

The Woodworker's Journal

Vol. 9, No. 5 \$2.50



Included in this issue:

- Sideboard
- Block Puzzle
- Victorian Hall Tree
- Cutlery Cabinet
- Toy Ironing Board
- Water Bench
- Smooth Plane

Mahogany End Table

September/October 1985

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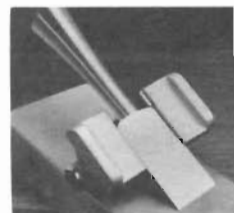
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The Woodworker's Journal

SEPTEMBER/OCTOBER 1985 VOLUME 9, NUMBER 5

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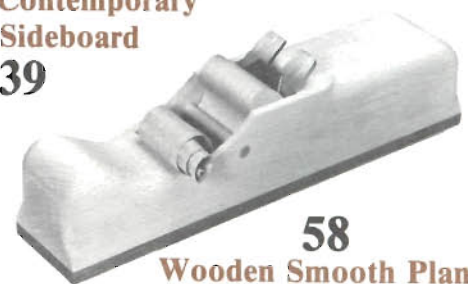
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Contributions: We welcome contributions in the form of manuscripts, drawings and photographs and will be glad to consider such for possible publication. Contributors should include a stamped, self-addressed envelope of suitable size with each submission.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

Shoptalk

Autumn is almost upon us and if, like most of us, you've let your woodworking slide a bit during the warm months, it's time to wax the saw table, sharpen the chisel and get the shop squared away for another woodworking season.

It's Guard Duty

While you're in the process of getting your shop organized, I wonder if you'll replace the blade guard that you removed from your table saw way back when. It's sad but true that I'd be pretty well-heeled if I had a dollar for every table saw presently in operation without the protection of a blade guard.

Of course, we all know what a nuisance blade guards can be, especially when they're combined with splitters that keep getting out of alignment. We also know that many operations simply cannot be performed with the guard in place. Yet, in spite of their faults, blade guards do prevent your hands from coming in contact with the blade. When you've got a repetitive operation such as crosscutting many pieces of equal lengths, it's all too easy for the mind to wander for just one dangerous moment. That's when the blade guard is the most valuable accessory in your shop. Please use it.

Show Time

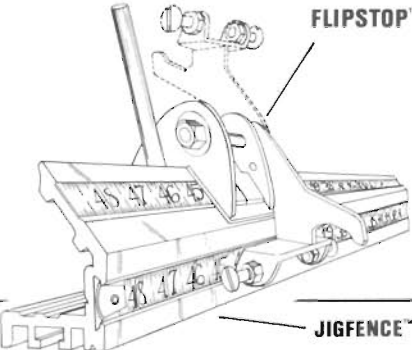
Autumn is also the time for woodworking shows, and one such show that promises a very large turnout will be held at the Westchester County Center in White Plains, New York, starting at 2:00 Friday, September 27 and running until 5:00 Sunday, September 29. This tri-state area show will be a real eye-opener and if you attend, I hope you'll stop at Booth 48 to say hello and see some of the more interesting and portable projects that have appeared in past issues of *The Woodworker's Journal*.

Back Issues

It's been five years since we've switched from newsprint to a magazine format, and keeping all 30 back issues has become somewhat of a problem, mainly because of increased printing costs and expenses associated with the storage and mailing costs of ever-growing numbers of back issues.

Obviously, as we continue to publish, there will come a time when we'll have to discontinue some of the older issues. For the present, we'll continue selling all back issues available, but effective with this issue, the price of all back issues will be increased to \$3.00 each.

Jim McQuillan



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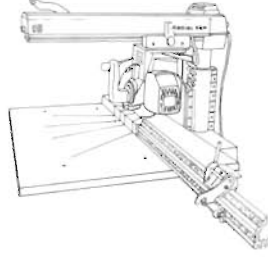
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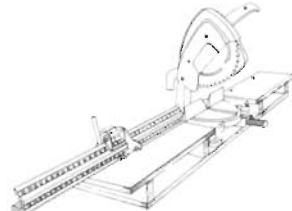


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Rugged Construction

The factory uses the Mehanite process under license in making all castings. Then, a combination of natural and artificial aging gives assurance that raw castings for every saw are perfect. Engineered ribbing and precision machining yield a superior product in both appearance and performance.

Table

The General 10" saw has a heavy all-cast table. After the casting is aged, its entire surface is precision-ground to close tolerances. This accuracy is apparent when the mitre gauge is inserted and it glides effortlessly forward or back, with no side-play in the deep T-slot grooves. Finally, the large size of the table is noted. It is both impressive and functional... as it provides a full eleven inches in front of the blade where it counts the most.

Base

A reinforced heavy-gauge steel cabinet-style base has a hinged vented clean-out door for convenient shop clean-ups. A motor cover may be added to completely enclose the base for use together with a dust-collection system.

Arbor

The $\frac{3}{8}$ " arbor is mounted on widely-spaced trunnions. It's fully adjustable, and tilts from 90° to 45° with a single lock-wheel through a rack and worm gear. It lowers so the 10" blade is safely below the table when not in use, or raises to cut $3\frac{1}{8}$ " when vertical or $2\frac{1}{8}$ " at 45°. The blade tilts to the right, away from the operator's hands when cutting bevels - with a single front-mounted lock-wheel control. Raising, tilting, or lowering the blade is swift and accurate.

Mitre Gauge

The T-roller design mitre gauge is adjustable and pre-settable to 90° and 45° right and left. Its cast body is pre-drilled for insertion of optional stop rods which permit accurate repetitive cuts.

Guard

The General 10" Table Saw completely encloses all moving parts within the cabinet stand for maximum safety. The exposed portion of the blade may be covered by a swing-away splitter/guard complete with anti-kickback fingers (standard with every machine). An overarm guard can be provided if required.

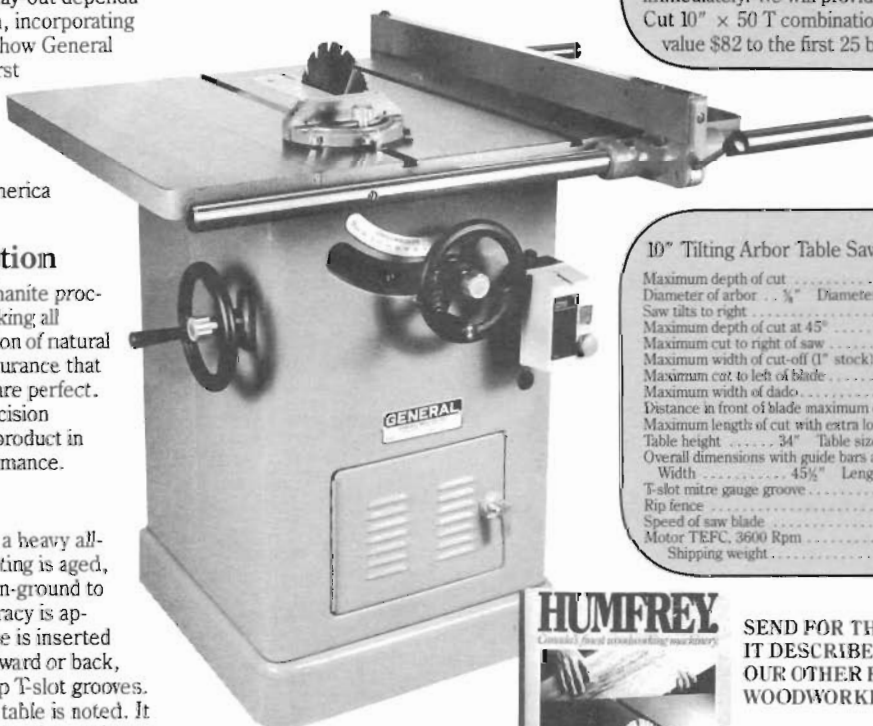
GENERAL 10" Tilting Arbor Table Saw

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Note: Call the Humfrey Order Phone immediately. We will provide a Galt Micro-Cut 10" x 50 T combination blade - retail value \$82 to the first 25 buyers.



10" Tilting Arbor Table Saw Specifications

Maximum depth of cut	3 1/8"
Diameter of arbor	3/8"
Diameter of saw blade	10"
Saw tilts to right	45°
Maximum depth of cut at 45°	2 1/8"
Maximum cut to right of saw	25"
Maximum width of cut-off (1" stock)	14 1/2"
Maximum cut to left of blade	15 1/2"
Maximum width of dado	1"
Distance in front of blade maximum cut	12 1/2"
Maximum length of cut with extra long guide bars	50"
Table height	34"
Table size	28" x 36"
Overall dimensions with guide bars and rip fence:	
Width	45 1/2"
Length	40"
T-slot mitre gauge groove	3/4" x 3/4"
Rip fence	Locks both ends
Speed of saw blade	4000 Rpm
Motor TEFC, 3600 Rpm	3 HP
Shipping weight	385 lbs

Fence

The rip fence is self-aligning as it locks to front and rear guide rails using a single control handle. A built-in micro-adjust knob moves the fence with precision. The box steel welded fence body is pre-drilled to accept a variety of auxiliary wooden fences. The edges of the table of the General saw are machined parallel to receive an optional fence of the T-Square type.



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Back in your November/December 1984 issue you had a Shop Tip that suggested making clamp pads by securing adhesive-backed magnetic strips to 1/4 in. plywood. The magnet serves to hold the pad in place while the clamp is properly positioned. I like the idea, and would like to make a few, but can't locate the adhesive-backed magnetic strips.

M.A. Tetu, Warwick, Rhode Island

A 10 foot long roll of 1 in. wide flexible magnetic strip is available from Constantine's, 2050 Eastchester Road, Bronx, NY 10461. The cost is \$8.50 plus \$2.65 shipping and handling. Order part no. 8W369.

... Concerning John Olson's column, "Restoring Antiques", in the May/June 1985 issue: Mr. Olson writes about his use of Benjamin Moore's Quick Dry Sanding Sealer as a final finish. I feel it is only fair that you caution your readers in using sanding sealers in this manner.

A sanding sealer is not designed for use as a finish and should really only be used as the manufacturers intended it. A loose definition of a sanding sealer is

Letters

a wood primer that is formulated to fill and seal the pores of the wood, providing when lightly sanded, a smooth, nonpermeable surface for the application of finish coats of varnish or lacquer.

Sanding sealers have several inherent problems that will soon appear. They are very brittle, which Mr. Olson mentioned, and they are easily scratched. On exposure to ultraviolet light, they age quickly and "craze" or become deeply yellowed. Most are not water or alcohol resistant. You wouldn't paint your house with only a wood primer and expect it to hold up very long. Sanding sealers are an excellent undercoat but should always be protected by a finish coat of varnish or lacquer.

Don Reuter
Columbus, Ohio

John Olson replies:

First, let me point out that sanding sealers are made by a number of manufacturers, and it's not uncommon

for them to market their product under more than one brand name. Many of these sanding sealers are suitable as a complete finishing system, however most of them are not. As I have advised in many of my columns, it's important to read the label and follow the manufacturer's instructions.

Benjamin Moore & Co.'s Quick Dry Sanding Sealer can be used as a complete finishing system. The label reads: "First: As a fast drying seal. Second: As an independent and complete finishing system."

It is my opinion that the manufacturer of a product is the one who knows best for what service his product is designed and knows best how to apply the finish to get the best results. The manufacturer isn't likely to recommend his product for a service for which it is not suitable.

Editor's Note: There's an incorrect dimension shown on the drawing for the Kitchen Cart featured in our May/June 1985 issue. The exploded detail in the lower right hand corner shows the rabbet in part C as 1/4 in. deep. It should be 1/2 in.

(continued on page 8)

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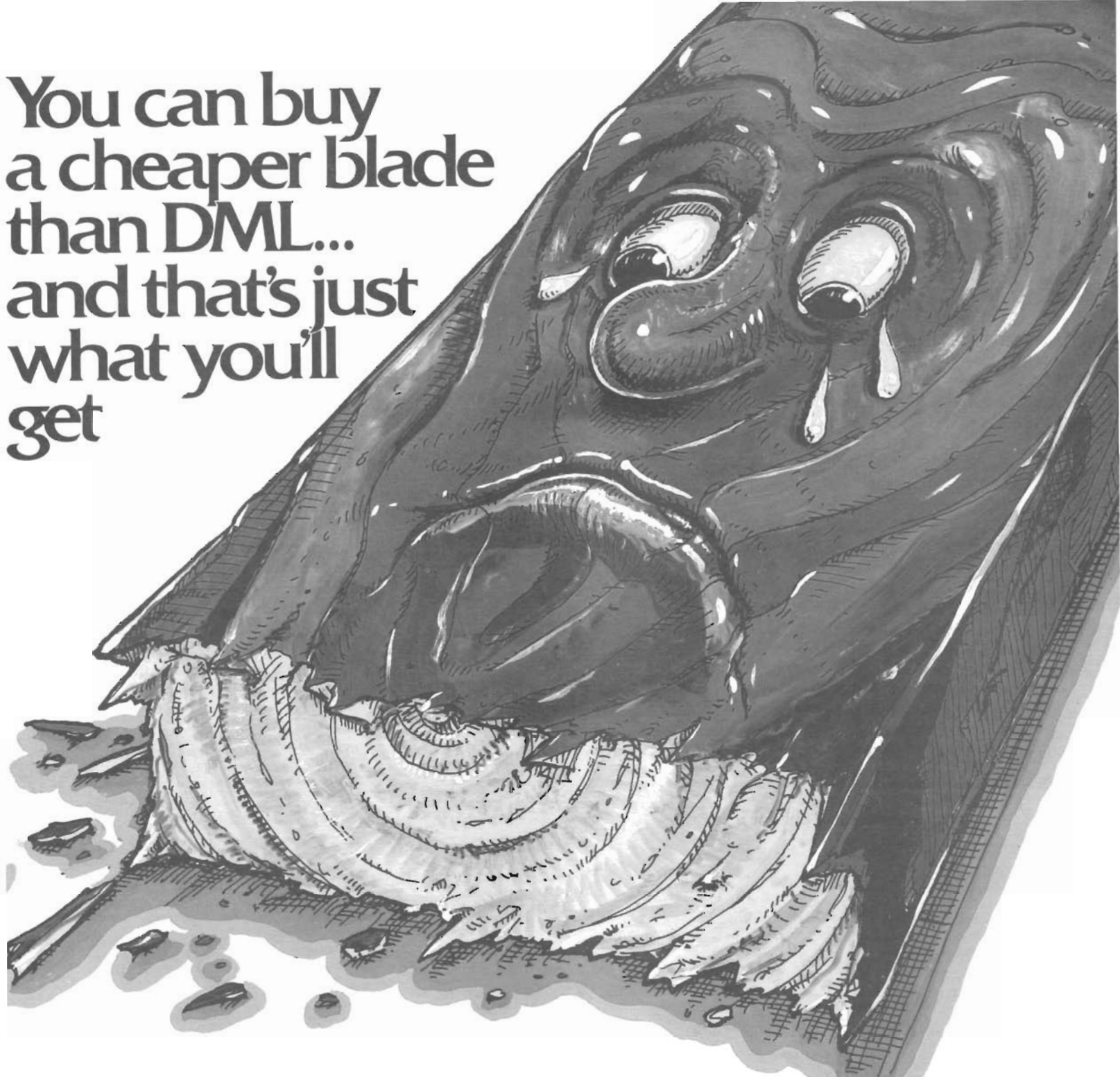
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Odds and Ends

The Midwest Woodworkers Association will hold its third annual "Excellence in Woodworking" show on Saturday, November 2nd, 1985 at the Ramada Inn, 170 and 63N, Columbia, Missouri. The show will feature work by local woodworkers along with displays of the latest in woodworking equipment and supplies. For more information (or to reserve space) contact Gerald Jones, 311 Cumberland Road, Columbia, MO 65203.

The Woodworking Association of North America (WANA) has a couple of upcoming shows. Woodworking World — The New York Show will be held at the Westchester County Center in White Plains, New York on September 27-29, while Woodworking World — The Chicago Show will be held at the O'Hare Expo Center in Rosemont, Illinois on October 25-27. Admission fee is \$5.00 and seminars are free with admission. For show or seminar information contact: WANA, P.O. Box 706, Plymouth, NH 03264. Telephone: (603) 536-3876.

American Contemporary Works in Wood '85 is a juried exhibition sponsored by the Dairy Barn Southeastern Ohio Cultural Arts Center, Athens, Ohio. Exhibition dates: September 21 - October 20, 1985. Workshops: Woodturning: Hollow Vessel Forms — David Ellsworth, September 28-29; Woodcarving — Rober Butler, October 5-6; Furniture Design and Construction — Tage Frid, October 11-12. For more information contact: American Contemporary Works in Wood, P.O. Box 747, Athens, Ohio 45701. (614) 592-4981.

We have formed a woodworking club here in Columbus, Ohio and currently have about 95 members. We call ourselves "Woodworkers of Central Ohio" and meet about every six weeks. A nearby vocational high school has allowed us use of a large room. Our next meeting will be in September.

Don Reuter
505 King Ave.
Columbus, OH 43201

"Along Different Lines" is an invitational show of handcrafted traditional and contemporary furniture by

some of Vermont's finest craftsmen and will open at the Frog Hollow gallery located in Middlebury, Vermont on Saturday, September 14, 1985. A common theme running through most of the work in the show is the subtle reinterpretation of different traditional styles with an eye towards the functional demands of contemporary furniture.

The International Woodworking Machinery & Furniture Supply Fair, USA, has announced the 9th biennial Student Furniture Design Competition, to begin with the Fall 1985 semester at accredited design schools and universities throughout the United States. Students who enroll in this program will compete for \$4,500 in prize money to be awarded September 7, 1986 at the International Woodworking Fair in Atlanta, Georgia.

For further information contact Shirley Byron, Competition Coordinator, at the Fair Office Headquarters, 8931 Shady Grove Court, Gaithersburg, MD 20877 — (301) 948-5730.

Introducing The Hawk Precision Scroll Saw

Whether You Do Scroll Sawing As A Hobby, For Making Money, Or As A Craftsman, The Hawk Is The Tool For You!

We Designed Our New Precision Scroll Saws For Beginners and Built Them For Fine Woodworkers

- Make simple crafts like toys and puzzles to give as presents
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- Fancy scallops and precision scrollwork for clocks, heirlooms, intricate inlays and dovetails.

How creative do you have to be to scroll saw? If you can draw a line, you can follow it with a Hawk... and, like that, you're scroll sawing, with the kind of results you've always dreamed of. Trace any kind of pattern onto your wood and follow the lines. It's that simple.

Make Money or Just Scroll For The Fun Of It.

You'd be surprised how easy it is to make money with scroll woodworking. Hundreds of folks start doing it the minute they set The Hawk up in their workshops. Many use this to pay for their machines, supplement incomes and even start full time businesses.

Experienced craftsmen find they can do intricate scrollwork for their fine woodworking projects in half the time it takes on a bandsaw or jigsaw.

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A Simple Solution To Successful Scroll Sawing For The Entire Family...

Scroll Sawing is not a "for-men-only" hobby. Far from it! Women get considerable enjoyment out of this kind of woodworking, and are quite good at it. The Hawk makes it all possible because of its simple design.

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RYOBI TOOLS		List	Sale
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
J560J	Jig Saw-electronic visp/ed	198	123
R150	1 H.P. Plunge Router	138	86
R330	2 H.P. Router	220	138
R500	3 H.P. Router	265	163
E3800	Drywall screwdriver 0-4000	126	79
L120U	3 5/8" Planer	142	89
BD1020R	3/8" 2-sp Cordless Drill w/inter holster Xtra special buy	148	95
TS251U	10" Mitre Box	300	159
SG1150C	4 1/2" H.D. Mini-Grinder	99	59

MILWAUKEE TOOLS		List	Sale
0224-1	3/8 drill 4.5A magnum	159	109
0234-1	1/2 drill 4.5A magnum	159	115
0244-1	1/2 drill 4.5A magnum	159	135
0222-1	3/8 drill 3.3A 0-1000 rpm	146	99
0228-1	3/8 drill 3.3A 0-1000 rpm	129	95
0375-1	3/8 close quarter drill - NEW - 3.5 amp	175	118
0210-1	3/8 cordless drill - NEW - 2 speed	154	114
6539-1	cordless screwdriver - NEW - 190 RPM	84	64
1007-1	1/2" drill 4.5A D-Hdle	199	145
1107-1	1/2" drill 4.5A D-Hdle	204	145
3300-1	magnum rt angle drive kit	249	170
3102-1	Pimbrs rt angle drill kit	263	180
1676-1	HD mag Hawg w/case 2 sp	333	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 1/2"	287	207
5373	HD mag hammer drill 3/8"	240	175
6507	TDSC Sawzall w/case	193	125
6511	2 speed Sawzall w/case	181	123
6226	port band saw 2 sp w/case	382	280
6234	TDSC band saw port w/case	382	280
6365	7 1/4" circ saw 13 amp	159	109
6405	8 1/4" circ saw 13 amp	179	127
6460	10 1/4" 15 amp w/case	349	245
6377	7 1/4" HD worm saw 13 amp	235	155
6378	8 1/4" HD worm saw 13 amp	249	165
6165	12" Chop Saw 15 amp 4200 R.P.M.	267	189
6170	14" Chop Saw 15 amp 3600 R.P.M.	289	209
6255	v/sp Jig Saw 3.8 amp	199	140
6245	sgle sp Jig Saw 3.8 amp	175	125
6012	1/2 sheet HD Orb. sander	159	110
6014	1/2 sheet HD Orb. sander	169	115
5835	4" by 24" belt sander w/bag 10 amp	319	215
5860	1 1/2 HP router 10 amp	256	175
5880	2 HP router 12 amp	314	220
8950	Wet/Dry 8 gal vac 6 amp	145	110

BENCH GRINDERS		List	Sale
4901	1/2 HP 26 amp 24"	159	110
4921	1/2 HP 4 amp 26"	179	130
4891	1/2 HP 4 amp 41"	279	195
5041	1/2 HP 8.2 amp 58"	379	270

DRYWALL SHOOTERS		List	Sale
6753-1	3.5 amp 0-4000 rpm new	115	79
6747-1	4.5 amp 2500 rpm	144	100
6750-1	4.5 amp 0-4000 rpm	129	90

FREUD SAW BLADES

Univ. Bore — Professional Series CARBIDE TIPPED SAWBLADES

Item No.	Description	Diem.	Teeth	List	Sale
PS203	Gen'l Purp.	7 1/4"	24	27.24	17.50
PS303	fine cutting	7 1/4"	40	32.97	20.50

5/8" Bore — Industrial Grade CARBIDE TIPPED SAWBLADES

Item No.	Description	Diem.	Teeth	List	Sale
LU72M010	Gen'l Purp.	10"	40	68.58	35
LU81M010	Gen'l Purp.	10"	40	89.30	36
LU73M010	Cut-Off	10"	60	79.65	39
LU82M010	Cut-Off	10"	60	86.40	45
LU84M010	Combination	10"	40	70.39	36
LU84M011	Combination	10"	50	74.51	40
LU85M010	Super Cut-Off	10"	80	110.88	62
LM72M010	Ripping	10"	24	64.85	37
DS 306	8" Double			138.00	95
DS 308	8" Double			170.00	107
TR 100	3 blades & Dado set			298.00	255

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	List	Sale
8" Table Saw	\$336.00	\$199.95
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Model 1805B — 6 1/8" PLANER

Complete w/Wooden Carrying Case
List Price 416.00 * SALE PRICE 250.00

MAKITA TOOLS

	List	Sale
804510	Sander	79 43
9900B	3"x 21" belt sander	198 119
9924B	3"x 24" belt sander	204 135
99240B	3"x 24" blsander w/bag	214 130
9035	1/2 sheet finish sander	79 48
9045B	1/2 sheet finish sander	156 90
9045N	1/2 " " w/bag	170 105
4200W	4-38 circ saw 7.5 amp	152 95
5008NB	8 1/4" circ saw 13 amp	178 105
5201NA	10 1/4" circ saw 12 amp	348 215
4300VB	v/sp jig saw 3.5 amp	192 120
4301VB	orb v/sp jig saw 3.5 amp	208 125
2401BW	10" mitre saw	319 185
2400BW	10" mitre saw (for vice)	359 249
JR3000V	2 sp recip saw w/case	168 120
JR3000V	v recip saw w/case	178 120
6010DWK	3/8 cordless drill w/case	152 99
5081DW	3-3/8 cordless saw kit	165 109
1900BW	3 1/4" planer w/case	154 92
1100HD	3 1/4" planer w/case	278 165
3608BK	1/4 hp router w/case	132 85
3601B	1-3/8 hp router	198 115
3700B	1/2 hp trimmer	
	28,000 rpm	124 82
804530	6" Round Sander	84 55
6710DW	Cordless Screwdriver	155 105
5012B	12" Chain Saw	169 116
DA3000	3/8" angle drill	158 105
DP4700	1/2" vsp wirew 4.8 amp	154 92
HP1030W	3/8 v.s.r. hammer drill	145 98
	w/case	145 98
6300LR	1/2" angle drill wirew	229 152
84198B-2W	1/2" 2 sp. hammer drill w/case	238 150
GV5000	Disc Sander	79 53

DRYWALL SHOOTERS

6800DB	2500 rpm 3.5 amp	123 79
6800VB	0-2500 rpm 3.5 amp	133 89
6801DB	4000 rpm 3.5 amp	123 79
6801VB	0-4000 rpm 3.5 amp	133 89
2030	12" planer/jointer	1980 1350
2040	15-5/8" planer	1780 1195

NEW from MAKITA

9207SPC	7" Electronic Sand/Polish	209 130
DK1001	drill (6010D) charger/vac	178 125
6010SDW	3/8 cordless drill, rev	82 45
DA3000DW	3/8 angle drill, cordless	
	700 7.2 volt	172 105

DELTA

	List	Sale
34-621	9" contr. saw w/o motor	500 395
34-410	10" contr. saw w/o motor	871 650
34-710	super 10" motorized saw	579 450
15-991	15" floor model Dipress	467 375
15-990	15" bench model	467 375
37-207	Saw/Jointer Combination	1018 810
37-608	6" Motorized Jointer	413 335
37-290	4" dialase Joiner w/o motor	346 275
22-651	RC-33 — 13" Planer	1943 1450
43-122	Wood Shaper w/stand and 1 HP Motor	869 495
46-140	11" lathe, gap bed model w/stand w/o motor	407 335
52-493	1 hp motor for #34-621	170 130
62-042	1 1/2 hp motor for #34-410	230 170
62-144	1 1/2 hp motor for #37-290	136 105
62-142	1 1/2 hp motor for #28-243 and #46-140	121 85

SKIL TOOLS

	List	Sale
551	5 1/2" Circ. Saw 6.5A	99 75
77	7 1/4" Worm Saw	240 139
367	6 1/2" Worm Saw	239 149
825	8 1/4" Worm Saw	270 185
807	7 1/4" Skilsaw 13A-Super	153 100
808	8 1/4" Skilsaw 13A-Super	172 110
2016-02-38"	Cordless Drill complete w/Charger Case & 2 batteries	199 99
3104	10" Band saw 4.2 amp vs.	195 150
31028-14	Table saw 2hp 10amp	190 145

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#9820-2	Blade Sharpener	
List 235	SALE 160	
#6002DWK	3/8" 2 sp Cordless Drill Kit	
List 154	SALE 94	
#9035DW	Cordless Finishing Sander	
List 128	SALE 79	
#JV1600	v/sp. Jig Saw	
List 145	SALE 89	
#JV2000	Jig Saw Orb. var/sped	
List 165	SALE 100	
#5005BA	5 1/2" Circ/Saw Saw, 8A w/elec brake	
List 154	SALE 98	

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Model	DRILL KITS	List	Sale
1930	3/8" rev/hi speed	165	119
1950	3/8" High Torque	165	110
5830	Reversible Hammer	179	120
1970	3/8 rev/hi torque screwdriver	179	120
1980	Rev/adj. clutch Scruddrill	179	120

BRAND NEW! SUPER SPECIALS from MILWAUKEE

0214-1	3/8" cless driver/drill	154 109
8975	H.D. Heat Gun, 11.6A Low 570°F - High 1000°F	69 49
5920	belt sander 3x24 w/o bag	289 199
5925	belt sander 3x24 w/bag	309 215
5930	belt sander 4x24 w/o bag	299 209
5935	belt sander 4x24 w/bag	319 225

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#800	Cordless 2 sp Hammer Drill	List 195... SALE 135
#126	Porta-Plane 7 amp 2-13/16" cut	List 254... SALE 165
#653	Versa-Plane 10 amp 3" Cut	List 399... SALE 270
#346-1	6 1/2" Circular Saw	List 155... SALE 105

* X-TRA SPECIALS * MAKITA TOOLS

Model	List	Sale
6010DL	Cless Drill w/flashlight charger & case	162 90
DP3720	3/8 drill Rev. 0-1800 rpm	88 47
6510LVR	3/8 drill Rev. 0-1050 rpm	114 67
6013BR	1/2" Drill Rev. 6 amp	174 100
5402A	6" Circular Saw-12 amp	468 315
2414	14" Cut Off Saw-13 amp	282 169
3612BR	3 HP Plunge Router	286 175
9401	4x24 belt Sander w/bag	279 160

PORTER-CABLE

	List	Sale
630	1 HP Router	135 95
691	1 1/2 HP Router D-handle	210 145
696	H.D. Shaper Table	150 105
695	H.D. 1 1/2 hp Router/Shaper	278 190
514	2 1/2 HP Router 12 amp	435 315
399	Drywall Cut-Out Unit	100 70
736	V/Speed Speedtronic Band Saw	450 330
7564	1/2" X.H.D. Drill 8 amp	205 145

BOSCH TOOLS

1581VS	Top Handle Jig Saw	225 126
1582VS	Barrel Grip Jig Saw	126 118
1604	1 1/2 H.P. Router	199 110
1942	Heat Gun 650° — 900°	99 65
1272	3x24" Belt Sander	259 159
1272D	3x24" Belt Sander w/bag	274 169
1273	4x24" Belt Sander	274 169
1273D	4x24" belt sander w/bag	289 179

DELTA

Model	List	Sale
34-010	Motorized Mitre Box	231 149

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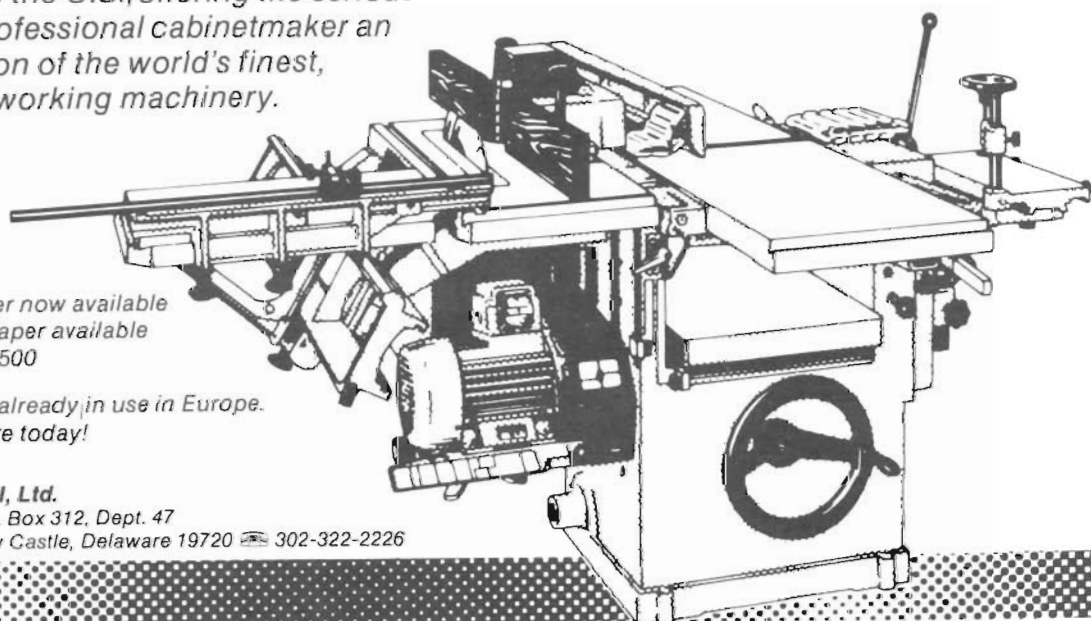
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Readers' Information Exchange

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.

Recently I purchased a drill press at an auction. Everything's fine except the chuck — it doesn't work properly. I'd like to buy a new one but, to date, I've been unable to find anything. The name plate reads Cummings Mack Corp., Franklin Park, Ill. 60131. My letter to them at that address was returned. The Postal Service had stamped the envelope "addressee unknown".

Any help would be appreciated. The model no. is CM12F $\frac{3}{8}$ in. The spindle no. is MT#20 .16mm.

W.L. Sandquist
704 East Church St.
Galion, OH 44833

Can anyone furnish me with a source for brass coin slots for banks?

Ted Buecker
325 S. Mill St.
St. Clair, PA 17970

I would be grateful for any help in locating an operator's manual for a Sears Craftsman table mounted jig saw, model no. 103-0407. I'm willing to pay for a photocopy.

Robert Relf
29705 Elmgrove
St. Clair Shores, MI 48082

I recently purchased an old machine, one that combines the features of a table saw, jointer, band saw, and lathe. It did not have a motor. As this machine is quite large (a tractor was needed to lift it into a pickup truck), I assume a very large motor was used to power it. The only identification markings were cast into the upper part of the band saw. It reads: Crain Combination Woodworker, Mfg. by Buffalo Forge Co., Buffalo, NY, pat. Feb. 28, 1907. I'd like to recondition the machine, so any information would be appreciated.

K. Hodgkins
177 River St.
Billerica, MA 01821

(continued on page 13)

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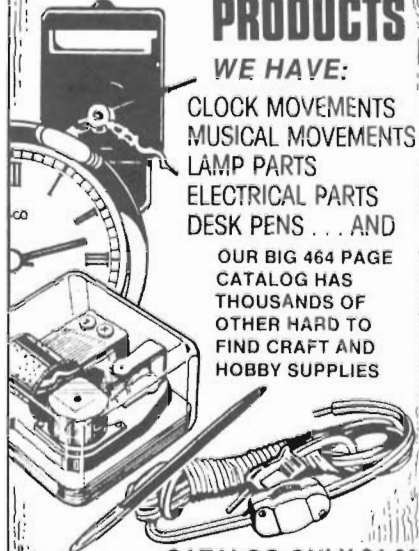
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Readers' Information Exchange (cont'd)

I found a two cutter molding-head (no. 300, patent no. 2561470) made by Jet Tools, Lemon Grove, CA and now need a bushing to reduce the arbor hole from 3/4 in. to 1/2 in. Also I need a source for compatible cutters for the pair.

Michael Hofmann
6 Dyer Street
Skowhegan, ME 04976

About a year ago, at our local Sears store, I tried to get a manual and parts list for a Craftsman table saw, model no. 113.27970, however they were unable to furnish it. Any help would be appreciated.

Max Feld
1501 Dakota N.E.
Albuquerque, NM 87110

Just recently I acquired a Sears Craftsman wood lathe for which manuals are no longer available. This is an older model with a cast 48 in. bed and carries model no. 101.06260. If any readers have information on this model, I will gratefully reimburse the cost of copies and postage.

Raymond L. Eriksen
37 Yorktown Dr.
Clark, NJ 07066

Could you please print my request for any literature on a Craftsman jig saw, model no. 103.0404. I would be more than happy to pay for any cost incurred for reproduction of the document(s).

John R. Soloman
40 Washington Ave.
No. White Plains, NY 10603

... Looking for motor mounting plate for Sears table saw model no. 101.02140.

Michael S. Nemeth
KHP-7624 Base & Mobil
Rt. 2, Box 210
Sullivan, WI 53178

Perhaps one of your readers will have a manual & parts list for my 1948 Craftsman walking beam jig saw model no. 103.23440.

Mike Mucha
M.P. 3.73-L Skye Rd.
Washougal, WA 98671

I have recently acquired a Sears Craftsman radial arm saw. I believe it is a 1969 or prior model. The table is model no. 113-29520. I need an operator's manual. I'll be glad to pay the cost of copying and mailing.

Alice L. Roten
Rt. 1-A, Box 83-B
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Workshop Income

Craft Fair Visit: A Source for Ideas and Information

Most woodworkers have, at one time or another, considered making a profit from their woodworking hobby, and many woodworkers do derive some income from their craft. Knowing what to make is one of the keys to success in any business. In an effort to determine what items are selling best this year, *The Woodworker's Journal* visited one of the largest wholesale and retail craft fairs, the American Craft Council show in Springfield, Massachusetts.

One of the first surprises at the fair was the strong Oriental influence in wood products. From sushi boards to large case furniture, the crisp, clean lines and restrained, graceful Oriental forms were a recurring theme.

West Coast woodworkers were well represented at the fair and, as with so many other new trends, the Oriental concept of design in woodworking seems to have started in California. Tony Lygate, of Palo Alto, California reported that among his hottest selling items were sushi boards in cocobola or birdseye maple, chopsticks in koa, bocote and vermilion, and jewel boxes in koa or maple.

Although it may have caught on first in California, the Oriental influence was also well represented in the work of East Coast woodworkers. Peter and Marian Rohman, of Heartwood Designs in Easthampton, Massachusetts, reported good sales from their line of serving trays, vases, and accessories, crafted in a distinctive Oriental style from Indian and Bolivian rosewood, birdseye and curly maple, and a variety of other exotic and domestic hardwoods.

Another frequent theme at the show was the use of contrasting laminated hardwoods. This idea is certainly not new, but it has caught on in a big way and is being used not only for small cutting boards and accessories, but in items for the home and office. The kitchen line carried by Woodenware of Brownsville, Maryland included cutting boards, rolling pins, salt and pepper shakers, butter dishes, knife blocks, napkin holders, and kitchen island tables. All were crafted using laminated exotic and domestic hardwoods, with the laminations arranged so the various colored woods both contrasted and complimented each other. By repeating the same themes in different kitchen items, attractive sets were created. This same idea was used in Woodenware's desk accessories, which included the traditional pen and pencil sets, calender holder, paperweight, letter opener, letter holder, tape dispenser, clipboard, and bookends.

Kitchenware, articles for the desk and office, and small boxes were without question the best selling wooden items at the fair. As usual, small functional articles did better than large furniture. Although carvers, treenware and utensil makers, and woodturners were all represented at the fair, many reported disappointing sales. Of those that did well, inexpensive price, and/or a unique idea seemed the key to success. Nonfunctional, whimsical, sculptural, and ornamental woodworking, though interesting to the fairgoers, simply did not sell as well as smaller, less costly functional work.

One of the successful turners was Robert Leung, of

Oakland, California. Mr Leung was perhaps typical of those woodworkers who enjoyed the greatest success. His work was functional, unique, attractive, and inexpensive. Among his best selling peices were disk wall clocks and smaller desk clocks, all of which utilized the popular battery powered quartz movements. Mr Leung also reported considerable success with his line of bedroom accessories. These included various small hand and wall mirrors, jewelry boxes, and desk and bureau top valets.

There was a broad spectrum of woodworking expertise evident at Springfield. All articles exhibited exceptional quality, craftsmanship, and technical excellence. Although many of the woodworkers crafted almost exclusively from exotic woods, traditional designs in the domestic hardwoods were also good sellers. Brad and Sandy Smith of Bradford Woodworking in Worcester, Pennsylvania, reported brisk sales from their kitchenware line, which included a cheese slicer, slotted cooling rack, trivet, salad tongs, nutcracker, and recipe box. All these items were crafted either from cherry, oak, maple, or walnut.

Infaid work also sold well, although it tended to be somewhat more costly than the simpler designs. Robin Danzinger of Kingston, New York, did well with small boxes featuring decorative inlays in precious woods.

As always, children's toys were one of the fair's best sellers. Timbertoys of Fairfax, Vermont reported that their line of trains, cars, and planes was as popular as ever. Like other toymakers, Timbertoys' primary consideration was for the safety of the youngsters who will play with their toys. Their brochure notes that "parts are immersed in linseed oil to form a protective, non-toxic seal . . . Instead of nails we use hardwood dowels and non-toxic brown glue . . ."

Another successful toymaker at the fair was Pegassus Toys, of Saugerties, New York. Pegassus makes various animal action pull-toys. The animals feature parts that move, with the movements generated by a simple cam on the wheels as the toys are pulled along. In general, the best selling toys were uncomplicated traditional designs that encouraged children to exercise their imaginations.

If there is a general consensus that can be drawn from the woodworkers at the ACC Springfield Show it is this: Wood is still enjoying great popularity, but uniqueness of design, attractive material, and careful craftsmanship are more important than ever before. Nearly all the woodworkers involved in selling production items stressed the fact that special jigs and techniques are a must when it comes to manufacturing articles that are competitively priced and that have consistent quality.

For anyone considering going into business with their woodworking hobby, a visit to a fair such as the ACC event in Springfield offers an invaluable education. Not only is it inspiring to see the creative output of so many talented individuals, one also comes away with a feel for what trends, ideas, and designs are selling and which are not.

The fair is also an opportunity to talk firsthand with woodworkers who are actually making a living (or at least trying to) from their craft. As one soon discovers, screaming routers and saws, production deadlines, and a steady diet of sawdust, can be a far cry from the dream of making a little extra income from an enjoyable hobby.

More than anything else, however, a fair is a feast for the senses and a source of inspiration. The wondrous variety in woods, the unique and inventive methods, creative designs, and the conversation, shared enthusiasm, and camaraderie with other woodworkers is an experience that can be found nowhere else.

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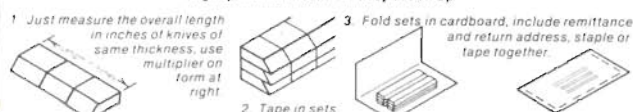
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Restoring Antiques

How to fix nicks, scratches, and splits with stick shellac

Written by Ted Burke

Many of us gain as much or more satisfaction from restoring and refinishing an originally well constructed and authentically styled article of furniture as from building it from scratch. Attics, flea markets and used furniture outlets abound in neglected pieces, some of which have the grace of real antiques. They cry out for the restorative skills of a craftsman who will bring them back to life. While the restoration procedure will require patience and ingenuity, the tools and materials you need are simple and inexpensive.

One of the procedures important to the quality of your results will be the use of stick shellac to repair surface blemishes before you apply the final finish. Surface cracks, splits and all manner of flaws can be professionally repaired with this material.

Stick shellac has several advantages. It is available in a wide range of colors and shades, so the color of the wood may be closely matched. The colors glow with a warm, semi-translucent quality that is attractive even if the repair is not a perfect match. Stick shellac is hard, so fine grit sandpaper or 3/0 or 4/0 steel wool will smooth it to a satin finish.

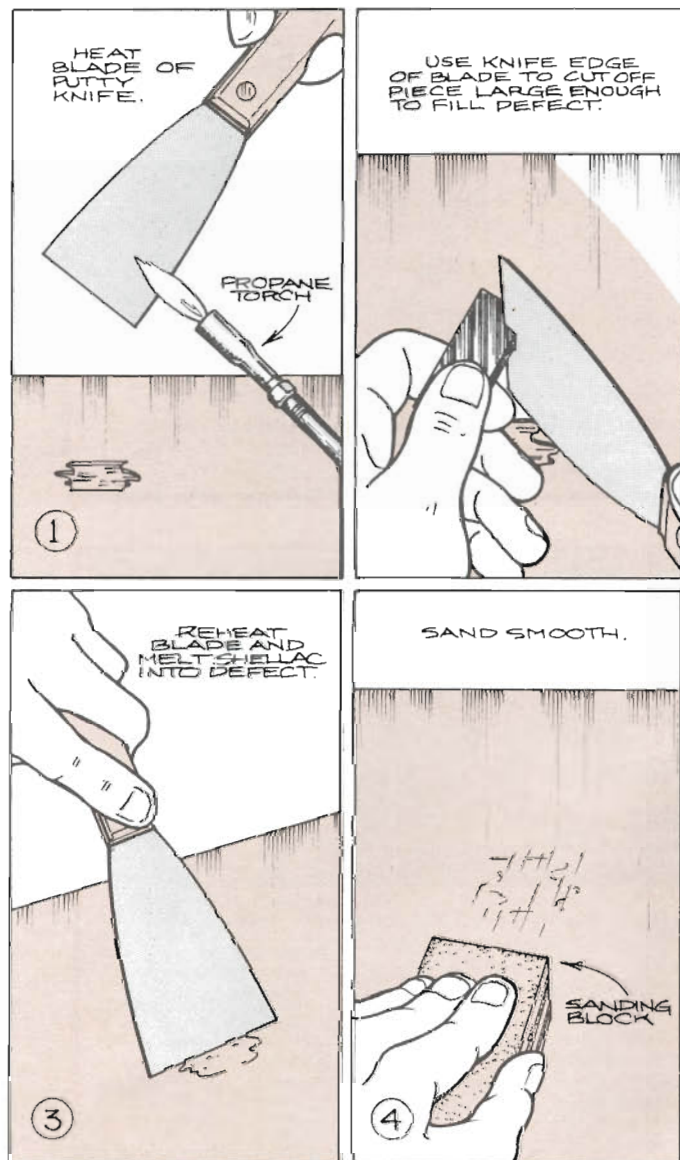
A disadvantage of stick shellac is its brittleness. It is not structurally strong for the repair of damaged edges or corners. Also, the material is not as easy to use as the manufacturers would lead you to believe. It requires patience and judgement to make the repair, but the final results are worth it.

Stick shellac has a thermo-plastic resin, and its application (referred to as "burning in") involves melting the shellac into a flaw you are repairing. This is done by heating a putty knife or an artist's pallet knife to a temperature that will melt the shellac into the depression being repaired. Unlike a wax product such as paraffin, shellac has a relatively narrow temperature range over which it is workable. The method of heating your putty knife or spatula is important. A candle, for example, will leave a carbon deposit on the blade which will discolor the shellac. A propane torch is a good heat source, as it gives a hot, clean flame leaving no carbon black residue. My shop is in my basement where I have a gas stove. I have my table set up near the stove and use one of the burners to heat my "burning in" knife. An alcohol lamp (see sources listed at the end of this article) also does a good job.

Your first act will be to select a stick of shellac to match the color of the surrounding surface. This is relatively easy as shellac will not set lighter or darker than your choice.

For actual manipulation of the heat-softened shellac, I prefer a putty knife with a relatively heavy gauge blade. This heats up evenly and retains a high temperature longer. First, you must transfer a piece of the shellac stick to the work surface. Heat your knife over a clean, hot flame. When you think it is hot enough, press the knife edge against the shellac to transfer a workable piece to the flaw you are filling. When you touch the shellac with the knife it will bubble

slightly and liquify. If the knife is too hot the boiling will be violent and the shellac may flame up. If the knife is too cool the shellac will have a rubbery consistency that is difficult to work. After you have transferred a suitable piece of shellac to the flaw, reheat the knife to melt the shellac into the blemish. If you have reheated the knife properly, the shellac will bubble slightly as it melts into the defect. As the knife cools you will be able to smooth the repair. Do so slightly above the matching surface so you can sand or steel wool the repair level. If your knife was too hot you will see bubble-like imperfections in the surface. If too cool, the surface will be rough and grainy and the shellac will not have bonded



well to the edges. You will probably find gaps. After smoothing the repair with 240 grit paper followed by 4/0 steel wool, check the perfection of your work. If the surface is not satin smooth, and the defect is not completely filled, repeat the above application procedure until you are satisfied with the result. Now apply a lacquer or varnish finish in the normal way.

Editors note: Stick shellac, in a variety of colors can be purchased from The Woodworkers' Store, 21801 Industrial Blvd., Rodgers, MN 55374. They also carry a 4 in. burning knife and an alcohol lamp.

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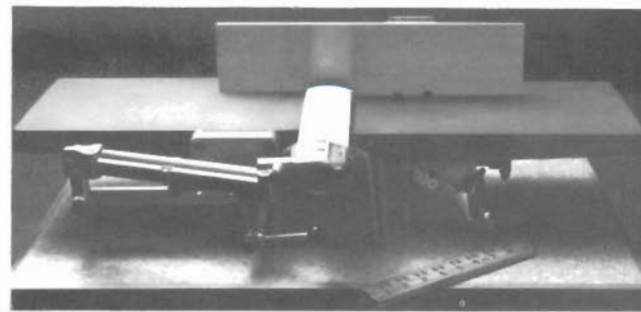
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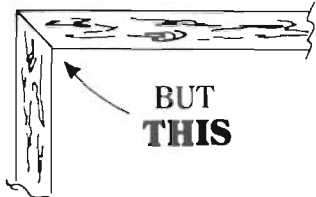
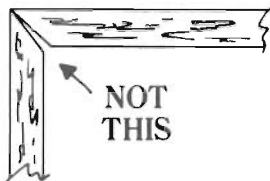
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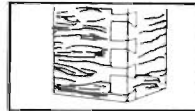
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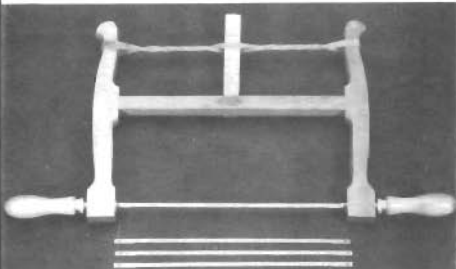
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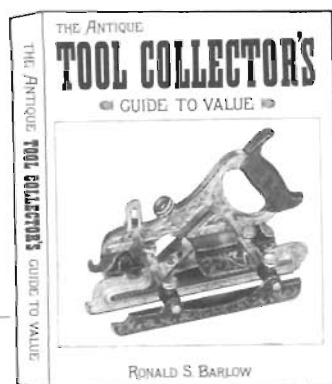


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The Beginning Woodworker

A Guide to Circular Saw Blades

You're making a ripping cut on a long length of oak two by four when halfway through the cutting you can feel that the board wants to fly up and back at you. It takes more force to hold it down and feed it into the blade which is struggling now as acrid blue smoke begins to rise from the cut.

Just as you're about to stop the feed and hit the off button, the blade picks up rpm's and you manage to complete the cut. Unfortunately, there are unsightly burns and blade marks all along the edge of the board.

This is a common scenario when the combination blade that came with your new table saw gets dull. But you wonder why it got dull so soon; after all, it seemed sharp enough when you first set up the machine just a few weeks ago. Perhaps the blade wasn't as sharp as you thought, or maybe it wasn't suited to the kind of cutting you've been doing — especially on all that particleboard and plywood.

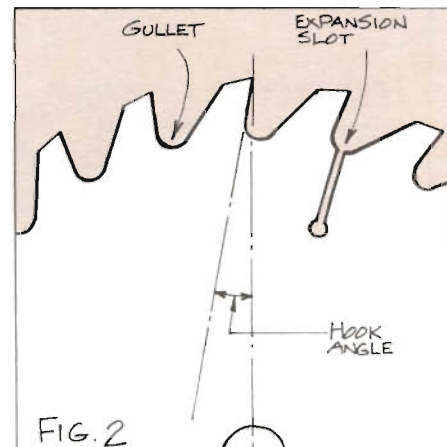
There are many reasons why a circular saw blade may not perform as you expect. Since the saw blade is such a major element in the process of working wood, it's important that we become familiar with the basic technology of saw blades, particularly with respect to the types available and how they can best be utilized.

Saw Blade Terminology

A tremendous amount of heat and stress are generated when a circular saw blade spinning at 3,450 rpm's cuts

vide clearance and minimize friction. This clearance is achieved by bending or *setting* the tips of the teeth in alternate directions as shown in Fig. 1.

The *hook angle* is the angle of the tooth's cutting face in relation to the center line of the blade (Fig. 2). Blades designed for ripping cuts have hook angles of up to 30 degrees while



crosscut blades may have hook angles of 15 degrees or less. The more hook angle a tooth has, the bigger is its bite and the faster is its rate of feed.

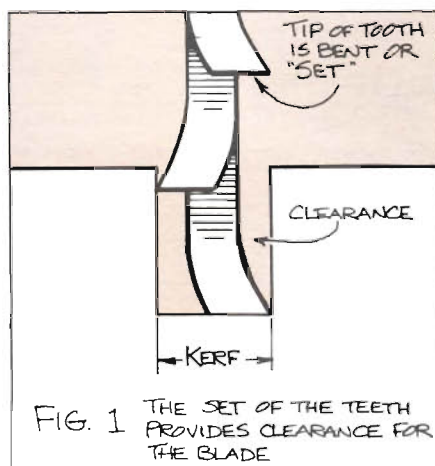
The *gullet* is the area between teeth which serves to carry away the chips by the teeth. Big teeth with large hook angles require big gullets to prevent clogging. The bottoms of the gullets should be wide and rounded to prevent stress cracking.

As a blade heats up with use, it will have a tendency to expand and if it can't expand, it will warp. To allow for this, *expansion slots* are often cut from the rim toward the center of the blade. These terminate in a round hole which helps prevent stress cracking. Generally, the better quality blades have expansion slots, and these may vary in number from four to eight.

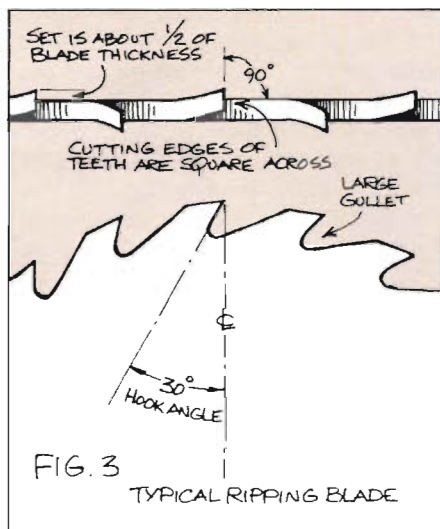
Blade Types

There are quite a few different kinds of saw blades; each for a special purpose as no one blade can make perfect cuts under all conditions. Some of the most common types of blades in use are:

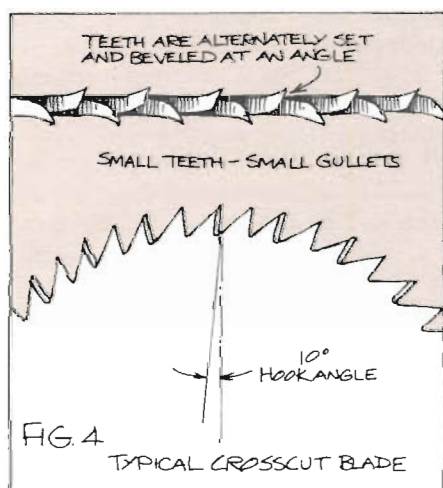
Rip Blades: These have large teeth filed square across the cutting edge to form a chisel shape that cuts well with the grain. Rip blades have large gullets, hook angles of 30 degrees or so, and a tooth set which is equal to about one-half the blade thickness (Fig. 3).



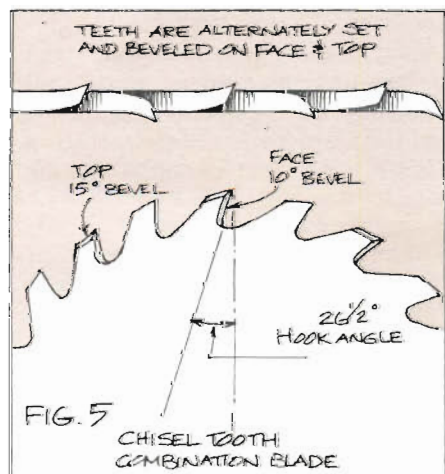
into a piece of hardwood. The cut made by the blade is called a *kerf* and this kerf must be slightly wider than the thickness of the blade in order to pro-



Crosscut Blades: As the name implies, are used for cutting across the grain. They are also sometimes called cutoff blades. They have many more and smaller teeth than rip blades. The cutting edges of the teeth are beveled and the hook angle is much less than that of a rip blade (Fig. 4).

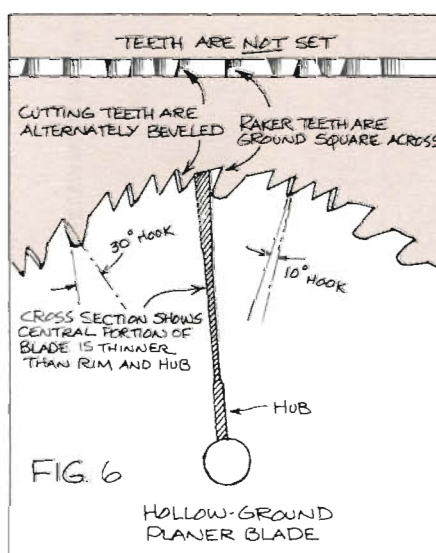


Combination Blades: These are used for both ripping and crosscutting. One popular type called a chisel-tooth combination has bevels on the face and back of each tooth as well as a reduced



hook angle of about 26 degrees. These blades are generally suited for rough cutting to length and width but do not produce cuts smooth enough for precise joinery (Fig. 5).

Hollow-Ground Blades: The teeth are not set on these blades. Cutting clearance is obtained by relieving or hollowing both sides of the blade from below the teeth to either part way or all the way to the hub. Since the toothed rim is the thickest part of the blade, there is sufficient clearance in the kerf. Hollow-ground blades cause less splintering and tear-out and leave the wood very smooth after being cut. For this reason they are called planer blades. Fig. 6 shows the tooth design and cross section of a typical planer blade.



Carbide-Tipped Blades: These have teeth made from small pieces of carbide which are brazed to the steel blade. Since these carbide teeth are wider than the thickness of the blade, they cut a kerf that provides clearance for the blade (Fig. 7). Like the all-steel blades, carbide-tipped blades come in rip, crosscut and combination styles.

The chief advantage of carbide-tipped blades is that their teeth will remain sharp far longer than the steel blades. A disadvantage is the initial cost which is usually close to five times that of an equivalent steel blade. However, when you consider that carbide-tipped blades require far fewer sharpenings than steel blades, in the long run they are really a good investment.

Choosing Blades

Probably the first decision to make when it comes to choosing a saw blade is whether or not to go for a steel or carbide-tipped blade. Most professional woodworkers prefer the carbide

(continued on next page)

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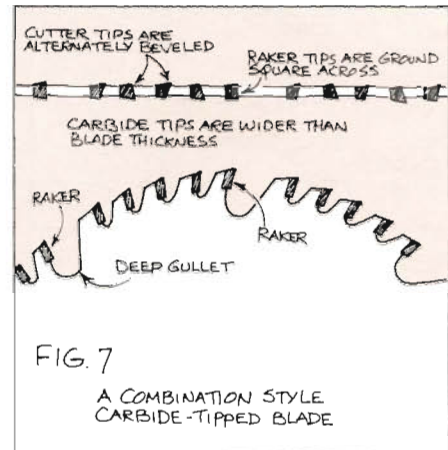
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blades for they have much less "down time" for resharpenering. When they do start to get dull, they must be sent out to a sharpening service, but this is hardly a disadvantage as most woodworkers send all their blades out to be sharpened and set anyway. If you become at all serious about woodworking, you almost certainly will end up buying carbide-tipped blades.



The first choice for a general all-purpose blade would be a 40 tooth carbide-tipped combination blade of the type that has a tooth pattern of four or five cutting teeth with alternately beveled tops and one raker tooth with a deep gullet. This pattern is repeated in segments around the rim as shown in Fig. 7. This type of blade in the 10 inch side will cost about \$50.00 if it's of good quality.

It will do a good job of ripping or crosscutting both solid stock and plywood to rough size but, for the finish cuts needed for fine joinery, a hollow-ground all steel planer with 60 to 80 teeth can't be beat. This blade will crosscut and rip and leave a cut surface that requires no further planing or sanding. Reserve this blade only for finish cuts and fine work and keep it clean and sharp.

If you need to do a lot of ripping and especially if the wood is wet or unseasoned, it's worth it to buy a ripping blade. Again, a carbide blade is the best long-term investment, but an all steel blade is not a bad choice as the big chisel teeth can be easily sharpened in the shop. The most common ripping blades have from 18 to 24 teeth with large gullets and hook angles.

To sum up, if you want to keep your blade inventory to a minimum, you can get by with a good carbide combination blade for general work and a hollow-ground planer for finish cuts and joinery. If and when the need arises, you can add specialized blades for ripping, crosscutting and cutting plywood.

Evaluating Carbide Blades

You generally get what you pay for and this applies to saw blades as well as just about everything else. You are better off with a good quality steel blade than with a poorly made carbide blade. If you buy your blades through a mail order firm you cannot inspect them beforehand, so the best approach is to avoid so-called bargains and unknown brands and buy blades manufactured by recognized firms.

If you can inspect a blade, there are several indicators of quality that can be easily seen. The size of the carbide tips is quite important as the larger tips will allow for many more sharpenings. Tips running the length from $\frac{1}{32}$ in. to $\frac{1}{16}$ in. are on the small side. A large tip will run from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. in length.

Next, you should examine the brazed joint where the carbide tips join the steel blade. The braze should be smooth and polished with no apparent pitting or pin holes which may weaken the bond. Finally, the teeth should not show grinding marks; they should be ground to a smooth finish. This indicates maximum sharpness as well as the manufacturer's commitment to quality.

Blade Care and Maintenance

All saw blades and especially those with carbide teeth should be protected when not in use. Carbide is very brittle and can easily chip or break if tapped against a hard surface. All blades should be stored on individual hangers or with cardboard or wood spacers between them to keep the teeth from making contact. When changing blades, do not lay the blades flat on the metal saw table; use a scrap of wood under them.

Blades gummed up with brown resin are probably dull or have too little set. As the resin collects, the blade will generate more heat which in turn causes more resin build up. This condition will burn the wood and eventually ruin the blade by removing the temper.

Resin deposits are easy to remove by letting the blade sit in oven cleaner for a few minutes, then rinsing with hot water. Ammonia or kerosene will also work if you soak the blade and then scrub off the softened resin with steel wool.

Although much has been written about jointing, setting and filing the teeth of circular saw blades, the job still takes a fair amount of time and skill. Most woodworkers are better off sending their blades to a professional for sharpening. Of course, all carbide blades must be sent out as specialized and expensive equipment is needed to grind and hone carbide.

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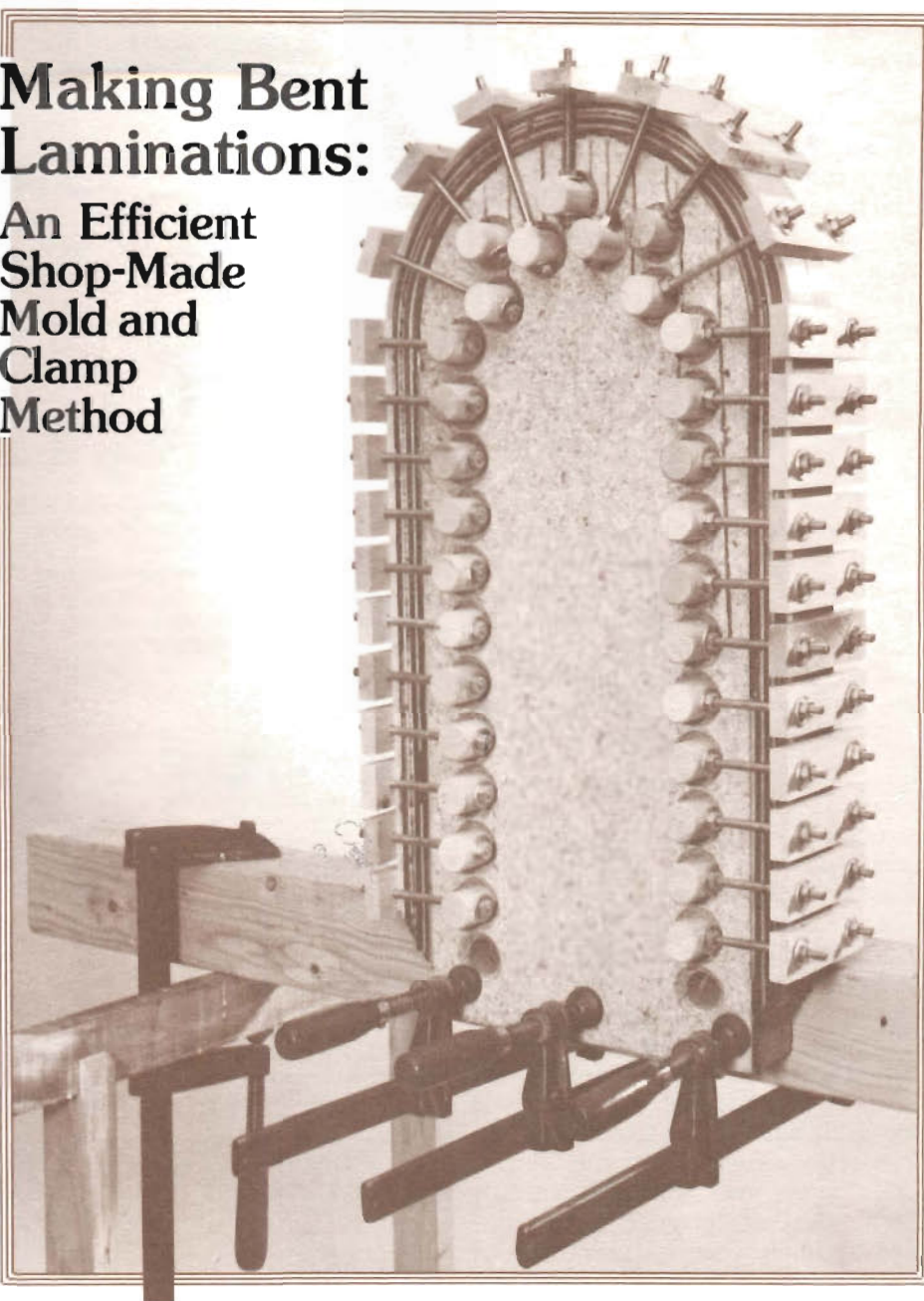
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Special Techniques

Making Bent Laminations:

An Efficient Shop-Made Mold and Clamp Method



The use of wood in the shapes that can be made by cutting or sawing standard lumber is by nature limited. We are restricted by the fact that the physical property of wood is such that it is strong along the grain and weak across the grain. Therefore, unless we go out into the woods and find a tree or branch that has grown naturally into a particular shape we desire, we must rely on artificial means to bend or form the wood to our needs.

The special technique of using clamps to bend laminated strips of

wood around a form is one of the easiest and most reliable methods for bending wood. Although the male/female mold system can also be used, it usually requires a large number of conventional clamps, particular care in making the forms, and is not ideal for many applications.

The simple clamp block method we detail here is versatile, and the clamps are inexpensive and reusable. This bent lamination technique is used to form the base of the contemporary buffet featured on page 39.

First, a few notes on wood. Both the type of wood and the moisture content will, to a degree, determine the wood's flexibility. Because it will usually have a somewhat higher moisture content, air-dried wood is typically more pliable than kiln-dried material. Of the many different varieties of wood, mahogany, ash, and cherry are among the most pliable. We used cherry for the buffet on page 39.

There are few hard and fast rules when working with bent laminations. As we shall see, various factors such as the thickness of the individual laminations and the degree of bend possible must be determined by a process of trial and error.

MAKING THE MOLD

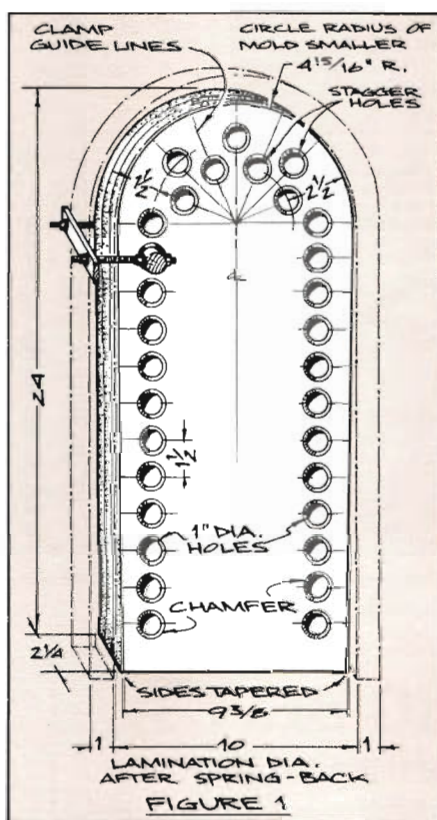
If you are creating your own designs, the essential concern with bent laminations is the feasibility of a given shape or curve. Although some bends are impossible, generally speaking, bent laminations can be used in a great variety of forms, from simple curves to complex free-form shapes.

When designing the curve (and the corresponding mold), a primary consideration is springback or pull-in. As a rule most simple bends tend to spring back (due to the tension in the wood), while bends approaching or greater than 360 degrees (a circle) tend to pull-in, largely because of glue contraction. Naturally the form must be adjusted to compensate for either of these conditions. The only sure way to determine how much of an adjustment either way is necessary, is to make a test lamination, which is exactly what we did with the buffet project. As a result of this test we discovered that it was necessary to trim back each side of the form (see Fig. 1), in effect increasing the degree of bend. In addition, because springback also increased the diameter of the arch, it was necessary to size the actual mold diameter slightly less than the final intended bent lamination diameter. With these mold adjustments we found that each completed bent lamination, after springback, was nearly perfect both in diameter and in the 180 degree bend we originally intended.

To make the mold use closely pressed particleboard. Particleboard is strong, can be easily band sawed to the desired shape, and sanded smooth along the mold edge to provide an even form surface. Note that when the holes are drilled through the form to accept the special clamps, the hole edges are

generously chamfered. This prevents any breakout of the particleboard at these points when pressure is applied to the clamps.

The thickness of the mold will, of course, depend on the width of the bent lamination. For our project, laminating three layers of $\frac{3}{4}$ in. thick particleboard gave us a sufficient surface. Remember, the form surface must be at least as wide as the lamina-



tion. After drilling the holes for the individual clamps, scribe the clamp guide lines as shown. Later these lines will serve as guides for positioning the clamps.

THE CLAMPS

As shown in Fig. 2, the clamps are simply $\frac{1}{4}$ in. threaded rod with a length of dowel stock at one end and a clamp block at the other end, the assembly being held together with nuts. The clamp block stock should be at least $\frac{3}{4}$ in. thick for this size lamination so the blocks do not distort when they are torqued down tight. Of course with wider laminations where the blocks must be longer, increase the block thickness to whatever dimension is required to avoid flex.

Although we used fairly short lengths of threaded rod, by increasing the rod length the clamps will be

(continued on next page)

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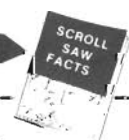
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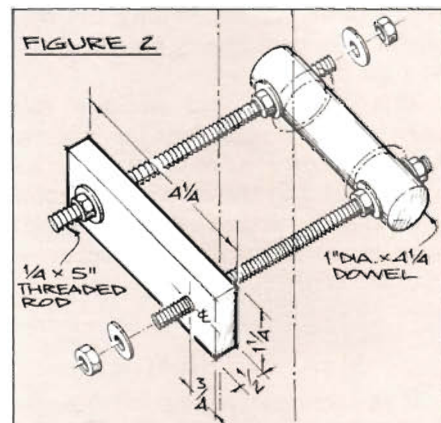
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Special Techniques, (Cont'd)

somewhat more versatile. If desired you can also substitute carriage bolts for the threaded rod. Note the use of washers at all pressure and wear points.

One of the keys to achieving a successful bent lamination is sufficient clamps. The more clamps used, the



more evenly pressure can be applied. As shown in Fig. 1, by staggering the clamp holes you will be able to fit more clamps around the form.

THE LAMINATIONS

As pointed out earlier, like so many other aspects of this special technique, determining the thickness of the individual laminations is also a process of trial and error. Machine a test piece down until the desired bend can be satisfactorily accomplished. This should not be a borderline situation where the wood is beginning to snap, crack, or break. Allow for a margin of error, making the laminations thin enough so the bend can be made easily. Test bend each lamination before use to insure that it will not break.

The bent lamination technique requires at least three laminations (layers) to be effective. The more laminations there are the greater the strength will be and the less likelihood there is of springback. We used eight 1/8 in. thick laminations for each of the buffet project's base forms.

One of the few musts in this technique is that the wood for the laminations must be straight and clear grained. Absolutely no wild or alternating grain, no knots, burls, or other defects that might be a weakness are permissible. It is also important to remember that the individual laminations should be kept in the order that they are ripped from the board. Scribe several location lines across the stock to insure that the lamination order remains correct. Keeping the strips in order has the added benefit of lending the finished lamination the appearance

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Lynne, Maureen, JoAnne and Kathy

of a solid piece, whereas mixing lighter sapwood with heartwood might be a visual distraction.

THE TECHNIQUE

Wax all surfaces of the form, and all parts of the clamps. Also wax both the surfaces and the edges of the reusable cover piece. This cover piece is merely an extra strip that serves to evenly distribute the clamp pressure and protect the laminations from impressions that might be made by the clamp blocks.

We strongly recommend using plastic resin glue, since it dries slowly and will allow sufficient work time to clamp up the assembled lamination. A small paint roller is a fast and efficient tool for applying the glue to the laminations. Once glue has been applied, the laminations can be clamped following the four steps shown in Fig. 3.

Step 1: Glue up the laminations in order, as noted earlier. Use sufficient glue so there will be squeeze out all along the edges. Remember, do not apply glue to the inner and outer surfaces. Now center the laminations, with the cover piece in place, at the top of the mold. (The mold should be clamped securely in an upright position). Apply the top center clamp, making certain that all edges remain square as you tighten it down.

Step 2: Add a single clamp on each side, alternately drawing them up until they are snug, but not torqued up tight. Use this same alternating tightening technique with the individual nuts on each clamp so as to evenly draw the clamp blocks down. A deep-well socket and ratchet will help speed the entire clamping process.

Step 3: Work down one side, using a technique of gradually drawing the laminations around the form by adding and then tightening the clamps. For example, after clamp no. 3 is added, clamp no. 1 can be drawn down tight. When clamp no. 4 is added, clamp no. 2 can be drawn tight, etc.

Depending on the particular project it may be necessary to use a hammer and block to tap the clamps into their final position, which must always be at a direct 90 degree angle to the clamped surface. As noted earlier, use the radius lines as a guide for positioning each clamp.

Step 4: Work down the opposite side, using the same technique of adding and tightening the clamps until the bent lamination is completed.

As shown, several auxiliary clamps
(continued on page 29)

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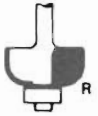
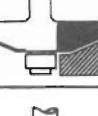
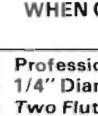
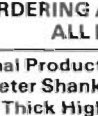
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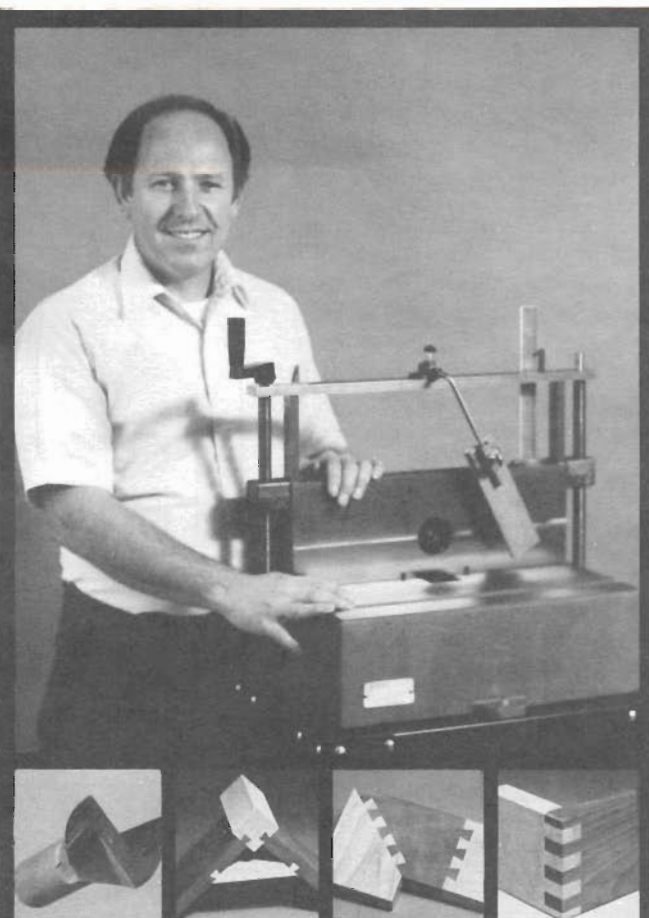
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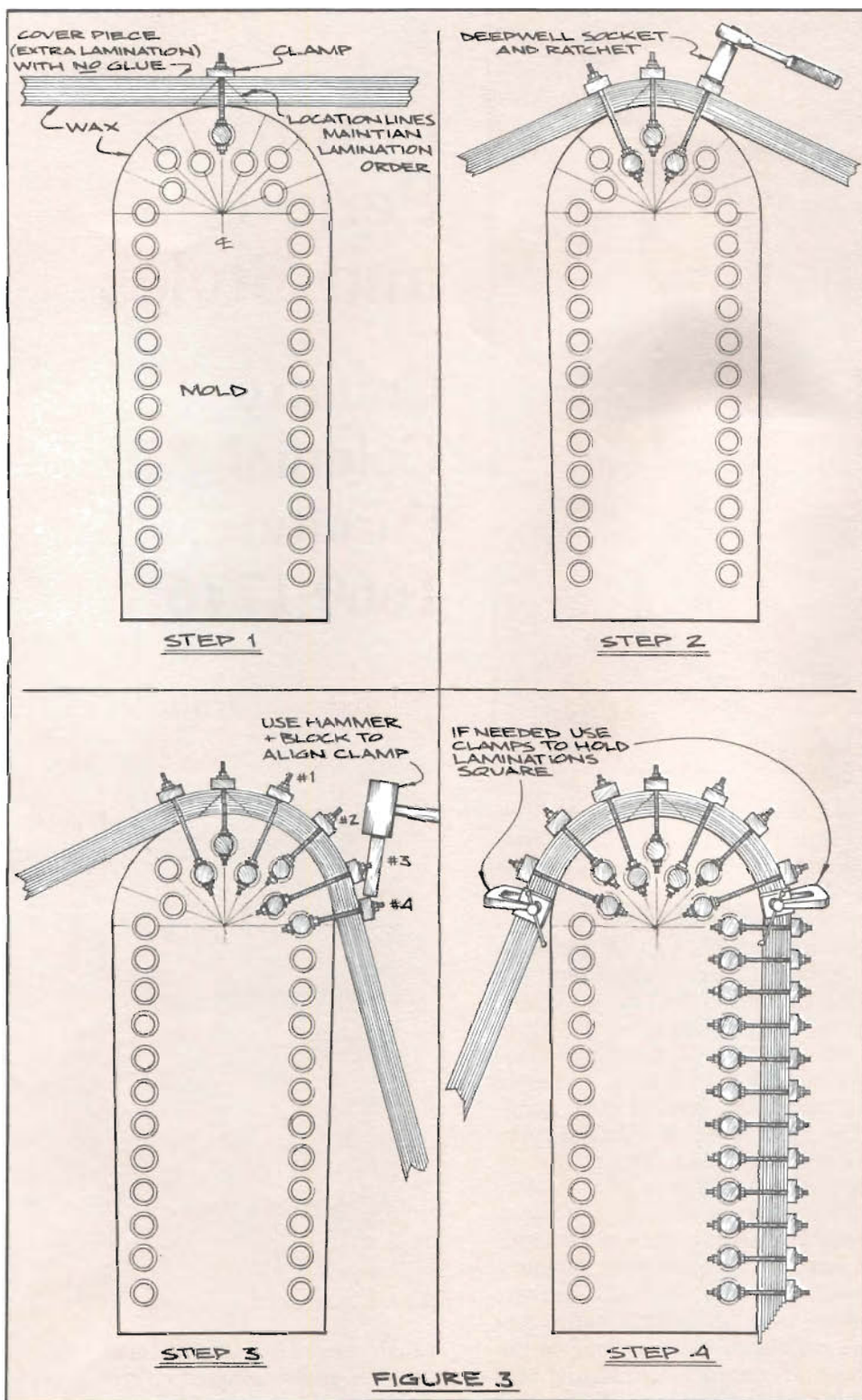
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Special Techniques, (Cont'd)



with backing strips may be added to force the lamination edges up flush and keep them square.

DRESSING THE LAMINATION

Several techniques may be used to clean up and trim the lamination edges to their final dimension.

Start by cleaning off all excess glue. We used the table saw to trim the bent lamination sides to achieve the approximate final intended width. Using the rip fence as a guide, first carefully

rotate the piece through with the saw blade set just high enough to score the perimeter. This will prevent tear-out along the curved sections (where the wood is under considerable tension) when the final through cut is made. The jointer can also be used to clean and square the edges. Although, since the guard would have to be removed, special care must be taken if you choose this method. For smaller bent laminations simply use the disc/belt sander.



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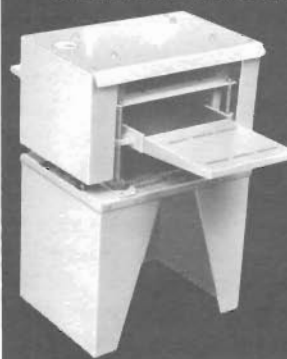
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Rudder Table

Throughout the history of furniture periods and styles, there has been a considerable difference between what was happening in cities and urban centers, and what was happening in small towns and remote rural areas. During the years 1660-1776, the major influences in the cities were from the recognized furniture periods of the times (Jacobean, William and Mary, Queen Anne), while in the country these largely European styles had limited influence. Large towns and cities had turners, joiners, and cabinet-makers who excelled at reproducing furniture forms from England and the Continent, but in the country much of the furniture making was done by individuals as needed for their own use. Even in the smaller towns furniture making was often not a full-time occupation. Instead, the local carpenter might make specific pieces of furniture to order for townspeople, perhaps bartering with the tinsmith, candlemaker, and blacksmith, or exchanging his work with a shopkeeper for food and clothing.

The quality and style varied greatly, but the sensibly constructed, well designed, simple yet attractive furniture that was produced in rural America during the Colonial period has become the most popular style of period furniture today. It is known as the Country Colonial Style.

The history of how the Country Colonial Style evolved is related to several important circumstances. First was the fact that the colonies were rural, isolated, and undeveloped. Although urban centers (Boston, Philadelphia, New York) had sophisticated furniture making enterprises with skilled craftsmen and well equipped shops, there was none of this type of organized furniture industry in rural areas. Certainly there were some very talented woodworkers, but even if they had the necessary tools and the ability to reproduce a fine Queen Anne lowboy for instance, there was simply no need for such an elaborate piece of furniture on a farm or in a small town. Country Colonial furniture borrowed various elements from the other major furniture periods of the time, but on the whole it developed independently into a distinct and unique style. It is a style we recognize today as embodying many of the same characteristics that distinguished the bold and independent colonial spirit.

Above all else country furniture was utilitarian. It had to be functional. Hence the evolution of certain designs that actually had several functions, such as the hutch-table, settle bench, and chair-table. Country furniture also had to be strong. Therefore most country work is substantial, and not light or delicate. Because it had to withstand

Furniture Periods and Styles

Country Colonial Furniture, 1660-1776



Wall Shelf

rough use, decorative elements that could be easily damaged or broken off were avoided.

Consistent with the theme of strong, functional design, joinery was kept simple. The through, wedged, pinned, or pegged mortise and tenon, and the dovetail were among the most common methods of joinery. Early pieces often had no turnings, because few rural craftsmen had lathes. There were rarely any veneers, inlays, or other fancy, time consuming, and unnecessary details.

When a new colonial settlement was
(continued on page 32)

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Furniture Periods and Styles (continued)

established, one of the first tasks was to establish a saw mill. The sawyer produced lumber for building and for furniture construction, using a laborious hand method called "pit-sawing". Naturally all the woods were native. Although hardwoods such as chestnut, oak, walnut, maple, cherry, ash, and birch were utilized, most early country furniture was made from native pine. Being a softwood pine was easy to mill and work, and given the size of many of the fully matured pine trees, very wide boards could be obtained from the trunks. Wide boards were especially useful since they eliminated the need for edge-joining boards to create wide surfaces.

The Country Colonial Style encompasses a great variety of furniture. Some craftsmen were skilled designers, while others produced crude and shapeless furniture that was strong and functional, but little else. The best pieces combined the utilitarian element with careful design and meticulous construction, and it is these pieces that we recognize today for their particular colonial charm. A brief review of Country Colonial furniture follows.

TABLES: The earliest tables were usually small and often doubled as seating, as noted earlier. Trestle, tavern, X-buck, and stretcher tables were popular as homes became larger and could accommodate them. Also common were gate-leg, butterfly, rudder, and other drop leaf table styles.



Chair Table

CHAIRS: Early on, stools were the most common seating, with many homes having at best a single chair. Later, all sorts of chairs were developed, including slat-back, ladder back, bannister back, high back, and low back. An interesting note is the fact that itinerant peddlers commonly sold the turned parts and bent slats for chairs, with the parts then either assembled on site by the peddler, or used later by the buyer to create his own chairs.



Corner Cupboard

CHESTs: Nearly every home had at least one chest. Six board chests (so called because their construction consisted of six separate boards) were most common.

DESKs: The first free-standing desks were actually bible boxes or lap desks with legs. Because rural people usually had little need for extensive record keeping, correspondence, and accounting, most country desks were small and simple.

CUPBOARDS: Country cupboards usually consisted of shelves above and a simple cabinet below. They were most often built of pine. The corner



Knife Tray

cupboard was an especially popular piece, because of its efficient use of what might otherwise be wasted space.

OTHER: Many articles of furniture during the Colonial period were designed for a specific use. The water bench, dry sink, candlestand, woodbox, sugar chest, pipe box, candle box, knife tray and spoon rack were but a few of these pieces. Some of these items have little function in the modern world, but others continue to be reproduced, and are often adapted to a more contemporary use.

An important point to remember when looking at Colonial style furniture produced today is that although a piece may have a Colonial "flavor", and elements in its design that are distinctly Colonial, in most cases the work is actually a refining or interpretation of the general style. For example, much authentic Colonial work was painted, but now we prefer a clear finish, allowing the natural grain and character of the wood to show through.

In summing up, any visit to a museum with Country Colonial furnishings quickly confirms the fact that Colonial work is highly individual, and reflects the craftsman, his economic and social status, his personality, and of course his ability. The intense continued popularity of this, the first true American furniture style, is a strong testament to the enduring Colonial qualities of functional design, sturdy construction, and simple charm. We are reminded that these qualities are as valid for furniture design today as they were 200 years ago. *WJ*

Editor's Note: Project plans for all the Colonial style pieces whose photos appear in this feature are available in back issues. The wall shelf is in Vol. 5 No. 1, the chair table is in Vol. 5 No. 2, the rudder table is in Vol. 5 No. 5, the knife tray is in Vol. 5 No. 6, and the corner cupboard is in Vol. 9 No. 2. Back issue cost is \$3.00 each.

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Vol. 6 No. 3 May-June '82: Country Kitchen Cabinet, Rough-Sawn Cedar Clock, Swinging Cradle, Toy Helicopter, Casserole Dish Holder, Ship's Wheel Weather Station, Octagonal Planter, Tambour Desk, Band Saw Boxes, 19th Century Step-Chair, Sailing Ship Weather Vane, *Articles:* Bench Hooks and Shooting Boards; Bookkeeping: Part I; Pseudo-Colonial Spanish Chair: Part II.

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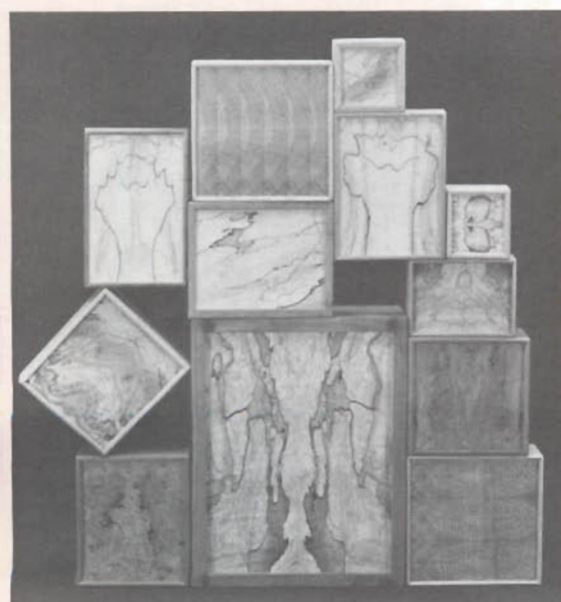
Letter Opener

May/June '83



Coffee and End Tables Jul/Aug '84

Spalted Boxes Sept/Oct '81



Toy Chest
Jul/Aug '82



Country Vegetable Bin
May/June '84

Chinese Tea Table
Jul/Aug '83



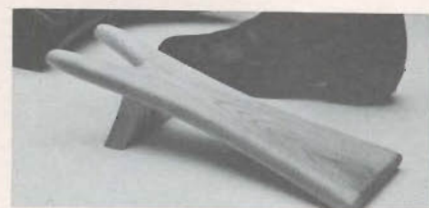
Hutch Clock Mar/Apr '82



Old-Time Ice Box
Nov/Dec '81



Bootjack Sept/Oct '83



Vol. 7 No. 2 Mar-Apr '83: Porch Swing, Home-made Jig Saw, Cheval Mirror, Punched Tin Spice Cabinet, Television Stand, Nautical Table Lamp, Wooden Balance, Nesting Cube Tables, Steam Roller Toy, Back Massager, Mailbox, Wall Shelf, Chippendale Mirror, Clock Parts and Suppliers, *Articles:* Flat Miter Joints with the Table Saw and Router; Woodworking for Fun vs. Woodworking for Work; Applying a Clear Finish.

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Vol. 7 No. 5 Sept-Oct '83: Shaker Writing Desk, Modelmaker's Bench, Canning Jar Storage Shelves, Turned Bowl, Oriental Table, Router Table, Band Saw Box, Toy Pumper Firetruck, Toy Airplane, Spoon Rack, Magazine Rack, Bootjack, Furniture Kit Suppliers, *Articles:* Dovetail Joints: Part II; Some Thoughts on Low-Cost, No-Cost Advertising; Correcting Flaws in the Finish; Routed Drawer Pulls; Working Wood Co-operatively.

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Vol. 8 No. 1 Jan-Feb '84: Shaker End Table, Medicine Cabinet, Cassette Tape Rack, Captain's

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

Vol. 8 No. 2 Mar-Apr '84: Shaker Wall Clock, Compact Dry Bar, High Chair, Kitchen Canister Set, Colonial Water Bench, Stacking Desk Trays, Wooden Brooches, Toy Bulldozer, Rocking Horse, Contemporary Table, Wall Hung Telephone Cabinet, Pipe Smoker's Organizer, Clock Parts Suppliers, *Articles:* Edge-Joining Boards; More Sources of Information; More Hope for the Hopeless Cases; Making Cabriole Legs.

Vol. 8 No. 3 May-June '84: Country Vegetable Bin, Folding Deck Chair, Shaker Pedestal Table, Wall Hung Display Cabinets, Wooden Coat Hanger, Toy Car and Trailer, Paper Towel Holder, Carved Hand-Mirror, Writing Desk, Carved Walking Stick, Laminated Clock, Oak and Glass End Table, *Articles:* How to Lay Out and Make Circular Cuts; Mail Order Selling; Stripping Old Finishes; Carving the Ball-and-Claw Foot.

Vol. 8 No. 4 July-Aug '84: Wag-on-Wall Clock, Oak Swing, Candy Dispenser, Coffee and End Tables, Tugboat and Barge, Lazy Susan, Early American Mirror, Colonial Pipe Box, Sewing Machine Cabinet, Cam Clamp, Hamper, *Articles:* What Sells Best?; Homemade Removers; Buying a Basic Set of Hand Tools; Kerf Bending; Suppliers of Caning and Wood Finishing Products.

Vol. 8 No. 5 Sept-Oct '84: Contemporary Stereo Cabinet, Shaker Woodbox, Bongo Box, Nesting Tables, Shop Trammel, Jackknife Letter Opener, Salt Shaker and Pepper Mill, Toy River Ferry and Car, Toy Top, Cookbook Holder, Hall Table, Grandfather Clock: Part I, *Articles:* Starting a Business: Part I; Applying Filler; Building a Basic Workbench; Making Specialty Moldings with the Table Saw and Scratch Beader.

Vol. 8 No. 6 Nov-Dec '84: Stickley Chair, Tool Cabinet, Shaker Sewing Stand, Lighted Display

Pedestal, Teardrop Clock, Pierced Tin Cabinet, Toy Hook and Ladder Fire Truck, Busy Bee Toy, Colonial Doll House, Kitchen Organizer, Wine Server, Grandfather Clock, Part II, *Articles:* Starting a Business Part II; Applying the Final Finish; The Fundamentals of Wood; Inlays and Inserts; Gustav Stickley and American Mission Furniture.

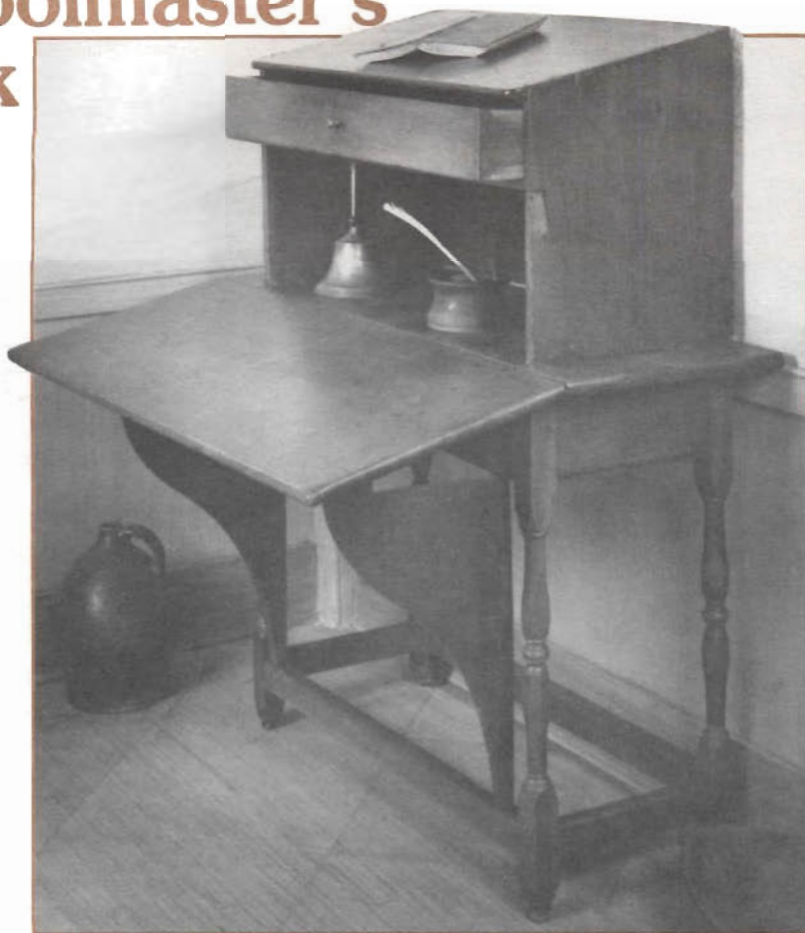
Vol. 9 No. 1 Jan-Feb '85: Early American Step Table, Oak Barrister's Bookcase, Parquet Table, Shaker Trestle Table, Bandsawn Wooden Scoops, Toy Biplane, Book Ends, Contemporary Candle Holders, Necktie and Belt Holder, Keyed Miter Jig, Modular Coffee Table and Bar, Magazine and Book Rack, Contemporary Chest of Drawers, *Articles:* Toys and Children's Articles; An Outline of The Consumer Product Safety Commission Standards; Shellac; Truing and Squaring Lumber; The Fingerjoint Spine; Suppliers of Furniture Kits; The Shakers; Special Section: Back Issue Index.

Vol. 9 No. 2 Mar-Apr '85: Queen Anne Lowboy, Television/VCR Stand, Early American Pine Corner Cupboard, Toy Tool Set, Windspinner, Wood-chopper Whirligig, Chinese Puzzle, Cut-off Jig, Blanket Chest, Shaker Harvest Table, Blacksmith's Tool Tray, *Articles:* A Guide to Photographing Your Work; Applying Shellac and Lacquer; Sharpening Plane Blades and Chisels; Installing Machine Woven Cane; American Queen Anne, 1715-1755; General Woodworking Suppliers.

Vol. 9 No. 3 May-June '85: Jacobean Joint Stool, Wall Cabinet with Recessed Finger Pulls, Shaker Desk, Kitchen Cart, Contemporary Wall Clock, Colonial Wall Sconce, Card Box, Towel Bar with Glass Shelf, Marble Race Toy, Cradle, Vanity Mirror, Miter Clamping Jig, *Articles:* Product Liability, Part I; Restoring an Antique Mirror Frame; Coping with Wood "Movement"; Making Recessed Finger Pulls; The Jacobean Period.

Vol. 9 No. 4 Jul-Aug '85: Gate-leg Table, Computer Desk, Shaving Horse, Stamp Dispenser, Crumb Collecting Breadboard, Toy Trucks, Early American Wall Shelf, Pivot-top Game/Coffee Table, Settle Bench, Shaker Single-Drawer Cupboard, Fold-up Workbench, *Articles:* Product Liability, Part II; Caning and Wood Finishing Supplies; Spray Finishing; Table Saw Basics; Making the Rule Joint; The William and Mary Period.

Schoolmaster's Desk



A few months ago, on a visit to the Washington Historical Museum, in Washington, Conn., we came across this piece and took an immediate liking to it. We couldn't help but imagine a stern spectacled schoolmaster standing along side it keeping a careful watch on a roomful of sad faces. With the wings opened, that early schoolmaster could write while sitting down. With the wings closed, he could write standing up — and at the same time keep an eye on the class.

It was built, we learned, during the 1700's, although the exact date is unknown. The entire desk, even the turnings, are made from pine. Considering its age, the desk has held up remarkably well over the years.

Begin by making the four legs (A). Cut 1½ in. square stock to a length of about 32 in., then turn each leg to the dimensions shown in the leg turning detail. Thoroughly sand all the turned surfaces before removing from the lathe. After trimming to final length on the table or radial-arm saw, lay out and mark the mortise locations for parts B, C, D, and E.

As shown in the details for the apron tenon and the stretcher tenon, the mortises for parts B and C measure ½ in. wide by ¾ in. deep by 4 in. long while the mortises for parts D and E measure ½ in. wide by ¾ in. deep by 2 in. long.

Traditionally, mortises were chop-

ped out with a sharp chisel, a technique that's as appropriate today as it was 200 years ago. However, they can also be cut using a router equipped with a ½ in. diameter straight bit. Just don't try to cut the full ¾ in. depth in one pass. Instead, make four passes, each one removing about ⅜ in. of material. Once completed, use a chisel to square the corners.

You can also cut the mortise using the drill press and a ½ in. diameter drill bit. Bore a series of holes, one alongside the other, to remove most of the stock, then use a sharp chisel to clean up the remaining material.

The aprons (B and C) and stretchers (D and E) are made next. Cut to length and width before laying out and marking the location of the tenons. Early cabinetmakers cut tenons with a fine-toothed back or dovetail saw. We like to use the table saw equipped with a dado head to do the job, and suspect that early cabinetmaker's would do the same had the equipment been available to them. With the tenons now cut, use the router and a ¼ in. Roman ogee bit (see molding detail) to apply the molding to the bottom edge of parts C.

Next, the two wings (F) are made. Since 12¼ in. wide stock is not always easy to find, it may be necessary to edge glue two or more narrower boards. If you do edge glue, it's best to alternate the direction of the annular

rings so that any tendency for the wing to "cup" will be minimized.

Square the board to 12¼ in. wide by 23½ in. long, then use the table saw and dado head to cut the ¾ in. deep rabbet all the way across the top. Note that the rabbet starts at a point 3¾ in. from the top edge. Now, change to a regular saw blade and use the miter gauge to cut the 14 degree angle as shown in the side view.

The top cutout, which measures 3¼ in. by 9¼ in., can be made with a hand saw or a saber saw. It's best to cut slightly on the waste side of the marked line and use a file and sandpaper to finish the job. If you want to be assured of getting a perfectly straight line, you can use a router and laminate trimmer set-up as shown in the Shop Tips on page 62.

To complete work on the wing, transfer the grid pattern profile from the side view drawing to the stock then cut out with a band or saber saw. Give the edges a thorough sanding. Finally, at a point ⅜ in. from the back edge (see wing hinge detail), bore a ¼ in. diameter by ⅝ in. deep hole in each end. It's important for these holes to be square to the ends, so bore them with care.

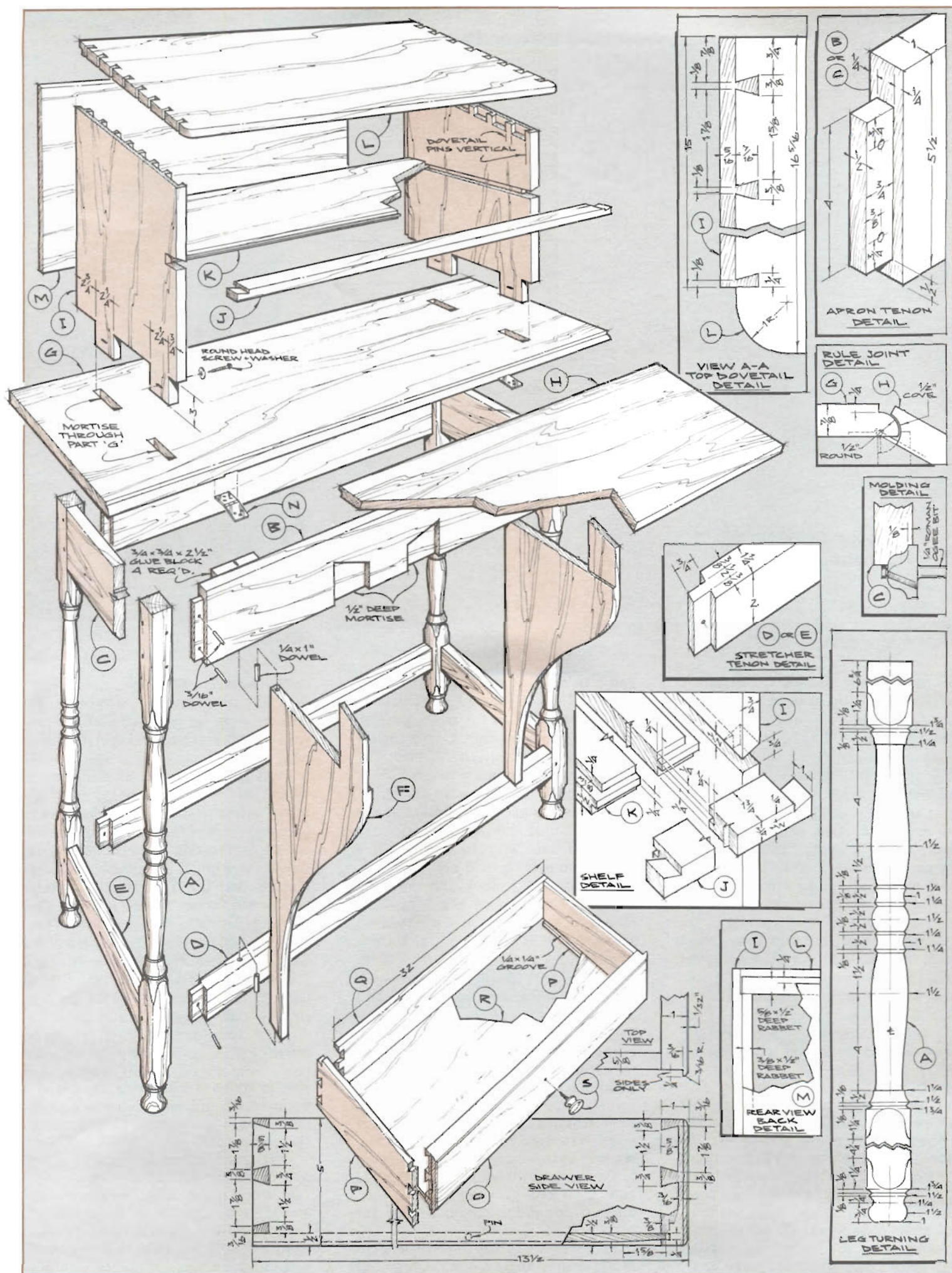
The top (G) and leaf (H) require edge glued stock. When gluing the boards, allow at least ½ in. extra stock on each end and a couple of inches on the width, and don't trim them to final size until after the rule joint has been cut to your satisfaction. Should you have a problem with the rule joint, the extra couple of inches on the width will allow you to trim it off and try again.

The rule joint (see rule joint detail) can be cut using the router and matching bearing-guided ½ in. cove and round-over bits, or on the table saw using the molding head with matching ½

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Leg	1½ x 1½ x 31	4
B	Front and Back Apron	1 x 5½ x 33½*	2
C	Side Apron	1 x 5½ x 12½*	2
D	Front and Back Leg Stretchers	1½ x 2 x 33½*	2
E	Side Stretcher	1½ x 2 x 12½*	4
F	Wing	¾ x 12¼ x 23½	2
G	Top	¾ x 16½ x 43¼	1
H	Leaf	¾ x 16 x 43¼	1
I	Side	¾ x 14¼ x 21¼*	2
J	Support	¾ x 1½ x 33½*	1
K	Shelf	¾ x 12¼ x 32½*	1
L	Case Top	¾ x 16½ x 32½	1
M	Back	½ x 18½ x 32½	1
N	Drop Leaf Hinge	1½ x 2¼	2
O	Drawer Front	1 x 5 x 32½	1
P	Drawer Side	¾ x 5 x 13½	1
Q	Drawer Back	¾ x 5 x 32	1
R	Drawer Bottom	¾ x 12¼ x 31½	1
S	Brass Knob	¾ in. Diameter	1

*Includes tenons



(continued on next page)



Contemporary Sideboard

This contemporary sideboard is a museum quality piece. The bent laminations both highlight and contrast with the boxy cabinet, creating the dynamic element that is so important in contemporary work. The fact that the horseshoe-shaped bent lamination motif is repeated in the feet, apron, and pulls lends a consistent theme to the design.

Our sideboard is crafted from cherry stock and ash plywood, two woods whose colors compliment each other well. Although at first glance the project may seem complicated, the design is straightforward, and the construction relatively simple.

The construction can actually be divided into two separate parts: the bent lamination work, and the cabinet casework. Start with the bent laminations.

The technique of making bent laminations is detailed in the Special Techniques feature beginning on page 24. By referring to this feature, and carefully following the steps outlined and illustrated there, you should have little trouble making the feet (A) and apron (B). The two door pulls (Q) are made using a slightly different clamping system, as shown in the door pull bending detail, however the actual bent lamination principles involved are the same.

There are four separate bent lamination sections in the base of the sideboard, the two feet (A) and the two sections that are splined together to make the apron (B). All four of these bent lamination parts are made around the same form. As shown in Fig. 1 on page 25 this form is 2¼ in. thick by about 24 inches long, and tapers from a 10 in. width across the top diameter

to 9½ inches wide at the bottom. This taper is necessary to compensate for springback in the bent laminations. As noted, the form is made by gluing up three pieces of ¾ in. thick particle-board.

The individual bent lamination strips we used to create the feet and apron are all ¾ in. thick. Although in the Bill of Materials we have specified 41 in. lengths for the feet laminations and 51 in. lengths for the apron laminations, keep in mind that these lengths are for the outermost, and therefore the longest laminations in each respective piece. In actuality, the 8 laminations in each piece can be slightly shorter than each other in descending order from the outermost, or longest strip.

By far, the most work in this project was in the making of the individual lamination strips. Thickness planing so much material was time consuming and laborious. If you do not have a thickness planer, or if you wish to save time, ¾ in. thick material in cherry (and various other woods) can be purchased from: Craftsman Wood Service Co., 1735 West Cortland Ct., Addison, IL 60101.

As shown in the Bill of Materials, we have added extra laminations to allow for breakage. Test bend every piece around the form *before* using it. If there is a weakness in a strip, it is better to have it break in this test than during the actual glue up.

As noted in the Special Techniques feature, you may either cut the individual laminations to the approximate final width dimension needed (add a little extra to allow for sanding), and use clamps and clamp blocks to keep the laminate edges flush during glue up, or you may use somewhat wider strips and trim the bent laminations to their final width after the glue up is completed. In any case, the final width of the feet is 1½ in., and the final width of the apron is 1½ in. As illustrated in the cut-off detail, the table saw is used to cut the completed bent laminations to length.

After the four bent laminate base sections have been completed, you may spline the two apron sections together. Both these spline mortises, and the spline mortises where the legs connect the apron and feet are made with the router using a ¼ in. straight cutter. The splines (parts S and T) and the four legs (C) are made from solid cherry stock.

(continued on next page)



After the base assembly is completed use the router equipped with a 1/4 in. bearing guided round-over bit to make the 1/4 in. round-over around all base edges except the very top, where the buffet case rests on the base.

The buffet case consists of 1/4 in. thick ash plywood panels and cherry molding. The case construction utilizes a simple 1/4 in. x 1/4 in. tenon system, as illustrated. First cut to length and width the 8 plywood pieces, parts D through H. All these pieces can be easily obtained from a single 4 foot x 8 foot sheet of 1/4 in. thick ash plywood. Using the dado-head, cut the various 1/4 in. x 1/4 in. tenon grooves in the sides, top, bottom, and back. Also with the dado-head, make the 1/4 in. x 1/4 in. tenons along the top and bottom edges of the partition. The grooves in the top and bottom that accept the partition tenons should be cut with the router, however.

Although the tenons on the moldings (parts L, M, N, O, and P) can be cut with the dado-head, it is safer to make this a router table operation. As shown in the router detail, an auxiliary guide piece along the router table fence will assist in making the second tenon that appears on parts L, M and N.

Cut the edgings (parts I and K), which are also cherry and glue up the 1/4 in. thick edging around the doors and shelf. Add the 1/4 in. thick partition edge to the partition front. Mortise the partition to accept the double ball catches (W), and mortise the case top and bottom for the offset knife hinges (X). Take the knife hinge location from the illustrated detail. As shown, the hinge plates mortises are inset 1/8 in. from the case front.

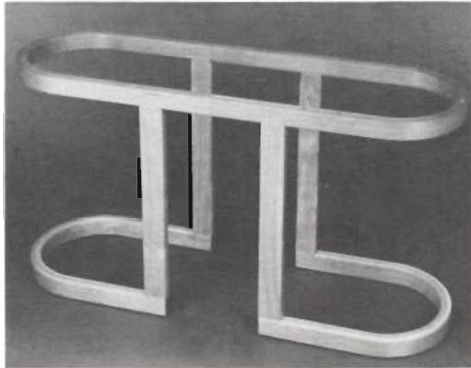
Next, drill the 1/4 in. diameter x 1/2 in. deep shelf support tube holes in the partition and side to accept the brass shelf support tubes (V). As shown in the shelf support detail, these tubes must have their inside diameter chamfered slightly, while the brass rod pins have their outside diameter slightly chamfered. This makes it easier to insert the pins in the tubes. A rattail file can be used to chamfer the tubes, while the pins can be chamfered on the grinding wheel or with a file. Epoxy the brass tube sections in place.

The door pulls are made from eight laminations of 1/8 in. thick cherry. As shown in the door pull bending detail, the pull's male/female clamping form consists of three layers of 1/4 in. thick particleboard. Take care when band sawing the forms that an even 1/2 in. space is left for the laminations.

No cover strip is used with the eight laminations. Wax all form surfaces and remember — don't glue the inner

and outer bent lamination surfaces. As shown in step 1, the laminations are forced around the inner male form by the outer female form. Note the rounded edges of the female form, which act to force the laminations down and around without tearing the wood. In step 2 the side blocks are added to complete the clamp up. Try to apply consistent clamp pressure all around.

Both pulls start as a single piece.



Bill of Materials (all dimensions actual)			
Part	Description	Size	No. Req'd.
A	Foot	1/4 x 1 1/2 x 41	20*
B	Apron	1/4 x 1 1/2 x 51	20*
C	Leg	1 x 2 x 16 1/2	4
D	Side	1/4 x 12 1/2 x 14 1/2	2
E	Top and Bottom	1/4 x 14 1/2 x 40 1/2	2
F	Back	1/4 x 12 1/2 x 40 1/2	1
G	Door	1/4 x 12 1/2 x 20	2
H	Partition	1/4 x 13 x 14 1/2**	1
I	Partition Edge	1/4 x 1/2 x 12 1/2	1
J	Shelf	1/4 x 14 x 19 1/2	1
K	Door & Shelf Edge	1/4 x 1/2 stock	as needed
L	End Molding	1 x 1 x 16**	4
M	Back Molding	1 x 1 x 40**	2
N	Back Corner Molding	1 x 1 x 12**	2
O	Front Corner Molding	1/4 x 1 x 12**	2
P	Front Molding	1/4 x 1 x 40**	2
Q	Pull	1/8 x 2 1/2 x 14***	8
R	Pull Mount	1/2 x 1/2 x 1	2
S	Apron Spline	1/4 x 1 x 1 1/2	4
T	Leg Spline	1/4 x 1/2 x 1 1/2	16
U	Brass Rod	3/8 in. Diam. x 1 in. Long	4
V	Brass Tube	1/4 in. Diam. x 1/2 in. Long	16
W	Double Ball Catch****		2
X	Offset Knife Hinge*****	3/8 x 1 1/8	2 pr.

*8 laminations for each foot and apron section. Extra lamination strips are for cover strips and in case of breakage.
**Includes tenons
***Bent lamination is resawn to create individual pulls
****Available from: George Gordon, 3850 Monroe Ave., P.O. Box 144, Pittsford, NY 14534. Order part no. C-6523, specify 40mm wide double ball catch. Cost is \$1.85 each.
*****Available from: Woodcraft Supply, 41 Atlantic Ave., Box 4000, Woburn, MA 01888. Order part no. 16R62-B1. Cost is \$9.50 per pair ppd.

After the forms are removed, the resulting single wide bent lamination is cut in half and trimmed to size to make the two individual pulls. The pull edges are then rounded on the router table, using the 1/4 in. bearing guided round-over bit. (Do not round the 1 in. area where the pull mounts will be glued.)

To assemble the case, first apply molding parts L, M, and P around the top and bottom sections of plywood. Next apply molding parts N and O to the side sections of plywood.

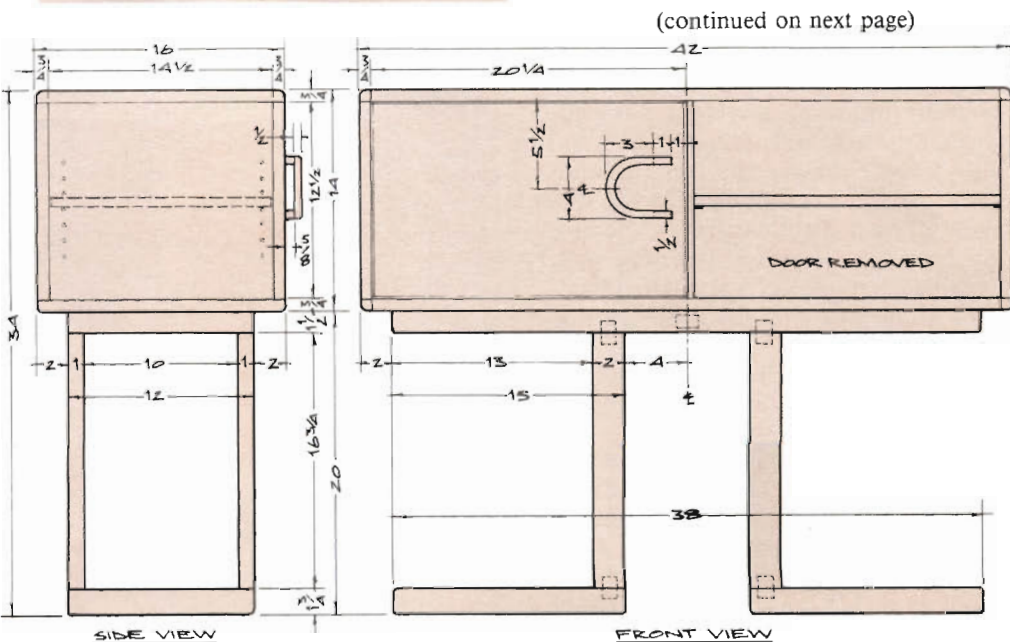
Now assemble the sections. Start with the bottom, add the two sides and the partition, then the back, and finally the top. Use white glue since you will need some work time. Make sure that you are clamping up on a level surface so the box will be perfectly square. This is essential if the doors are to fit right.

The router with the 1/4 in. bearing guided round-over bit is used to create the 1/4 in. radius edges all around the case. After the doors have been hung, locate and scribe for the door mounted pin parts of the two twin ball type catches. Remove the doors, chisel the pin mortises, and mount the pins.

Add the doors and the door pulls. The pulls are glued to the pull mounts (R) into which 1/4-20 threaded inserts have been set. Machine screws through the doors then fix the pulls in place.

The base and case are finished separately before they are attached. Fine sand, and apply sufficient coats of a good quality penetrating oil to lend the wood a gentle patina.

As illustrated, the base is mounted to the case with the same 1/4-20 threaded insert and machine screw system used for the door pulls. You may wish to add levelers to the base, so the sideboard will sit firm and level, even on imperfect floors.



Mahogany End Table



This elegant small table owes much of its visual success to the long, gracefully curved legs. Made from 1½ in. square stock, the legs taper to ¾ in. square at the bottom, giving the entire piece a light and delicate look. Except for the drawer bottom, which is made from mahogany plywood, all parts are mahogany solid stock.

The four legs (A) can be made first. Cut 1½ in. square stock to 27½ in. length, then lay out and mark the location of the various mortises. Note that the two back legs are mortised to accept parts D and E, while the two front legs are mortised for parts B, C, and D. Keep in mind that the stretchers and aprons are flush with the outside

face of the legs — not inset as is sometimes the case with this kind of construction.

To cut the mortises we used a router table with a ¾ in. straight bit. The ¾ in. deep cut was made in four passes, with each pass removing about ⅜ in. of material. Since the router will cut rounded corners, you'll need to square the corners with a chisel. Keep in mind that the mortise should be cut slightly deeper (about ⅜ in.) than the tenon to allow room for any excess glue. If this extra room is not included, the joint may not close all the way — even under clamp pressure.

The mortises can also be cut using the drill press and a ½ in. diameter drill

bit. Most of the material is removed by boring a series of holes, one alongside the other. The remaining waste stock is cleaned up with a sharp chisel.

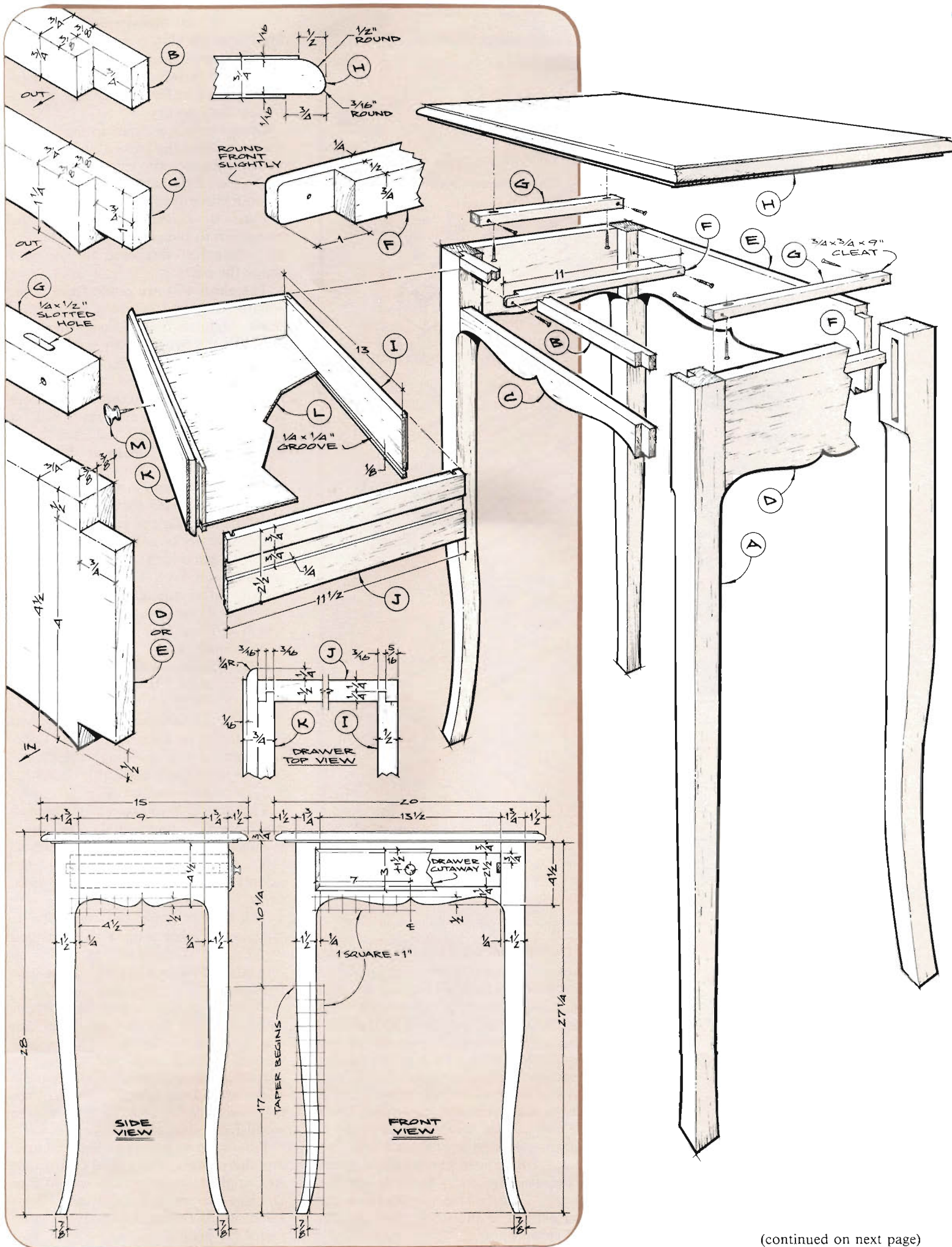
In order to transfer the leg curve to the stock, you'll need a template made from ¼ in. thick by 1½ in. wide by 18 in. long hardboard (Masonite) or plywood. Transfer the profile to the template before using a band or saber saw to cut to shape. When cutting, stay slightly on the waste side of the marked line, then use a file and sandpaper to smooth the cut exactly to the line.

Next, use the template to scribe the curved profile on the legs. Each leg has the profile traced on two adjacent sides (Fig. 1). Note that the profile extends as a straight line to a point 5½ in. from the top. Later, after the stretchers and aprons are added, this area will be shaped into a smooth curve. After you've finished tracing the curves, double check to make sure they are properly oriented. You'll have a piece of scrap stock if you cut out a leg with the curve facing the wrong way.

Now, use the band saw to cut away the waste stock on one side of the leg (Fig. 2). The waste parts are then taped (or hot glued) back in place and the template is used to retrace the lines where needed on the adjacent side (Fig. 3). The waste stock on the adjacent side can now be cut out.

Initial smoothing of the curve can be done with a file. A cabinet scraper will come in handy for final smoothing. The legs can now be temporarily set aside.





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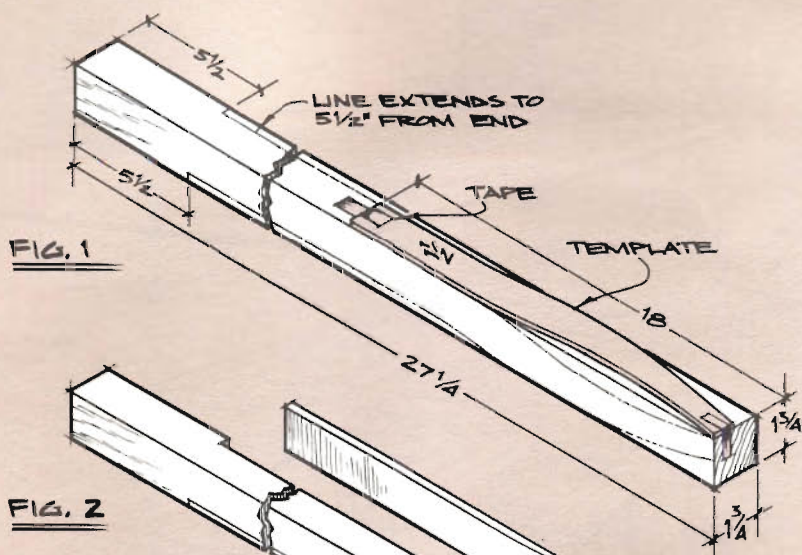


FIG. 1

FIG. 2

BAND SAW
ONE SIDE

FIG. 3

REPLACE
CUT PARTS
AND TAPE

ROTATE

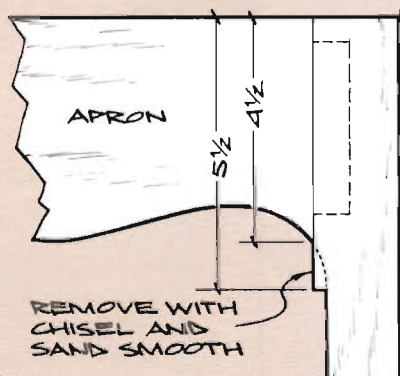


FIG. 4

Bill of Materials (all dimensions actual)

Part	Description	Size	No. Req'd.
A	Leg	1 3/4 x 1 3/4 x 27 1/4	4
B	Upper Stretcher	3/4 x 3/4 x 15"	1
C	Lower Stretcher	3/4 x 1 1/4 x 15"	1
D	Side Apron	3/4 x 4 1/2 x 10 1/2"	2
E	Back Apron	3/4 x 4 1/2 x 15"	1
F	Drawer Guide	3/4 x 3/4 x 11	2
G	Cleat	3/4 x 3/4 x 9	2
H	Top	3/4 x 15 x 20	1
I	Drawer Back	1/2 x 2 1/2 x 13"	1
J	Drawer Side	1/2 x 2 1/2 x 11 1/2	2
K	Drawer Front	3/4 x 3 x 14	1
L	Drawer Bottom	3/4 x 11 1/2 x 13	1
M	Drawer Pull (brass)	3/8 in. Diameter	1

*Includes tenons

The upper stretcher (B) and the lower stretcher (C) can now be cut to overall width and length. Lay out and mark the location of the tenons, then use the table saw equipped with a dado head to cut them out. Properly cut, the tenons should fit snugly in the mating mortises. Once the tenons are cut, transfer the grid pattern to part C and cut out with a band or saber saw. Use a file and cabinet scraper to smooth.

Both the side aprons (D) and the back apron (E) can now be made. Once again, use the dado head to cut the tenons. Transfer the profile from the grid pattern to the stock, then cut out and smooth.

Parts D can now be joined to the legs. Apply a thin coat of glue to the mortises and tenons, then assemble and clamp firmly with a bar or pipe clamp. Check for squareness before setting aside to dry.

Once dry, use a chisel to pare down the area where the curved bottom edge of D blends into the leg (Fig. 4). After paring, use a cabinet scraper to shape a smooth curve from apron to leg.

Parts B, C, and E can now be assembled to the glued up AD. Use the procedure just discussed to join and shape the parts.

The cleats (G) are made from 3/4 in. square stock and cut to a length that allows them to fit just inside the legs. To make the two 3/4 in. by 1/2 in. slotted holes, use a drill press equipped with a 1/4 in. diameter drill bit and bore two holes, one adjacent to the other. Clean up the remaining waste stock with a chisel. Glue and screw the cleat to the inside of part D. Ideally it should be about 1/8 in. below the top edge of D.

It's not likely you'll be able to find a wide enough board for the top (H), so it will be necessary to edge glue two or more narrower boards. When edge gluing, it's a good idea to allow a little extra stock on both the width and the length. After the clamps have been removed it can be trimmed to final length and width.

As shown in the drawing detail, a molded edge is cut all around the top. The 1/2 in. round is cut first using the router table and a 1/2 in. round-over bit. Next, use the table saw and dado head to cut the 3/8 in. by 3/4 in. rabbet. Then, to complete the molding, the router table is once again used, this time with a 3/16 in. round-over bit.

The drawer is made next. Cut and assemble as shown using 3/4 in. thick mahogany plywood for the drawer bottom. As always, make sure the assembly is square before setting aside to dry.

The drawer guide (F) can now be made. Assemble with a flat headed wood screw on each end as shown. A thin coat of paste wax will help reduce friction.

Once the drawer is installed to your satisfaction the top can be added. Insert a round headed wood screw and washer through each slotted hole in parts G, then drive each screw into the underside of the top. Be sure to bore pilot holes in the top to prevent the wood from splitting.

Final sand all parts and lightly round any sharp edges. For a final clear finish we applied three coats of Watco Danish Oil. A 3/4 in. diameter brass knob added to the drawer front completes the project.

Victorian Hall Tree



A hall tree can be a handy article of furniture, a point borne out by the fact that this particular example, an authentic Victorian hall tree, has been in continuous use for many years. It provides a place to sit while removing boots and galoshes, and its many hooks stand ever ready to receive

coats, hats, and scarves. The eye-level mirror offers one last look before heading out the door.

Like most hall trees from the Victorian period, ours is made from oak. Except for the glue blocks (part R), all the pieces for this project can be cut from $\frac{1}{4}$ in. thick stock. You will, however, need a thickness planer (or access to one) to dimension stock for the front apron (E), vase splat (K), and slats (O). Note: if you do not have a thickness planer, these parts can all be made $\frac{1}{4}$ in. thick with little if any negative impact on the overall appearance of the piece. Even the glue blocks (R) can be made from $\frac{1}{4}$ in. thick material; simply glue up two $\frac{1}{4}$ in. thick boards to achieve the necessary $1\frac{1}{2}$ in. thickness.

Begin by edge gluing sufficient stock for the seat (G). Clamp up and set aside to dry. Referring to the various grid patterns, make the front legs (A), arm supports (C), arms (D), vase splat (K), cove ends (L), and crest (N). All these pieces can be cut out using the band saw. Note that the center section of the vase splat is cut away by entering the saw blade at the bottom edge of the splat's lower tenon. Round the top edge of both arms using a $\frac{1}{4}$ in. bearing guided round-over bit.

Cut the remaining pieces, parts B, E, F, H, I, J, M, O, P, Q, and R. The molded edges on the crown molding (M) and the crest (N) are made using the router equipped with $\frac{1}{2}$ in. and $\frac{3}{4}$ in. bearing guided round-over bits respectively. Chamfer the edges of parts B, I, and J where they will form the mirror frame.

Refer to the appropriate tenon details, and cut the tenons and corresponding mortises in all parts where indicated. Note that the $\frac{1}{2}$ in. deep mortise groove that is in the back legs (B) to accept the tenoned ends of parts I and J is cut straight through from the top end of the legs. The $10\frac{1}{2}$ in. long tongue section remaining between parts I and J is then simply chiseled out, and the mortise becomes the rabbet that will accept the mirror. Remember that the top of part I and the bottom of part J must also be rabbeted to accept the mirror. As shown in the vase splat and the slat details, the mortises for these pieces are centered front to back on their respective rails.

Assemble the back first. The two back legs, the various rails, the slats, the crest, the crown molding, and the cove ends can all be glued up and clamped to effectively complete this section of the project.

Now work on the seat frame. Note that the distance across the front of the frame is 19 in., even though the width of the back assembly is only $18\frac{1}{2}$ in. This provides a $\frac{1}{4}$ in. setback where the side aprons fasten to the front legs. As shown in the seat frame detail, the mortises in the front legs for both the side and front aprons are cut through from the top. Assemble the seat frame, the front legs and the front and side aprons. Make the slotted holes as shown in the cleats, then glue the front and side cleats (P and Q) along their respective aprons. Do not add the four glue blocks at this time.

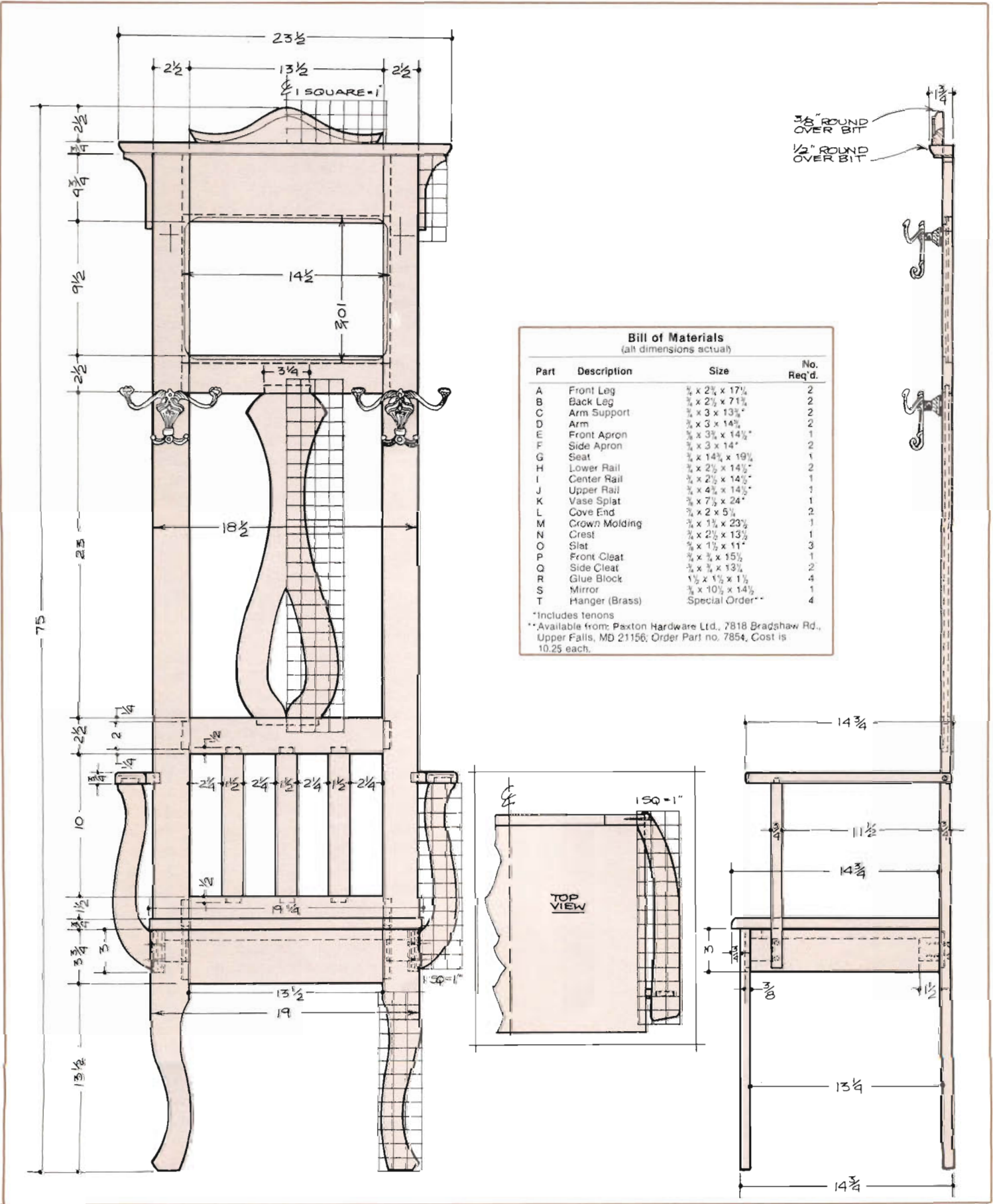
You are now ready to join the seat frame to the back assembly. Note that the tenons on the back end of the side aprons are the same as shown in the side apron tenon detail. As illustrated, the seat frame is both glued and screwed to the back assembly.

Next, add the arm supports and arms. The arm supports are glued and screwed through the side aprons. The arms, which are mortised to accept the tenon on the end of the arm support (see tenon detail), are glued in place, and the back ends of the arms are then screwed to the back as shown.

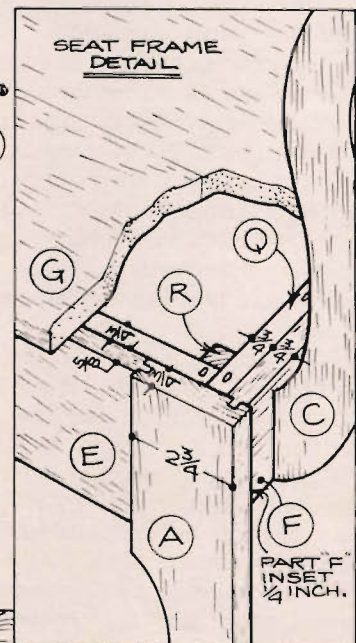
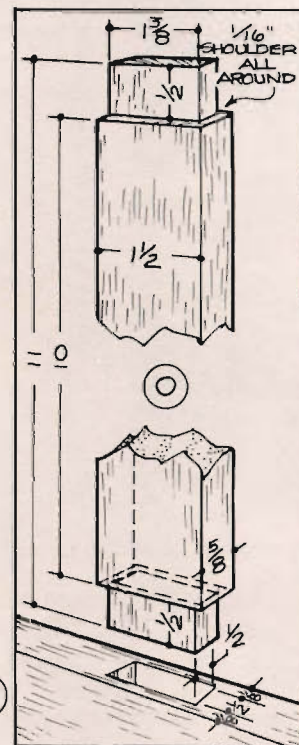
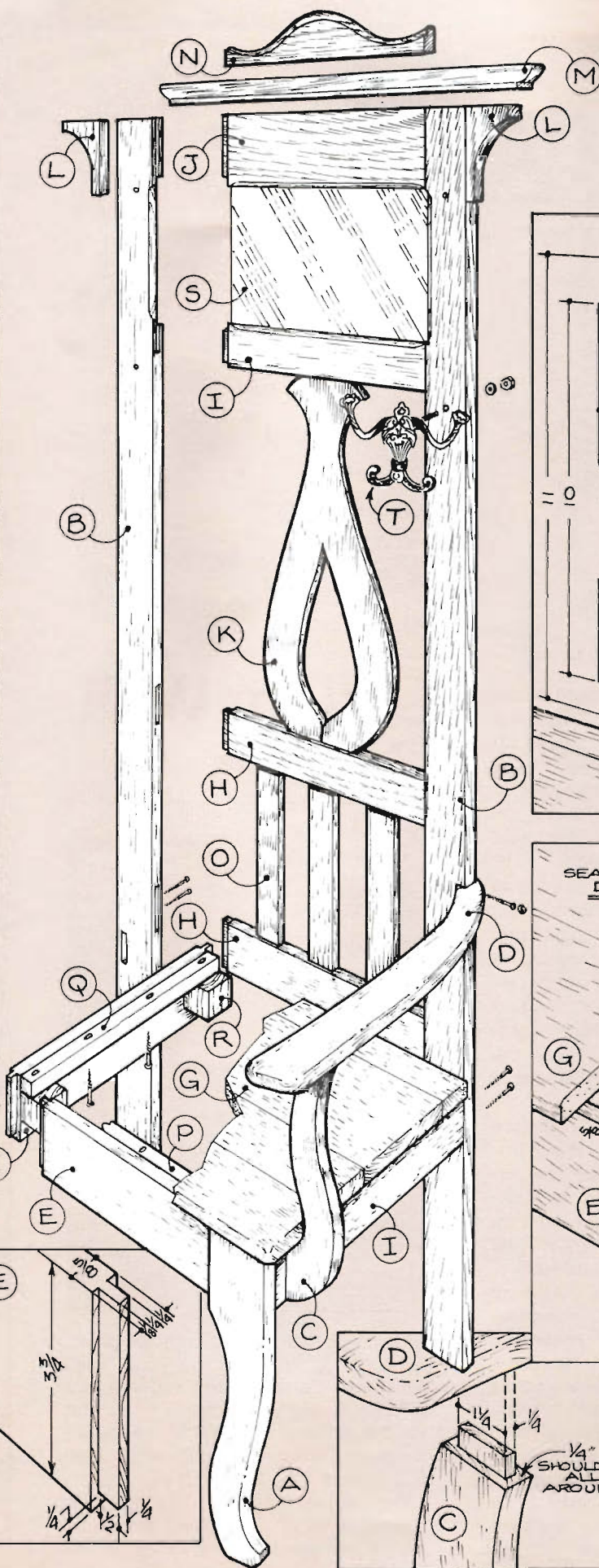
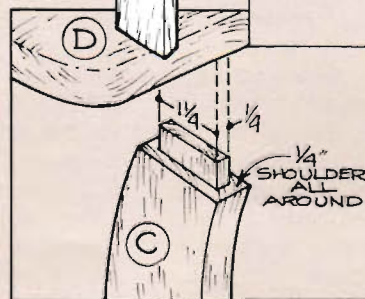
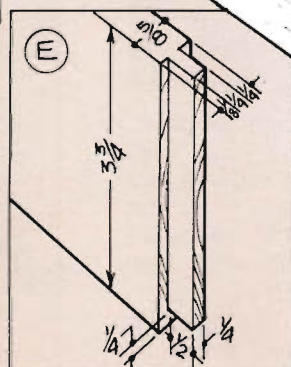
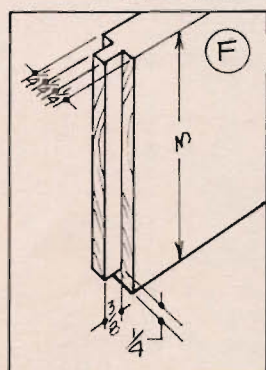
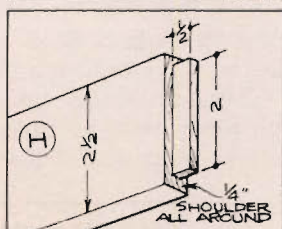
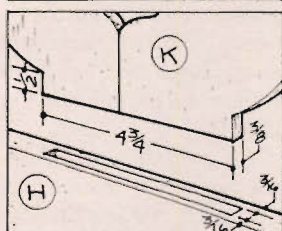
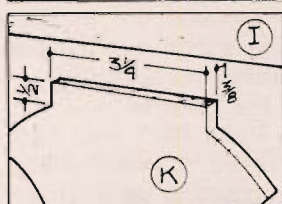
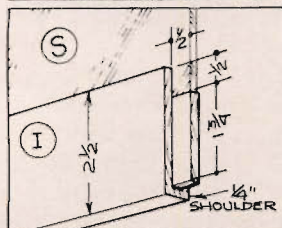
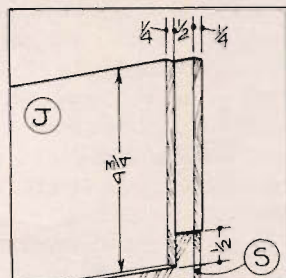
Now add the seat, attaching it with screws through the slotted holes in the cleats. The back edge of the seat is glued to the back assembly. Finally, add the four glue blocks to lend extra rigidity to the piece. (continued on next page)

Our hall tree still retains its original varnish finish, although this has probably darkened considerably over the years. You may apply a penetrating oil finish, which should bring out the attractive grain and natural color in the wood. Should you prefer a darker, "antiqued" look, stain the hall tree first.

Lastly, insert the mirror, which must be custom cut to size (slightly less than 10½ in. x 14½ in.). Our mirror is mounted with steel glazier's points. If you prefer, tack a retainer molding around the mirror perimeter instead. The brass hangers are mounted through four holes drilled in the upper back legs, and locked in place with washers and nuts. Wuj



TENON DETAILS





Small cabinets have traditionally been popular projects with our readers. This particular cabinet is designed for knives, creamer, sugar bowl, salt and pepper shakers, or what have you. Although the cabinet has clean, contemporary lines it should look good in most any kitchen. The box joint corners, paneled door, and knife hinges are all details that reflect the careful design and quality construction of this piece. We selected cherry for our cabinet, but most any wood can be used. Remember however, that as with much contemporary work, choice of stock and attractive grain can be the key to a pleasing appearance in the finished project.

Begin by cutting material for the top and bottom (A), sides (B), and partition (C). As shown in the side view, the finger joint pins are each $\frac{1}{4}$ in. wide, with 20 pins needed to equal the 5 in. cabinet depth. Next, cut the $\frac{1}{4} \times \frac{1}{4}$ in. rabbet in the top, bottom, and sides to accept the plywood back (E). Also cut the $\frac{1}{4} \times \frac{1}{2}$ in. rabbet in the partition that serves as the door stop. Cut the stepped tenons on the partition ends (see partition tenon detail), and their mating mortise grooves in the top and bottom. Also cut the grooves in the partition and side to accept the two shelves (D). Note from the shelf tenon detail that these grooves should be only $\frac{1}{4}$ in. wide, reflecting the fact that the shelf tenons are stepped. Make the two shelves and then dry assemble the cabinet for a test fitting. If all is well, glue up and reassemble the cabinet

Cutlery Wall Cabinet



with the shelves and partition in place. Add the $\frac{1}{4}$ in. thick plywood back which should match the material you select for the cabinet. Cherry, and various other $\frac{1}{4}$ in. thick plywoods are available from Constantine's, 2050 Eastchester Rd., Bronx, NY.

Now make the door. The slip-joint construction is strong and simple to cut. We resawed and bookmatched the panel for an added detail. The $\frac{1}{4}$ in. radius raised panel profile is made on the router table using a $\frac{1}{4}$ in. core box

bit. The panel groove is run out the ends of the stiles and rails, as shown in the door tenon and panel detail. Note that the panel width is $8\frac{1}{2}$ in., while the groove-to-groove dimension across the width of the door frame is $8\frac{3}{4}$ in. As also illustrated in the door tenon and panel detail this will allow $\frac{1}{8}$ in. on either side of the panel for wood movement due to changes in humidity. A spot of glue in the center, both top and bottom, will equalize this movement. However, a more permanent way of centering the panel is to use a dowel pin, as illustrated in the shop tip on page 62.

As shown in the knife hinge detail, the door halves of the offset knife hinges are flush with the inside edge of the door. Since the door is flush mounted in the cabinet, the matching cabinet mounted half of each hinge will be inset about $\frac{1}{8}$ in. Chisel these knife hinge mortises in the door and cabinet carefully to insure an accurate fit.

The $\frac{1}{2}$ in. radius coves on the door pull and the lower edge of the knife rack are made with a 1 in. core box bit. As noted in the knife rack detail, the number of slots and their sizes must be custom fit to accommodate your knives. Both the knife rack and door pull are mounted with screws as indicated.

Drill a $\frac{3}{32}$ in. diameter hole in the door bottom to accept the bullet catch; then locate for the strike and chisel its mortise. It may be necessary to file the strike apron back slightly to make it flush with the cabinet's front edge.

Fine sand and then finish the cabinet with three coats of tung oil, buffing between coats with 0000 steel wool. 

Bill of Materials (all dimensions actual)

Part	Description	Size	No. Req'd.
A	Top and Bottom	$\frac{1}{2} \times 5 \times 18$	2
B	Sides	$\frac{1}{2} \times 5 \times 22$	2
C	Partition	$\frac{3}{4} \times 4\frac{3}{4} \times 21\frac{1}{2}$ *	1
D	Shelf	$\frac{3}{8} \times 4\frac{5}{8} \times 7$ *	2
E	Back	$\frac{1}{4} \times 17\frac{1}{2} \times 21\frac{1}{2}$	1
F	Stile	$\frac{1}{2} \times 1 \times 21$	2
G	Rail	$\frac{1}{2} \times 1 \times 10$	2
H	Panel	$\frac{3}{8} \times 8\frac{1}{2} \times 19\frac{5}{8}$	1
I	Pull	$\frac{3}{4} \times \frac{3}{4} \times 2$	1
J	Hinge**	$\frac{3}{16}$ wide $\times$ $1\frac{3}{16}$ long	1 pr.
K	Knife Rack	$\frac{3}{4} \times 3 \times 9$	1
L	Bullet Catch and Strike***	$\frac{3}{32}$ Diameter	1 pr.

*includes tenons

** Available from: Woodcraft Supply Corp., 41 Atlantic Ave., Box 4000, Woburn, MA 01888. Order part no. 16R62-B1, cost is \$9.50 per pair ppd.

*** Available from: Mason & Sullivan Co., 586 Higgins Crowell Rd., West Yarmouth, Cape Cod, MA 02673. Order part no. 2550B (set of six), cost is \$6.50.



Swing-Out Plant Hanger

For those of use who love house plants, there are never enough plants, nor places for them. This swing-out wall mounted plant hanger combines several convenient features. First, it can be mounted almost anywhere, and second, its swing-out design makes it easy to position or move the plant. When not in use the hanger folds flat against the wall, safely out of the way.

To make the hanger, select a good clear-grained section of $\frac{3}{4}$ in. thick hardwood board at least 4 in. wide and $16\frac{1}{2}$ in. long. We used cherry, however any hardwood can be used. Lay out a 1 in. grid pattern on the board, and then transfer the illustrated hanger profile to the grid pattern. Use a compass to scribe the $3\frac{1}{4}$ in. diameter mounting plate circle. Cut out the mounting plate and hanger with a band saw, jigsaw, or saber saw. When cutting around the mounting plate cir-

cle, stay on the outside of the scribed compass line. Remember, the finer the saw blade used, the less sanding will be required. The $\frac{1}{2}$ in. diameter notch on the hanger end can be made with a Forstner bit on the drill press.

Make special note of the swivel screw mounting location. Centering these screws exactly $\frac{1}{8}$ in. in from the rounded arm ends will allow these arm ends to just clear the wall after the hanger has been mounted. We used number 8 x 1 in. long brass oval head wood screws with an unthreaded shank section about $\frac{1}{8}$ in. long. Drill and countersink these screws as shown. Also drill for the number 8 x $1\frac{1}{2}$ in. long brass flat head wall mounting screws, which are countersunk slightly.

Fine sand the hanger, lightly breaking all sharp edges. Finish with two coats of Deft Danish Oil Finish. Wwj



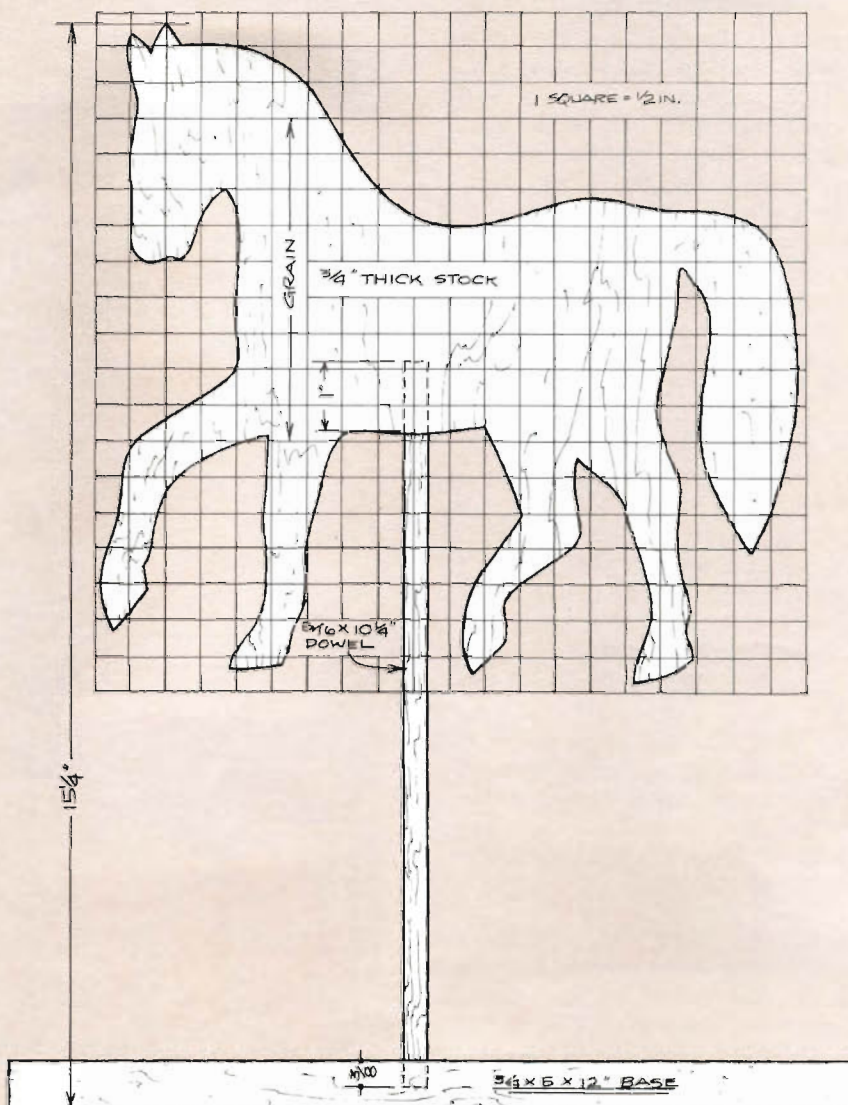
Prancing Horse Silhouette

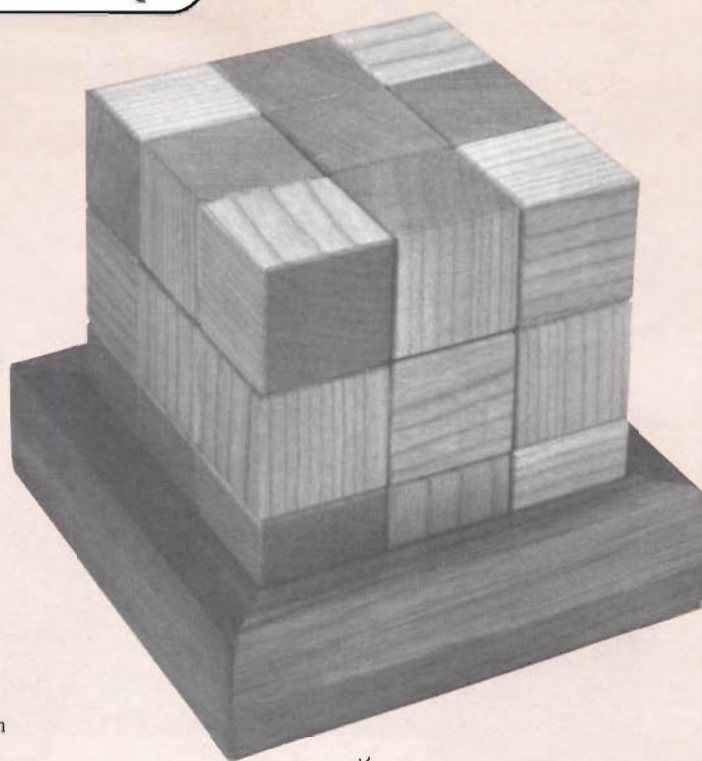
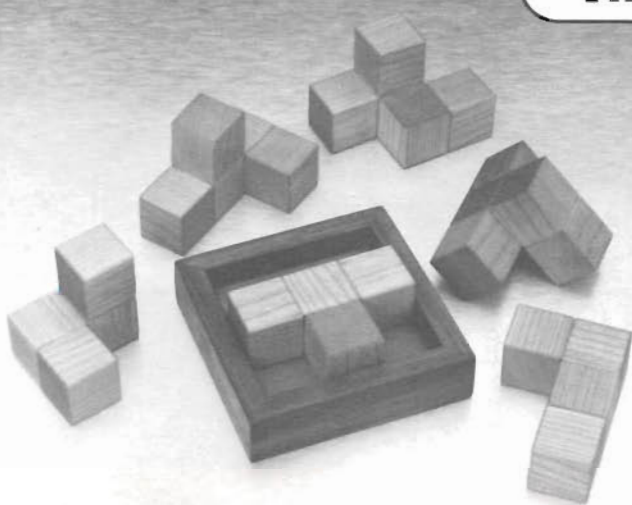
Wooden silhouettes are a recognized form of American folk art. It is believed that these silhouettes evolved from shapes commonly found on weathervanes, and so they are sometimes referred to as "weathervane silhouettes". Among the more popular of the many different silhouettes are whales and farm animals. We chose a prancing horse, one of the traditional favorites.

Both the horse and base are made from $\frac{3}{4}$ in. thick pine. Cut a 10 in. long section of 1 x 12 pine board with good clear grain, and lay out a 1 in. grid pattern. Then, referring to the illustrated grid pattern, transfer the profile of the horse. Next, using a band, jig, or saber saw, cut out the horse's silhouette. The base is simply a $\frac{3}{4}$ x 5 x 12 in. pine board. A 10 $\frac{1}{4}$ in. length of $\frac{3}{16}$ in. diameter dowel rod mounts the horse to the base. Drill a $\frac{3}{16}$ in. diameter x 1 in. deep hole in the horse and a $\frac{3}{16}$ in. diameter by $\frac{1}{2}$ in. deep hole in the base, as shown, to accept the dowel rod.

The horse, base, and dowel rod are all painted. You may use a flat barn red as we have done or, for a truly authentic touch, use milk paint. Old fashioned milk paint is available from Antique Color Supply Inc., P.O. Box 711, Harvard, Massachusetts 01451.

The prancing horse is an ideal gift shop item, and looks good as a decorative accent on a sideboard, table, mantle, or most anywhere. A variety of traditional weathervane silhouettes will appear in future issues of *The Woodworker's Journal*. W&J





This block puzzle is a great beginning project for you puzzle buffs. It consists of 27 one inch square blocks, with the blocks arranged into six separate puzzle pieces, parts 1 through 6. Although the blocks can be made of any wood, we used cherry. Once assembled, it makes an attractive and unusual paperweight.

Start by milling about three feet of one inch square stock. To cut off the blocks on a table saw, use a stop and a fine tooth blade so that little, if any, sanding is necessary. Accuracy and uniformity are especially important, and sanding always compromises accuracy. Make a few test blocks first, and check dimensions carefully.

After making the blocks use a file to apply the 45 degree chamfer around the edges. Now glue up the blocks as shown to make the six separate puzzle pieces. Make note of the grain direction on the individual blocks. By keeping to the illustrated arrangement, the darker end grain of the blocks will form a cross pattern on the top of the assembled puzzle.

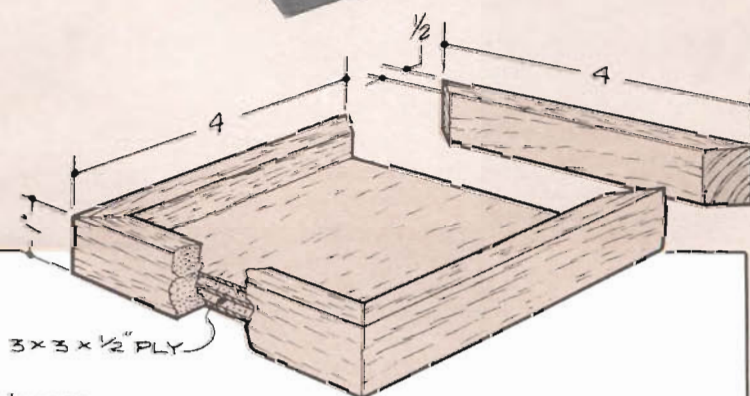
The base is simply four $\frac{1}{2}$ x 1 x 4 in. long pieces of walnut (with mitered ends) glued up around a 3 in. square of $\frac{1}{2}$ in. thick plywood. The block puzzle must be set into the base as shown in order to prevent the puzzle pieces from sliding apart.

The block puzzle is also known as the "half-hour puzzle", perhaps because it can usually be solved within that time period. Should your patience run short, however, the solution can be found on page 62.

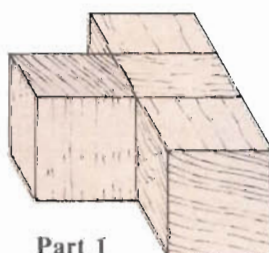
Editor's Note: More information on this and many other puzzles may be found in the book Puzzle Craft, available from: Stewart T. Coffin, 79 Old Sudbury Rd., Lincoln, MA 01773. The price is \$12.00 postpaid. Wwj

Block Puzzle

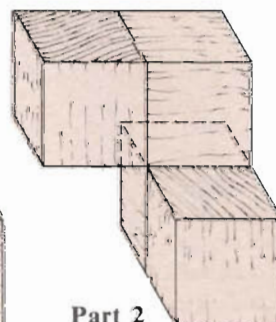
Built by Stewart T. Coffin



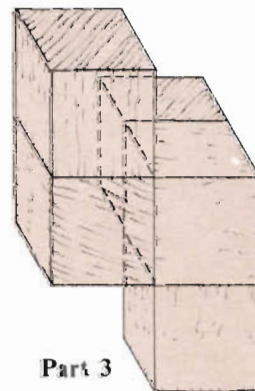
Note: All cubes are 1 x 1 x 1 in.



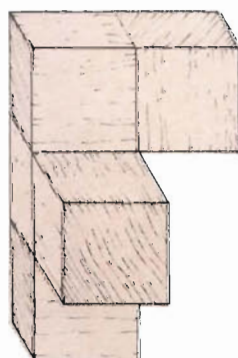
Part 1



Part 2



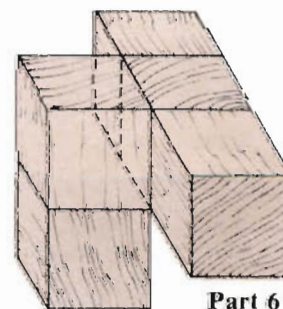
Part 3



Part 4



Part 5



Part 6

Tired of storing the iron under the kitchen sink or on a shelf in the closet? We think this iron caddy is a great idea. It keeps the iron conveniently on the wall; simply reach over and lift it out!

Ours is made from $\frac{1}{2}$ in. thick cherry, although you may choose to use pine or some other wood instead. Cut the front (A) and the sides (B) to the illustrated dimensions (see grid pattern for side profile). The caddy back (C) is custom-made to match your iron's profile. Trace the iron tip, and then add $\frac{1}{4}$ in. as shown in the front elevation. Either the band saw or a saber saw is used to cut the profiles on

parts A, B, and C.

Use the router table and a $\frac{1}{4}$ in. straight bit to cut the $\frac{1}{4} \times \frac{1}{4}$ in. grooves in the front, sides, and back that will accept the bottom (D). Note that this groove in the front is stopped on both ends, and that in the sides this groove is stopped $\frac{1}{4}$ in. from the back edge. With the back, the groove is cut straight across. The router table with the $\frac{1}{4}$ in. straight bit is also used to rabbet the bottom, creating the $\frac{1}{4} \times \frac{1}{4}$ in. tongue on all four sides.

Assemble the caddy using glue along all butt-jointed edges. However, do not glue the bottom, which is left to float free in its grooves.

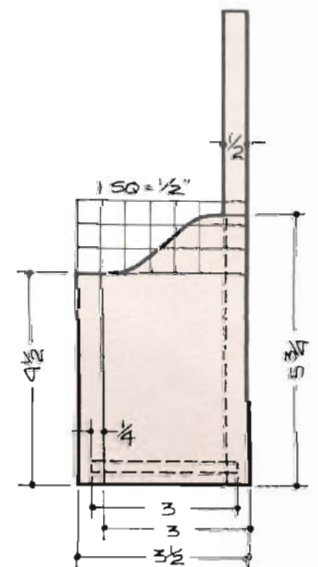
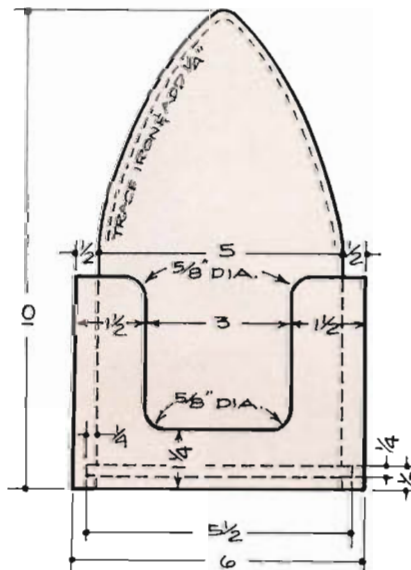
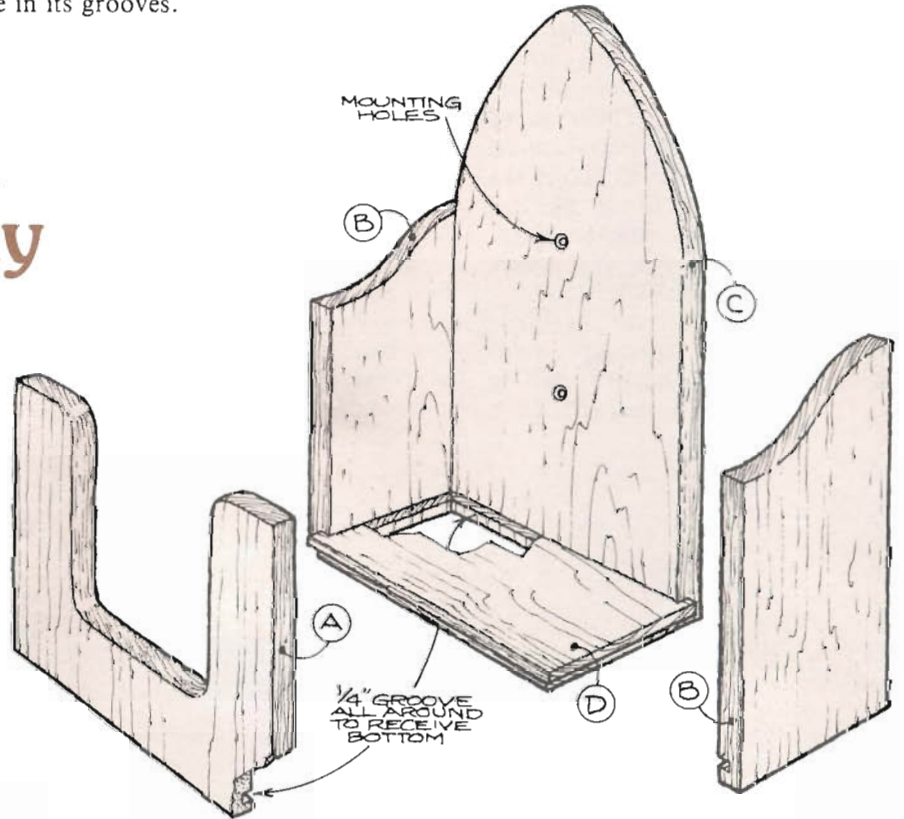
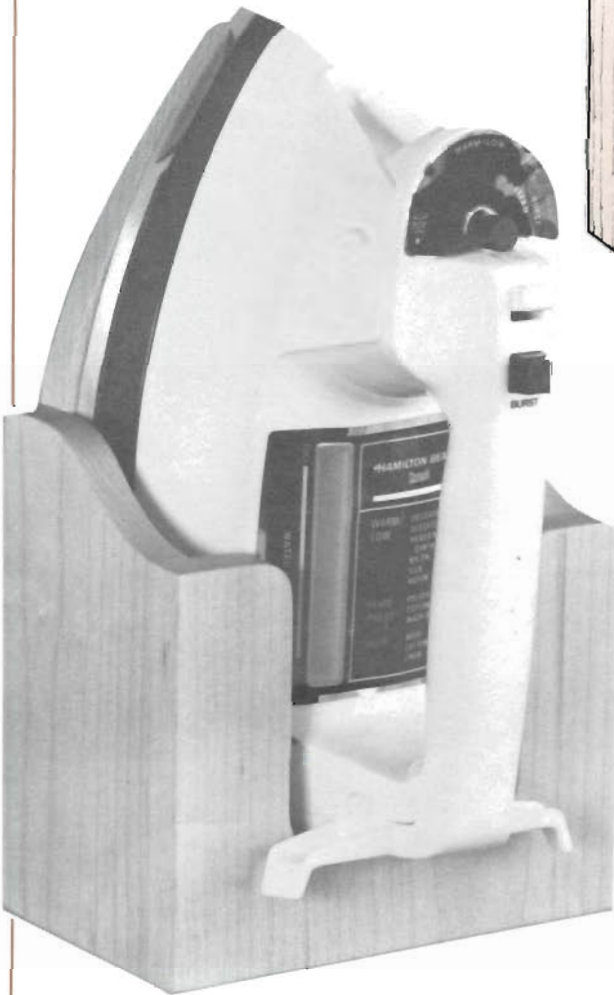
Fine sand the caddy, gently softening all edges, and finish with a good penetrating oil. Drill and countersink several screw holes through the back to accept the two flat head wall mounting screws.

Wwj

Bill of Materials (all dimensions actual)

Part	Description	Size	No. Req'd.
A	Front	$\frac{1}{2} \times 4\frac{1}{2} \times 6$	1
B	Sides	$\frac{1}{2} \times 3 \times 5\frac{3}{4}$	2
C	Back	$\frac{1}{2} \times 5 \times 10$	1
D	Bottom	$\frac{1}{2} \times 3 \times 5\frac{1}{2}$	1

Iron Caddy



Surprisingly, although this ironing board is a toy, many adults who saw it wished they had an ironing board this size for small touch-up ironing work. Together with its make-believe iron, the ironing board project is an ideal toy for that daughter or granddaughter who loves to “play house”. (In this enlightened age perhaps the “little man” should also practice up with this toy!)

The ironing board is collapsible for easy storage, but has been specifically designed so the locking pin can only be removed by an adult. This safety feature should eliminate any chance of the pin accidentally being pulled, causing the board to collapse and injuring small hands and fingers. The threaded rod and locking pin mechanism must be unscrewed and removed before the board can be collapsed. (Note: The legs are fixed in the closed position by inserting the locking pin mechanism through the locking holes.)

The iron and board can be made from pine or from most any hardwood. We used birch. Begin by cutting the legs (A), feet (B), spacer (C), knob

(D), pivot block (G), top (H), and iron (I). Except for the legs, feet, and iron, all these parts can be cut from $\frac{3}{4}$ in. thick material. Refer to the grid pattern for the iron profile, and to determine the post and handle locations. The posts are cut from $\frac{3}{8}$ in. diameter dowel rod, while the handle is made from $\frac{1}{4}$ in. diameter dowel rod. You will also need $\frac{1}{4}$ in. diameter dowel rod for the leg pivot pins.

The $\frac{1}{4}$ -20 threaded rod for the locking pin is sold in most hardware stores. The $\frac{1}{4}$ -20 threaded insert is available from The Woodworkers’ Store, 21801 Industrial Blvd., Rogers, MN 55374. Order part #D3960. Cost is \$.32 each. The threaded rod is epoxied into a hole drilled in one knob, and the threaded insert is screwed into a hole drilled in the other knob (see detail).

Cut the tenons on the leg ends (see tenon detail) and the corresponding mortises in the feet. Round the leg tops as indicated and glue up the legs and feet. Next glue the spacer to one leg, and drill through the legs and spacer to accept the threaded rod locking pin. Glue the pivot blocks to the underside

of the top, drill the pivot pin holes through the legs and pivot blocks and insert the pivot pins. With the legs scissored into the closed position, now drill the locking holes that will accept the threaded rod locking pin when the ironing board is to be stored away.

Drill $\frac{3}{8}$ in. diameter holes in the iron handle and base as shown to accept the handle posts, and glue up and assemble the iron parts. Round all sharp edges on the iron and ironing board, and sand both pieces thoroughly. We used no finish on this project.

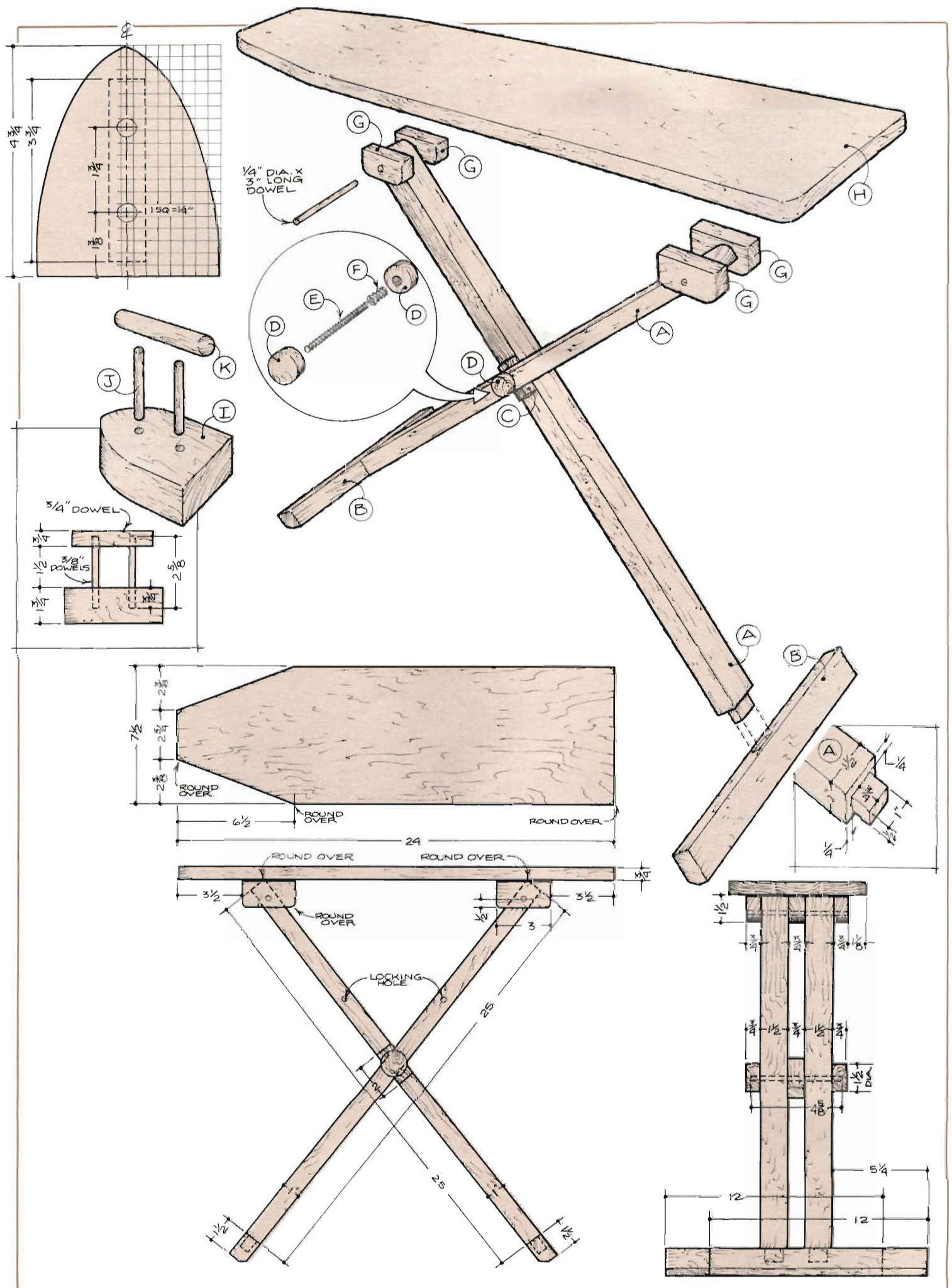
Bill of Materials (all dimensions actual)

Part	Description	Size	No. Req'd.
A	Leg	1 x 1½ x 25¾*	2
B	Foot	1 x 1½ x 12	2
C	Spacer	¾ x 1 x 2	1
D	Knob	1½ Dia. x ¾ Thick	2
E	Threaded Rod	¼-20 x 4½ Long	1
F	Threaded Insert	¼-20	1
G	Pivot Block	¾ x 1½ x 3	4
H	Top	¾ x 7½ x 24	1
I	Iron	1¾ x 3¾ x 4¾	1
J	Post	⅜ Dia. x 2½ Long	2
K	Handle	¾ Dia. x 3¾ Long	1

*Includes tenon

Toy Ironing Board





The water bench was an essential piece of furniture in the home before the advent of central plumbing. Although such benches were traditionally used to store stoneware crocks and jugs filled with well water, they can be adapted for any number of storage and display purposes in the modern home. This particular Early American style bench is a handsome piece, featuring a tongue-and-groove back, through tenoned shelves, and dovetailed top and sides.

The entire bench is made from $\frac{3}{4}$ in. thick stock. We used number 2 pine, which is inexpensive and readily available at any lumberyard. Begin by edge gluing sufficient stock to make the $16\frac{1}{2}$ in. wide sides (A), and the two shelves (C and D). The $16\frac{1}{2}$ in. width for the sides and bottom shelf can be obtained by combining a 1 x 8 (which measures $7\frac{1}{4}$ in. wide), and a 1 x 10 (which measures $9\frac{1}{4}$ in. wide). The $12\frac{3}{4}$ in. center shelf width can be obtained by combining a 1 x 8 (measuring $7\frac{1}{4}$ in. wide), and a 1 x 6 (measuring $5\frac{1}{2}$ in. wide). The top (B) can also be made from a 1 x 10, the $9\frac{1}{4}$ in. actual width being exactly what this piece requires.

The eight pieces (E) that comprise the back are all cut from 1 x 6 stock which measures $5\frac{1}{2}$ in. wide. Should you wish to save time on the back, simply purchase ready-made tongue-and-groove stock. Otherwise, use the dado head to rip the tongues and grooves into the eight back pieces. As you can see, this entire project was designed so that it could be easily constructed from commonly available standard dimension stock. This approach vastly simplifies the construction by eliminating a good deal of the ripping and jointing work that is typically required for such a project.

The cutouts at the bottom of both sides are made with either the saber or band saw. Use a rasp to round the front corners of the center and bottom shelves. The back fits into a $\frac{3}{8}$ x $\frac{1}{4}$ in. rabbet cut into the sides, while the rabbet across the top made to accept the back is $\frac{1}{2}$ x $\frac{3}{4}$ in. (see the tongue-and-groove and top corner details). All these rabbets should be cut at this time.

The dovetails on the top and sides (see dovetail detail) are cut by hand, using a backsaw and chisel. Cut the tails on the top piece first and use these as a template for marking the corresponding cutouts on the sides. Follow this same procedure with the through tenons on the shelves. After the tenons have been cut, use them as a template for scribing the matching mortises. Take care that you do not cut the mortises oversize. It is best to stay well inside the scribed line, and then

Early American Pine Water Bench

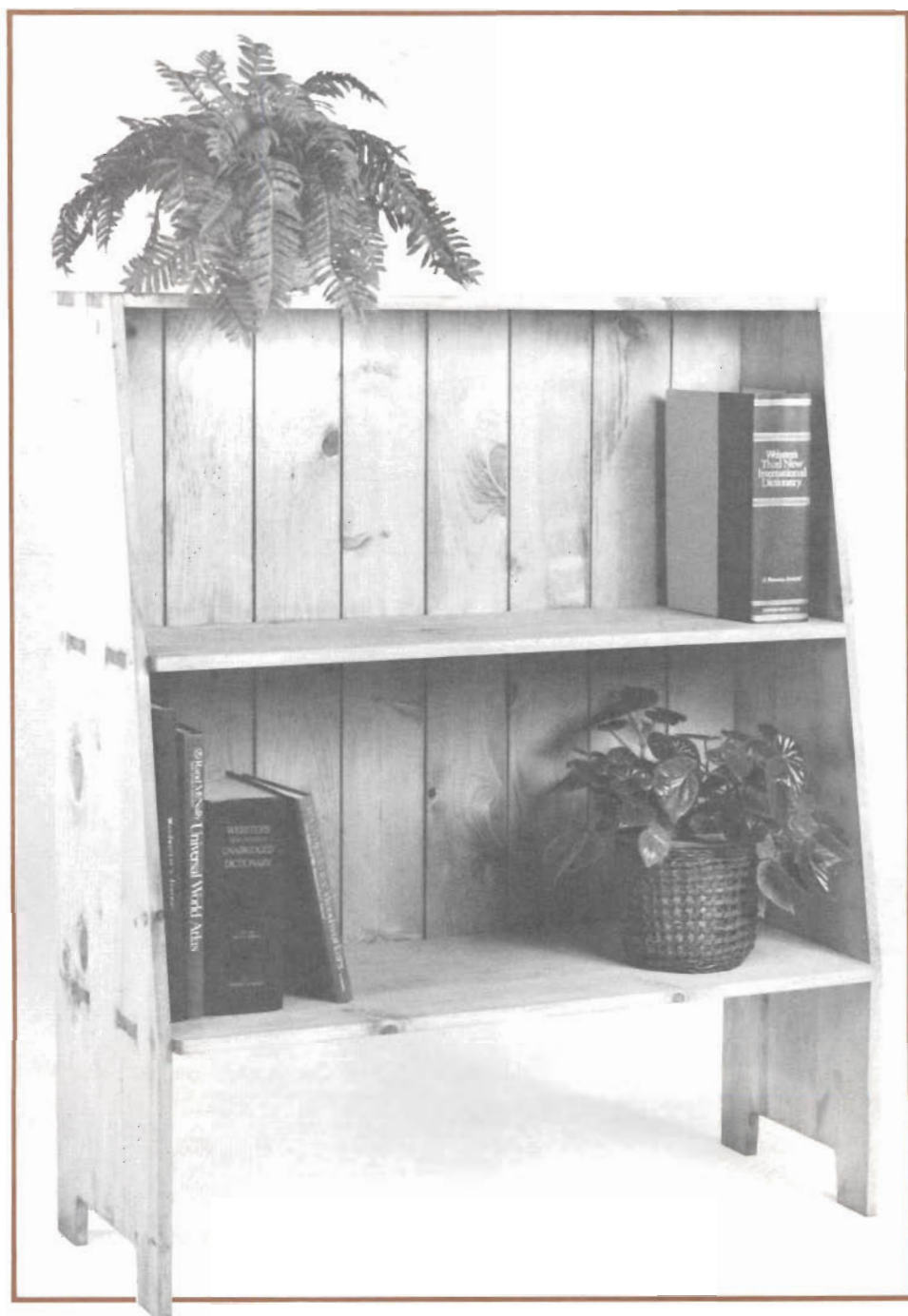
trim the mortises to fit. A dry test-fitting will indicate if they are too tight and need adjustment.

The water bench is assembled with glue at the dovetails and the through tenons. As shown in the tongue-and-groove detail, the eight back pieces are positioned so about $\frac{1}{8}$ in. space remains between each piece. This space will allow the wood to move with changes in humidity. Each of the eight pieces is then fastened at the top and to each shelf with centrally located screws. Countersink these screws so the heads are slightly recessed.

Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Side	$\frac{3}{4}$ x $16\frac{1}{2}$ x 52	2
B	Top	$\frac{3}{4}$ x $9\frac{1}{4}$ x $43\frac{1}{4}$	1
C	Top Shelf	$\frac{3}{4}$ x $12\frac{3}{4}$ x $43\frac{1}{4}$	1
D	Bottom Shelf	$\frac{3}{4}$ x $16\frac{1}{2}$ x $43\frac{1}{4}$	1
E	Back	$\frac{3}{4}$ x $5\frac{1}{2}$ x $37\frac{1}{2}$	8

Stain the water bench if you like, or finish it naturally with a quality penetrating oil. W&J



One of the great satisfactions in woodworking is making one's own tools. There is a special feeling of pride in knowing that a project was crafted in part with tools that one has also made.

Of course, not all tools can be shop-made. A plane, however, is one tool that can be easily made by even a moderately skilled woodworker. Given the cost of a top quality name brand smooth plane (usually between \$40 and \$70), and the fact that a smooth plane is such a widely used tool in wood- working, we felt that this is one plane

will reduce the need for sanding. The $\frac{1}{4}$ in. wide by $\frac{1}{8}$ in. deep groove in the body that accepts the chip breaker screw is cut on the router table using a $\frac{1}{4}$ in. straight cutter, as shown in Fig. 1.

You are now ready to glue up the sides, nose, and body. As shown in the side view section, the body and nose should be positioned so that there is a $\frac{1}{8}$ in. space between them at the bot- tom. This is a critical dimension. Scribe index lines across the body, nose, and sides as an aid in assuring that this dimension remains constant during positioning for glue-up. Also,

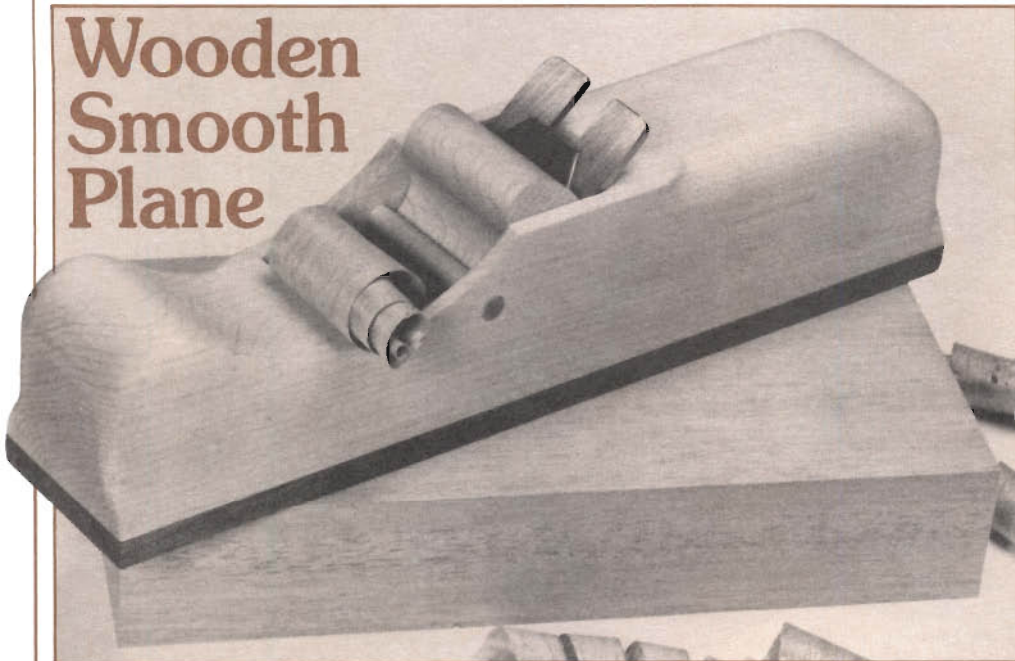
ways: by hand with another plane (dif- ficult to get right), by sanding with a sheet of sandpaper on a flat surface such as the saw table (laborious and somewhat imprecise), or by using the jointer. The jointer is by far the prefer- red method. Gradually joint the sole down until you have achieved the final $\frac{1}{8}$ in. sole thickness. You should find that the slot at the bottom has opened up so that it is now about $\frac{1}{4}$ in. wide. As indicated, the feather edge should be filed back slightly to prevent this edge from chipping or breaking.

Make the wooden wedge (F) to the il- lustrated dimensions (see wedge grid pattern), and bandsaw the final plane shape (Fig. 5). Then use a $\frac{1}{4}$ in. bearing guided round-over bit on the router table to round the plane sides as shown.

The plane iron (as purchased) is originally $7\frac{1}{2}$ in. long. Use a hacksaw to cut it down to a $4\frac{3}{4}$ in. length, and round the cut-off end as indicated. Also, file the hacksawed edge to remove burrs.

Glue the $\frac{3}{16}$ in. diameter cross pin dowel in place, position the plane iron and chip breaker, and test the fit of the wedge. The cross pin should ride about across the wedge middle when the wedge is forced up tight. Adjust the wedge thickness and taper if necessary. The plane blade is adjusted down by

Wooden Smooth Plane



that many woodworkers will seriously consider making.

Our 12 in. long smooth plane has a hard maple body, and a lignum vitae sole. Lignum vitae is one of the hardest woods, and it has a naturally waxy character and feel, lending the plane an easy, smooth action. Other woods may be substituted though, such as beechwood for the body, and horn- beam for the sole. Whichever woods you select for your plane, remember that an extremely hard sole is essential to minimize wear. Our plane is design- ed around a standard 48 mm ($1\frac{1}{2}$ in.) wide plane iron, which has been cut down in length to about $4\frac{3}{4}$ in. A source for the iron (and chip breaker) is listed in the Bill of Materials.

Begin by making the body (A), nose (B), and the two sides (C). Note that the bottoms of the body and nose (where the sole (D) meets them) should be jointed flat and true. The lengths of all these parts can be a little extra; this extra being trimmed later when the plane is band sawed to its final shape. Cut the 45 degree body angle, and the 75 degree nose angle on the table saw, using the miter gauge. A fine saw blade

use brads that have their heads snipped off to prevent any slippage along the glue lines during clamp-up (see Fig. 2). These parts must be clamped up on an absolutely flat surface, such as the saw table or jointer bed. Once clamped, set aside to dry thoroughly.

Next, glue and clamp the lignum vitae sole. Although we show the sole as $\frac{3}{8}$ in. thick, you will need to start with material that is at least $\frac{1}{2}$ in. thick. (The sole is jointed to achieve its final $\frac{3}{8}$ in. thickness *after* it has been glued in place.) Locate and drill the hole for the cross pin (E). Note that the center of the cross pin hole is $\frac{7}{8}$ in. down from the top, and $\frac{5}{16}$ in. off the 45 degree plane surface (see side view section).

To cut through the sole, you will need a sharp, well honed chisel. Clamp a backing board under the sole to pre- vent any chip-out at the bottom when chiseling. As shown in Fig. 4, the 45 degree surface on which the plane iron rests is continued straight through. However, at the opposing 75 degree wall, the sole is chiseled out square at a 90 degree angle.

The sole may be trued in one of three

Bill of Materials

(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Body	$1\frac{1}{8}$ x $2\frac{1}{4}$ x $7\frac{3}{4}$	1
B	Nose	$1\frac{1}{8}$ x $2\frac{1}{4}$ x $3\frac{5}{8}$	1
C	Side	$\frac{1}{2}$ x $2\frac{1}{4}$ x 12	2
D	Sole	$\frac{3}{8}$ x $2\frac{1}{8}$ x 12	1
E	Cross Pin	$\frac{3}{16}$ in. Diam. x $2\frac{7}{16}$ in. Dowel	1
F	Wedge	$\frac{7}{8}$ x $1\frac{7}{8}$ x 3	1
G	Chip Breaker	48 mm Wide*	1
H	Plane Iron	48 mm Wide*	1

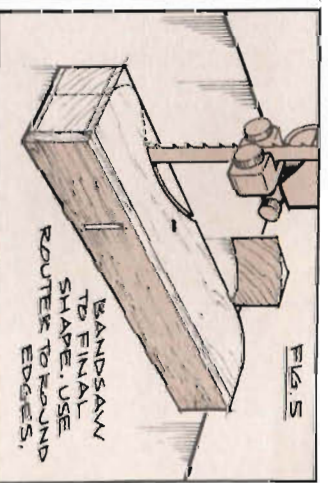
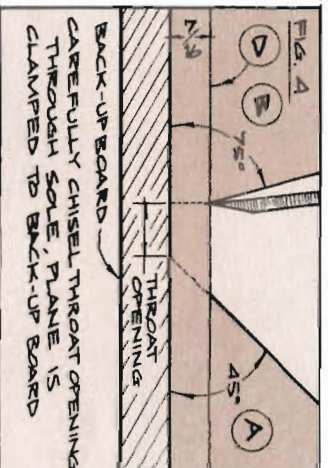
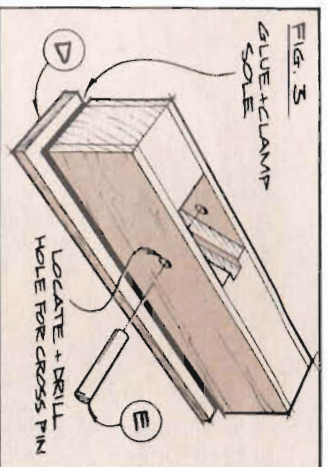
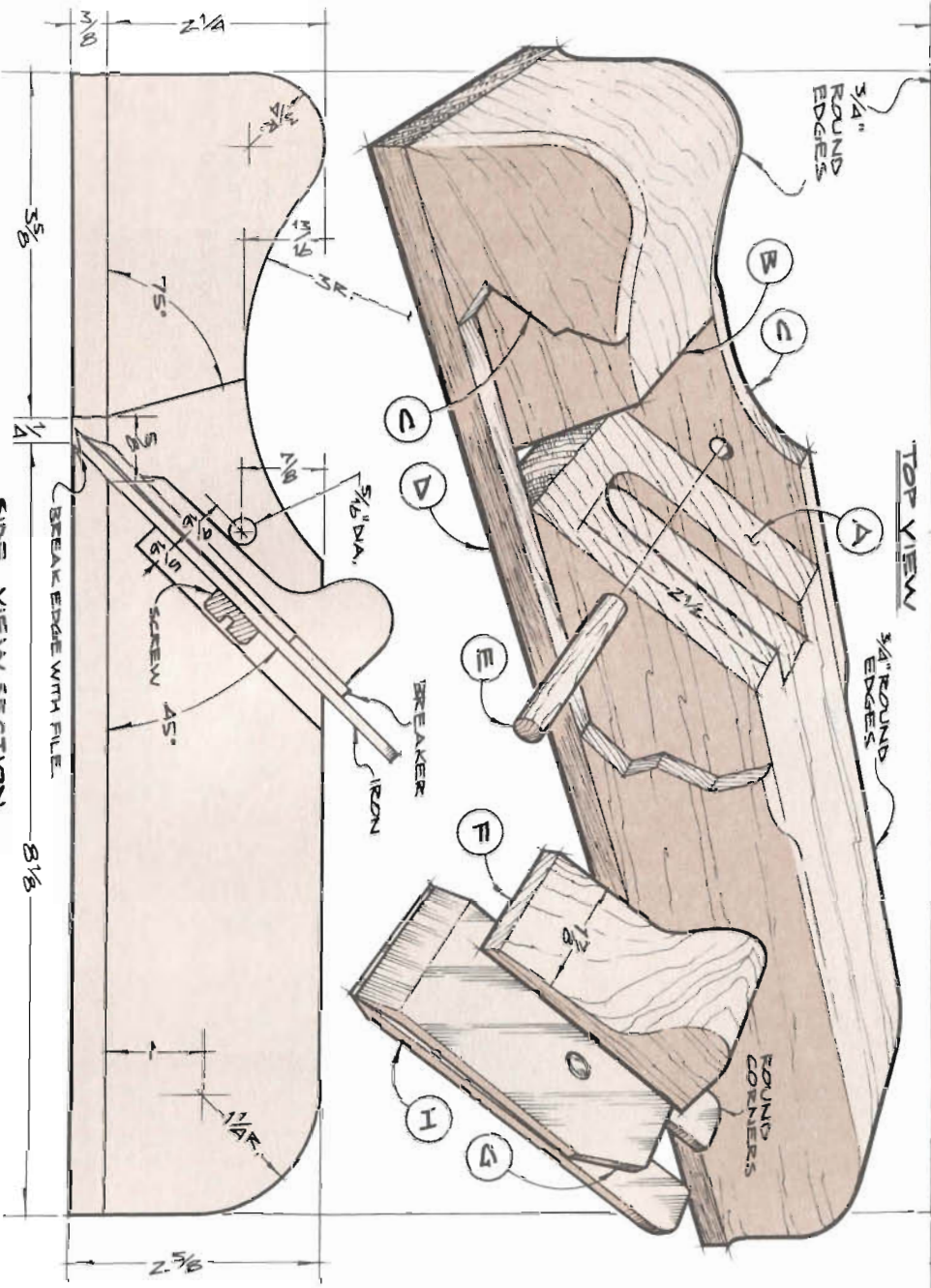
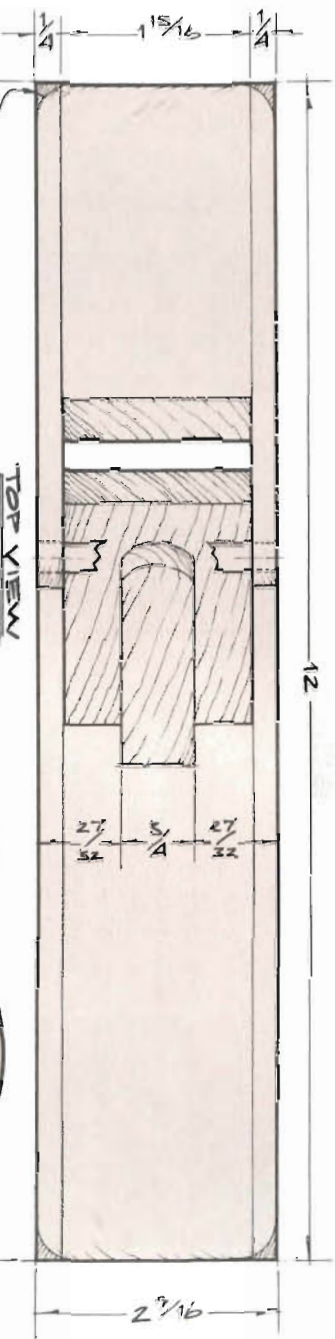
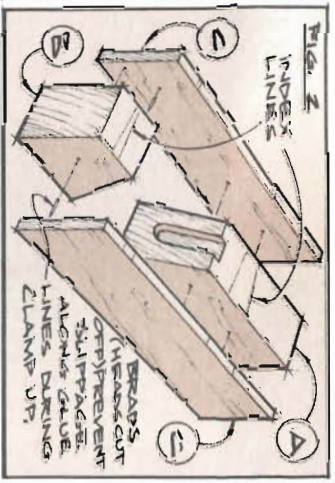
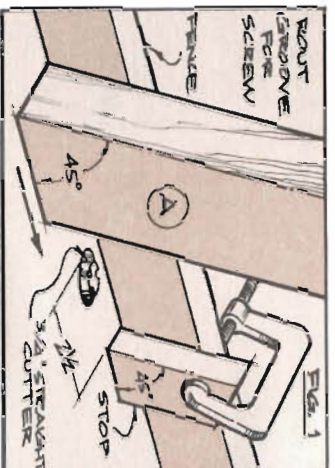
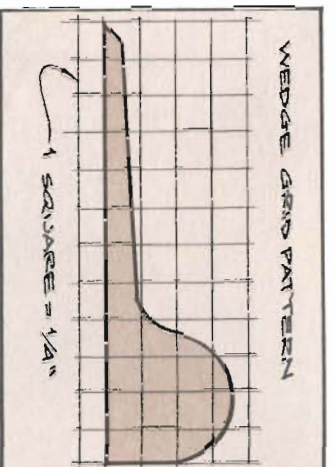
*Sold as a single unit by: Woodcraft Supply, 41 Atlantic Ave., P.O. Box 4000, Woburn, MA 01888. Order part no. 11L13-CH; cost is \$15.50 ppd.

tapping gently on the hacksawed end.

You may finish the plane with penetrating oil, or simply leave the sur- face natural, as we have done. It will gradually darken after use from the oil in your hands.

Note: If, after the plane blade is mounted there is not enough space along the blade edge for shavings to come through clearly, simply joint the sole down a little more. This will open the slot (throat) up, providing a wider space for the shavings to exit.

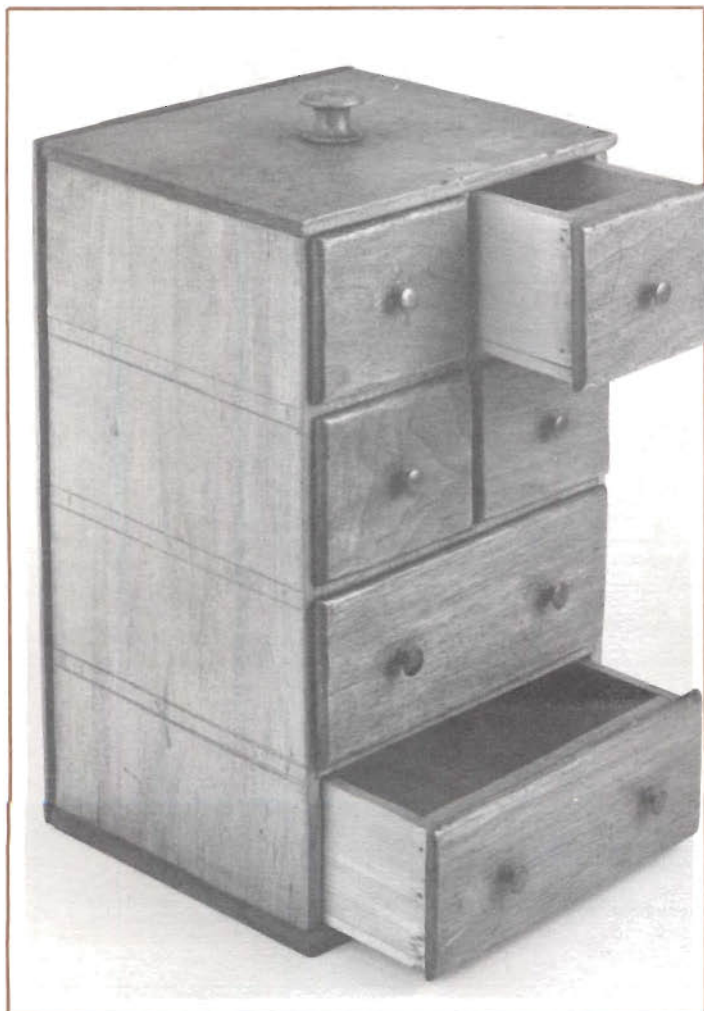
The dimensions on our plane were based on the use of a 3 mm thick by 48 mm wide plane blade. Should you use a different size and thickness blade, the plane must be adjusted to accom- modate and reflect these dimensional changes.



Shaker Sewing Box

This Shaker sewing box, from the collection at Hancock Shaker Village, in Hancock, Massachusetts, is typical of the sewing articles the Shakers often made. Except for the drawer fronts, which are made from $\frac{3}{4}$ in. thick stock, and the divider, which is $\frac{1}{2}$ in. thick, the remaining parts in the project are all $\frac{3}{8}$ thick. This sewing box was made from pine, although the drawer fronts are butternut.

Begin by cutting to size the box parts, A through F. Use the dado head to make the $\frac{1}{4} \times \frac{1}{4}$ in. rabbets in the sides (B) and in the divider (F). Reset the dado head to cut the $\frac{1}{4} \times \frac{1}{2}$ in. rabbet in the center of the upper one of the two wide spacers (D) that will accept the bottom end of the $\frac{1}{2}$ in. thick divider. Use the router with a $\frac{3}{16}$ in. round-over bit to make the $\frac{3}{16}$ in. radius around the front and sides of the top and bottom pieces (A), as shown in the radius detail. Now assemble the box, using brads to attach the top, bottom, and back.



Although we have parted out each drawer separately in the Bill of Materials list, the drawer sides (parts G, K, O, and S) are all the same, so simply make 12 of them. The backs for the four small drawers (H and L) are all cut to $\frac{3}{8} \times 2\frac{1}{8} \times 2\frac{1}{8}$, while the four bottoms (I and M) are all $\frac{3}{8} \times 3\frac{1}{8} \times 7$. The large drawer parts are also identical with the two backs (P and T) cut to $\frac{3}{8} \times 2\frac{1}{8} \times 7$, and the two bottoms (Q and U) $\frac{3}{8} \times 7 \times 7\frac{1}{8}$. The essential difference in the drawers then, is the fronts (parts J, N, R, and V). As shown in the drawer front details, the upper and lower drawer fronts are $3\frac{3}{8}$ in. high, while the middle drawer fronts are $3\frac{1}{2}$ in. high. As we know, the Shakers were perfectionists, and the subtle differences in these drawer fronts are actually designed to provide an even $\frac{1}{8}$ in. space between all the drawers. Round the perimeter of each drawer front with the $\frac{3}{16}$ in. round-over bit, and cut the rabbets as shown to accept the sides and bottoms. Like the box itself, the drawers are assembled with brads. Authentic cut nail style brads similar to those used by the Shakers are available from The Tremont Nail Company, P.O. Box 111, Elm St. at Rt. 28, Wareham, MA 02571. Order the $\frac{1}{8}$ in. long headless brads. When making the drawers, keep in mind that they must be sized slightly less than their respective openings.

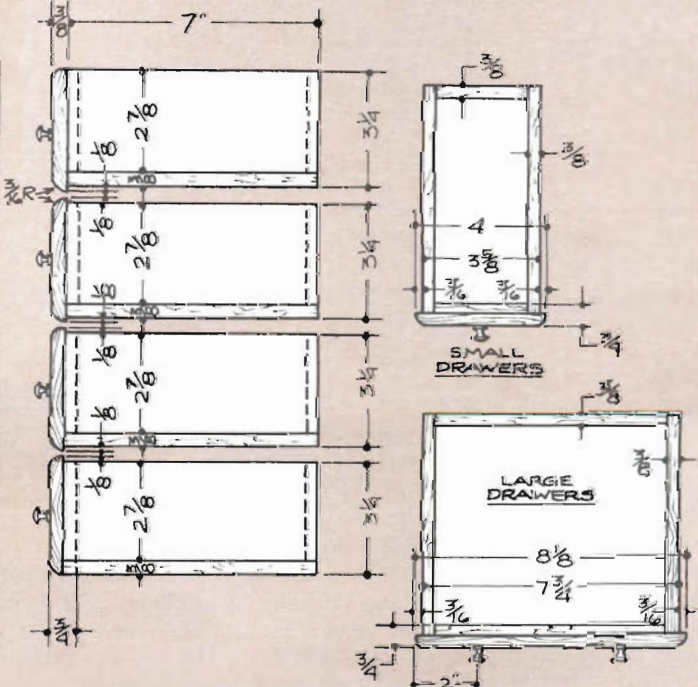
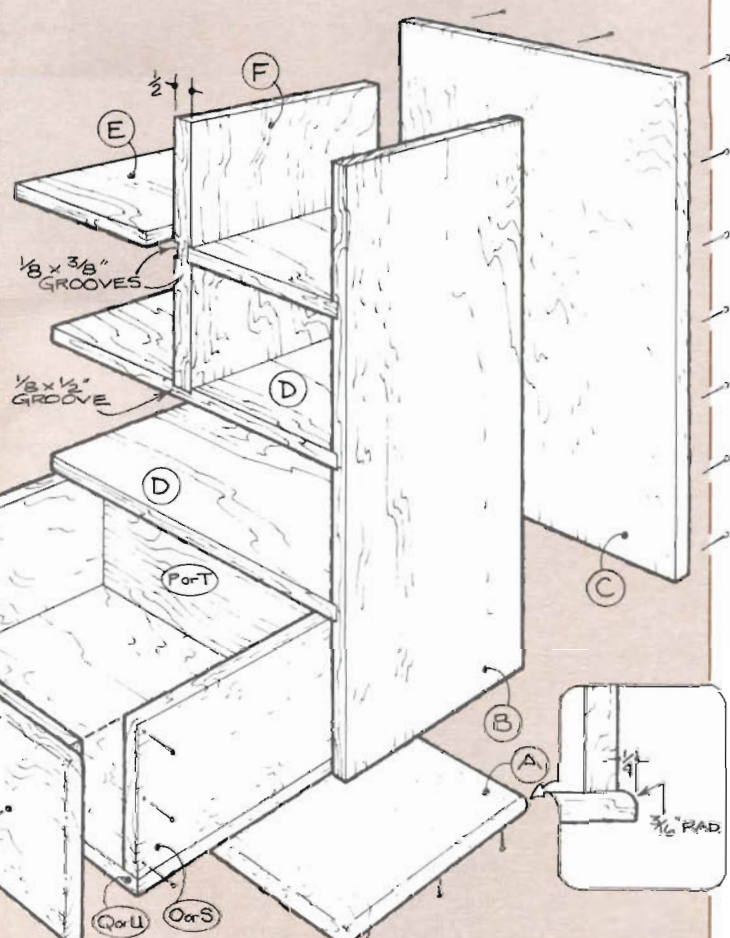
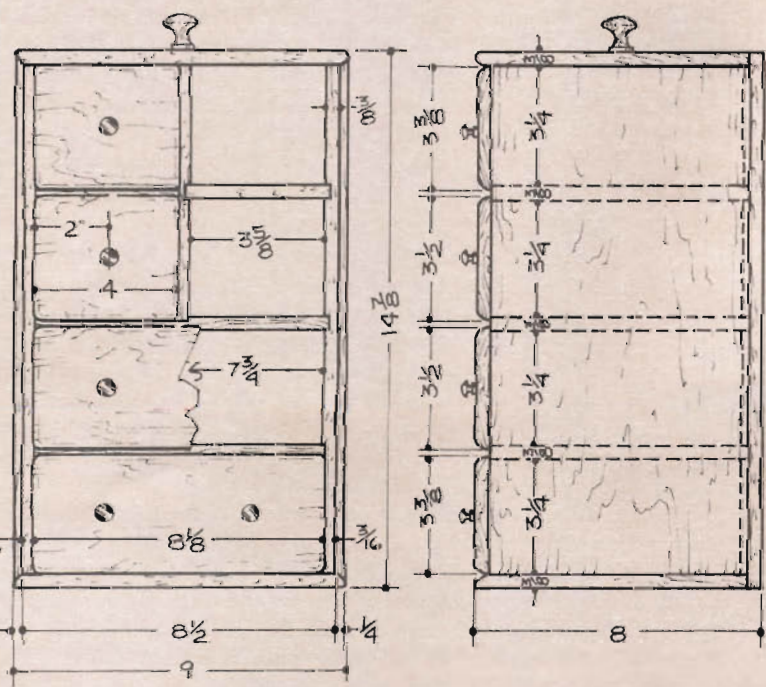
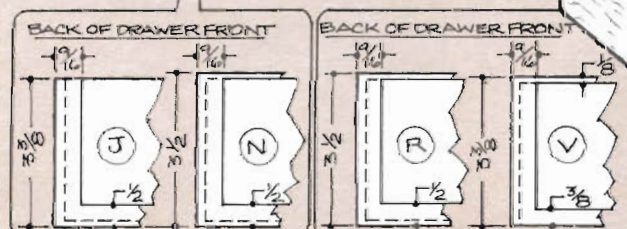
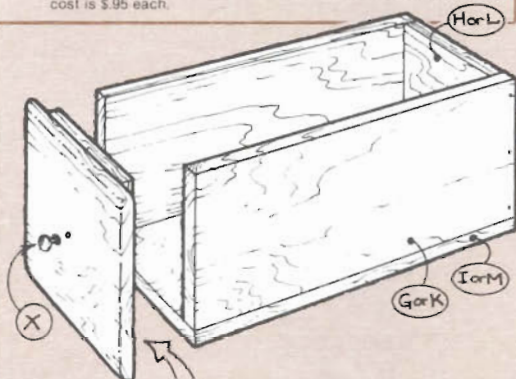
Finish the drawers before mounting the $\frac{1}{2}$ in. diameter brass drawer knobs (X). Several applications of Watco brand penetrating oil will impart an attractive natural patina to the wood, a look the Shakers preferred because it was restrained and not ostentatious.

The $1\frac{1}{4}$ in. diameter wooden knob on the sewing box top (used for carrying the sewing box) can be turned on the lathe, or a similar $1\frac{1}{4}$ in. knob can be ordered from Shaker Workshops, P.O. Box 1028, Concord MA 01742. Specify part number W341. The knob is tenoned in the traditional Shaker fashion. Drill a $\frac{1}{2}$ in. diameter hole in the top to accept the knob tenon, and glue the knob in place. W&J

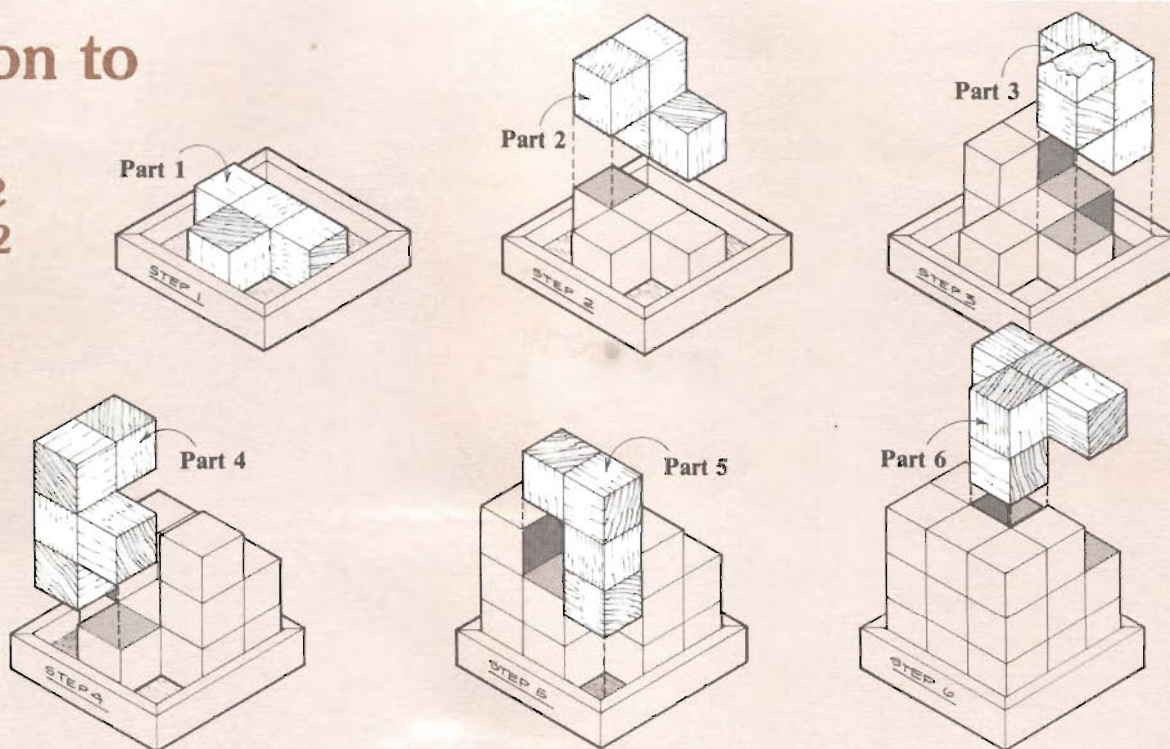
Part	Description	Size	No. Req'd.
A	Top & Bottom	$\frac{1}{2}$ x $7\frac{1}{2}$ x 9	2
B	Side	$\frac{1}{2}$ x $7\frac{1}{2}$ x $14\frac{1}{2}$	2
C	Back	$\frac{1}{2}$ x $8\frac{1}{2}$ x $14\frac{1}{2}$	2
D	Wide Spacer	$\frac{1}{2}$ x $7\frac{1}{2}$ x 8	2
E	Narrow Spacer	$\frac{1}{2}$ x $7\frac{1}{2}$ x $3\frac{1}{2}$	2
F	Divider	$\frac{1}{2}$ x $7\frac{1}{2}$ x 7	1
Small Drawer (upper)			
G	Side	$\frac{1}{2}$ x $2\frac{1}{2}$ x 7	4
H	Back	$\frac{1}{2}$ x $2\frac{1}{2}$ x $2\frac{1}{2}$	2
I	Bottom	$\frac{1}{2}$ x $3\frac{1}{2}$ x 7	2
J	Front	$\frac{1}{2}$ x $3\frac{1}{2}$ x 4	2
Small Drawer (lower)			
K	Side	$\frac{1}{2}$ x $2\frac{1}{2}$ x 7	4
L	Back	$\frac{1}{2}$ x $2\frac{1}{2}$ x $2\frac{1}{2}$	2
M	Bottom	$\frac{1}{2}$ x $3\frac{1}{2}$ x 7	2
N	Front	$\frac{1}{2}$ x $3\frac{1}{2}$ x 4	2
Large Drawer (upper)			
O	Side	$\frac{1}{2}$ x $2\frac{1}{2}$ x 7	2
P	Back	$\frac{1}{2}$ x $2\frac{1}{2}$ x 7	1
Q	Bottom	$\frac{1}{2}$ x 7 x $7\frac{1}{2}$	1
R	Front	$\frac{1}{2}$ x $3\frac{1}{2}$ x $8\frac{1}{2}$	1
Large Drawer (lower)			
S	Side	$\frac{1}{2}$ x $2\frac{1}{2}$ x 7	2
T	Back	$\frac{1}{2}$ x $2\frac{1}{2}$ x 7	1
U	Bottom	$\frac{1}{2}$ x 7 x $7\frac{1}{2}$	1
V	Front	$\frac{1}{2}$ x $3\frac{1}{2}$ x $8\frac{1}{2}$	1
Knobs			
W	Top Knob	See Detail	1
X	Drawer Knob	$\frac{1}{2}$ in. Diameter Brass*	8

TOP KNOB (W)

1 1/4"
1 1/2" DIA.
5/8" DIA.
1 1/2" DIA.
1 1/4" DIA.

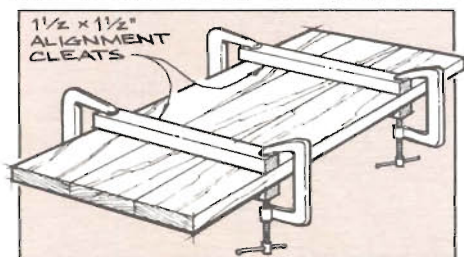


Solution to Block Puzzle on page 52



Shop Tips

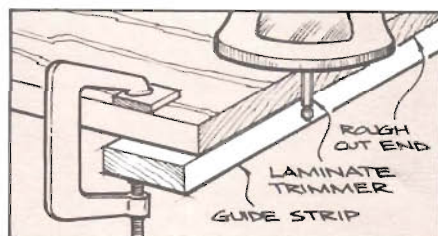
Here's a way to help keep boards aligned when edge gluing stock. Cut alignment cleats to approximately 1½ in. square and thoroughly coat each cleat with paste wax. Apply glue to the mating surfaces of the stock, then butt the glued surfaces together. Add the alignment cleats as shown, but apply only light clamping pressure. Next use bar (or pipe) clamps to apply firm clamp pressure to the edge-glued stock. Once the bar clamps are in



place, the alignment cleat clamps can be firmly tightened to keep the boards in line. The paste wax keeps the glue from sticking to the cleats.

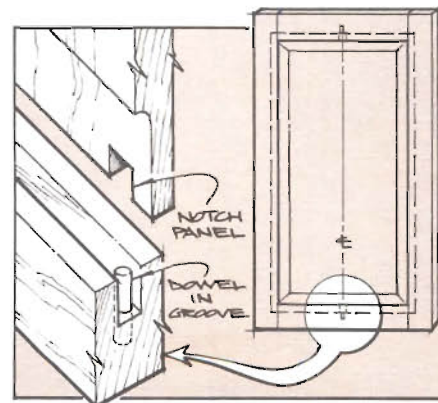
Tabletops usually measure at least 36 in. wide. Crosscutting them to length can be a problem because most table or radial-arm saws can't handle stock that wide. Here's a technique that will make it easier next time you need to tackle the problem. Scribe a cut line on one end of the tabletop (make sure it's at right angles to the sides), then use a saber saw to cut across the stock, staying exactly on the line. Next, clamp a guide strip on the underside of the table at a point about ¼ in. from the sawn end.

Before clamping make sure the guide strip is at right angles to the sides. Now, using



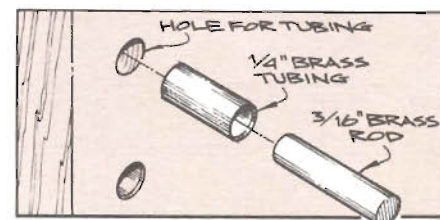
the router equipped with a laminate trimmer bit, trim the end of the stock as shown.

A spot of glue is often used to anchor the top and bottom centerpoints of floating panels. However, the movement of the wood due to changes in humidity can cause the glue joint to break away. For



a permanent anchor point, bore a small hole in the groove of the top and bottom rail, then glue a dowel pin in the hole. Notch the panel to fit over the pin as shown, then assemble the frame and panel in the usual way.

Brass rod and tubing, cut to short lengths, can be used to make a shelving system that's both attractive and durable. Bore ¼ in. diameter holes in the sides of the case, spaced to suit, then apply a thin coat



of epoxy glue to the outside of the tubing and tap it in place. Allow the end to protrude about ¼ in. so that it can be sanded flush. If desired, a chamfer bit (or twist drill) can be used to apply a bevel to the inside of the exposed end. After cutting the ¼ in. brass rod to length, use 220 grit sandpaper to add a slight bevel to each end, then insert the pin in the tubing.

Many magazines, *The Woodworker's Journal* included, publish drawings on a grid pattern to facilitate enlarging. If you don't like to work with grid patterns, most good photocopy centers, for a small fee, will enlarge the drawing to actual size.

Jim Reese
Charleston, S.C.

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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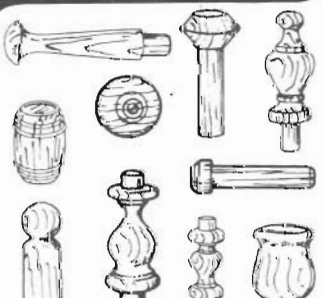
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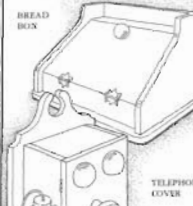
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Wood supplies: Shaker pegs, candle cups, dowels, toy parts, bulk prices available. Free catalog. Rainbow Woods, 47 Glenmar, Newnan, GA 30263

Combination lock post office box doors. \$7.50 each ppd. Banks \$40.00 ppd. Clayton, 1500 Huntcliff Way, Clinton, MS 39056.

Polymer Resin — for clocks, plaques, decoupage, etc. Quart pkg. \$8.00, gallon pkg. \$21.00. Quantity discounts. The Treasure Chest, PO Box 54, Havre de Grace, MD 21078. 939-4468. Toll free out of state 1-800-638-4853.

Learn woodcarving. Make decoys. Whittle. Catalog \$1.00 (refundable). Silverlake WJ510, Box 930056, Norcross, GA 30093

Band Saw Owners — A new tool is now available so you can make or repair any length Band Saw Blade in minutes! This professional quality tool was developed for use in our own shop and has proven itself with hundreds of high quality, true running splices. Our splicer enables any craftsmen to purchase economical 100 foot rolls of band saw blade stock and make up any length blade quickly and easily. The resulting silver brazed joint normally outlasts the service life of the blade. Tools to accommodate blade widths from 1/8" to 1 1/2" are available starting at \$45.00 ppd. The tool comes complete with detailed instructions and supplies for approximately 100 splices. We also carry additional supplies as well as Olson band saw stock at reasonable prices. Send SASE for free information to: New Milford Specialties Co., 24A South Main St., Dept. WJ, New Milford, CT 06776.

Free Turncraft Clock catalog — 72 pages of Clock movements, dials, component parts, 35 Clock plans. Quantity prices available. Send \$2.00 for shipping. Turncraft Clock Imports Co., 7912 Olson Hwy. 55, Golden Valley, MN 55427 Dept. WJS085.



Early American
Tall Clock

Next Issue . . .

Here are a few of
the projects we've
lined up for the
November/December
issue of
**The Woodworker's
Journal.**

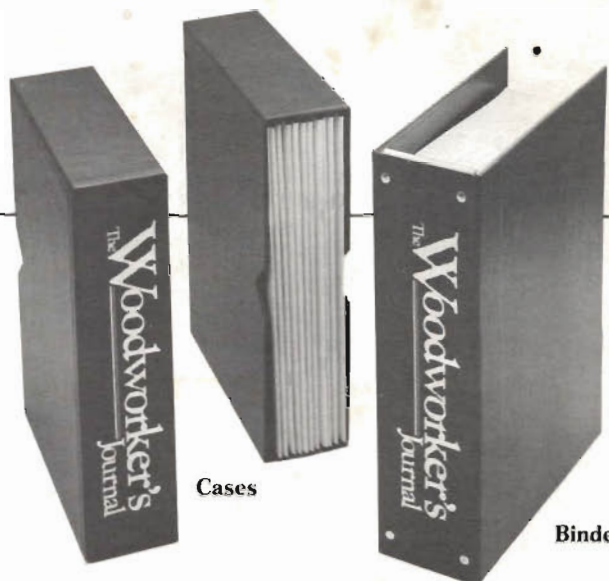


Shaker Washstand



Oak Dining
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