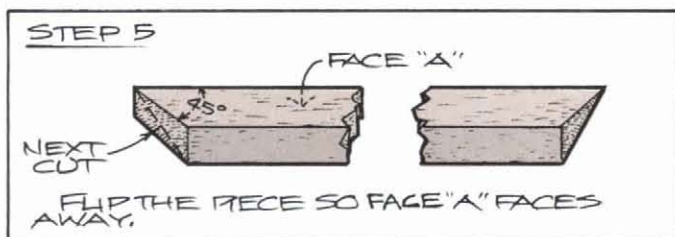
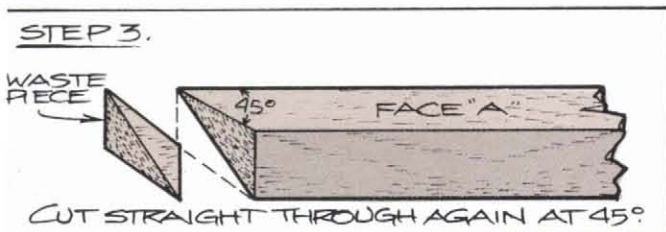
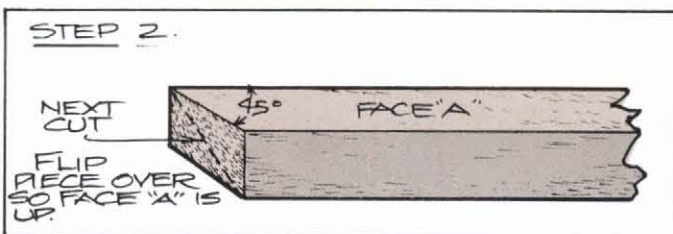
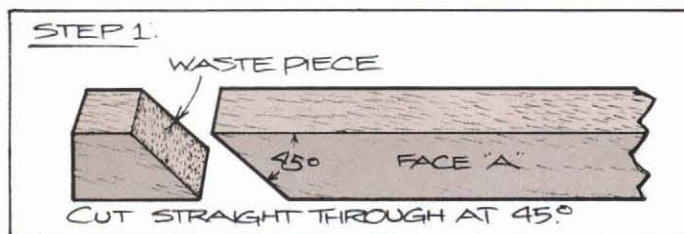
Bill of Materials (all dimensions actual)

Part	Description	Size	No. Req'd.
A	Frame	$1\frac{3}{4} \times 1\frac{3}{4} \times 20$	8
B	Leg	$1\frac{3}{4} \times 1\frac{3}{4} \times 20$	4
C	Top & Bottom Core	$\frac{3}{4} \times 17\frac{1}{4} \times 17\frac{1}{4}$	2
D	Laminate	as needed	

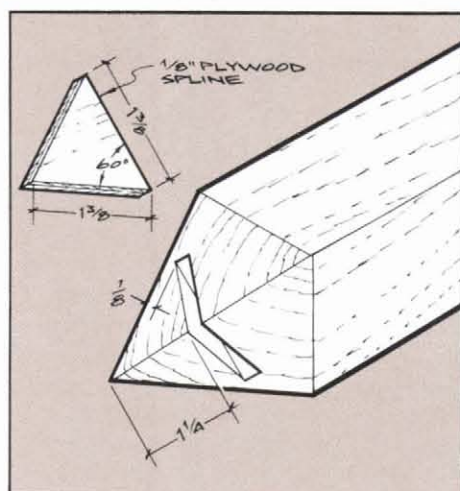
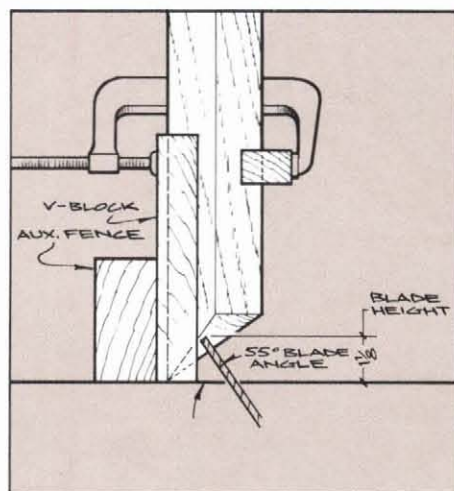
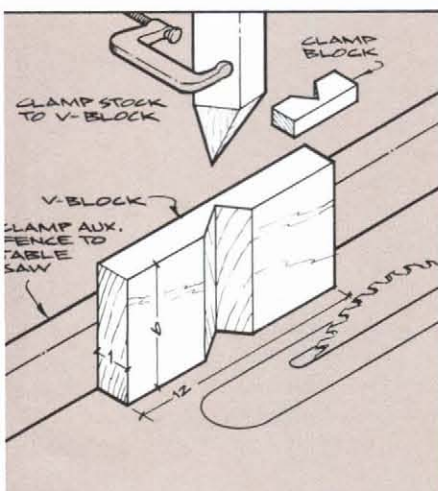
miters from meeting at the corner pieces during assembly. A dry assembly of the table will permit any adjustments that might be needed so that all parts fit up properly. Remember, accuracy is very important!

Now use the table saw dado head to cut the $\frac{3}{8}$ in. by $\frac{7}{16}$ in. deep grooves on the inside face of the eight frame parts. Note that on the four frame parts that will form the top of the table, this groove location is $\frac{3}{8}$ in. plus the

Cutting the Miters



Key Spline and Cutting Details



aminate thickness from what will be the top edge, while with the four frame pieces around the table bottom, the groove is located $\frac{3}{8}$ in. plus the aminate thickness from the opposite edge. The $\frac{1}{16}$ in. extra depth in the dado will prevent the $\frac{3}{8}$ in. long tongue on the top and bottom from bottoming, which could in turn prevent the shoulder from flushing with the frame.

The $\frac{3}{4}$ in. thick top and bottom core stock (C) is cut next. Apply the aminate (D) to the core stock with

contact cement. Then use the router and a rabbeting bit to cut the rabbet, resulting in the $\frac{3}{8}$ in. by $\frac{3}{8}$ in. tongue all around.

Assemble the frame members around the laminated top and bottom, using glue on the miters and in the tongue and grooves. Then add the key splines and the legs, applying glue to the miters and the splines. Strap clamps, located top and bottom and around the legs, will provide a little clamping pressure. Only moderate

pressure is needed since the key splines serve to hold the frame and leg parts in their proper position. As noted earlier, a dry run assembly of the completed table will insure that all parts fit as intended.

When dry, final sand the table, then finish with Watco Danish Oil.

This project is taken from the book Contemporary Woodworking Projects by Paul Levine. Ordering information can be found on page 8.

Rabbit Pull Toy

Designed and built
by Skip Arthur



This friendly cottontail “hops” as it is pulled along the floor, much to the delight of young children. Ours is made from maple, but any wood — even pine — can be used.

The body (A) can be made first. Cut $\frac{3}{4}$ in. thick stock to a width of $5\frac{1}{2}$ in. and a length of 9 in., then refer to the grid pattern shown in the side view and transfer the profile to the stock. At the same time, mark the location of the holes for the eyes and the back wheel dowel.

Use a band or saber saw to cut out the profile, taking care to stay just outside the marked line. Once cut, use a file and sandpaper to smooth the edge exactly to the line. A router table and a $\frac{3}{8}$ in. radius bearing-guided round-over bit is used to apply the $\frac{3}{8}$ in. round to the edge, however a file and a bit of sanding will also do the job. Next, using a $\frac{3}{8}$ in. diameter drill bit, bore the $\frac{1}{8}$ in. deep “eye” holes, then use a $\frac{1}{16}$ in. diameter bit to bore through for the back wheel dowel.

You’ll need $\frac{1}{2}$ in. thick stock to make the legs (B) and the ears (C). To get the $\frac{1}{2}$ in. thickness, cut a piece of $\frac{3}{4}$ in. thick stock to 3 in. wide by 8 in. long. With the marking gauge, scribe the desired $\frac{1}{2}$ in. thickness on all four edges, then use a sharp hand plane to plane the stock to the scribed line.

With the $\frac{1}{2}$ in. thick stock in hand, refer to the grid pattern shown in the side view and transfer the profile of the

legs and ears to the stock. Cut out and smooth to the marked line, then use a file and sandpaper to round over the edges.

The two back wheels (D) can be turned on a lathe or cut out on the band saw and sanded smooth. If you have one, a disk sander will come in handy here.

In order to give the rabbit its “hop”, the back dowel (E) is not centered on the wheel, but rather it is offset $\frac{1}{4}$ in. (see side view). Mark this offset dowel hole location, then use the drill press and a $\frac{3}{4}$ in. diameter drill bit to bore a $\frac{1}{2}$ in. deep hole in each wheel.

The front wheel is made using a 1 in. diameter hole saw and $\frac{3}{8}$ in. thick stock. After sanding, round the corners to about a $\frac{1}{16}$ in. radius. The $\frac{1}{4}$ in. diameter hole at the centerpoint will be cut by the hole saw centering bit.

Lay out and mark the location of the $\frac{3}{16}$ in. diameter holes on the inside face of the two legs, then use the drill press to bore the holes to a depth of $\frac{1}{4}$ in.

After cutting the back dowel (E) and the front dowel (G) to length, all parts can be given a thorough sanding. Apply a coat of paraffin wax to the $\frac{1}{16}$ in. diameter hole in the body, then glue and assemble the two back wheels to the back dowel (note that the wheels must be in line with each other). The paraffin wax in the hole cuts down on friction, thereby making the dowel turn easier. Be sure, however, to avoid

getting any wax on the ends of the back dowel when it is inserted through the hole. If you do, the glue won’t stick when the dowel is glued to the back wheel.

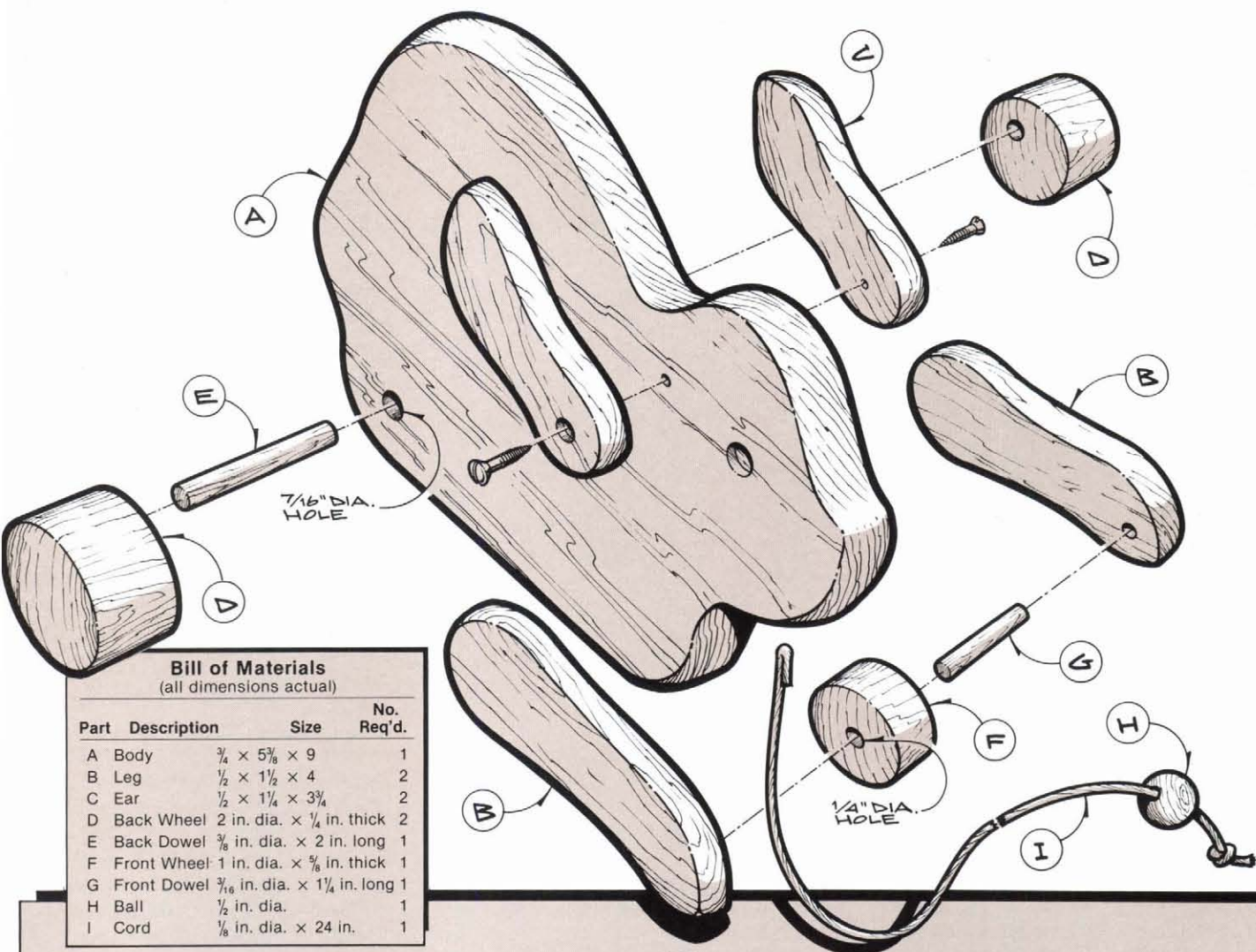
Apply wax to the hole in the front wheel and insert the front dowel. As with the back dowel, avoid getting wax on the ends.

Temporarily clamp the legs to the body. When satisfied with the location, use a pencil to scribe the outline of the legs on the body. Remove the clamps and add glue to the body and legs in the area profiled by the pencil line. Now, apply glue to the ends of the front dowel and assemble it to the legs, then clamp the legs to the body.

Drill and countersink each ear for a $\frac{3}{4}$ in. long by no. 8 ovalhead brass wood screw. Assemble as shown making sure each screw is tightened firmly.

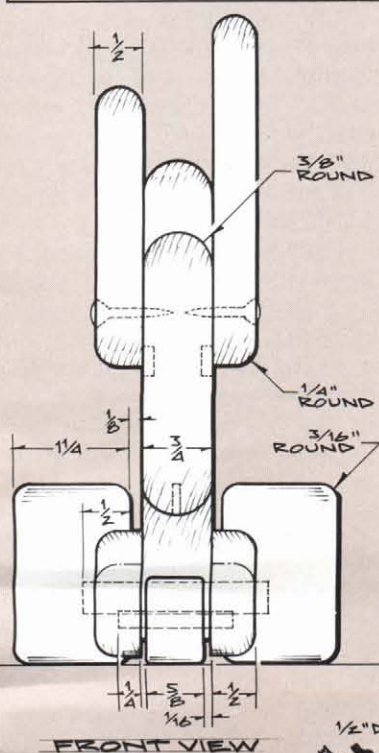
If not available locally, the $\frac{1}{2}$ in. diameter ball (H) can be ordered from Woodworks, 4013-A Clay Avenue, Fort Worth, TX 76117. A $\frac{1}{8}$ in. diameter hole bored through the knob will accept the cord (I). Make sure the cord is knotted firmly to prevent the ball from coming off. A small hole bored $\frac{3}{8}$ in. deep at the front of the rabbit will enable the cord to be glued in place.

Any finish that’s used should be non-toxic. We generally do not apply a finish to toys likely to be chewed on by young children. 

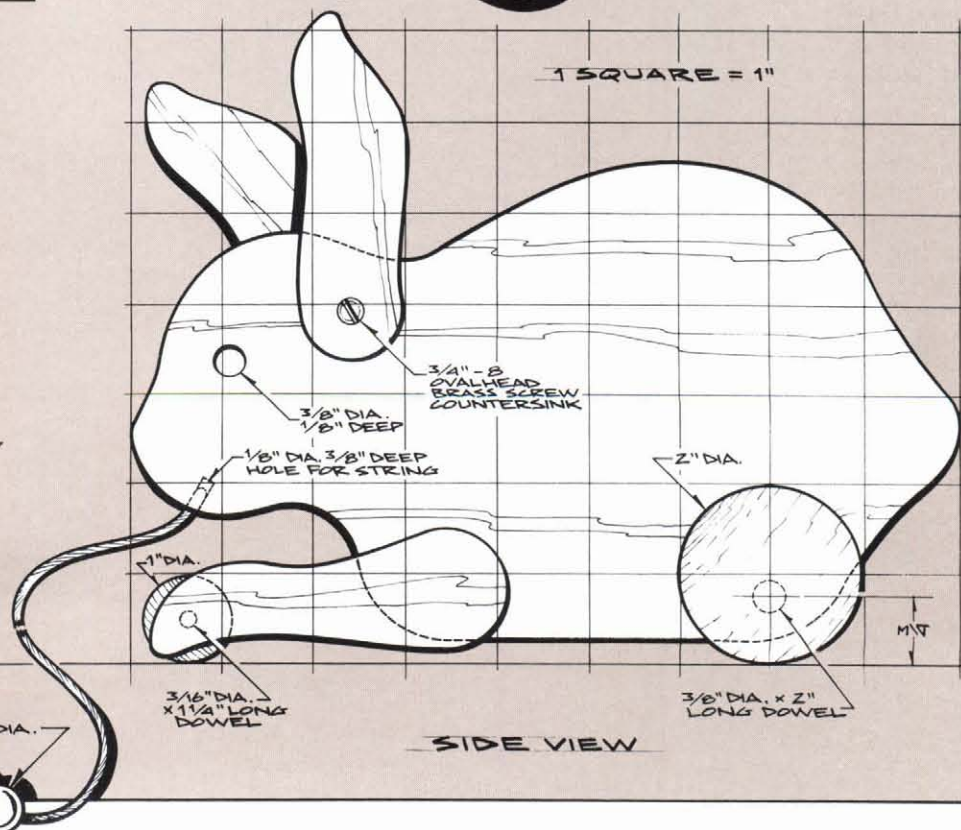


Bill of Materials
(all dimensions actual)

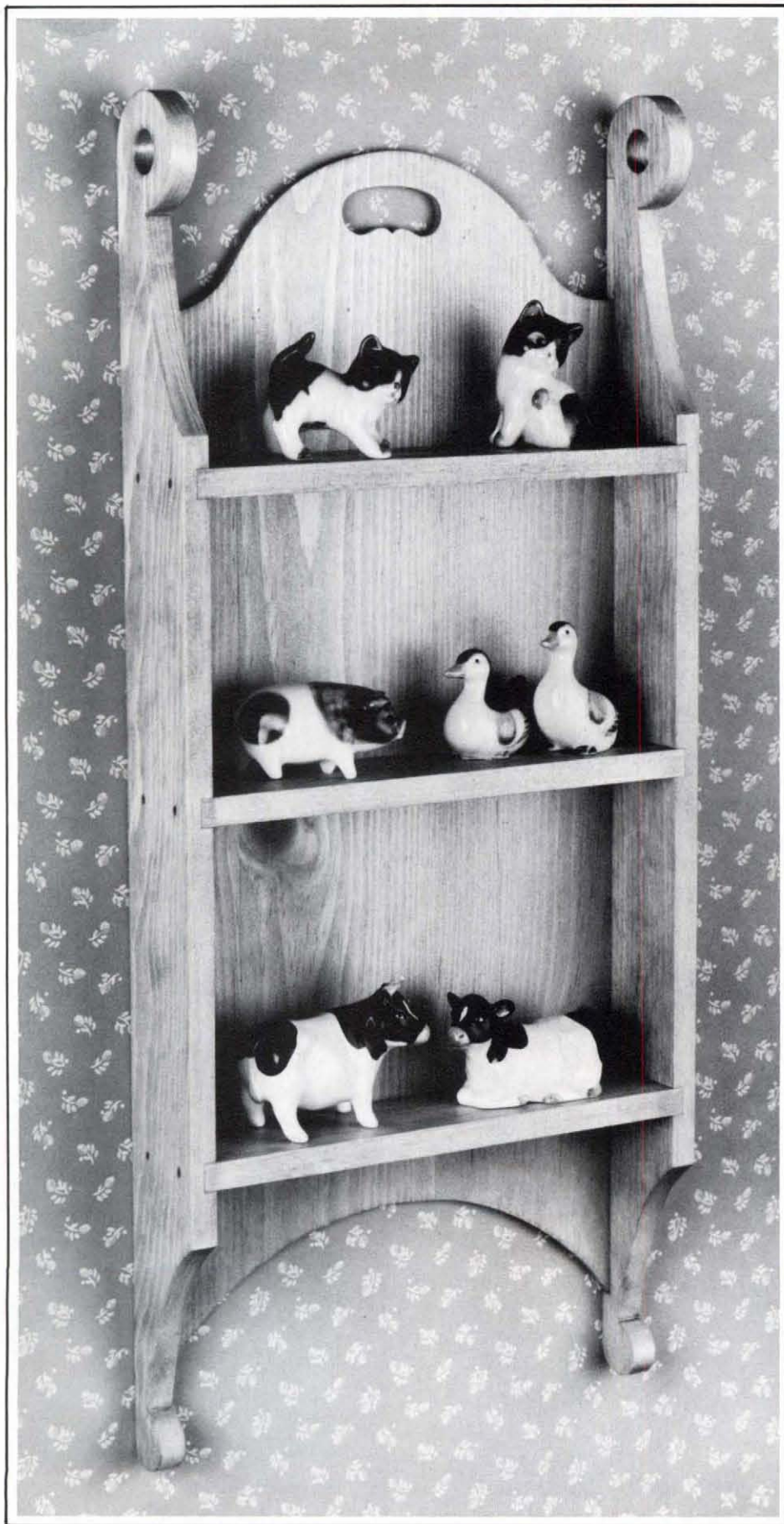
Part	Description	Size	No. Req'd.
A	Body	$\frac{3}{4} \times 5\frac{3}{8} \times 9$	1
B	Leg	$\frac{1}{2} \times 1\frac{1}{2} \times 4$	2
C	Ear	$\frac{1}{2} \times 1\frac{1}{4} \times 3\frac{3}{4}$	2
D	Back Wheel	2 in. dia. $\times$ $\frac{1}{4}$ in. thick	2
E	Back Dowel	$\frac{3}{8}$ in. dia. $\times$ 2 in. long	1
F	Front Wheel	1 in. dia. $\times$ $\frac{5}{8}$ in. thick	1
G	Front Dowel	$\frac{3}{16}$ in. dia. $\times$ $1\frac{1}{4}$ in. long	1
H	Ball	$\frac{1}{2}$ in. dia.	1
I	Cord	$\frac{1}{8}$ in. dia. $\times$ 24 in.	1



FRONT VIEW



SIDE VIEW



Old-Time Sled Wall Shelf

Made to look like an old-fashioned sled, this easy-to-make project will be a charming addition to any room in the house. The sides and shelves are made from pine solid stock while the back is knotty pine plywood.

To make the sides (A), start by cutting $\frac{1}{2}$ in. thick stock to a width of $2\frac{1}{4}$ in. and a length of 24 in. Lay out and mark the location of the $\frac{1}{2}$ in. wide by $\frac{3}{16}$ in. deep dado grooves, then use the table saw and dado head to cut them out. Next, the $\frac{3}{16}$ in. wide by $\frac{1}{4}$ in. deep by $18\frac{3}{4}$ in. long rabbet is cut with an edge-guided router and $\frac{3}{8}$ in. diameter bit. Note that the rabbet is stopped $3\frac{3}{4}$ in. from the top and $1\frac{1}{2}$ in. from the bottom. Because the router bit leaves rounded corners, you'll need to square them with a sharp chisel.

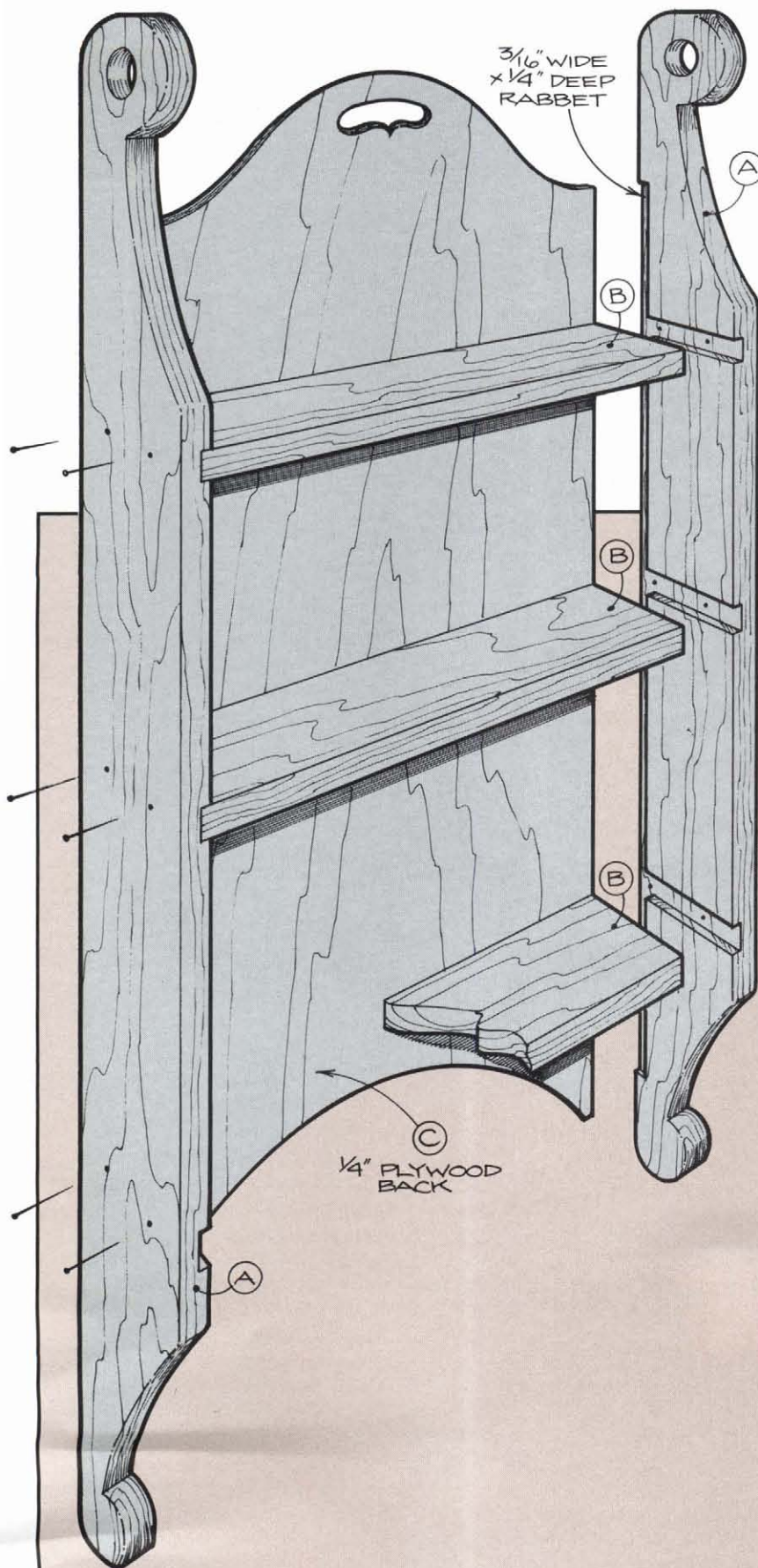
Referring to the side view, transfer the upper and lower profiles to the stock. Use the band saw to cut out, then sand smooth. To complete work on the sides, bore a $\frac{1}{4}$ in. diameter hole at the top of each one as shown.

After cutting the three shelves (B) to length and width, glue and clamp the sides and shelves, making sure the corners are square. When dry, remove the clamps and drive a pair of finishing nails in the end of each shelf. Counter-sink each nail about $\frac{1}{8}$ in. before filling with wood filler.

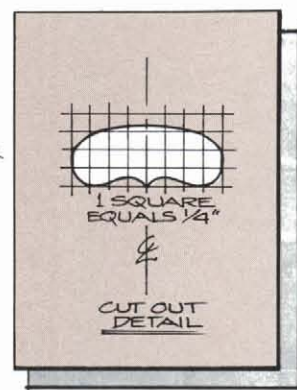
Cut the back (C) to overall length and width before laying out the curved profiles of the top and bottom. Cut out on the band saw and sand smooth. The cutout (see detail) is best cut with a saber saw after first boring a $\frac{3}{8}$ in. diameter starter hole.

Apply glue to the rabbet on the back edge of the sides and to the back edges of the shelves, then assemble and clamp the back to the sides and shelves. When dry, remove the clamps and add finishing nails through the back and into the rabbet and the back edge of the shelves.

Final sand all parts before applying a final finish. Stain to suit your personal taste, then add two coats of a good penetrating oil. When dry, buff thoroughly with a soft cloth. 

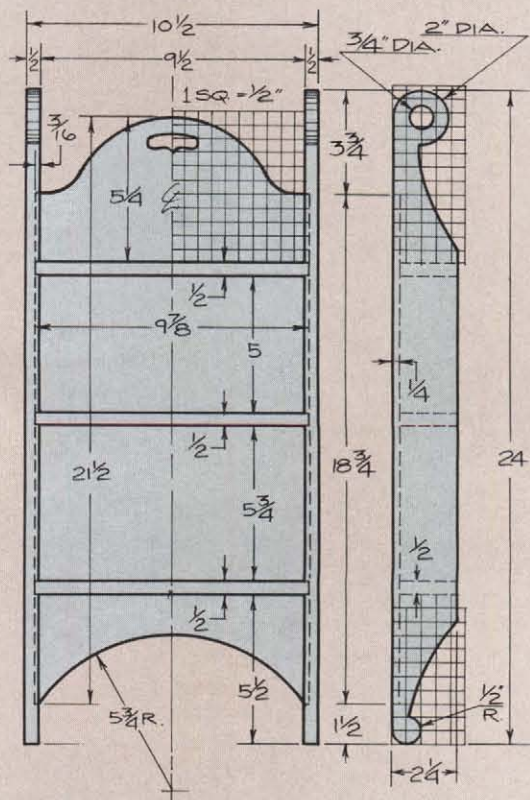


ROUND OVER



Bill of Materials (all dimensions actual)

Part	Description	Size	No. Req'd.
A	Side	1/2 x 2 1/4 x 24	2
B	Shelf	1/2 x 2 x 9 7/8	3
C	Back	1/4 x 9 7/8 x 21 1/2	1



The Gift Shop

Cassette Tape Holder

Bill of Materials (all dimensions actual)

Part	Description	Size	No. Req'd.
A	Back	$\frac{1}{2} \times 4\frac{1}{16} \times 13\frac{5}{16}$	4
B	End	$\frac{1}{2} \times 2\frac{3}{4} \times 13\frac{5}{16}$	4
C	Spline	$\frac{1}{8} \times \frac{1}{2} \times 13\frac{5}{16}$	4
D	Spacer	$\frac{3}{16} \times \frac{1}{4} \times 13\frac{5}{16}$	8
E	Top/Bottom	$\frac{3}{4} \times 9 \times 9$	2
F	Base	$\frac{3}{4} \times 9 \times 9$	1
G	Threaded Rod	$\frac{1}{4} \times 14\frac{1}{2}$ in. long	1
H	Threaded Insert	$\frac{1}{4} - 20 \times \frac{1}{2}$ in. long	2
I	Lazy Susan Bearing*	3 in. square	1

* Available from, Trend-Lines, 375 Beacham St., Chelsea, MA 02150. Order part no. LS3C, price is \$.95 each.

As those of you who enjoy cassette tapes know well, storage of the tapes is vital. Without some means of organization, the tapes are forever getting lost or misplaced. This revolving cassette holder will keep up to sixty tapes at your fingertips. Our holder is made from ash, but most any hardwood or softwood could be used as well.

If you are a novice woodworker, this project is a great opportunity to get acquainted with the dado head and practice making dado cuts. Start by getting out stock for the backs (A) and ends (B). Note that while one side of each of parts A serves as a back, the opposite side is dadoed to hold the cassettes. You will need $\frac{1}{2}$ in. thick stock for parts A and B. If you have a thickness planer, this is no problem. The $\frac{1}{2}$ in. material can also be resawn from $\frac{3}{4}$ in. stock, if necessary.

The two most critical elements when making this project are the location of the dadoes and the length of parts A and B. In order to insure that all parts A and B have identical length, use a stopblock with the miter gauge when crosscutting to length. Now, mark what will be the top end of these pieces. Set the dado head to cut an $\frac{1}{16}$ in. wide slot, and raise the dado head for a $\frac{3}{16}$ in. depth of cut. Set up a stopblock with the miter gauge and make the first dado cut at the top end of all parts A and B. Reset the stopblock for the next dado, make the same cut in all the pieces, and continue with this pattern until the 15 dado slots have been cut in each part A and B. By cutting each



Photo by Tim Lee

consecutive slot in all the pieces with the same stopblock settings, the slots will remain parallel in spite of slight variations in the actual setups. Another method of accomplishing this is by ripping the facing parts A and B from a wider board after cutting the dadoes.

Next, cut the spline grooves to accept the $\frac{1}{8}$ in. by $\frac{1}{2}$ in. splines (C) and rabbet parts B as shown to accept the $\frac{3}{16}$ in. by $\frac{1}{4}$ in. spacer (D). The $\frac{3}{4}$ in. wide by $\frac{3}{16}$ in. deep grooves in parts A that will accept both the retainer and the interlocking perpendicular parts A are also cut using the dado head. Glue up and assemble parts A through D.

Now cut the top and bottom (E) to size. Apply the 45-degree chamfer with the router and a chamfering bit, drill the top to accept the threaded insert

(H) and drill through and counterbore the bottom as shown for the threaded rod (G) and locking nut.

Make the base (F) and assemble the tape holder. Because end grain joints have little or no strength, the top and bottom are not glued to the ends of parts A and B. Instead, the threaded rod is used to secure the two parts. This system not only creates a strong assembly, it also allows the top and bottom to move freely with seasonal changes in humidity. Note the screw access hole drilled through the base so the mounting screws can be accessed. The lazy susan bearing (I) is first screwed to the base and then, through the access hole, into the bottom of the upper assembly. All sanding and finishing should be complete before final assembly.

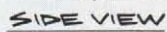




Photo by Tim Lee

Dog/Cat Bed

Given the fact that pets are such loyal and devoted friends, what better Christmas gift than a bed of their own? This bed, crafted in solid walnut, is sized to accommodate a cat or small-to-medium size dog. The bed's overall dimensions could be increased as necessary to fit a larger animal if your "best friend" tends toward Saint Bernard or Great Dane size. Of course, the bed could also be made from pine or some other hard or softwood.

Start this project by laying up stock for the bottom (C). If your stock has been edge-joined accurately, only mild pressure is required with the pipe clamps. While you are waiting for the bottom to dry, rip stock for the front and back (A) and ends (B). After mitering the ends of these pieces, use the router equipped with a wing cutter as shown to cut the stopped spline grooves. Note how parts A and B are clamped back to back with an additional guide piece for extra router support. Also note that the bearing is assembled between the router and the

cutter. This permits the cutter shaft to be fully chucked in the router.

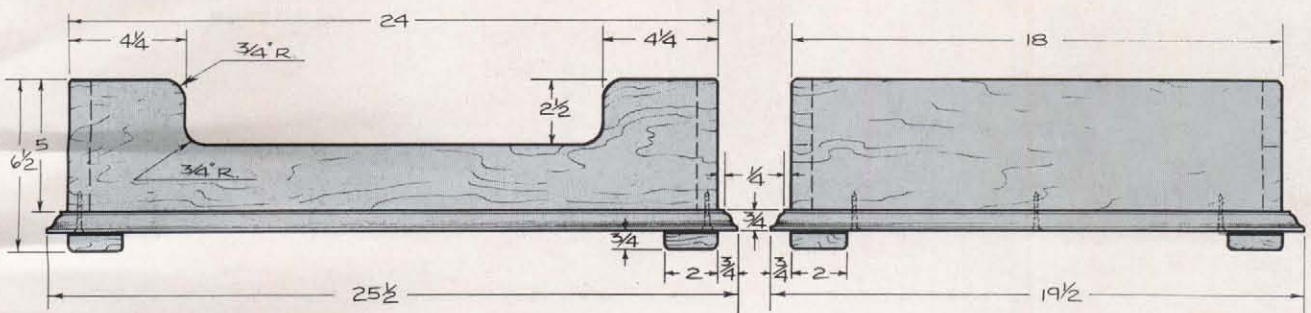
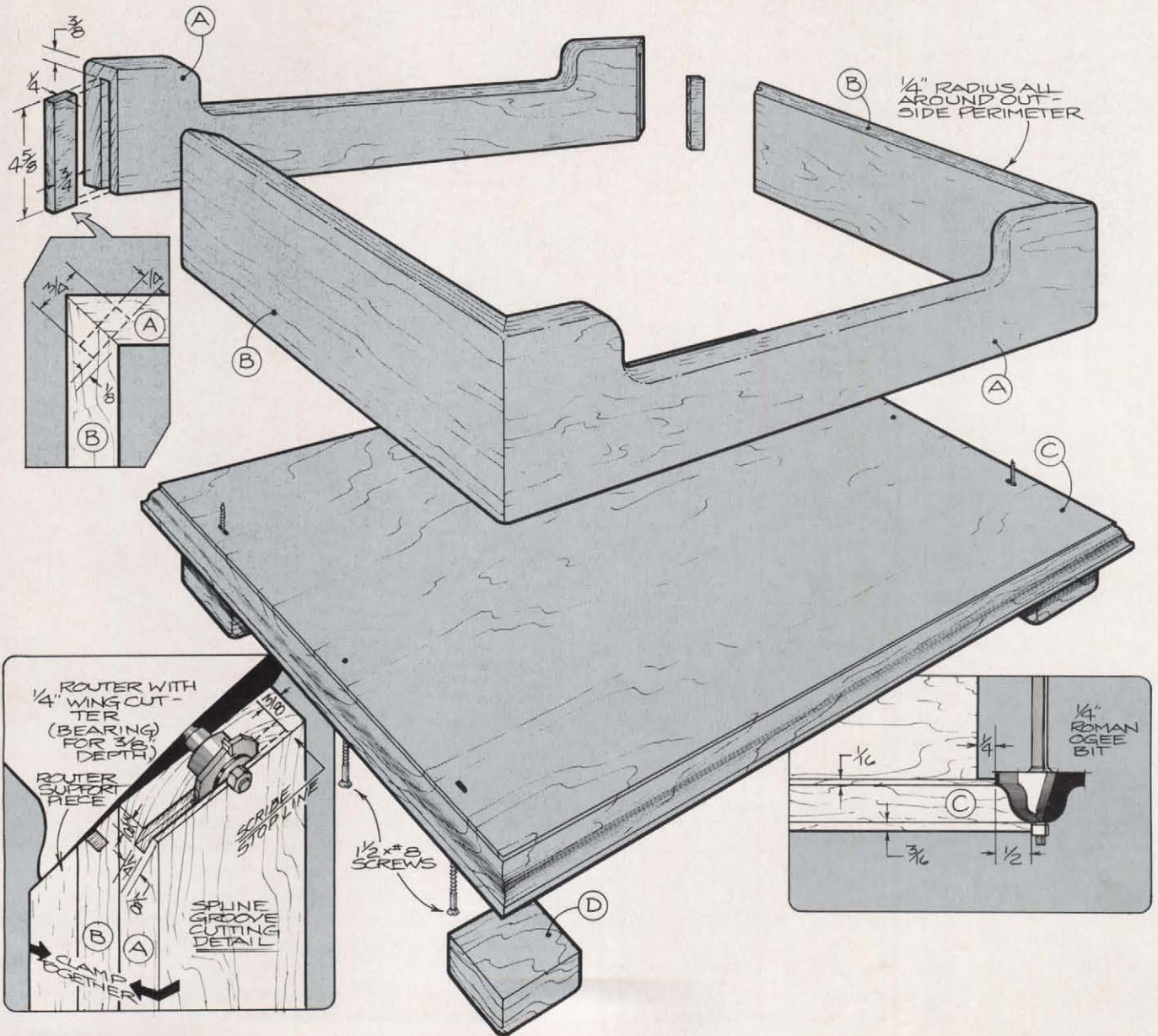
Use a chisel to square the stopped end of the spline grooves, and cut four hardwood splines with the grain running across the miter as shown. After band or jigsawing the front and back cutouts, glue and assemble the box. While the box is drying, use a bearing-guided $\frac{1}{4}$ in. Roman ogee router bit to shape the bottom perimeter. This is a good router table operation. When dry, the box perimeter is radiused as shown to establish the $\frac{1}{4}$ in. round-over.

After cutting out the four feet (D), drill and slot the base as shown to accept the six mounting screws. The slotted holes are required to allow expansion and contraction of the stock across the width of the base. Screw the bottom to the box, then glue the four feet in place.

When final sanding was complete, we finished our bed with Deft clear aerosol spray finish. This protective satin coating should wear well, and can be easily renewed when necessary. 

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Front/Back	$\frac{3}{4} \times 5 \times 24$	2
B	End	$\frac{3}{4} \times 5 \times 18$	2
C	Bottom	$\frac{3}{4} \times 19\frac{1}{2} \times 25\frac{1}{2}$	1
D	Foot	$\frac{3}{4} \times 2 \times 2$	4



Vanity Mirror

Master woodturner Robert Leung of Oakland, California reports that this dual-purpose mirror has traditionally been one of his best selling designs. As a bureau-top piece, the mirror adjusts easily to a variety of angles or, hung on the wall, it converts to a neat little functional wall sculpture.

Although Mr. Leung crafted the body (A) of this mirror from Andaman padauk and the smaller parts (B, C, and D) from rosewood, most any hardwood or combinations of hardwoods can be used. Keep in mind, however, that an attractive grain will contribute significantly to the beauty of the project. It is important to select a good close-grained hardwood for the hinges, hinge pins and brace, since these parts must be strong.

After machining to $\frac{1}{16}$ in. thickness, cut the body stock to 6 in. wide by 12 in. long. Now, with the stock on edge, use the dado head to cut the $\frac{1}{4}$ in. deep notches for the hinges. Use the band saw to shape the tapered profile and to establish the $\frac{1}{16}$ in. wide slot for the brace (see front view). Working from the back side, use the chisel to bevel the end of the brace slot (see side view).

Now, crosscut the body to establish the two sections. Mount the 6 in. square mirror section in the lathe using a faceplate mounting, and turn the $\frac{1}{4}$ in. deep mirror recess and the recess edge detail (see cross section). The faceplate mounting requires that the work be glued to an identically sized piece of scrap, with a section of brown paper (kraft paper works fine) in between. This assembly is then screwed to the faceplate. Draw an X across the scrap stock as a guide for centering it on the faceplate. After the turning is complete, carefully separate the scrap stock and work using a chisel and mallet. Then band saw the 6 in. diameter top profile. Mr. Leung uses the radial arm saw to cut the kerfs for the brace in the mirror section back (see back view for kerf location), but the router or a chisel can also be used to make these kerfs.

Refer to the appropriate details, and make the hinges, hinge pins, and brace/hanger parts. Mr. Leung turns the hinge pins, but brass screws will serve nicely as a simple alternative, if you prefer. The brace is mounted with an $\frac{1}{8}$ in.



diameter by 2 in. long brass pin (E), as shown.

The 5 in. diameter beveled mirror (F) is mounted with mirror adhesive which is available at your local glass shop. Don't attempt to mount the mirror with just any glue or epoxy since, depending on their chemical formulation, some adhesives may dissolve the silver on the back of the mirror. Note that all parts should be final sanded before the mirror glass is mounted since sandpaper will scratch the mirror surface.

Several coats of a tung or penetrating oil will provide this piece with a soft, non-glare, satin finish. WJ

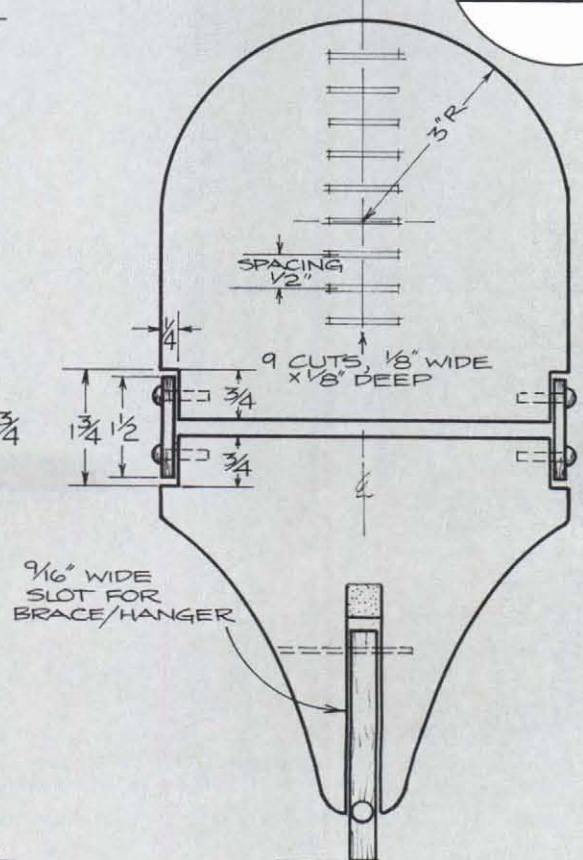
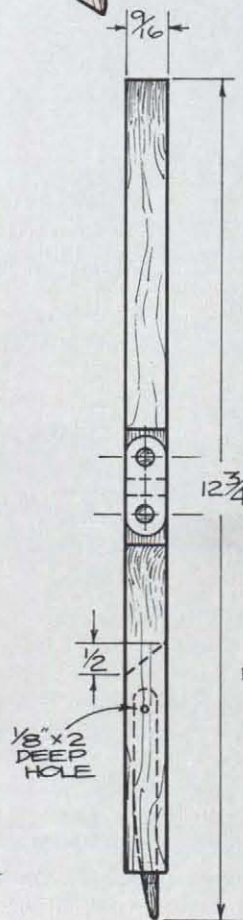
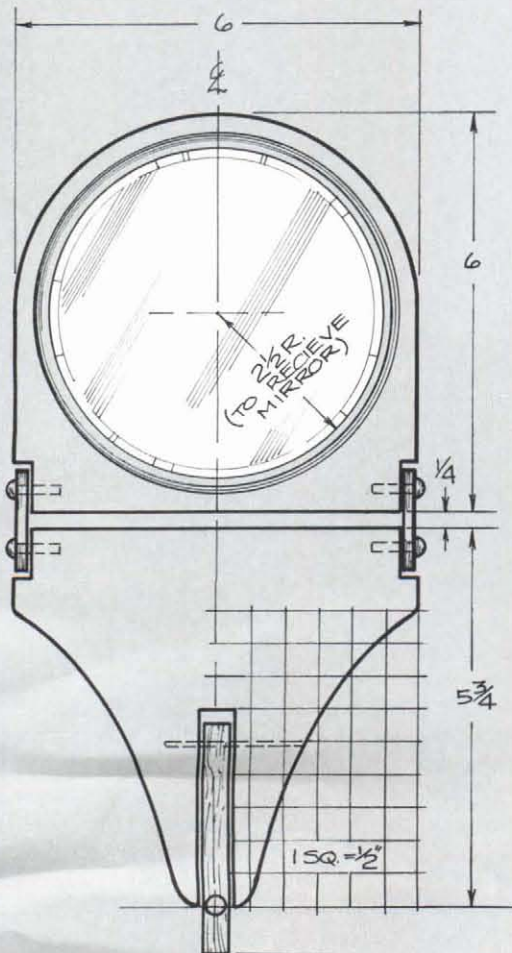
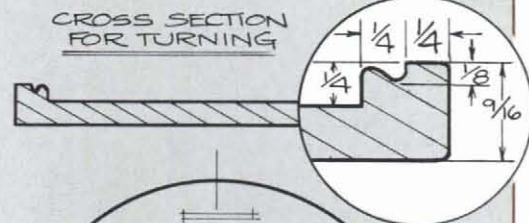
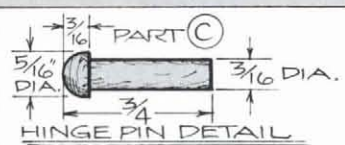
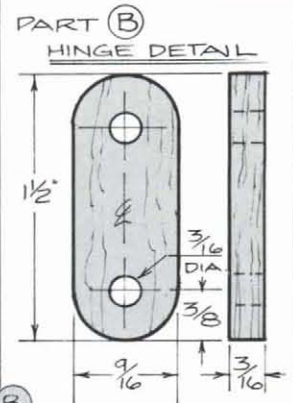
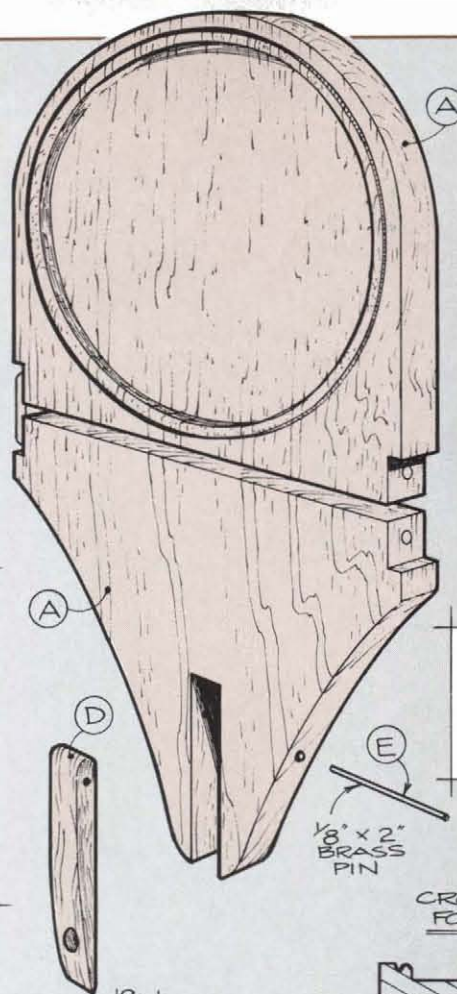
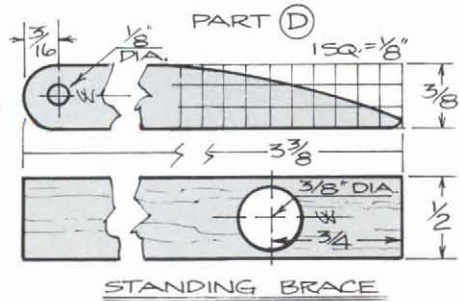
Bill of Materials

(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Body	$\frac{1}{16} \times 6 \times 12^*$	1
B	Hinge	$\frac{3}{16} \times \frac{9}{16} \times 1\frac{1}{2}$	2
C	Hinge Pin	see detail	4
D	Brace/Hanger	see detail	1
E	Brace Pin	$\frac{1}{8}$ in. dia. $\times$ 2 in. brass	1
F	Mirror	$\frac{1}{4}$ in. thick $\times$ 5 in. dia. beveled edge** 1	

*Length dimension is before crosscutting and sanding to create upper and lower parts.

**Order from: Floral Glass & Mirror Co., 895 Motor Parkway, Hauppauge, NY 11788. Tel. (800) 647-7672.





Early American Washstand

This handsome Early American washstand is in the collection of the Washington Historical Museum, a small museum in Washington, Connecticut. We have found museums to be an excellent source for projects and general information regarding period furnishings. Although major museums, such as the New York Metropolitan Museum of Art, have strict rules regarding access, local museums and historical societies are less restrictive. With proper supervision, curators of many local collections will permit on site inspection and hands-on measurements.

Washstands were a fixture in the Early American home. In the time before central plumbing and bathroom

sinks, the washstand with its bowl and pitcher provided a place for washing up and shaving. While many antique washstands featured cutouts to hold the bowl, we prefer the solid top since it is more easily adapted to use in today's home. This washstand has the added advantage of a drawer. The washstand serves well as a small table for plants and also makes an ideal display stand, especially if you have an antique wash bowl and pitcher to show off.

You may prefer a fancy or exotic hardwood, but Early American washstands were typically fashioned from readily available native lumber such as maple, cherry, oak, or in the case of this stand, pine.

A good place to start this project is with the legs (A). After cutting $1\frac{3}{8}$ in. square by 30 in. long blanks, turn to the profile shown in the leg turning illustration. The extra length of the turning blanks allows for waste. Mortise the legs to accept the tenons on the ends of parts B, C, D, E and F. Refer to the tenon details for the appropriate mortise dimension measurements. Now, cut parts B through F using the table saw dado head to establish the tenons. Also cut the side and back cleats (H and I) to length and width, and drill and slot parts B, F, H and I as shown. The slotted holes are needed to accommodate expansion/contraction in the shelf (G) and top (L).

Dry assemble parts A through F, and if all the parts fit properly, glue up and clamp. Cut the spacers (J) and runners (K) to fit, and glue these parts and the cleats in place.

Make the shelf (G) as shown, referring to the top view for the front edge profile. Notch the corners to fit the legs and screw the shelf in place. We recommend allowing about $\frac{1}{8}$ in. on each side of these notches to accommodate movement of the shelf in response to changes in humidity.

Cut the top (L), back (M) and supports (O) to size, referring to the front view grid patterns for the profiles of parts M and O. Turn the towel bars (N) to the indicated dimensions, and drill the $\frac{3}{8}$ in. diameter by $\frac{1}{4}$ in. deep holes in M, N and O to accept the towel bar mounting dowels. Glue the back to the top and mount to the washstand as shown. Note that the top/back assembly is fixed at the rear with the screws up through part I, directing any dimensional movement of part L toward the front. Now, mount the towel bar/support assembly, gluing the towel bar into the back and support, and screwing through the supports into the front legs. The supports should be pre-drilled and the screws countersunk.

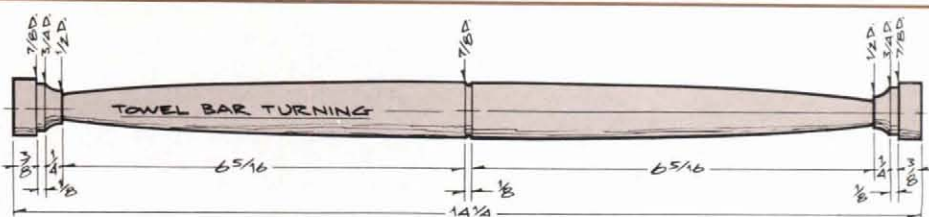
Now, construct the single drawer consisting of parts P, Q, R and S. This is an ideal opportunity to practice making hand cut dovetails (see drawer side view for dovetail layout). If you selected a dark hardwood such as walnut for this project, by using that wood for the drawer face, but substituting a lighter colored wood for the drawer sides and back, the contrasting stock will highlight the hand cut dovetail construction at the drawer

(continued on page 44)

front. This type of detail, which only becomes visible when you open the drawer, is a hallmark that distinguishes fine furniture. Use the dado head to cut the $\frac{1}{4}$ in. deep by $\frac{1}{4}$ in. wide groove in the front and sides to accept the bottom. Although we show a plywood bottom, the original was solid stock, which you may prefer for authenticity.

The $\frac{3}{4}$ in. diameter knob can be turned on the lathe, or a similar knob can be ordered from Shaker Workshops, P.O. Box 1028, Concord, MA 01742. Order part no. 531.

The museum original sported what appeared to be a dark stain and several layers of varnish (as the photo attests), but a penetrating oil applied over the natural wood will also look good. *W.W.*

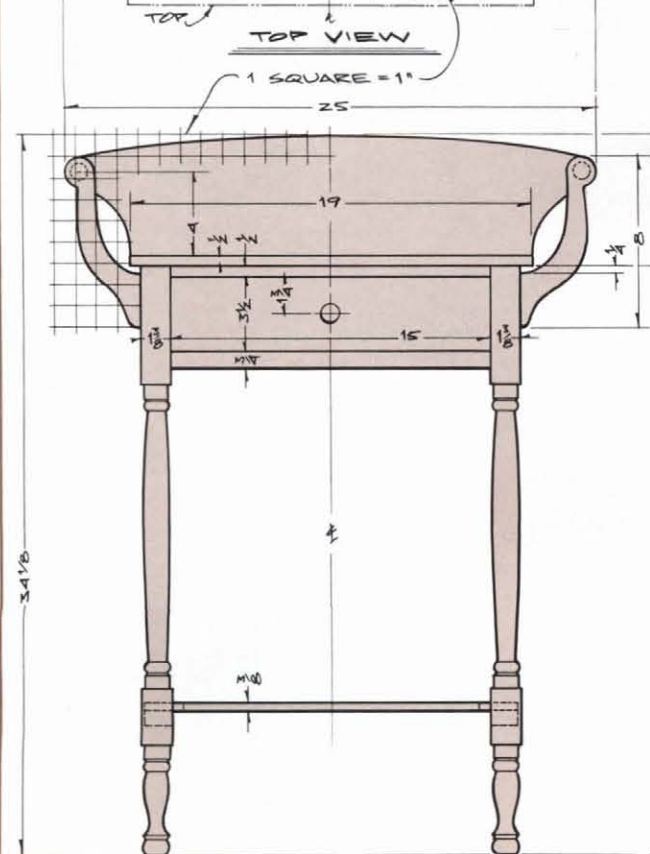
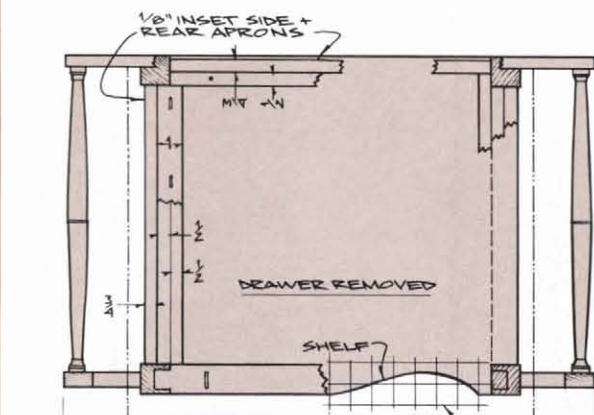


Bill of Materials

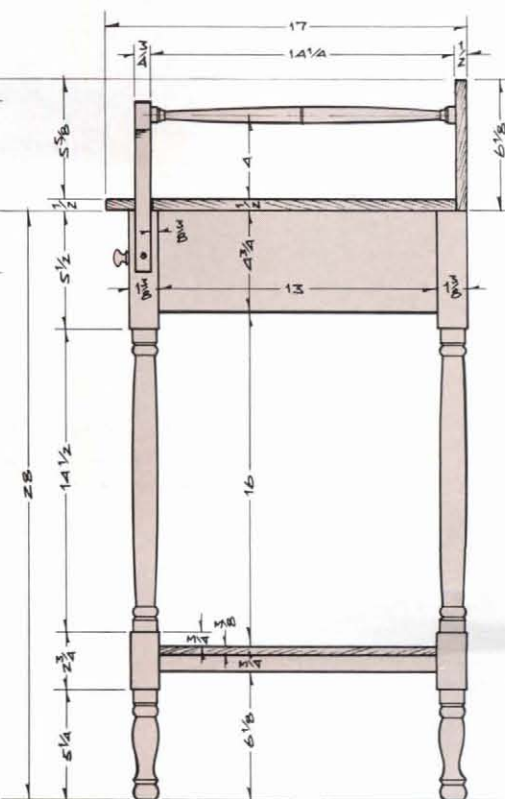
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Leg	$1\frac{3}{8} \times 1\frac{3}{8} \times 28$	4
B	Upper Stretcher	$\frac{1}{2} \times 1\frac{3}{8} \times 16\frac{1}{2}$	1
C	Lower Stretcher	$\frac{3}{4} \times 1\frac{3}{8} \times 16\frac{1}{2}$	1
D	Side Apron	$\frac{3}{4} \times 4\frac{3}{4} \times 14\frac{1}{2}$	2
E	Back Apron	$\frac{3}{4} \times 4\frac{3}{4} \times 16\frac{1}{2}$	1
F	Shelf Support	$\frac{3}{4} \times 1\frac{1}{4} \times 14\frac{1}{2}$	2
G	Shelf	$\frac{3}{8} \times 15\frac{3}{4} \times 17\frac{1}{2}$	1
H	Side Cleat	$\frac{1}{2} \times 1 \times 13$	2
I	Back Cleat	$\frac{1}{2} \times \frac{1}{2} \times 15$	1
J	Spacer	$\frac{1}{2} \times 1\frac{1}{2} \times 13$	2
K	Runner	$\frac{1}{2} \times \frac{3}{4} \times 13\frac{1}{2}$	2
L	Top	$\frac{1}{2} \times 16\frac{1}{2} \times 19$	1
M	Back	$\frac{1}{2} \times 6\frac{1}{8} \times 25$	1
N	Towel Bar	See Detail	1
O	Support	$\frac{3}{4} \times 3\frac{1}{2} \times 8$	2
P	Drawer Front	$\frac{3}{4} \times 3\frac{1}{2} \times 15$	1
Q	Drawer Side	$\frac{1}{2} \times 3\frac{1}{2} \times 14\frac{1}{16}$	2
R	Drawer Back	$\frac{1}{2} \times 3 \times 15$	1
S	Drawer Bottom	$\frac{1}{4} \times 14\frac{3}{8} \times 14\frac{1}{2}$	1
T	Drawer Knob	See Detail	1

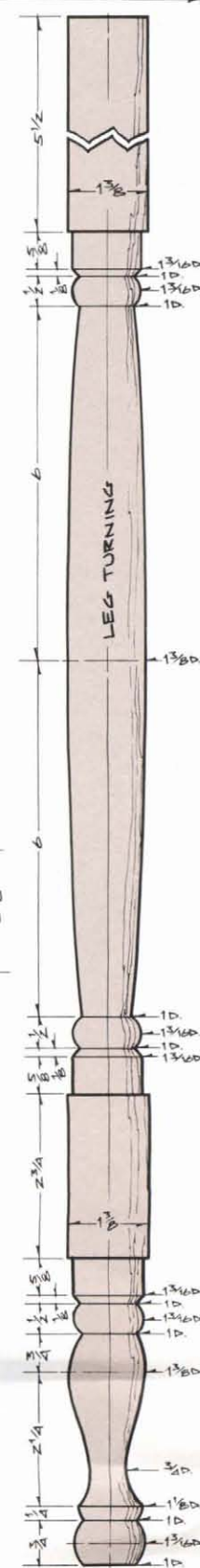
*Length includes tenons.

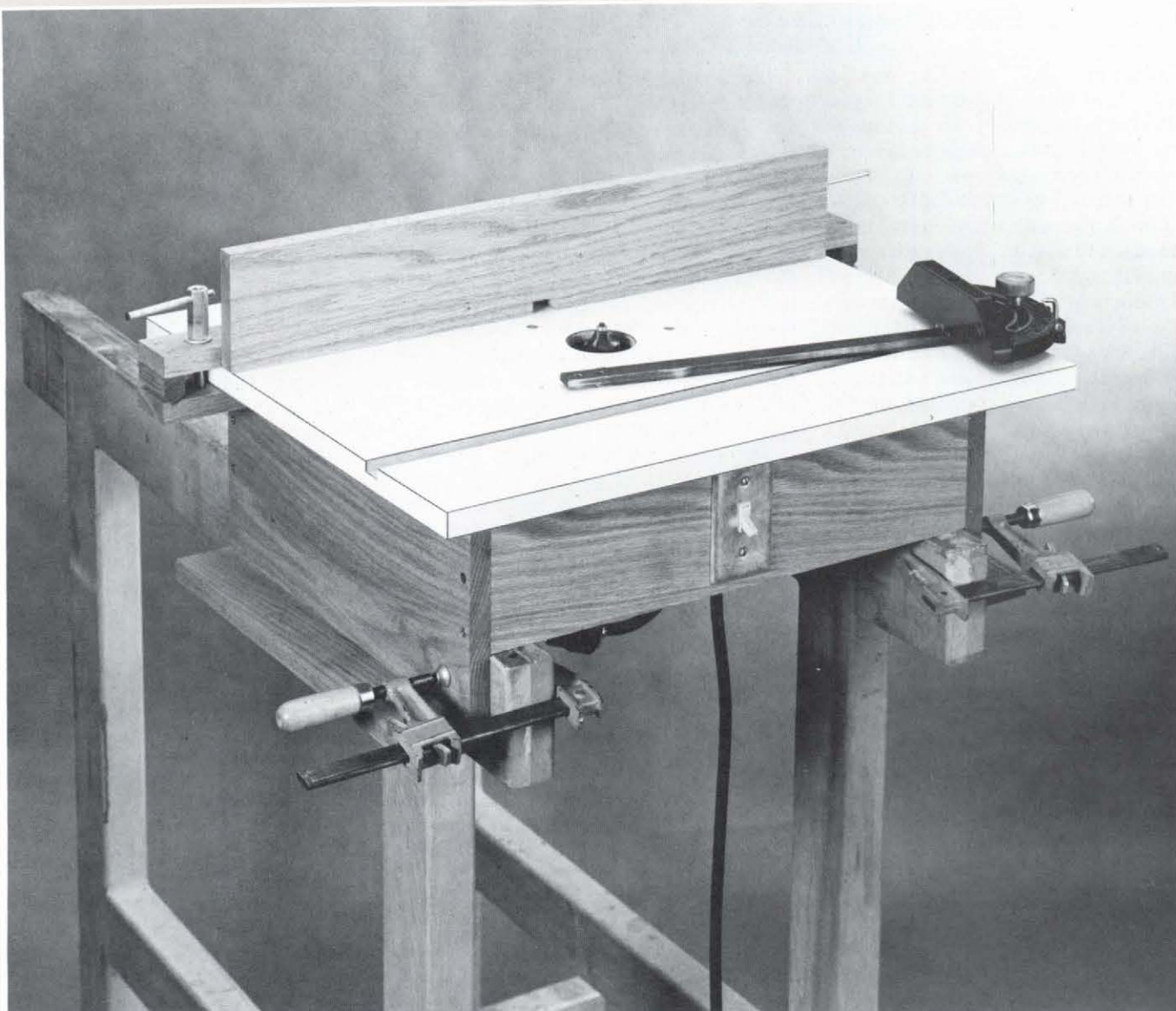


FRONT VIEW



SIDE VIEW





Router Table

As was pointed out in The Beginning Woodworker article on page 18, a good, full-featured router table is essential to the complete woodworking shop. This shop-built table has all the desirable features, including a multi-adjustable removable fence, a miter gauge slot, and a built-in on/off switch. The laminate covered top is a pleasure to use, and provides an easily erasable work surface for pencil registration marks.

Start by getting out $\frac{3}{4}$ in. thick stock for the router table frame, consisting of parts A through F. Any good hard-

wood will do, however plywood is also acceptable. Cut these parts to length and width, and use the jigsaw to cut away the front (A) as shown to accept the on/off switch (R). Note that on our table the front is also dadoed to accept the switch box (S). We found this was necessary to provide clearance behind the box for the router. Pre-bore for all the assembly screws, glue and screw the clamping foot (F) to the sides (B), screw the sides to the front and back, and add the cleats (C, D, and E).

Now make the table top. Start by cutting a $\frac{3}{4}$ in. thick section of plywood

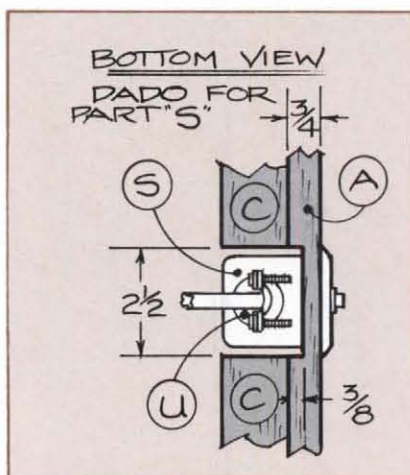
or particleboard to 19 $\frac{7}{8}$ in. wide by 23 $\frac{7}{8}$ in. long (after the laminate is applied, the table dimensions will be 20 in. by 24 in.). Use the dado head to cut out a $\frac{1}{2}$ in. deep by 1 $\frac{1}{4}$ in. wide slot in the top core (G) to accept a solid maple insert (H). Then, carefully measure the thickness and width of the guide bar on your miter gauge, and use the table saw and dado head to machine a slot to suit (see miter gauge slot detail). The router and a straight bit can also be used to cut this slot, if you prefer.

Next, apply plastic laminate (I) on both sides and on all edges of the top. It is important to laminate both sides of the top to eliminate warpage. Do not laminate the miter gauge slot, however. Now cut a 2 $\frac{1}{4}$ in. diameter hole in the top center, and rout a $\frac{1}{16}$ in. deep recess on the bottom side to accept the router. Note that the diameter of the router recess is sized to accept your router. Also drill and countersink as shown for the machine screws to mount the router, and apply the 45-degree bevel to the laminate edges of the miter gauge slot and the 2 $\frac{1}{4}$ in. diameter router cutout. A standard 15-degree bevel is applied to all other laminate edges (see laminate edge cross-section detail). Use a 15-degree laminate trimming bit to apply this bevel.

The router table fence can be made next. Cut the fence base (J), support (K) and face (L), to size, make the spacer (M) as shown in the spacer detail, and cut a matching $\frac{1}{8}$ in. deep V-groove in the jaw (N). Assemble as shown with glue and screws, and drill through the base and jaws to accept the

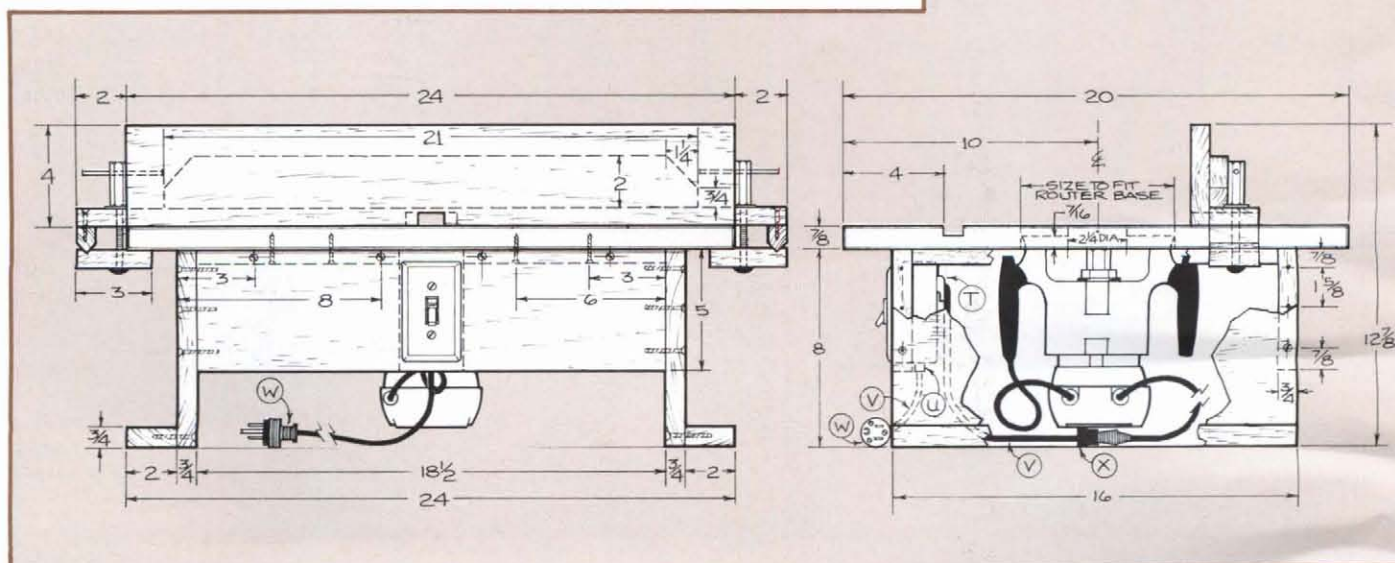
$\frac{3}{8}$ in. diameter carriage bolts (Q). The threaded rod connector (O) and handle rod (P) are available at hardware stores. Drill $\frac{1}{4}$ in. diameter holes through the connectors for the handles andpeen the handle ends to prevent loss. Note the chip clearance slots in the fence base and face. By making this slot a V-cut with the wide mouth toward the back of the fence, you can ease the exit of the chips. The clamp jaws of the fence make minute adjustments easy; simply tap the fence into place and tighten the connectors to lock the position.

The bill of materials shows all the electrical parts needed to install the switch unit. If you want to retain the original cord on your router, the cord hook (Z) provides a place to secure the excess looped cord. You will need to lock the router switch in the "on" position in order to make use of the box mounted switch.



Bill of Materials (all dimensions actual)

Part	Description	Size	No. Req'd.
A	Front/Back	$\frac{3}{4} \times 5 \times 18\frac{1}{2}$	2
B	Side	$\frac{3}{4} \times 8 \times 16$	2
C	Front Cleat	$\frac{3}{4} \times 1\frac{1}{2} \times 6\frac{1}{2}$	2
D	Back Cleat	$\frac{3}{4} \times 1\frac{1}{2} \times 15\frac{1}{2}$	1
E	Side Cleat	$\frac{3}{4} \times 1\frac{1}{2} \times 14\frac{1}{2}$	2
F	Clamping Foot	$\frac{3}{4} \times 2 \times 16$	2
G	Top Core	$\frac{3}{4} \times 19\frac{7}{8} \times 23\frac{7}{8}$	1
H	Miter Gauge Slot Insert	$\frac{1}{2} \times 1\frac{1}{4} \times 23\frac{7}{8}$	1
I	Plastic Laminate	$\frac{1}{16}$ in. thick	as req'd
J	Fence Base	$\frac{3}{4} \times 2 \times 28$	1
K	Fence Support	$\frac{3}{4} \times 2 \times 21$	1
L	Fence Face	$\frac{3}{4} \times 4 \times 24$	1
M	Fence Spacer	see detail	2
N	Fence Jaw	$\frac{3}{4} \times 2 \times 3$	2
O	Threaded Rod Connector	$\frac{3}{8}$ - 16 x 1 $\frac{1}{4}$ long	2
P	Handle	$\frac{1}{4}$ dia. x 3 $\frac{1}{2}$ long rod	2
Q	Carriage Bolt	$\frac{3}{8}$ dia. x 3 in. long	2
R	Switch	U.L. Listed	1
S	Box	Standard Surface Mount	1
T	Right Angle Cable Connector	Standard 90°	1
U	Cable Connector	Straight	1
V	Cord	Heavy Duty 15 Amp 125V	as req'd.
W	Plug (male)	Heavy Duty 15 Amp 125 V	1
X	Plug (female)	Heavy Duty 15 Amp 125 V	1
Y	Switch Cover Plate	Standard Metal or Plastic	1
Z	Cord Hook	3 $\frac{1}{2}$ in. long	1
AA	Router	You Supply	1



Victorian Sleigh



This toddler-sized version of a turn-of-the-century sleigh will make a delightful gift this holiday. And, we suspect, it will quickly be put to use when the first snow blankets the backyard.

Since small children need some support in order to sit up, we added a back, sides, and front to make their sleigh rides a bit more comfortable. A blanket or two may also help.

We used ash stock for the runners, legs, cleats, and bottom. The front, back, and sides are made from cherry.

To make the laminated runners (A), you'll first need to make a particleboard mold (see bent lamination detail). Begin by cutting two pieces of $\frac{3}{4}$ in. thick particleboard to 15 in. wide by 51 in. long. Apply a thin coat of glue to one side of each piece, then clamp the two parts together.

When dry, remove the clamps and rip the particleboard to 14 in. wide. Next, using the miter gauge, trim one end square, then cut to a length of 50 in.

At a point 43 in. from the left end, scribe the $6\frac{1}{16}$ in. radius as shown. Note that it is scribed so that the radius just touches the top edge of the mold.

In order to create a short flat section on the runner, and to allow for some in-

evitable springback when the lamination is removed from the mold, a 5-degree angle and a relief notch are cut on the bottom.

Lay out and cut the notch first, using the band or saber saw to do the cutting.

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Runner	see detail	2
B	Leg	$\frac{3}{4} \times 5 \times 10$	6
C	Cleat	$\frac{3}{4} \times 1\frac{1}{2} \times 19$	3
D	Bottom	$\frac{3}{4} \times 16 \times 31$	1
E	Front	$\frac{5}{8} \times 9\frac{1}{2} \times 18^*$	1
F	Back	$\frac{5}{8} \times 17 \times 24^*$	1
G	Side	$\frac{1}{2} \times 10\frac{1}{2} \times 36^*$	2
H	Handle	$\frac{3}{4} \times \frac{3}{4} \times 8$	1
I	Rope	$\frac{1}{4}$ in. dia.	as req'd.

* Dimension allows for extra stock.

Mark point "A" on the bottom edge of the radius, as shown on the detail. Next, set a bevel gauge to 5 degrees and scribe a line from point "A" to the notch.

Now, use the band saw to cut to the $6\frac{1}{16}$ in. radius and the 5-degree flat. Stay just outside the marked line, then use the disc sander to sand exactly to the line. Be sure the 5-degree angle is sanded flat.

Lay out and mark the location of the 1 in. holes, and use the drill press and a 1 in. spade bit to bore them out. You'll need 17 one in. diameter by $\frac{3}{4}$ in. long dowels, each one with a pair of holes bored to accept $\frac{1}{4}$ in. threaded rod.

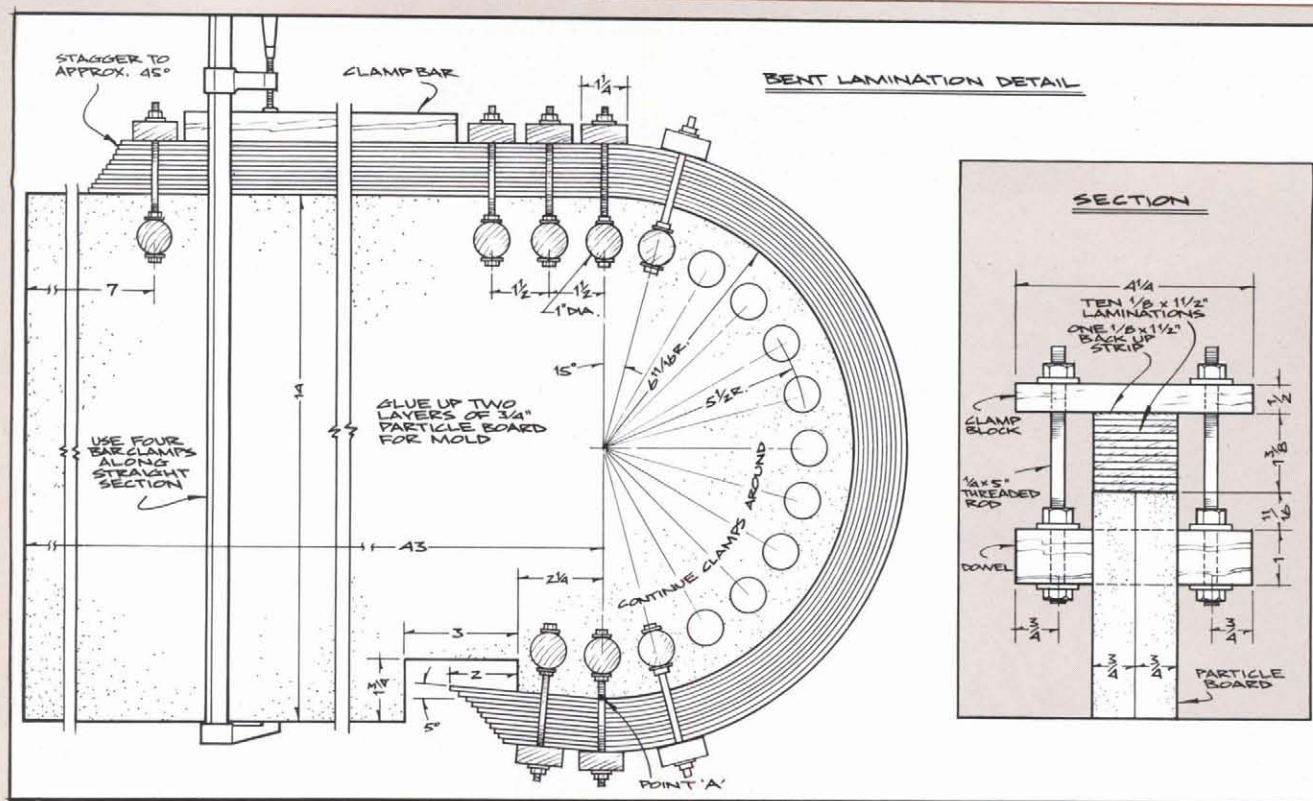
Also needed will be a $\frac{3}{4}$ in. by $1\frac{1}{2}$ in. by 31 in. clamp bar and 17 maple clamp blocks, each measuring $\frac{1}{2}$ in. thick by $1\frac{1}{4}$ in. wide by $\frac{3}{4}$ in. long. Note that each block has a pair of holes for the $\frac{1}{4}$ in. threaded rod.

Later on, when the lamination is being clamped to the mold, a good deal of glue squeeze-out will occur. To keep parts from sticking together, it's important to apply a coat of paste wax now to the clamp bar, clamp blocks, dowels, and to the end of the mold.

For each runner you'll need 10 laminations and one backup strip, each measuring $\frac{1}{8}$ in. thick by $1\frac{1}{2}$ in. wide by 70 in. long. The backup serves to help distribute the clamp pressure and to protect the outer lamination. Like the mold parts, it should be waxed to prevent sticking to the mold.

Be sure to select straight grained stock that is free from knots, burls, or other defects that could crack when the

(continued on page 50)



lamination is bent.

Our laminations were made by resawing stock to $\frac{3}{16}$ in. thick, then using the thickness planer to plane it to $\frac{1}{8}$ in. Ideally you should keep the laminations in the same order they were ripped. Glued together in this way, the grain configuration will most resemble solid stock.

Plastic resin glue, which is available at most hardware stores, should be used to glue the laminations. This glue comes in the form of a brown powder that is mixed with water just before assembly. You'll need about a pint (after adding water) per runner to complete the job. Plastic resin has good water resistance, an important feature for an adhesive that will spend a good many hours in snow. Also plastic resin glue dries slowly, and that's helpful when you are faced with a somewhat time consuming clamping operation like this.

Before starting, take one lamination and bend it around the form by hand. Locate it so that one end is at least 2 in. into the notch (see bent lamination detail). Make sure the lamination is held firmly against the mold all around, then mark the location of the other end of the lamination on the mold. This mark will come in handy later on as the starting point.

Assemble all the dowels to the mold and add the threaded rod, nuts, and washers. Don't add the clamp blocks yet, but have them ready along with the

washers and nuts. An open-end wrench (or better yet a ratchet wrench with a deep socket) should be handy.

Disposable 3 in. wide paint rollers will be helpful for applying the glue. Glue should be added to both mating surfaces, but remember not to apply glue to the inside and outside surfaces.

Clamp the mold in a vise, on edge, with the radiused end overhanging the workbench. Now place the lamination stack on the top edge of the mold, aligning the bottom lamination with the previously marked starting point. Before clamping, use your fingers to push the end of the lamination stack so that it staggers to approximately 45 degrees as shown.

Add the waxed backup strip on top, then assemble and lightly tighten the first and second clamp blocks. Now align the lamination stack on the edge of the mold, making sure it's centered. Once all looks okay, add the waxed clamp bar and secure it with four bar clamps, then go back and firmly tighten the first and second clamp blocks. The third clamp block is tightened next, then each clamp block in succession until all 17 are secured.

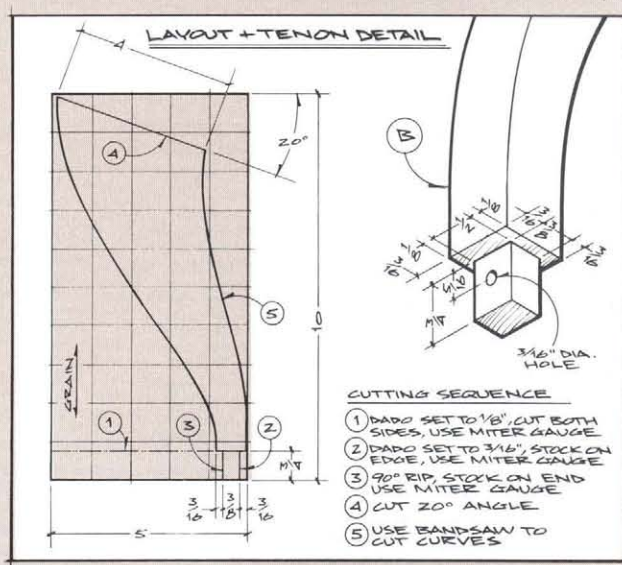
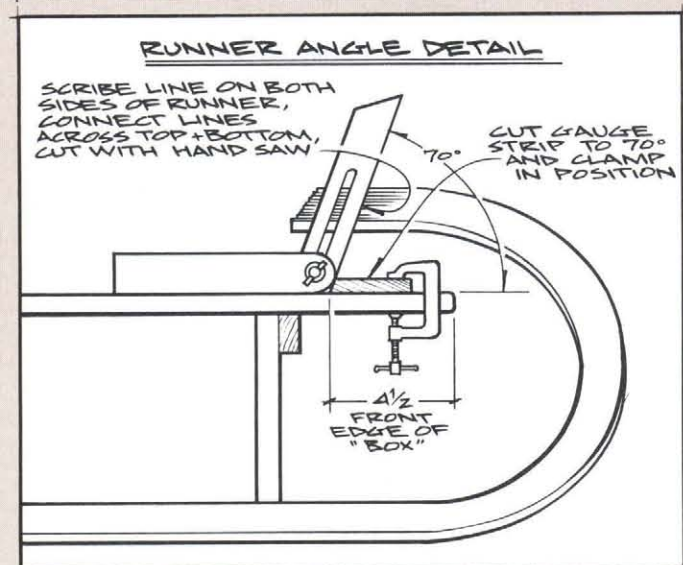
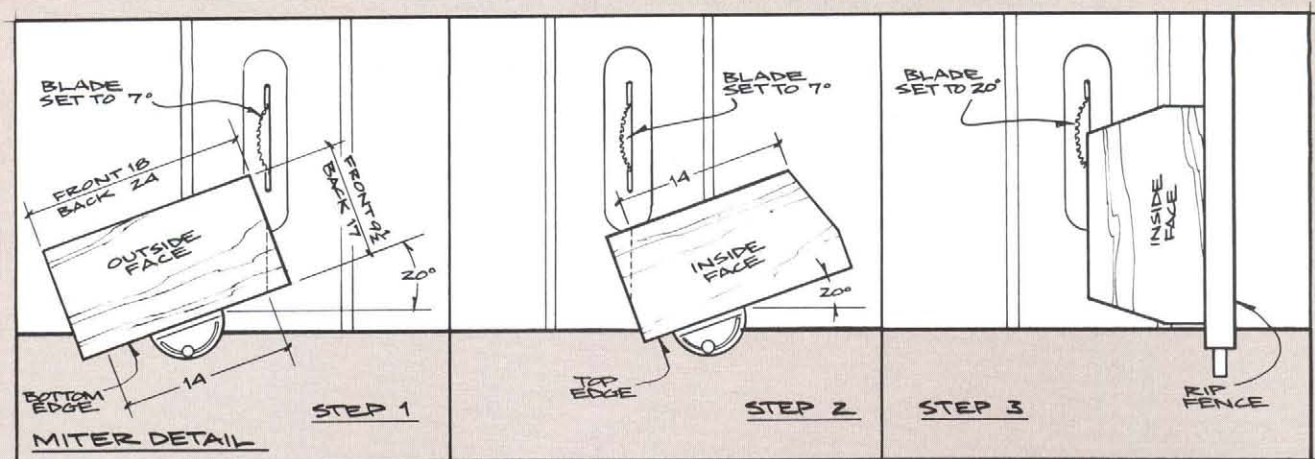
Keep in mind that although plastic resin glue does allow some additional working time, you should not take more than 20 minutes for the entire gluing and clamping process. Any more time than that and you may find the glue starting to set up.

As you work your way around the mold tightening the clamps, remember that the lamination should remain centered on the mold. Also, the edges of the laminations should remain reasonably flush, so you may find it necessary to use a couple of waxed scrap blocks and a C-clamp to keep the edges together. Once everything looks okay, set aside to dry overnight.

When dry, disassemble the clamp blocks and remove the lamination from the mold. Before jointing and thickness planing, you'll first need to remove the glue squeeze-out on the edges of the lamination. We used the table saw to do this, first adding a 12 in. auxiliary fence to help support the stock. Set the blade to a height of $1\frac{3}{4}$ in. before locating the auxiliary fence so that the blade removes about $\frac{1}{8}$ in. of stock. As you run the stock through the blade it will need to be rotated to cut the curve. Use caution here. To minimize the chance of any kickback, keep the stock firmly against the auxiliary fence. And be sure to keep your hands away from the blade.

Next, use the jointer to surface the sawn edge. In order to joint the entire edge, you'll have to rotate the lamination at the curve.

With one side sawn and jointed, the table saw is once again used. With the jointed edge against the auxiliary fence, rip the lamination to a thickness of $\frac{1}{16}$ in. Like the first saw cut, it will be



necessary to rotate the curved portion through the blade. The sawn edge can now be jointed to provide a final lamination thickness of $\frac{3}{4}$ in.

Since the clamp block pressure causes flat spots on the outside of the curve, we used a disk sander to smooth them out. To insure a smooth radius, we first scribed an arc with a compass, then lightly disk sanded it to the line.

The laminated runners can now be cut to the final length of $40\frac{1}{2}$ in. (see side view). Lay out and mark the location of the $\frac{3}{8}$ in. wide by $\frac{1}{2}$ in. long by $\frac{3}{4}$ in. deep mortises as shown. To cut the mortises, use an electric hand drill and a $\frac{3}{8}$ in. Forstner or brad point bit to bore a $\frac{3}{4}$ in. deep hole, then clean up the corners with a sharp chisel. Scribe the $1\frac{1}{4}$ in. radius on the end of each runner and use the band saw to cut it out. Sand it smooth on the disk sander.

The legs (B) are made from $\frac{3}{4}$ in. thick stock following the directions provided in the layout and tenon detail. However, at this time do not bore the $\frac{3}{16}$ in. holes in the tenons. Once cut out, give the legs a thorough sanding.

Make the cleats (C) as shown. Note

that each cleat has a single hole bored at the center, and a pair of slotted holes on each side of center.

Temporarily screw (don't glue) the legs to the cleats in their proper location. Now use epoxy to glue the legs to the runners using light clamp pressure to hold them together. Allow to dry before boring the holes for the $\frac{3}{16}$ in. by $\frac{3}{4}$ in. long dowel pin in each tenon. Cut the pins slightly long, then epoxy glue them in place and sand flush. Epoxy glue is used because it has excellent water resistance. White or yellow glues do not stand up well when exposed to moisture.

The legs can now be permanently attached to the cleats. Remove the screws and add a thin coat of epoxy to both mating surfaces, then reassemble.

Make the bottom (D) as shown, but don't bore any holes except the two holes for the $\frac{1}{4}$ in. rope. Now place the bottom on the cleats in proper position and drive the 1 in. by number 8 screws through the cleats and into the bottom.

To make the sides (G), cut $\frac{1}{2}$ in. thick stock to a width of $10\frac{1}{2}$ in. and a length of 36 in. On the bottom edge, mark the

centerline of the 36 in. length, then measure and mark a point $12\frac{7}{8}$ in. each side of the centerline. This will establish the $25\frac{1}{4}$ in. length at the bottom. Now, using the table saw with the miter gauge set to make a 70-degree angle (see side view) cut the miter on each end as shown. To cut the bevel on the bottom edge, set the blade to 20 degrees off vertical, then use the rip fence to guide the stock through the blade. You can next lay out the various radii and cut them out on the band saw. After sanding the edges smooth, drill pilot holes on each end to accept the screws.

The front (E) and back (F) are made next. From $\frac{3}{8}$ in. thick stock, cut the front to $9\frac{1}{2}$ in. wide by 18 in. long and cut the back to 17 in. wide by 24 in. long. On the bottom edge of each part, mark the centerpoint along the length, then measure and mark a point 7 in. each side of the centerline. This establishes the 14 in. length of the bottom.

Both the front and the back require compound angles on the ends and a bevel on the bottom edge. The same
(continued on next page)

three-step procedure is used to cut both parts. These steps are shown in the miter detail. (Note that the illustration shows a table saw with a blade that tilts to the left.)

To make the cuts, tilt the blade 7 degrees off vertical and set the miter gauge to make a 20-degree cut as shown in step 1. Note that the *outside face* is up and the bottom edge is against the miter gauge. After making the cut, move the miter gauge to the right side slot and flip the stock so the *inside face* is up and the top edge is against the miter gauge. Make the second cut to establish the 14 in. length at the bottom edge. As illustrated in step 3, use the rip fence with the blade tilted at 20 degrees off vertical to bevel the bottom edge. Note that the *inside face* must be up.

Temporarily screw the sides to the front and back, boring pilot holes in the ends of the front and back before driving the screws. Mark the front and back where they meet the sides.

Now disassemble the front, back, and sides before using a trammel to scribe a 14 1/4 in. radius on the back and a

14 in. radius on the front. Locate the centerpoint of each radius so that the arcs meet at the pencil marks on the ends. Be sure to scribe the arcs on the outside faces of the front and back — if scribed on the inside you'll lose some stock width when the arc is cut.

Use the band saw to cut the arc, staying just outside the marked line. To bevel the curve, set the disk sander table at an angle that matches the line marked at the end of the arc. Sand the entire curved edge at this angle.

The front, back, and sides can now be reassembled. First, though, give the parts a thorough sanding.

To cut the runner to the compound angle that matches the front, you'll first need to cut a 70-degree angle along one edge of a 15 in. long strip of 1/2 in. thick stock. As shown in the runner angle detail, this beveled strip is clamped at a point 4 1/2 in. from the front edge, and it represents what will be the location of the outside edge of the front. Set the bevel gauge to 70 degrees and butt it against the beveled strip. With the bevel gauge flat on the bottom, use a sharp

pencil to scribe both sides of the runner at the 70-degree angle. After scribing the two side lines, connect them across the top with a third line. Now, with the three lines serving as a guide, use a dovetail saw to trim the runner to length.

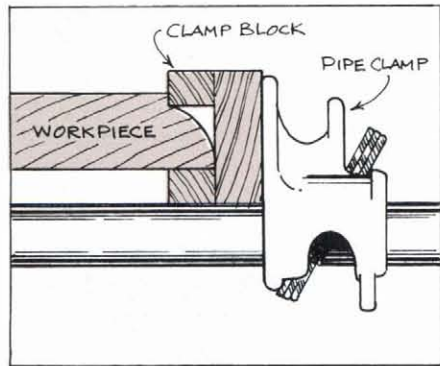
The assembly consisting of the sides, front, and back can now be secured to the bottom. Note that it is held in place by six screws: three driven into the bottom edge of the front, and three driven into the bottom edge of the back. Locate and bore the holes (note the outside ones are slotted) then join by driving 1 1/4 in. by number 8 brass screws up through the bottom. Don't use glue here as the bottom must be free to expand and contract with changes in humidity. Secure the runners to the front with a 1 1/4 in. by number 10 brass screw driven through the front.

The handle (H) can now be made as shown, then the entire sled is given a final sanding. We applied two coats of a good quality exterior varnish. The addition of a nylon rope and the handle completed the project. WwJ

Shop Tips

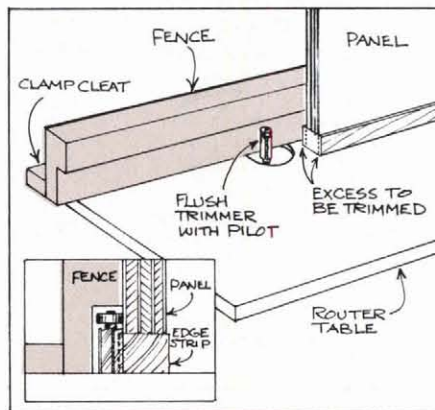
For an excellent sanding block, glue 1/4 in. thick sheet cork to the underside of a 3/4 in. by 2 1/2 in. by 4 in. piece of plywood. The cork has the ideal resiliency for backing up the sandpaper.

A molded edge as shown is tough to clamp. The rounded profile provides little bearing surface, so any clamp pressure is likely to damage the edge. A clamp pad will help, but probably



won't eliminate the problem. What's needed is a "C" shape clamp block as shown. It bears at two points and minimizes the chance of marring the molded edge.

When you need to apply solid stock edging around a plywood panel and the edging must be flush with one or both faces of the panel, you can cut the edging slightly thick and carefully hand plane and sand it flush, but it will

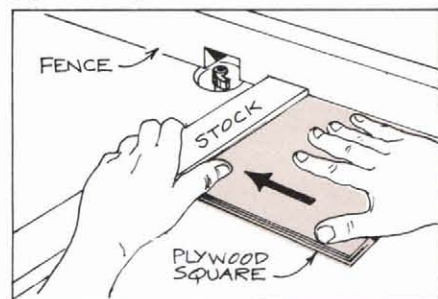


pay to make a special fence for your router table and use a flush trimmer bit with a pilot bearing as shown. If the panel needs edging all around, glue and clamp the end strips on first and trim them flush, then the side strips are added and trimmed.

A chair rung hole that's bored a bit oversized can be a problem because most adhesives require good surface contact between the mating parts. If you're faced with this problem, try using epoxy glue. Epoxy will form a strong joint even without good surface contact.

If you use a stationary disc sander or a sanding disc with a table saw to sharpen chisels, be sure to first clean out all sawdust from the machine as the sparks generated by sharpening can easily set the sawdust aflame.

Without a miter gauge it's difficult to rout the ends of long narrow stock. Here's a way to do it that's simple, safe and effective. Cut a piece of plywood to about 10 in. by 10 in., making sure the corners are square. Hold the plywood against the router table fence



while keeping the stock against the plywood, then use the plywood to push the stock through the cutter.

The Woodworker's Journal pays \$25 for reader-submitted shop tips that are published. Send your ideas (including sketch if necessary) to: *The Woodworker's Journal*, P.O. Box 1629, New Milford, CT 06776, Attention: Shop Tip Editor. We redraw all sketches so they need only be clear and complete.

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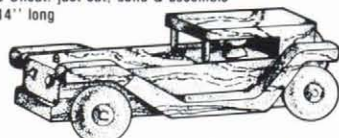
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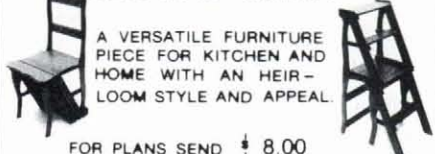
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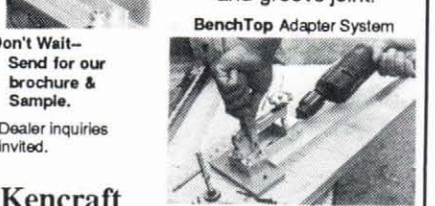
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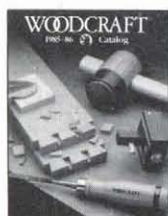
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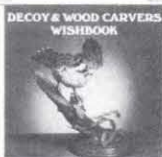
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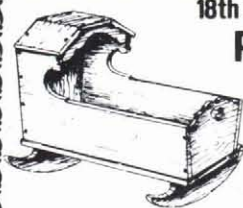
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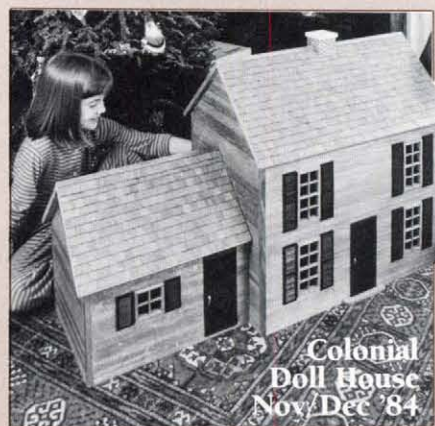
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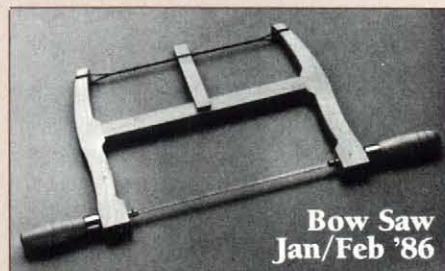
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Shaker Slat-Back Side Chair, Wall-Hung Display Cabinet, Lattice-work Planter, Country Bucket Bench, Adirondack Chair, Coffee Mill, Clamdigger's Basket, Box of Shapes Toy, Disk Clock, Tenon Jig, Dictionary Stand, *Articles*: Selecting the Right Project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

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Desk with Tambour Top, Vanity Case, Stool, Coffee Table, Blanket Chest, Mortar and Pestle, Whale Folk Art Silhouette, Toy Wagon, Cranberry Rake, Router Bit Box, Shaker Drop-leaf Table, *Articles*: Are Your Prices Competitive?; Restoring a Rosewood Chair; Basic Router Operations; Making Tambour Doors; General Woodworking Suppliers.

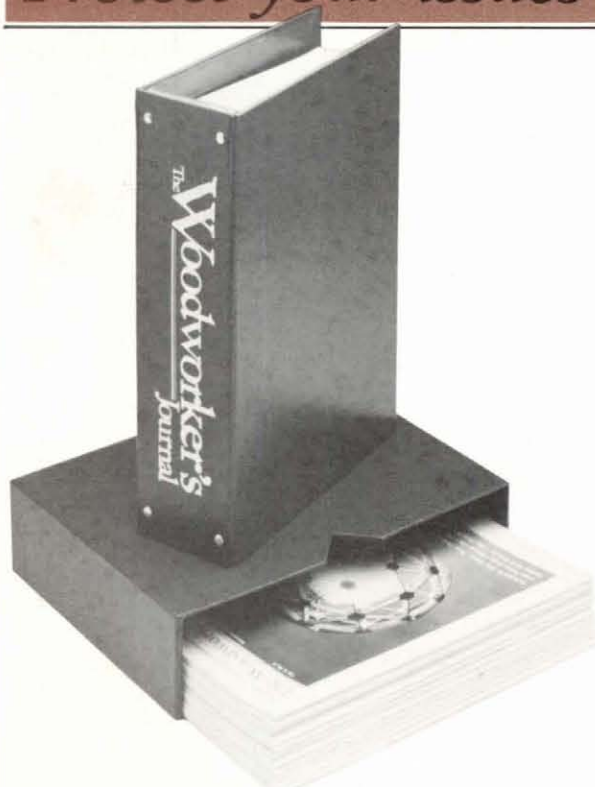
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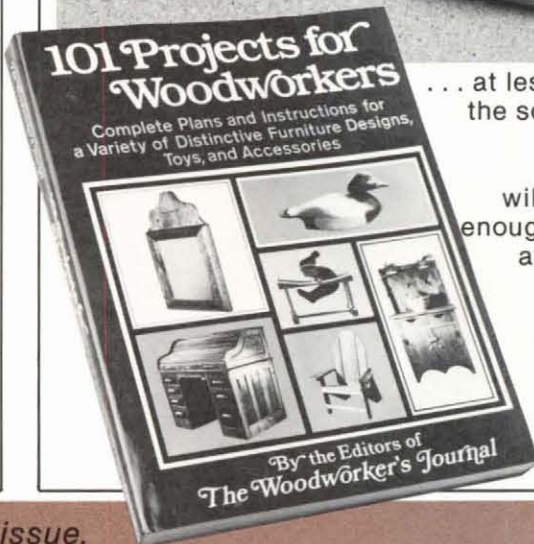
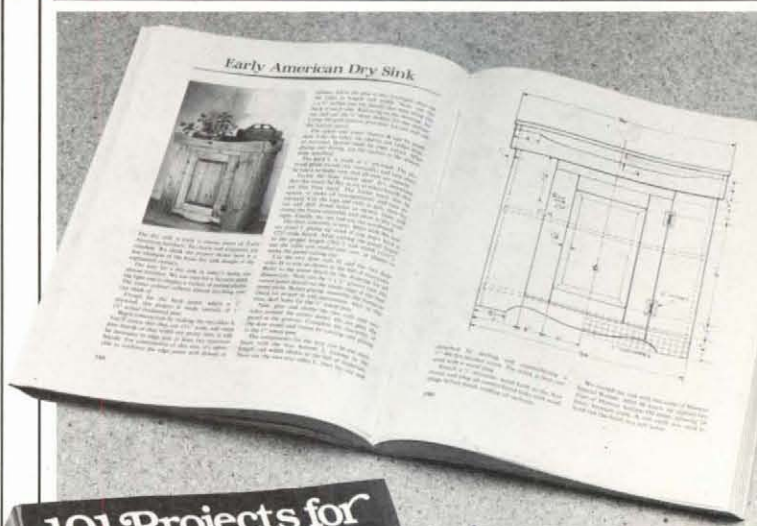
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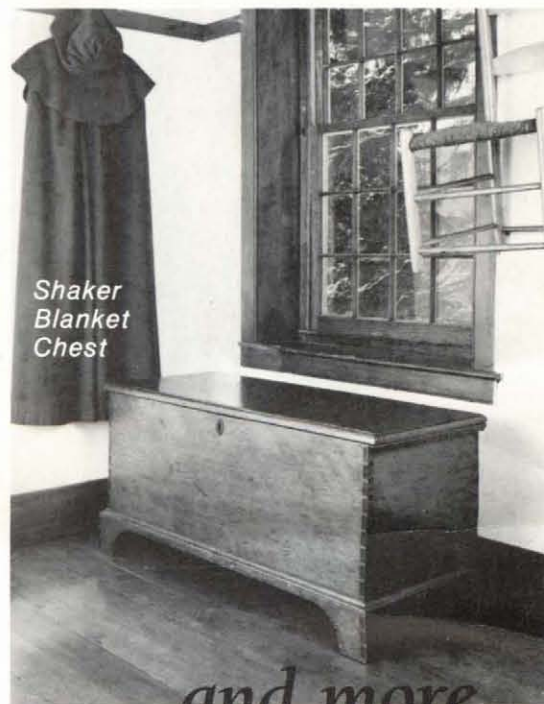
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Next Issue . . .

Here are a couple of the projects we've lined up for the January/February 1987 issue of **The Woodworker's Journal**



Jewelry Boxes



Shaker
Blanket
Chest

... and more