

The Woodworker's Journal

Vol. 15, No. 5 \$3.95 (Canada \$4.50)

4 Easy-to-Make
Kitchen
Projects

Build this Handsome Gun Cabinet...

- Secret Compartments
- Making Dadoes
- New Safe Strippers
- Jigs for the Table Saw

Tool Review:
Scroll Saws

... or add
shelves for a



**Bookcase/
Curio Cabinet**

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Mortising/Tenoning Table • Dump Truck Toy

September/October 1991



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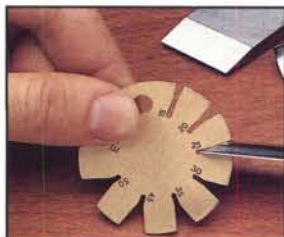
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The Woodworker's Journal

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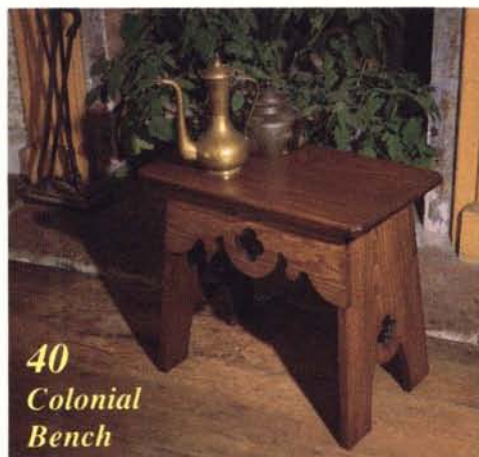
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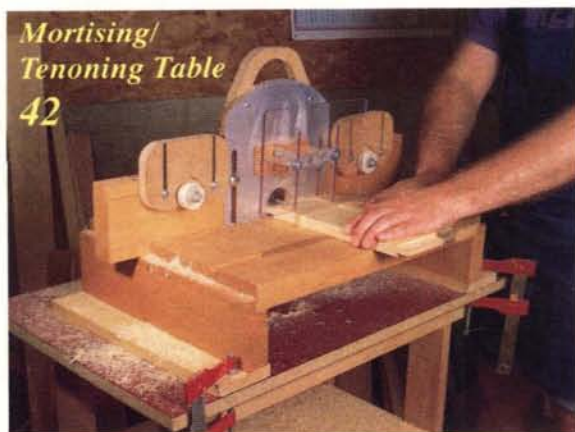


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Shoptalk

Reader requests for a gun cabinet kept popping up regularly in our mail, so late last year we started the design process, which always seems to take much longer than expected.

It was soon apparent that one of the main problems in designing a gun cabinet is the fact that there are so many different types of guns. There are short military carbines, very long Kentucky rifles, Civil War muskets and in between are the modern rifles and shotguns that most hunters use. So how does one determine the most practical height for a gun cabinet?

My forty-year-old 16 gauge shotgun provided the basic starting point. Fortunately, we have an excellent gun shop nearby and we were able to examine modern and antique weapons to help in determining the size of the upper case.

The cabinet that finally evolved is by necessity a compromise. It will be best if you tailor the dimensions, particularly the height, to suit your specific weapons. Extra space at the top can always be used to good advantage for the display of handguns or perhaps a few decoys.

Upon completion, it was apparent that the cabinet was handsome enough to serve other purposes, and mindful of the fact that not all of our readers are gun collectors, we added removable shelves to convert it to a bookcase or curio cabinet.

As with any major project we present, I'll look forward to receiving your comments, suggestions and photos of the finished piece. Incidentally, while space does not permit us to publish such letters and photos, we are nonetheless delighted to receive them and have a large bulletin board where they are displayed for the staff and visitors.

While I'm on the subject of readers' letters, after 15 years of reading them, I can say with certainty that woodworkers are a good humored bunch. Back in the early spring we sent out a batch of notices to subscribers who were late in renewing their subscriptions. On the outside of the envelopes we hand stamped a message that said "We've missed you." One of the notices came back with a note that said "If you miss me so much, how come you didn't send me a Christmas card?"

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#602		3/16" Spiral Cutter		3/16"	5/8"	1/4"	\$12.00
#603		1/4" Spiral Cutter		1/4"	3/4"	1/4"	\$12.00
#903		1/4" Spiral Cutter		1/4"	3/4"	1/2"	\$12.00
#904		3/8" Spiral Cutter		3/8"	1"	1/2"	\$24.00
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#209		3/8" Round Over	3/8" R	1 1/4"	5/8"	1/4"	\$15.00
#355		1/2" Round Over	1/2" R	1 1/2"	3/4"	1/4"	\$17.00
#656		3/4" Round Over	3/4" R	2"	7/8"	1/2"	\$21.00
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#340		1/8" Cove	1/8" R	5/8"	3/8"	1/4"	\$12.00
#205		1/4" Cove	1/4" R	1"	1/2"	1/4"	\$12.00
#206		3/8" Cove	3/8" R	1 1/4"	5/8"	1/4"	\$13.00
#207		1/2" Cove	1/2" R	1 1/2"	5/8"	1/4"	\$14.00
#208		3/4" Cove	3/4" R	1 7/8"	3/4"	1/2"	\$26.00
#460		1/4" Bull Nose	1/4" Dia. of Circle		3/8"	1/4"	\$14.00
#461		3/8" Bull Nose	3/8" Dia. of Circle		3/4"	1/4"	\$15.00
#462		1/2" Bull Nose	1/2" Dia. of Circle		7/8"	1/4"	\$16.00
#464		3/4" Bull Nose	3/4" Dia. of Circle		1 1/8"	1/4"	\$21.00
#506		1/2" Pattern	Flush Trim	1/2"	1"	1/4"	\$15.00
#507		5/8" Pattern	Flush Trim	5/8"	1"	1/4"	\$16.00
#508		3/4" Pattern	Flush Trim	3/4"	1"	1/4"	\$17.00
#366		1/8" Slot Cutter	3/8" Deep	1 1/4"	1/8"	1/4"	\$14.00
#368		1/4" Slot Cutter	3/8" Deep	1 1/4"	1/4"	1/4"	\$14.00
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#211		3/8" Core Box	round nose	3/8"	3/8"	1/4"	\$10.00
#212		1/2" Core Box	round nose	1/2"	1 1/2"	1/4"	\$13.00
#418		3/4" Core Box	round nose	3/4"	5/8"	1/4"	\$15.00
#213		1" Core Box	round nose	1"	3/4"	1/2"	\$17.00
#214		1/4" Straight	plunge cutting	1/4"	3/4"	1/4"	\$ 6.50
#215		5/16" Straight	plunge cutting	5/16"	1"	1/4"	\$ 6.50
#216		3/8" Straight	plunge cutting	3/8"	1"	1/4"	\$ 6.50
#217		7/16" Straight	plunge cutting	7/16"	1"	1/4"	\$ 6.50
#474		1/2" Straight	plunge cutting	1/2"	1"	1/4"	\$ 7.00
#775		1/2" Straight	plunge cutting	1/2"	2"	1/2"	\$14.00
#218		5/8" Straight	plunge cutting	5/8"	1"	1/4"	\$ 7.00
#219		3/4" Straight	plunge cutting	3/4"	1"	1/4"	\$ 9.50
#220		1" Straight	plunge cutting	1"	1 1/2"	1/2"	\$11.00
#500		3/8" Flush	Trimming	3/8"	1/2"	1/4"	\$ 7.00
#502		1/2" Flush	Trimming	1/2"	1/2"	1/4"	\$ 7.50
#503		1/2" Flush	Trimming	1/2"	1"	1/4"	\$ 8.50
#221		1/2" Flush	Trimming	1/2"	1 3/16"	1/2"	\$ 8.00
#545		Tongue & Groove	Straight	1 5/8"	1"	1/4"	\$29.00
#845		Tongue & Groove	Straight	1 5/8"	1"	1/2"	\$29.00
#546		Tongue & Groove	Wedge	1 3/16"	1"	1/4"	\$29.00
#846		Tongue & Groove	Wedge	1 5/8"	1"	1/2"	\$29.00
#450		1/8" Beading	1/8" R	3/4"	3/8"	1/4"	\$11.00
#451		3/16" Beading	3/16" R	7/8"	1/2"	1/4"	\$11.00
#233		1/4" Beading	1/4" R	1"	1/2"	1/4"	\$13.00
#453		5/16" Beading	5/16" R	1 1/8"	1/2"	1/4"	\$14.00
#454		3/8" Beading	3/8" R	1 1/4"	5/8"	1/4"	\$15.50
#455		1/2" Beading	1/2" R	1 1/2"	3/4"	1/4"	\$17.00
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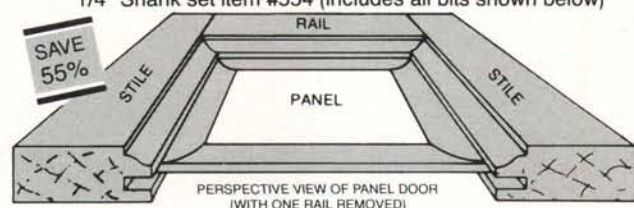
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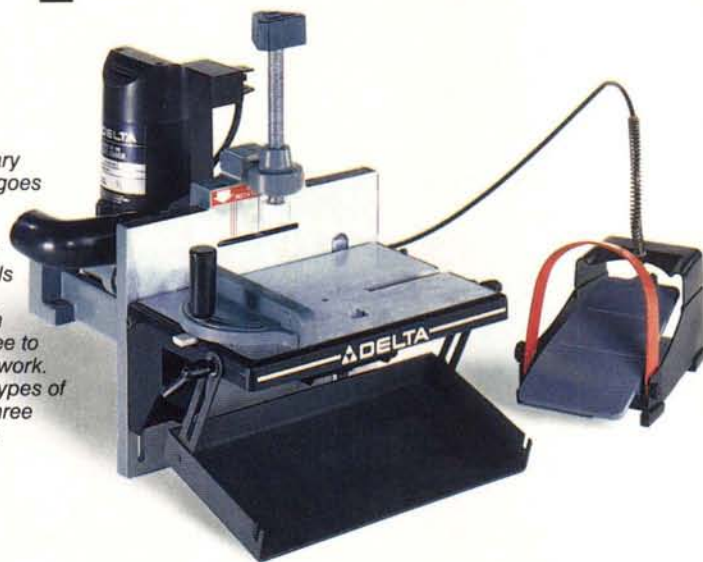


Investment portfolio.

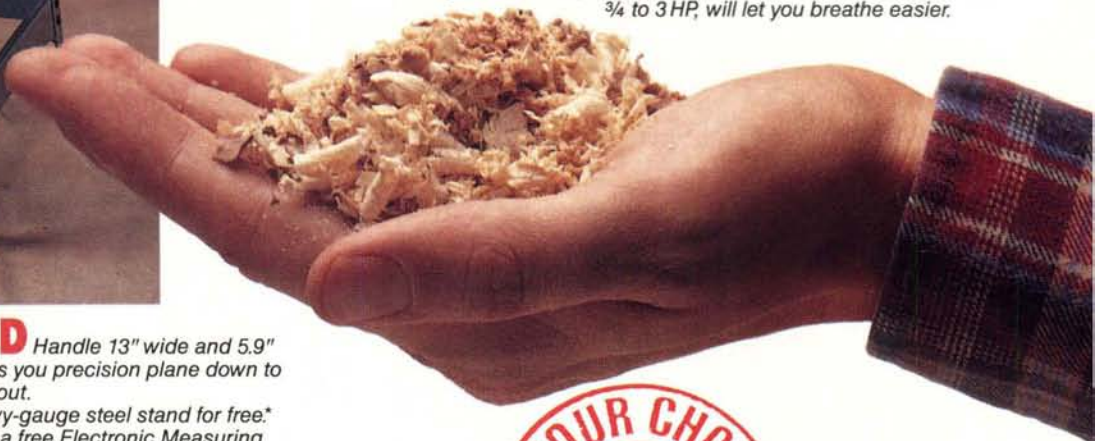


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Letters

We welcome opinions and comments (both pro and con) from our readers. Address correspondence to: Letters Department, *The Woodworker's Journal*, P.O. Box 1629, New Milford, CT 06776.

We very much enjoyed Nick Cook's article "Turning Small Boxes," which was featured in your July/August 1991 issue. The clear descriptions and simple techniques encouraged us to attempt duplication—and we were successful. Of significance, he did not lean upon several expensive accessories which might have limited use. Hopefully, you will have more lathe turning articles in the future.

Robert J. McNeil, Cambria, Calif.

Your September/October 1989 issue had plans for a Space Shuttle Toy. I made two of them and they are just great. In the plans, you listed the company Barrels of Fun as a source for the wheels,

the NASA and U.S. Flag decals, and the miscellaneous screws and washers. However, I've been told by Barrels of Fun that they can no longer supply the parts. Can you suggest an alternate source?

Emil M. Harenberg, Lady Lake, Fla.

We called Barrels of Fun and learned that they will be unable to stock the parts because they have discontinued making the Space Shuttle Toy. They told us, however, that the wheels are a common hardware store item, as are the wood screws, drywall screws, machine screws, T-nuts and washers. Peel-and-stick vinyl letters, sold at stationery stores, can be used for the NASA logo. (The type style won't match NASA's logo, but kid's aren't likely to mind). A suitable flag decal can be found at just about any hobby shop.

I enjoy woodcarving and whittling. Is there a magazine out there that is solely directed to these interests?

David C. Smith, Olney, Md.

The magazine *Chip Chats* is a good one. It's published bimonthly by the National Woodcarvers Association, 7424 Miami Ave., Cincinnati, OH 45243; tel. 513 561-0627. The \$8 annual membership includes a subscription to the magazine.

Your July/August 1991 issue featured the article, "Thin Kerf Blades—Can Less Be More?" I was disappointed that the Roadrunner ultra-thin kerf carbide blade was not included in the listings or discussion of thin kerf blades. This blade is manufactured by our client, the Oldham United States Saw Company.

The 10 in. Roadrunner has a $\frac{5}{8}$ in. arbor and a kerf of .080, making it the thinnest-kerf blade of all the models and manufacturers you cited. It is a high-quality, high performance product that is made in the U.S.A. The 36-tooth model Roadrunner was introduced two years ago. A new 60-tooth model, for smoother cutting, is now available too.

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103B	1/4		5/16	13.00	404B	1/4		1-5/8 3/4 15.00	
104B	1/4		3/8	14.00	405B	1/4		1-3/4 7/8 16.00	
105B	1/4		1/2	16.00	406B	1/4		1-7/8 1 19.00	
107B	1/2		1/4	13.00	601	1/4	Core Box	1/4 1/4 9.00	
109B	1/2		3/8	15.00	602	1/4		3/8 3/8 10.00	
110B	1/2		1/2	16.00	603	1/4		1/2 3/8 12.00	
112B	1/2		3/4	20.00	604	1/4		5/8 5/8 13.00	
113B	1/2		1 32.00		605	1/4, 1/2		3/4 5/8 14.00	
115B	1/2		1-1/4 41.00		607	1/2		1 3/4 18.00	
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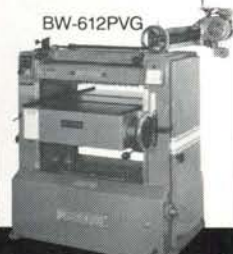
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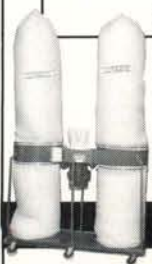
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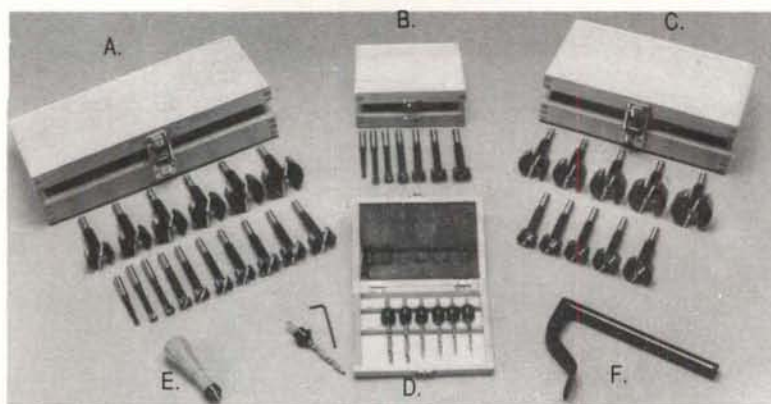
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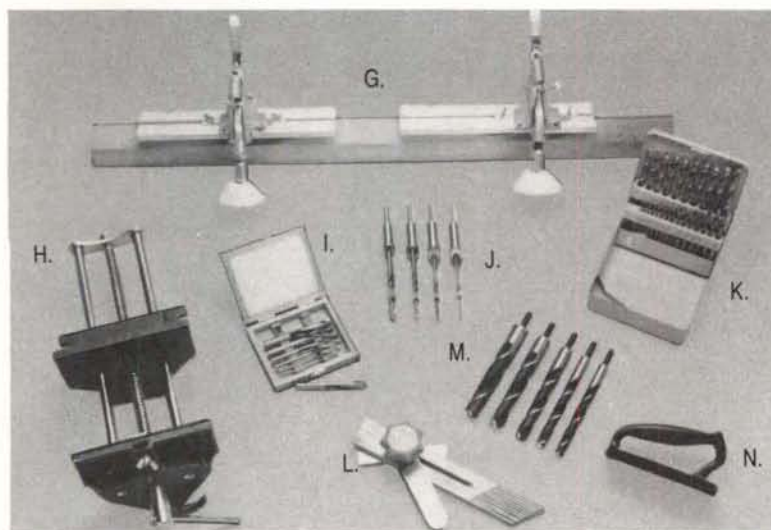
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Odds and Ends

The Rainforest Action Network (RAN) is a non-profit organization working to protect the world's tropical rainforests and support the rights of native forest people. They believe the first step toward that goal is to "reduce the indiscriminate consumption of rainforest timber by industrialized nations."

RAN has recently published *Wood Users Guide*, by Pamela Wellner and Eugene Dickey, a book that explains how tropical woods are used in construction and how to identify them. It also suggests alternative woods. The book, which costs \$7.50, can be ordered from The Rainforest Action Network, 301 Broadway, Suite A, San Francisco, CA 94133 or call 1-800-989-RAIN.

On September 7th, members of the Arizona Association of Fine Woodworkers (AAFW) will be holding their Christmas Toy Workshop. The workshop is free, and all toys that are made will be donated to charity organizations. Readers in the greater Phoenix area can write for membership information to: AAFW, P.O. Box 44264, Phoenix, AZ 85064-4262.



Your safety is important to us...

We strive to present our plans and techniques as accurately and safely as possible, and we try to point out specific areas and procedures where extra caution is required. But because of the variability of local conditions, construction materials and personal skills, we can't warn you against all potential hazards. Remember to exercise common sense and use safety measures when operating woodworking power equipment. Don't attempt any procedures you're not comfortable with or properly equipped for. Sometimes, for the sake of clarity, it's necessary for a photo or illustration to show power tools without the blade guard in place. In actual operation, though, you should always use blade guards and other safety devices on power tools that are equipped with them. Remember... an ounce of prevention really is worth a pound of cure.

—The Editors

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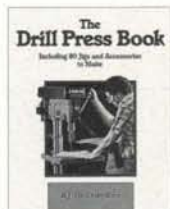
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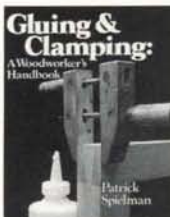
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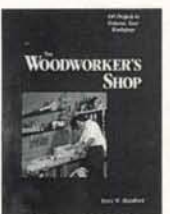
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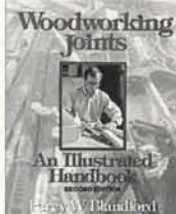
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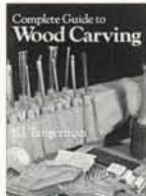
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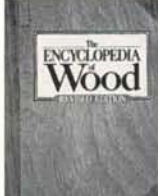
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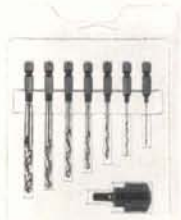
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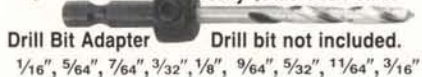
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New Product Review

Sure-Splice Band Saw Blade Splicer

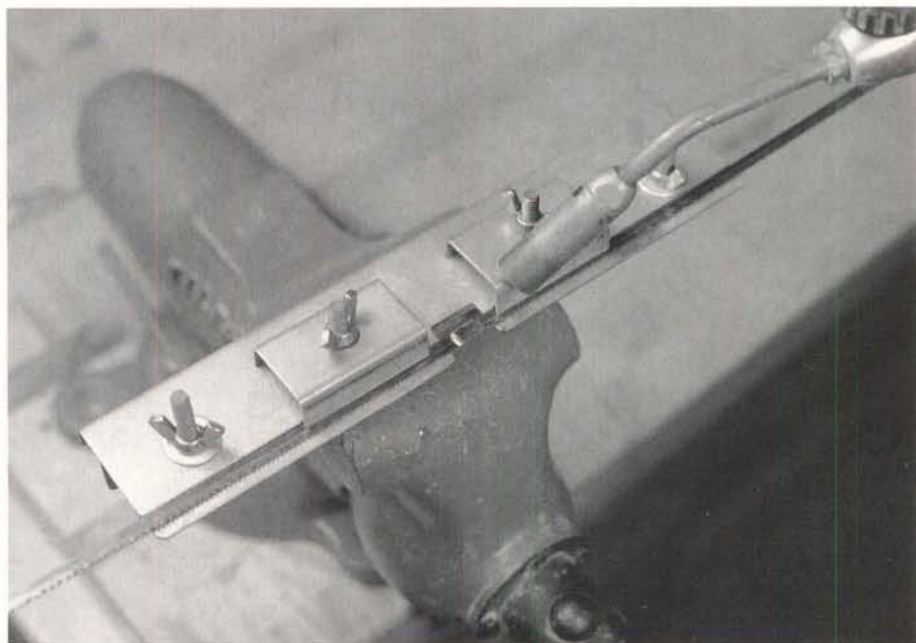
by Dennis Preston

A band saw blade usually breaks before it wears out. And when it does break, it seems that there's never a replacement handy. If that's not reason enough to splice your own blades, consider this: You can buy blade stock in 100 ft. coils and make blades for about half the cost you're probably now paying. And if your saw takes an odd size blade, you'll have a wider selection than what's generally available at the hardware store.

alignment while soldering. It can be mounted in a vise and is adjustable for blade widths from 1/16 in. to 3/4 in. Also included are a small container of soldering flux and a strip of silver solder—enough for about 30 joints. You will need a standard propane torch, a grinder or belt sander and a wet rag.

How It Works

The strength of the joint depends on the care taken in the preparation. Using a grinder or belt sander, grind a scarf on each end of the blade. Plans are provided so you can make a simple jig to hold the blade ends while grinding. Apply flux to the scarf. Align the blade in the fixture



Band saw blades can be joined by welding or soldering. Blade welders cost several hundred dollars, so they're not too common in the home shop. But, having just finished trying out the Sure-Splice, a solder-type blade splicing kit, I found that you can have the advantages of a welder at a fraction of the cost.

Silver-Soldered Joint

The Sure-Splice kit allows you to silver-solder the blade joint. Silver-soldering produces a very strong joint yet can be accomplished with a propane torch at a relatively low temperature.

The Sure-Splice is a formed steel jig that holds the ends of the blade in

and slip a piece of the silver solder (enough to cover the scarf) into the joint. Heat the joint with a propane torch until the solder melts. When heating I found that a low to medium flame was better than really trying to cook it. Overheating caused all the silver solder to flow out of the joint leaving nothing to hold it together.

Once the solder melts, remove the heat and cool the area with a wet rag. Grind the joint smooth. That's all there is to it! The kit is simple, works well and the economy speak for itself.

Sure-Splice costs \$29.95 and is available from J.K. Woodcraft, 3395 Aquinas Dr. Rochester, MI 48309; tel. (313) 375-1141.



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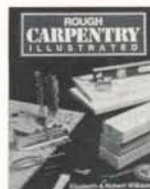
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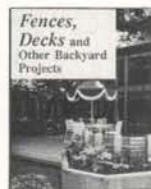
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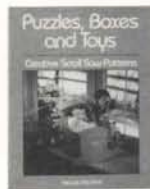
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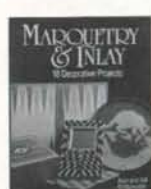
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Product News

To keep our readers up-to-date, this column features brief descriptions of new tools and supplies on the market. The product descriptions are provided by the manufacturer and are not the result of tests or reviews by the editors of *The Woodworker's Journal*.

Speed Bench

Instant Clamping System

Speed Bench is the 3-in-1 clamping workbench made by Tekton Tools. Its unique mechanism makes Speed-Bench an instant clamping system, a quick release tool stand, and a stand-alone workbench. Speed Bench's clamping system holds materials from thin panelling to 4 in. timber quickly and securely. To operate the clamping system, just step down once on the foot treadle to lock and again to release.

For more information write or call Tekton Tools, Inc., 9020 Capitol of Texas Highway North, Suite 220, Austin, TX 78759.



FineCoat Low Overspray Finishing System

The FineCoat Sprayer is a new high-volume, low-pressure power sprayer designed for fine finishes. The sprayer can be used with a variety of light-bodied finishes including stains, varnishes, urethanes, lacquers, shellacs, enamels and oil based paints. Heavier-bodied materials, such as latex, can also be used if they are thinned. Transfer efficiency—the amount of material reaching the intended surface—is 86 percent, resulting in less overspray, material waste, and cleanup time than with airless or compressor-type systems. Spray widths range from 1/4 in. to 12 in. in horizontal, vertical and circular patterns.

For information contact Wagner Spray Tech Corp., 1770 Fernbrook Lane, Minneapolis, MN 55441; tel. (612) 553-7000.

Waterproof Titebond II Wood Glue

Franklin International has developed a new one-part waterproof wood glue called Waterproof Titebond II Wood Glue to offer professional woodworkers better water resistance than original Titebond plus Type II water resistance.

This new adhesive is ideal for outdoor use. It offers superior heat resistance and it sands easily without softening and has strong initial tack. It is freeze/thaw stable, paintable and cleans up easily with water when wet. It is nontoxic and nonflammable, and offers peak performance on wood, paper, cloth, hardboard, particleboard and most other porous surfaces.

Waterproof Titebond II is available in 4 oz., 8 oz., 16 oz., and one-gallon plastic bottles, and five-gallon plastic pails.



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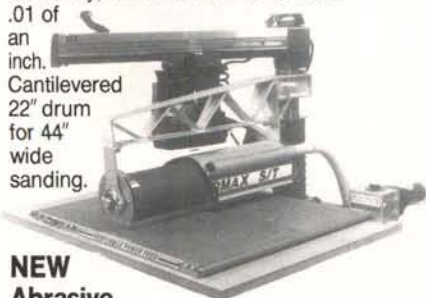
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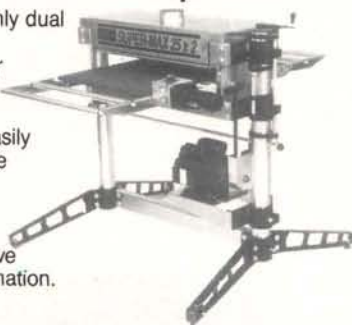


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Shop Tips

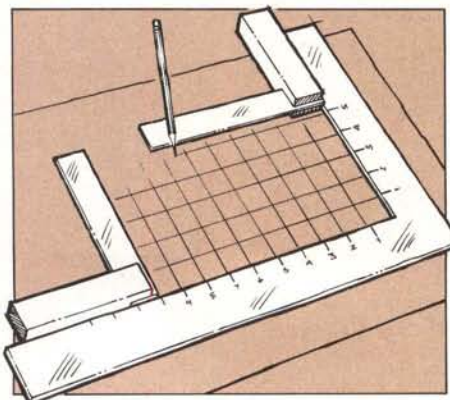
I wear a dust mask when using my scroll saw. I also like to be able to see the cutting line on my workpiece, but because the dust blower on my machine does not work very effectively, the line often gets covered with sawdust. I solved the problem by inserting a straw through the front of my mask. Now, when the sawdust covers the line, I need



only put the end of the straw in my mouth and, with a short puff, blow the dust away.

Joseph C. Frano, DuBois, Penn.

Here is a quick and easy way to lay out grids when you need to enlarge grid patterns. Using two squares (a framing square and a try square will work fine), position one of them over the paper and hold it firmly in place. Use a clamp or



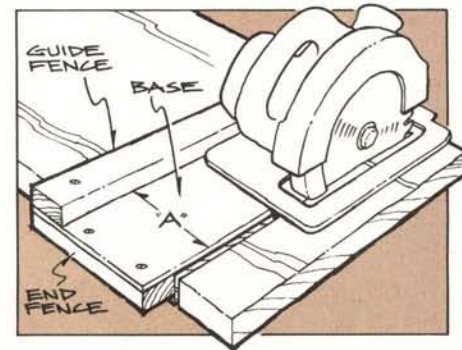
two to hold it, if necessary. Place the second square inside the first, then slide it along the edge and scribe the lines as needed. Use one leg of the square to mark vertical lines, the other to mark horizontal lines.

Barry Weaver, Lexington, N.C.

Many stains, paints, and clear finishes have a limited shelf life. Before putting away a half-empty can, it's a good idea to mark the current date on the can's label. Next time you need to use the finish, you'll have a written record of how long it's been sitting on the shelf.

This jig is a real timesaver when using a portable circular saw to crosscut stock. It will enable you to quickly establish a square cut exactly where you want it.

The base is made from 1/4 in. hardboard, while the end and guide fences are 3/4 in. by 2 in. pine. The distance between the edge of the guide fence and the right-side edge of the jig (shown as



dimension "A") should be equal to the distance from the edge of the saw's baseplate to the saw blade. In order to insure a square cut, the guide fence must be square to the end fence.

It's as simple to use as it is to make. Just hold the end fence firmly against the edge of your stock and align the jig's right-side edge with your cutting line. Clamp the jig in place, then make the crosscut while bearing the saw against the guide fence. 

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, Attn: Shop Tip Editor. We redraw all sketches, so they need only be clear and complete. If you would like the material returned, please include a self-addressed stamped envelope.



Events

We will gladly list as many events of interest to woodworkers as space permits. Listings are free and may include shows, fairs, competitions, workshops and demonstrations. The deadline is eight weeks before publication—July 1 for the September/October 1991 issue. Please address announcements to the Events Department. Readers planning on attending events should call ahead if possible. Scheduled dates and locations sometimes change between publication and the date of the event.

Canada: Woodworking World, The Ottawa/Hull, Quebec Show, Palais des Congres, 200 Dubortage, Hull, Quebec. Sept. 13–15. For information call 1-800-521-7623.

The 1991 Pickering Wood Show, Metro East Trade Centre, just off Hwy 401 near Toronto, Oct. 18–20. For information call (519) 351-8344.

Connecticut: "New Views—A Show for Emerging Artists." Juried show of Connecticut handcrafts in all media, Guilford Handcrafts Center, Guilford, Sept. 29–Oct. 12. For information call (203) 453-5947.

For information on woodworking workshops at the Brookfield Craft Center, write to P.O. Box 122, Brookfield, CT 06804, or call (203) 775-4526.

Georgia: Woodworking World, The Atlanta Show, ELCO Exhibition Center, 5300 Goshen Springs Road, Norcross, Oct. 11–13. For information call 1-800-521-7623.

Illinois: The Woodworking Shows, Chicago, Inland Exposition Center, Westmont, Sept. 20–22. For information, call 1-800-826-8257.

Indiana: 50th Chautauqua of the Arts, Sept. 28–29, Madison. For information, call (812) 265-5080.

Maryland: The Woodworking Shows, Baltimore/Washington, Pikesville Armory, Baltimore, Oct. 25–27. For information, call 1-800-826-8257.

Massachusetts: Woodworking World, The New England Show, Eastern States Exposition Center, West Springfield,

Oct. 18–20. For information call 1-800-521-7623.

Michigan: The Woodworking Shows, Metro-Detroit, Michigan Fairgrounds, Detroit, Oct. 4–6. For information, call 1-800-826-8257.

Minnesota: The Woodworking Shows, Twin Cities, Minnesota State Fairgrounds, St. Paul, Sept. 27–29. For information, call 1-800-826-8257.

New Jersey: Woodworking World, The Morristown Show, William G. Mennen Sports Arena, 53 East Hanover Ave., Morristown, Sept. 27–29. For info call 1-800-521-7623.

Super Crafts Star Show, Meadowlands, East Rutherford, Oct. 18–20. For info call (914) 351-5171 or (212) 645-1630.

(continued on next page)

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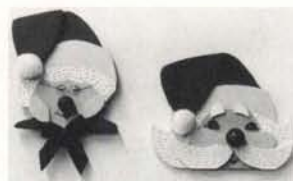
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Events Continued

New York: Woodworking World, The Albany Show, New Scotland Avenue Armory, Albany, Oct. 25-27. For information call 1-800-521-7623.

Woodworking World, The Central New York State Show, New York State Fairgrounds, Horticulture Building, Syracuse, Nov. 1-3. For information call 1-800-521-7623.

North Carolina: Carving Workshop, Sept. 7-8; Marquetry Workshop, Sept. 21-22; Craft Show, Oct. 11-13. For information contact Blue Ridge Hearthside Crafts, Rt. 1 Box 738, Banner Elk, NC 28604.

Woodworking World, The Carolina Show, M.C. Benton Jr. Convention and Civic Center, Winston-Salem, Oct. 4-6. For information call 1-800-521-7623.

The Foothills Woodcarvers Association show and competition, Oct. 11-13, Mount Airy. For information call Rick Brown after 6pm (EDT) at (919) 786-5028.

Ohio: The Woodworking Shows, Greater Columbus, Ohio Expo Center Columbus, Sept. 13-15. For information call 1-800-826-8257.

Oregon: The Woodworking Shows, Memorial Coliseum, Portland, Nov. 1-3. For information, call 1-800-826-8257.

Pennsylvania: For information on woodworking seminars at The Olde Mill Cabinet Shoppe, write to 1660 Camp Betty Washington Rd., York, PA 17402.

Yorkcarvers Woodcarving & Decoy Show, Sept. 21-22; Wolf Gymnasium, York College of Pennsylvania, York.

Tennessee: "Grading, Drying and Selling Lumber," for serious hobbyists and small businesses, Sept. 20-21. For information contact Bill Parrish, TVA Forestry Building, Norris, TN 37828; tel. (615) 632-1656.

Smoky Mountain Sculptures in Wood Show, Kerr Building, Golden Gloves Arena, Chilhowee Park, Knoxville, Oct.

5-6. For info contact Jack or Carole Williams, 2608 Reagan Rd., Knoxville, TN 37931.

Texas: Los Amigos del Mesquite Annual Convention, Competition and Trade Show, Sept. 13-15, Hyatt Motel, Austin. For more information write to Los Amigos del Mesquite, P.O. Box 68, Knippa, TX 78870.

Vermont: Woodworking World, The Burlington Show, Burlington Memorial Auditorium, 250 Main Street, Burlington, Sept. 20-22. For information call 1-800-521-7623.

A course in making Shaker Boxes for new and experienced woodworkers, Vermont State Craft Center at Frog Hollow, Middlebury, Sept. 16-17. For info call (802) 388-3177.

Virginia: The Woodworking Shows, Metro-Richmond, State Fair of Virginia, Richmond, Oct. 11-13. For information, call 1-800-826-8257. 



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Cabinetmakers' Supplies

Hardware Suppliers

As a service to our readers, *The Woodworker's Journal* periodically lists sources for various woodworking products. In this issue, we've included suppliers of specialty hardware. This is by no means a complete listing and we hope to include additional companies in future issues.

A Carolina Craftsman

975 S. Avocado St., Dept. WJ
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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 perhaps one of our readers will have an answer for you. Due to space limitations, we'll be unable to list all requests, but we'll include as many as possible.

I'd like to know where I can find roller bearings for a Ward's 10 in. Powr Kraft radial-arm saw, model 2610.

Gerald Ostermeier
306 E. Ives
McCausland, IA 52758

I recently bought my husband a Rockwell 6 in. jointer. It had no owner's manual or parts list. The only numbers I can find are CAT no. 37-220 and serial no. 301175. Can anyone help?

Sandra J. Bundy
9421 Portsmouth Drive
Huntington Beach, CA 92646

I need an owner's manual for a Craftsman floor model drill press, model no. 103-24821. I also need the motor pulley for this drill press.

James Kasten
P.O. Box 452
Hallstead, PA 18822

I need an owner's manual and parts list for: Craftsman 8 in. table saw, model no. 103.0213, Craftsman 4 in. jointer, model no. 103.23340, Shopmaster band saw, 78 in. long blade.

Louie Horvath
Box 2528
South Bend, IN 46680

I need to locate a source for rubber tires to fit 10 in. diameter wheels for an old band saw. I believe the saw was built by King Seely for Sears around 1930

George R. Bissey
9912 SW 196 St.
Miami, FL 33157

I need an owner's manual/parts list for a Super Shop, model no. 2737, manufactured by Power Tools, Inc. in Wisconsin.

Barbara Sweda
72 Arcade Avenue
Amherst, NY 14226

I need an owner's manual and parts list for a 14 in. band saw made by Sprunger Tools, Topeka, Ind. I also need

a new bearing and round blade guides for the slide where the blade runs.

Francis G. Howard
RR 1 Box 30
St. Anthony, IA 50239

I'm looking for an owner's manual and parts list for a Craftsman 10 in. table saw, model no. 113.22401 and a Craftsman 18 in. jigsaw, model no. 103.23151.

Jerry E. Angus
11 Byers Ave.
Portsmouth, VA 23701

I have a Sears 8 in. table saw, model no. 103.0213 and I need a parts list. I also need to know how the motor mounts. A picture might help.

William Borowski
500 S. Ashland Ave.
LaGrange, IL 60525

I have a saber saw that uses a 3/16 in. shank blade, which are no longer available. I'd like to use the 1/4 in. shank blade, but with the hole in the shank, it can't be filed or cut down. Does anyone know of a source for 3/16 in. shank blades or a 1/4 in. shank blade without a hole?

A.H. Wellbrock
6601 LaRoche Ave.
Savannah, GA 31406

I need an owner's manual and parts list for a Montgomery Ward Powr Kraft band saw, model no. 15FD2304B.

Donald L. Savercool
18 Frederick Drive
Apalachin, NY 13732-9485

I'm looking for manuals, parts, alignment charts etc. on the following machines: a 1943 Oliver band saw, model no. 116D, serial no. 57043; a 1930 Oliver 1 1/4 in. double spindle sander, model 288E, serial no. 38609; and a 19?? Fay & Egan 26 in. disc and spindle sander, model no. 454 or 141904.

Robert W. Crews
Plant Operations Dept.
Mill & Cabinet Shop
San Quentin State Prison
San Quentin, CA 94964

The Woodworker's Journal



Making Dadoes Simple Joints for Simple Casework

by Roger Holmes

I used to be a woodworking purist. Drawn to the craft by the technical challenge and functional beauty of traditional joinery, I was determined to use nothing else in my work. Humble bookcases and showpiece cabinets alike were to be properly dovetailed and tenoned together.

As you might imagine, I didn't earn a lot of money at this. But for quite awhile I found just enough indulgent clients to keep me going. I even hand-dovetailed every cabinet and drawer in two complete kitchens. Finally, faced with furnishing a large, empty house from scratch, I faltered. The client was very demanding, but absolutely unable to bankroll my obsession. It was my own house.

Many of the pieces of furniture in any house are little more than wooden boxes. If you can make a box, you can make a bookcase, a blanket chest or a kitchen cabinet. Slide several boxes into a larger box and you've got a chest of drawers or a desk. Forced to abandon time-consuming dovetails, but lacking

the funds to buy one of the recently introduced biscuit jointers, I realized that another traditional joint offered a solution. As simple and straightforward as the furniture I needed to make, dadoes would not only allow me to join case pieces together, but to install dividers, shelves or drawers in them.

Dadoes Can Do It All

In a dado joint, the end of one piece fits in a shallow groove (the dado) cut across the grain of another. The joint is a significant improvement upon its even simpler cousin, the butt joint. The shoulders of the dado provide great sheer strength—it is virtually impossible to break the joint by pushing straight down on a shelf, for instance. If the joint fits snugly, it has a surprising resistance to racking, where pressure diagonally across the case pushes it out of square. The addition of cabinet backs or chest and drawer bottoms greatly enhances this quality. Finally, the dado eases assembly by positively locating the parts and keeping them from slipping.

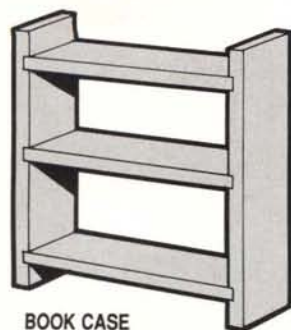
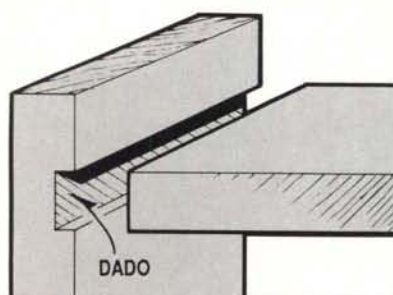
With only two types of dado joint you can make almost any case piece. The basic joint, where the dado houses the full thickness of its mate, is all that's needed to assemble bookcases, toy chests, wall hung cabinets or any other carcase where two of the sides can extend beyond the other two (Fig 1).

Where these "run-by" corners are impractical or unsightly, I use the modified dado joint shown in Fig. 2, which I call a dado-and-tongue. I first tried simple rabbet joints for these corners, but found them frustrating. With only one shoulder to bear against, a rabbet is only slightly more resistant to racking than a butt joint. And you need to apply pressure both horizontally and vertically to pull the joint tight. The dado-and-tongue is a bit more fuss to cut than a rabbet, but in return it offers all the advantages of a basic dado joint.

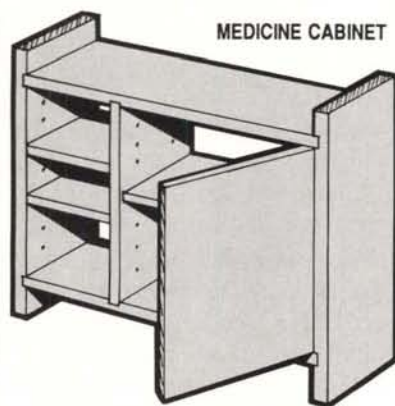
Drawers are boxes, too, and they're easily made with the basic dado and the dado-and-tongue, as shown in Fig. 3. Example 3A is the strongest of these; repeated use may loosen the fronts in

FIG. 1

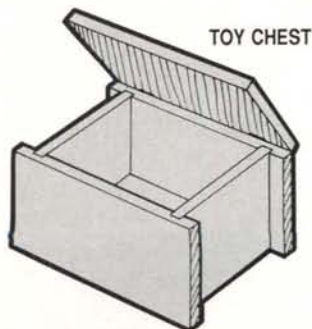
BASIC DADO JOINT



BOOK CASE



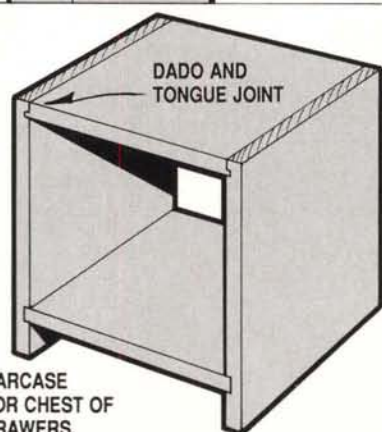
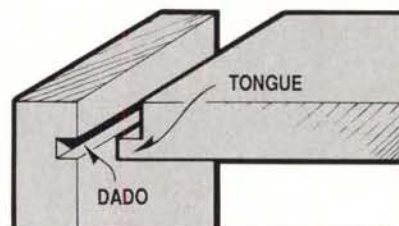
MEDICINE CABINET



TOY CHEST

FIG. 2

DADO AND TONGUE JOINT



CARCASE FOR CHEST OF DRAWERS, KITCHEN BASE CABINET, AND SO ON...

SIMPLE RABBET JOINT

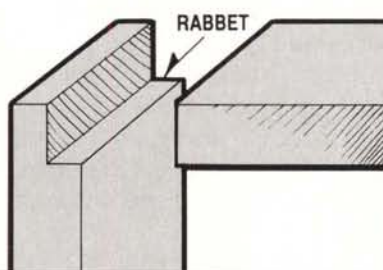
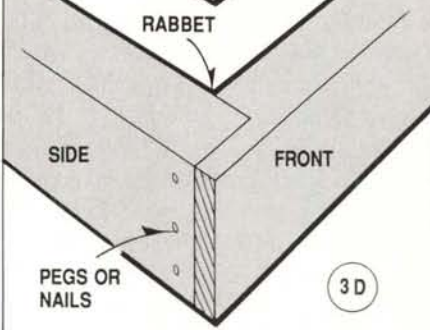
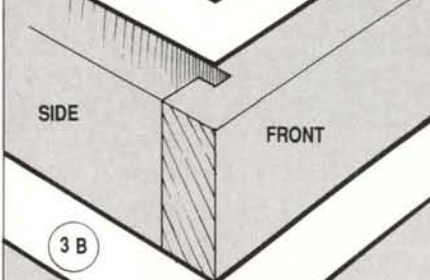
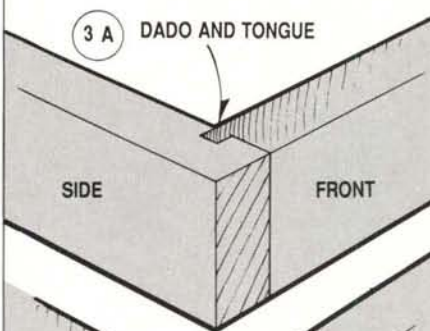
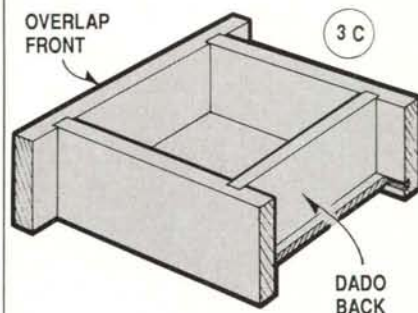


FIG. 3

DADO DRAWERS



examples 3B and 3C. If you don't want the ends of the drawer sides to show on 3A, cover them with a false drawer front, or switch to a rabbet joint (3D), reinforced by nails or dowel pegs.

Making the Basic Dado Joint

Cutting dados by hand, with backsaw, chisel and router plane, can be rewarding, but it's a time-consuming task. Machining them on the table saw with a sandwich of dado blades is much faster, but long or wide pieces can be difficult to maneuver across the table. A radial-arm saw solves that problem, but usually lacks an arm long enough to cut clear across wide pieces.

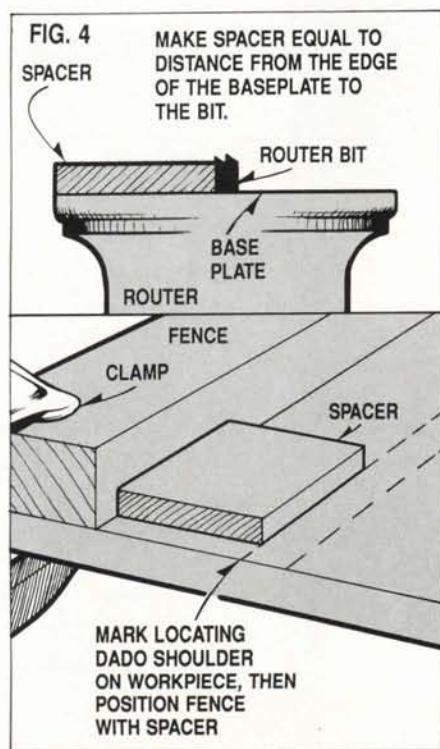
Lacking a radial-arm saw and tired of wrestling with my table saw, I turned to a power router. I could fix a piece of any width or length firmly to a workbench or

sawhorses and move the lightweight tool across it. To guide the router, I clamped a straight-edged piece of scrap wood across the work and ran the edge of the router base against it.

The method is straightforward and effective, but it has two drawbacks. First, if you're cutting more than a couple of dados, positioning the scrap wood fence for each one can be a time-consuming fiddle. I use a spacer

block as wide as the distance from the edge of the router's baseplate to the cutter. To set the fence, I move the spacer along a shoulder line squared across the workpiece in pencil (Fig. 4).

The second problem: The thickness of the workpieces almost never matches the router cutter close enough to produce a snug-fitting joint. You can plane or sand solid-wood parts to fit the dado, but plywood or other manufactured boards are more difficult to trim. Cutting the dado to fit the material makes more sense. But it requires taking two passes with the router, one to cut each shoulder. This entails another spacer block (from the edge of the baseplate to the other side of the cutter) and double the number of already tedious fence settings.



Despite these problems, I employed this method for years, speeding things up a bit by using a T-square fence. But each time I found myself setting and resetting the fence, I'd conjure up jigs for doing the job better. Finally, faced with another bookshelf to dado together, I decided to make one. The result is shown in Photo A and on page 28 (see "A Shop-Made Dado Jig").

A Jig for Dadoing

The jig consists of two fences, one for each dado shoulder, and two stocks, which bear on the edges of the workpiece. One fence and one stock are fixed together at a right angle, forming a T-square. Slots allow the other stock and fence to be positioned to accommodate boards up to 12 in. wide and dados up to about 1 1/2 in. wide. Two "clamps" in the adjustable stock bear upon the workpiece to hold the jig in place.



Photo A: A homemade jig makes routing dados quick and easy.

The final component is a set of guide bushings for the router. Guiding the cut against the edge of the baseplate, the distance between the fences is large and the jig unwieldy. With the bushings, the fences need only be slightly farther apart than the width of the dado itself. Bushing sets are available for most routers. Mine, which cost about \$16 from Woodcraft Supply (see Source of Supply), comes with a "universal" round baseplate that fits a variety of routers. (I had to file a couple of the slots to make it fit properly.)

My jig is poplar, but Baltic birch plywood, or medium-density fiberboard would have been better because they won't expand or contract with humidity changes. Take care to plane all the bearing edges dead straight. I routed the slots, clamping a fence to the router base and making numerous, increasingly deeper passes. The T nuts and 1/4 in. machine bolts, from the local hardware store, are recessed so the router can slide unobstructed on the fences and nothing hangs down below the jig.

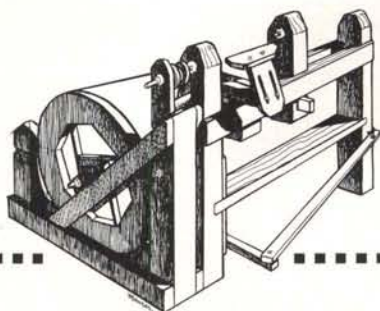
Making Spacers: After you've completed the jig, you need to make spacers for setting the fences. Find a piece of scrap wood about 18 in. long and at least 6 in. wide and 3/4 in. thick, and plane it flat and uniformly thick. Cut about 3 in. off one end (you'll need this later). Place the jig on the larger piece of scrap. Push the T-square fixed stock firmly against one edge and slide the adjustable stock against the other. Position the adjustable fence about an inch from the fixed fence and parallel to it. Tighten all the bolts and turn the clamps—very little clamping pressure is needed to hold the jig in place.

Set up the router with a bushing and bit (I use a 1/2 in. bit for dados over 5/8 in. wide) and cut a dado 1/8 in. to 1/4 in. deep. There will be a small gap between the dado shoulders and the fences, the size of the gap depending on the size of the bushing and cutter. Leave the jig in place while you make and fit four spacers, each about 1 in. wide, 2 in. long and as thick as the gaps. (Because my bit doesn't center exactly in the bushing, the two spacers for one fence are slightly thinner than those for the other.) By the way, if you switch to a different bushing and bit combination, you'll need to make another set of spacers. Ideally the spacer thickness should be one-half the difference between the bit and the bushing diameter.



Photo B: Set the jig fences with an offcut of the correct thickness and small spacers.

Fine tune the spacers by using them to set the fences to rout a dado for the short piece of scrap that you cut earlier. Loosen the adjustable fence, put the scrap between the fences and the two spacers on each side (near the stocks), as shown in Photo B. Pull the fences



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together with one hand while tightening the bolts with the other. Remove the spacers and scrap and rout the dado. If the scrap doesn't fit the dado like you want, adjust the thickness of the spacers. (If a spacer is too thin, you can pack it out with slips of paper rather than making a new one.)

By now, you may wonder if all this fuss is worthwhile. Making jigs can be tedious. It took me about a day to complete this one, much of that time spent cogitating, prowling the aisles of the hardware store and fixing mistakes. But a good jig can save you far more time and frustration in use than you expend in making it.

Working with the Jig: I haven't used this jig a lot yet, but it seems to fill the bill. I set the fences as described above, using an offcut of whatever is to fit in the dados—carcase top or bottom, shelves, dividers. (As a precaution, I rout a trial dado in scrap and adjust the fences if necessary.) Laying out the dados is simple. I locate a shoulder line for each dado by penciling one mark on the face of the workpiece where it meets the working edge. I also make a squiggle or an X to indicate whether to rout above or below the mark. You can place the two cabinet or bookcase sides together and mark all the dados at once, or mark the second side after routing the first. (The latter is a good precaution if, as I am, you're prone to routing on the wrong side of a mark or two.)



Photo C: Use a spacer to position the jig on a dado mark.

Once the jig is set up and the cuts laid out, routing a whole bookcase full of dados takes only minutes. I use one of the spacers to align the fixed fence with a mark (Photo C), tighten the clamps

slightly and make the cuts, then slide the jig to the next mark. Only one clamp can be set for dados near the ends of the workpiece, but that hasn't caused me any problems yet. A well-cut dado should fit together with no gaps or play, as shown in Photo D.

This jig is large enough for most bookshelves and shallow cabinets. I'm planning to make a bigger version for wider pieces. I'm sure there are many improvements that can be made to it, and I encourage you to experiment—that's half the fun of making a jig.



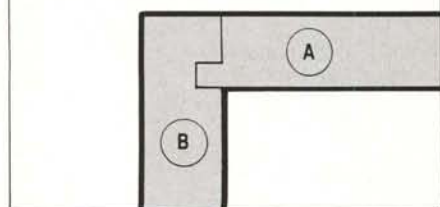
Photo D: A well-cut dado.

The Dado-and-Tongue Joint

Like the basic dado, the dado-and-tongue joint (Fig. 5) can be made in several ways. I use the table saw most of the time, but turn to the router for large carcasses with parts that are difficult to handle on the saw. Whatever the

DADO AND TONGUE ON THE TABLE SAW

FIG. 5



method, the proportions of the joint are the same. I make the tongue about one quarter to one-third as thick as the piece on which it is cut and about one-quarter to one-third as long as the thickness of the dadoed piece. I cut the dados slightly deeper than the length of the tongues to ensure that the joint goes together nice and tight (Photo E).



Photo E: Like its simpler sibling, the dado-and-tongue should fit snugly together.

On the Table Saw: Because this is a simple joint, it's easy and quick to combine layout and machine set up. Test your settings on offcuts of parts for the carcass. See Cutting the Dado and Cutting the Tongue for the complete sequence.

It's easiest to fit the tongue to the dados, so I dado first. With dado blades, dados of $\frac{1}{4}$ in. or wider can be cut in one pass with one fence setting. Otherwise you'll need to set the fence twice and make two cuts as shown in the sketches.

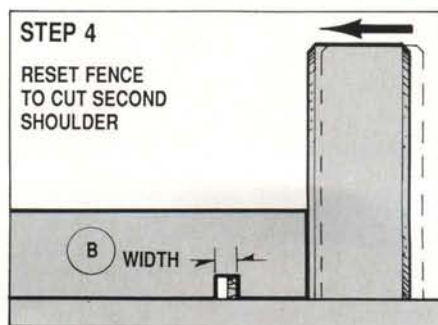
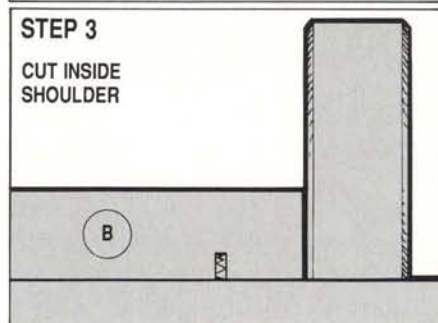
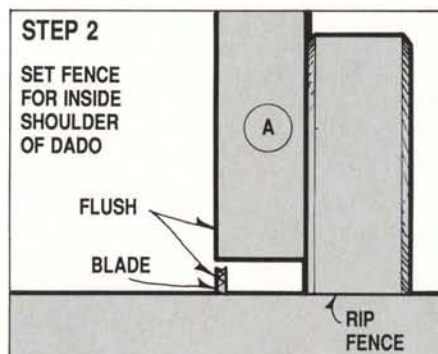
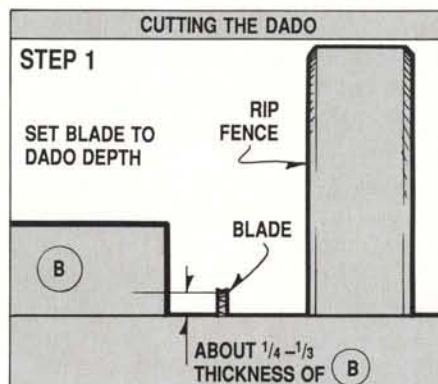
Set the depth of cut by measurement or eye against the piece to be dadoed. Then position the fence to cut the inside shoulder of the dado as shown in Step 2. I set the fence a shade wider than the thickness of the workpiece, which leaves a little end grain to plane off after the joint is assembled. Check the setup by cutting a piece of scrap, then make the cut in all the pieces to be dadoed. Reset



Photo F: Use a miter gauge to push narrow pieces along the fence.

the fence to cut the second shoulders.

It is somewhat unorthodox to make cross-grain cuts against the fence. But for shallow dados, I've found it to be both accurate and safe. I handle wide boards as I would for ripping, using hand



pressure to keep them snug to the fence throughout the cut. Narrower pieces—bookcase sides, for example—can be pushed through with the miter gauge (Photo F). I keep the end of the workpiece in contact with the fence through the entire cut. You could also attach a stopblock to the fence in front of the blade, so the end of the workpiece



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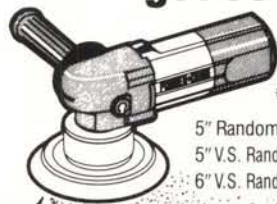
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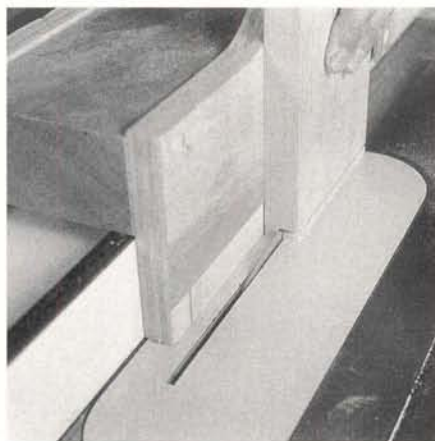
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Woodworking Basics

Continued

contacts the stopblock only to establish
position and is free during the cut.

The most accurate way to cut tongues
on the table saw is to lay the workpiece
flat on the table and cut the shoulder
against the fence, then upend the piece to
cut the tongue's thickness (Photo G). (A
tenon jig makes this easier.) This
method allows you to control the tongue
thickness precisely, but it is awkward for



*Photo G: The most accurate tongues are
made by setting the fence to the tongue
thickness and making the cut vertically.*

long pieces or those that are cupped
across their width. Tongues on these
pieces are best made with several hori-
zontal cuts. After establishing the shoul-
der against the fence, subsequent passes,
pushed through with a miter gauge, clear
the waste. Unlike the first method, here
the thickness of the tongue depends on
the thickness of the workpiece—slight
discrepancies can produce tongues that

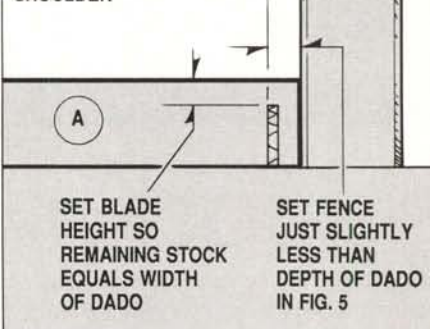


*Photo H: Trim oversize tongues to fit with a
sharp shoulder plane.*

CUTTING THE TONGUE

STEP 1

CUT THE
TONGUE
SHOULDER



STEP 2

TALL
AUXILIARY
FENCE
OR TENON
JIG

WASTE

RESET THE FENCE AND
BLADE, RUN WORKPIECE
ON END TO COMPLETE TONGUE ... OR

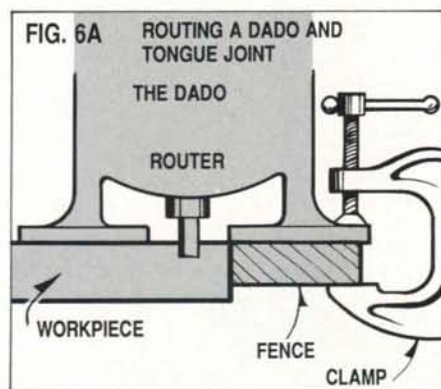
LEAVE FENCE AND BLADE
SET AS FOR STEP 1, PUSH
WITH MITER GAUGE TO
CLEAN WASTE

are too thick or too thin.

Setting up to cut tongues is fussy
work. Because the tongue is cut to fit the
dado, have an ample supply of offcuts at
hand for fine-tuning. No matter how
carefully I set up for either method, I
usually find some variation in the
tongues, especially those cut in solid
wood. Because of this, I set the machines
to cut the tongues slightly thick, then
trim them to fit with a shoulder plane
(Photo H). It only takes a few minutes
and the tight joints are worth it. (If
you're working in solid wood, you can
also fit the tongue by planing the face of
the piece.) The blade of a shoulder plane

runs completely across the plane's narrow sole, so it can cut right into the corner of the tongue's shoulder. Shoulder planes aren't cheap, but I think they're well worth the expense (see Sources of Supply).

Routing a tongue-and-dado: For big, wide carcasses or long, narrow ones, routing is relatively easy and safe. Dadoing is a snap. Just select a cutter of the right diameter, fix a fence to the router base and make the cuts running the fence against the end of the piece (Fig. 6A). Many routers come with fence attachments, but clamping or screwing a

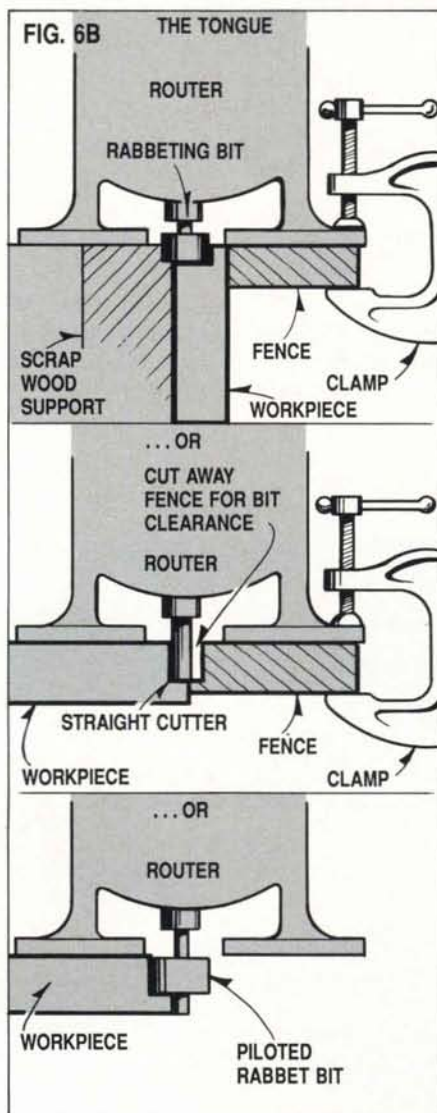


straightedge onto the base works fine for this job.

Again, the most accurate way to rout the tongue is to establish its thickness positively, between the fence and the router bit, as shown in Fig. 6B. To support the router base, I clamp a thick piece of wood flush with the end of the workpiece.

Precise as this method is, it takes time and is awkward or impossible on long pieces. Instead, I usually choose one of the other two methods shown: a straight cutter and fence or a piloted rabbit bit. I make the tongues slightly thick and fit them with the shoulder plane. (If the diameter of your piloted bit is too large, just allow for the waste that will be lost trimming the tongue to length.)

Dadoes aren't the most elegant joint, but they're fast and effective. Without them, I'd never have been able to build enough cabinets and shelves for all the stuff that a family of five accumulates. And with the time I saved on the joinery,



Source of Supply

Guide bushings, baseplate and shoulder planes are available from: Woodcraft, 210 Wood County Industrial Park, P.O. Box 1686, Parkersburg WV 26102; tel. 1-800-225-1153. For guidebushing set & universal base plate, order part no. 11V12.

I had some fun painting and chip carving a few of the pieces.

Roger Holmes makes furniture . . . and other things . . . in his Woodbury, Connecticut, shop.

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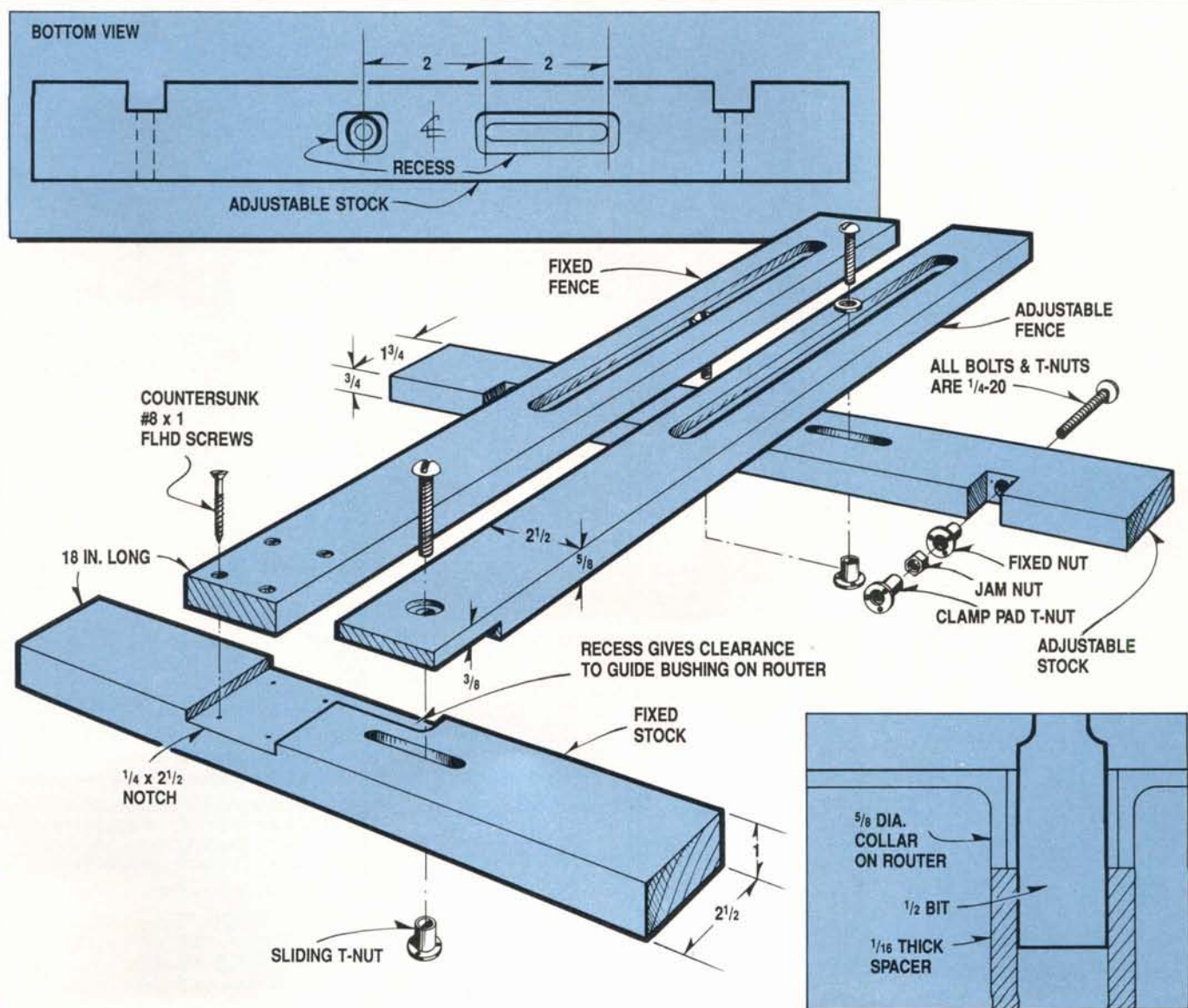
Although it looks complicated, the jig is fairly easy to make. Made as shown in the drawing, it will handle boards up to about 12 in. wide. You can modify it to handle larger boards or to accommodate your router. Just remember that the router base runs on the two fences, so their surfaces must be in the same plane and the heads of screws and bolts must be recessed out of the way. Here's a brief account of how I built my jig.

I cut the material to size, then carefully planed the surfaces and edges flat. I notched the fixed fence for the fixed stock by making repeated cuts on the table saw, trimming the notch shoulders with a chisel for a tight, square fit. The half-lap in the adjustable fence brings its surface into the same plane as the

fixed fence.

I routed all the slots in the stocks and fences, using a fence clamped to the router base (shown in Fig. 6A). Rout the narrower, through-slots first, lowering the bit about $\frac{1}{8}$ in. for each pass. Then rout the recesses for the bolt heads and T-nuts.

The little "clamps" are jury-rigged, but they work. The T-nut on the end of the bolt serves as a clamp pad; the jam nut keeps the pad from loosening as it bears against the workpiece. Cut the notches in the adjustable stock so that the clamp can be retracted behind the edge of the stock. As is often the case when making jigs, mistakes can occur. The extra notches shown on the jig in the photos were a mistake, so you won't find them in the drawing below.





Secret Compartments

Hidden places from wasted spaces

by Tim Faner

Inspired by the need for a childsafe key stash in our Gun/Bookcase/Curio Cabinet (page 48), we wanted to know a bit more about secret compartments. Once a pretty much standard feature in better-quality desks and cabinets, in our 20th-century world, secret compartments seem forgotten. Perhaps as our reliance on bank safe deposit boxes grew, our interest in secret compartments diminished. Has the shaken confidence in our nation's banks sparked a rebirth of interest in secret compartments? Well, we won't go quite that far.

That woodgrain-printed paper over chipboard desk from the discount store won't have them, but secret compartments are hardly relegated to the exclusive purview of antique dealers and collectors. As we discovered, both hobby woodworkers and pros are still includ-

ing secret compartments in their work. One of these woodworkers, Tim Faner, has become something of an expert in secret compartments. Tim is regularly asked to include secret compartments in the commissioned pieces that he builds in the Massachusetts studios of world-renowned marqueterian Silas Kopf. Tim tells us that while Kopf's marquetry-embellished designs are an ideal foil for secret compartments, they can be included just about anywhere a little extra space is available.

Secret compartments can be as simple as our key stash, or as elaborate as the dentil molding-activated, column-concealed drawer in a Kopf design (see Column Cabinet photo and illustrations). The compartment can be specifically designed to house anything from a valuable collection of rare coins to a few

private documents, or it can just be a secret hiding place for any small treasure. Tim tells us that he's worked on everything from the clever cable release system shown in the Gothic Desk (see photos and illustrations), to a rather simple (but very hard to discover) secret compartment located behind a false hot air duct grill in the recessed kick plate below a row of kitchen cabinets.

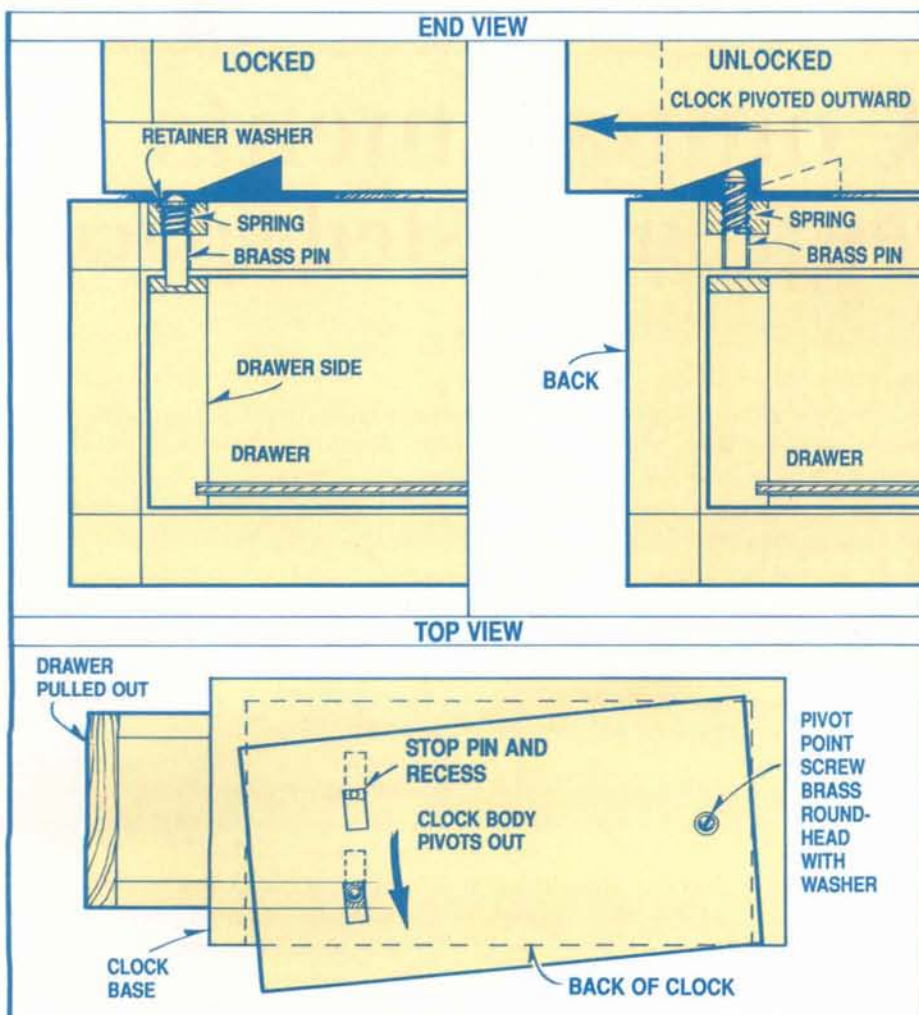
Whatever the application, Tim maintains that the real fun in making secret compartments is not in hiding them, but in the shared delight when they are displayed or discovered. "Their purpose is to give enjoyment," Tim said. "The greater the degree of surprise or deception, the greater the satisfaction."

Following are descriptions and drawings of four secret compartments that Tim has built.

Mantel Clock

The small Mantel Clock has a drawer hidden in its base. The base's frame-and-panel detailing, and the fact that the end panels (which are actually the drawer fronts) are slightly inset, hide the seam around the drawer fronts. There are two drawer fronts, one on each end, since the drawer can be pushed open (once it's unlocked) in either direction. The drawer is held closed by a simple pin mechanism.

The base is screwed to the clock body with a single screw that's set off to one side. This arrangement allows the body to pivot (on the screw) in relation to the base. A tapered recess is cut into the bottom of the clock body, on the side opposite the screw. A spring-loaded pin is then mounted in the clock base, aligned just off the shallow end of the tapered recess. A small washer soldered to the pin retains the spring, a hole through the top of the clock base captures the pin, and a recess accepts the spring. The pin extends into a notch in the drawer side, thus locking the drawer closed.



In operation, as the clock body is pivoted slightly, the spring-loaded pin rides up into the deepening recess, clearing its hold on the drawer side and releasing its hold on the drawer. To restore the drawer to its locked condition, simply close the drawer and pivot the clock body back to its original position in alignment with the base.

Of course, without some device to both limit the travel of the clock body as it pivots, and confine the pivot to only the desired direction, you could accidentally pivot the clock body forward instead of back. The unfortunate result would be the spring-loaded pin launching skyward, once freed from its confines. Though there are a number of ways to prevent this, the easiest is just a dowel stop pin in the clock base fitted into a rectangular recess in the bottom of the clock body. The recess is similar in size to the tapered recess, but without the taper. It therefore serves as a stop to limit pivot travel in both directions.

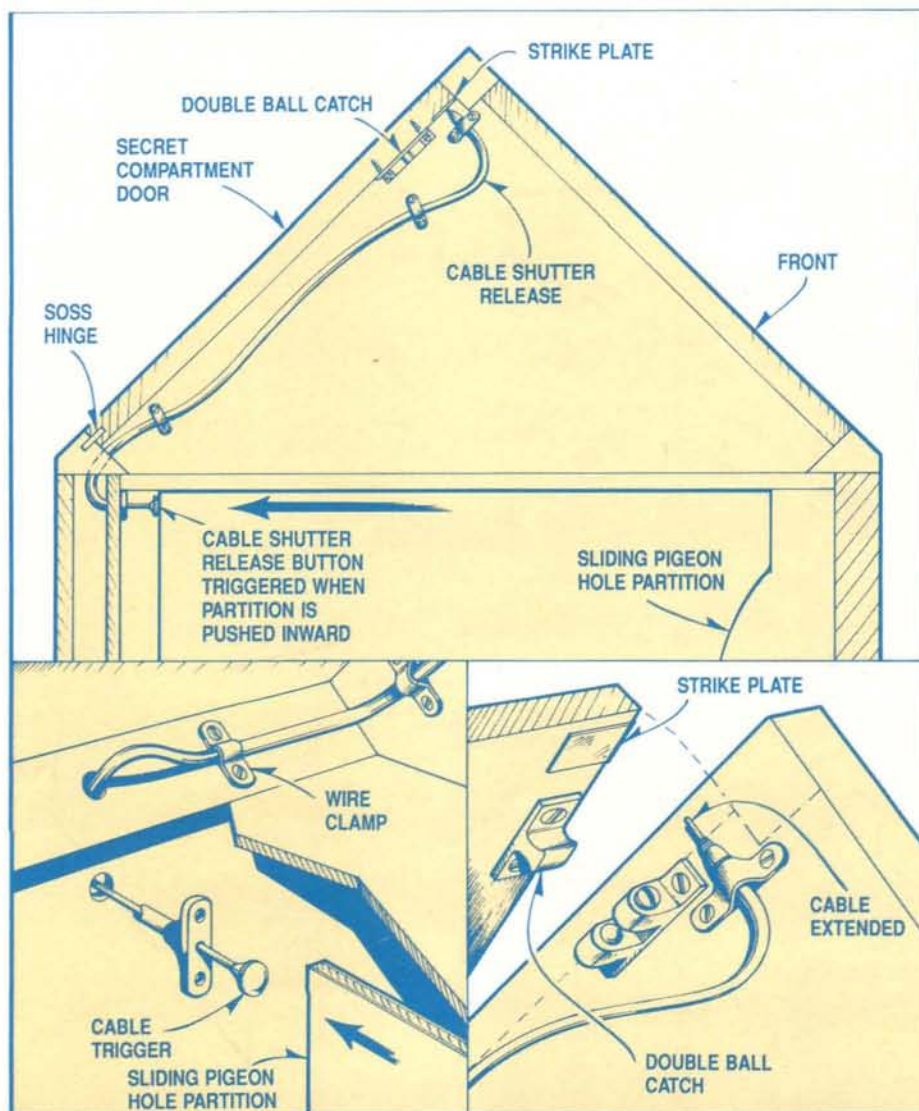
This type of secret compartment is perfect for use in constructions where a top section can pivot over a bottom section. Just about any two-section construction with available space in the base is suitable.

Gothic Desk

Building secret compartments into your own furniture is never a problem. But when you are building a commissioned piece, it's not always easy to convince the customer that a secret compartment is worth the added expense. The Gothic Desk is a good example of this. Although the customer hadn't requested a secret compartment, I felt that the large void created by the triangular-shaped top was an ideal space for such a compart-

ment. Silas Kopf agreed to let me include the compartment, in spite of the fact that there was no assurance the customer would like the alteration, much less pay for it.

On the Gothic Desk, the door of the secret compartment was the sloping back panel of the peaked top. Since the door had to be hinged, my concern was to both conceal the hinges and make the seam around the door as invisible as



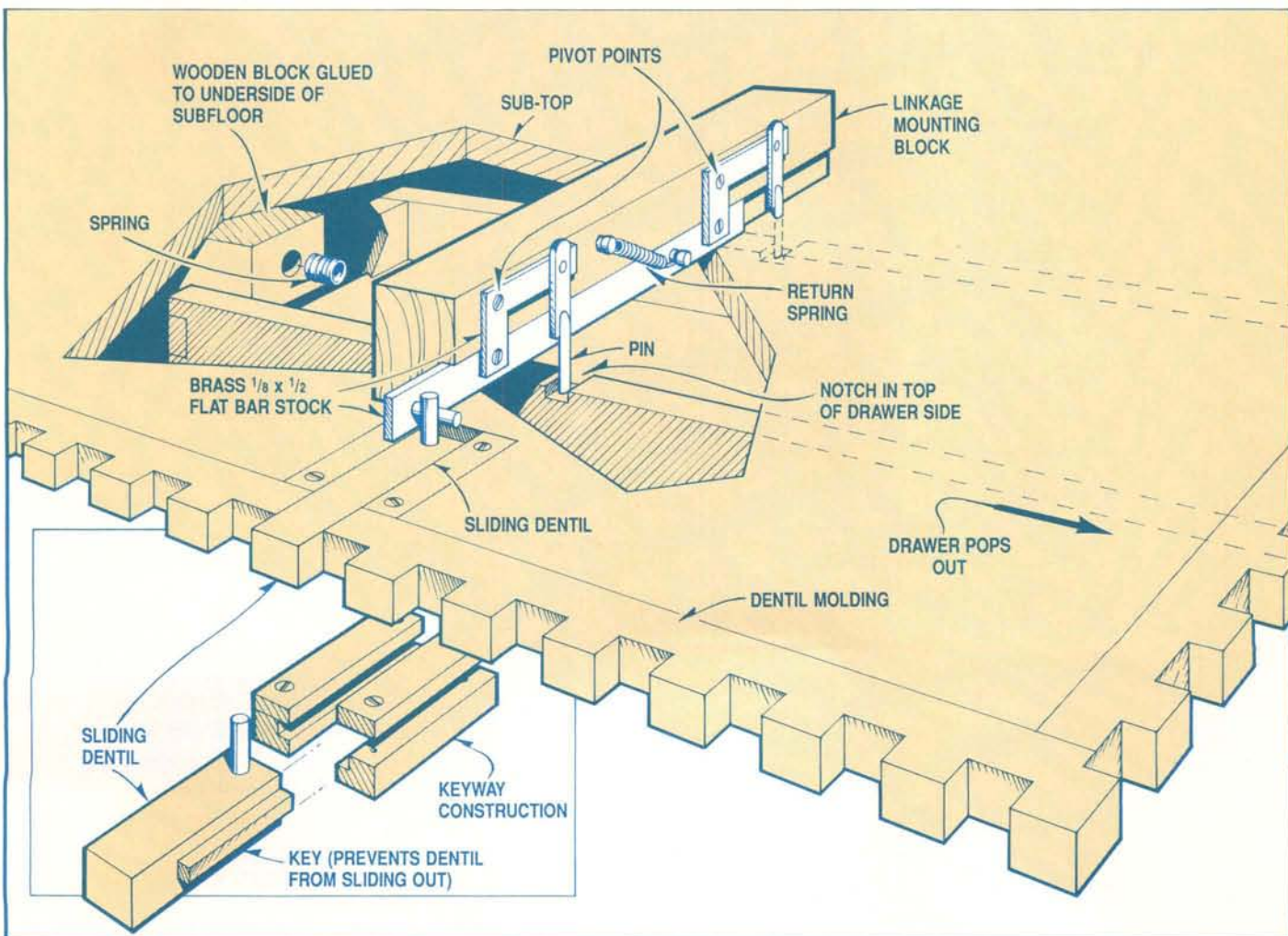
possible. Soss brand hinges, which are totally invisible when the door is closed, and a decorative banding around the door, along with careful fitting made the deception complete.

The next challenge was to devise a way to pop the secret compartment door open. Borrowing from an idea I had used in a student desk that I once made, I opted for a camera cable shutter release mechanism, activated by pushing on one of the desk pigeon-hole partitions. The advantage of the cable shutter release is that it is easily snaked from the partition to the door, without need of fancy mechanical work. The door is held closed by brass double-ball catches and as the partition is pushed in the door is pushed open. The cable release has a built-in return spring that returns the partition automatically to its original position.

In the case of the Gothic desk, the addition of the secret compartment was very well received. Indeed, the customer was so pleased he purchased several more pieces, requesting a secret compartment in each. While the design of the Gothic desk—with its unusual peaked top—is unique, the cable shutter release idea can be adapted to access just about any secret compartment panel where a push on one part can be used to pop open a concealed door.

Column Cabinet

The next two secret compartments are more complex, making them both harder to find and more challenging to make. Architectural details are popular on contemporary furniture, and it's the architectural dentil molding detail in the Column Cabinet that provides the perfect foil for our next secret compartment. Even if you knew that this piece con-



cealed a secret hiding place, chances are you'd never discover the means by which the compartment—a long and narrow drawer hidden within the pediment top—is accessed.

The dentil molding, which runs around the entire cabinet, is the perfect place to conceal the means of activating the drawer, since it's one of the dentils that actually serves as a "button." When pushed, the dentil button lifts a pair of pins that then free the drawer. The button is connected to the pins via a linkage that's fabricated from $\frac{1}{8}$ in.

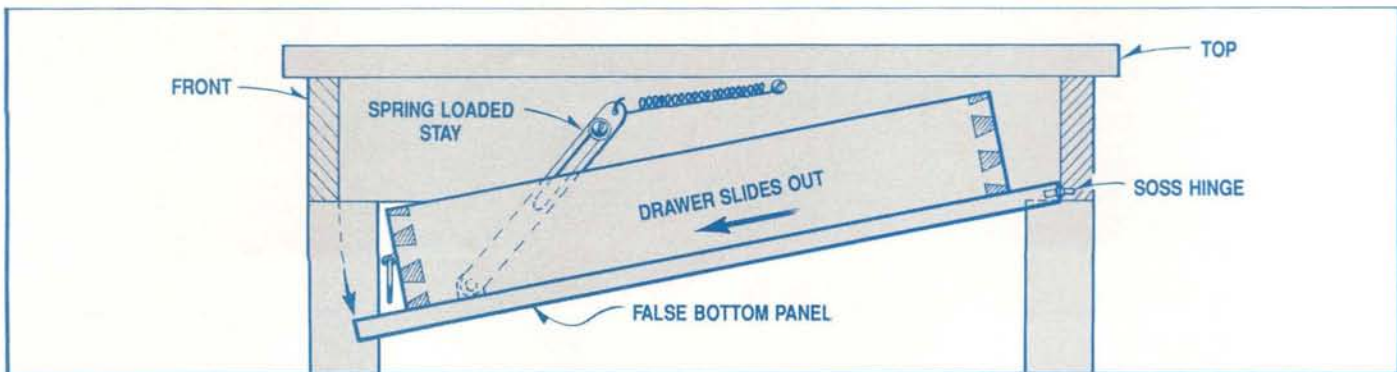
thick by $\frac{1}{2}$ in. wide solid brass flat bar stock. The brass is easy to cut, drill and solder, and therefore is ideal for shop-made linkages. As shown in the illustration, the cavity between the uppermost panel and the sub-top conceals the linkage mechanism and a return spring. The drawer is effectively concealed behind the pediment molding detail directly below the dentil, since a section of that molding actually serves as the drawer front. As the dentil is pushed in and the pins are withdrawn (unlocking the drawer), a spring mounted directly

behind the drawer pops it open far enough so the drawer front molding can be grasped and the drawer fully extended.

The fabricated linkage that makes up the guts of the "how" in this secret compartment is pretty much as far as one would want to go in making secret compartments. But I've included it to illustrate that just about anything is possible. Brass bar stock is easy to work and you may want to utilize it in fabricating mechanisms to access secret compartments in your own work.

Bubinga Writing Desk

The Bubinga Writing Desk uses the space between the top and a false bottom panel to conceal a drop-down drawer compartment. The compartment is accessed by partially opening the center

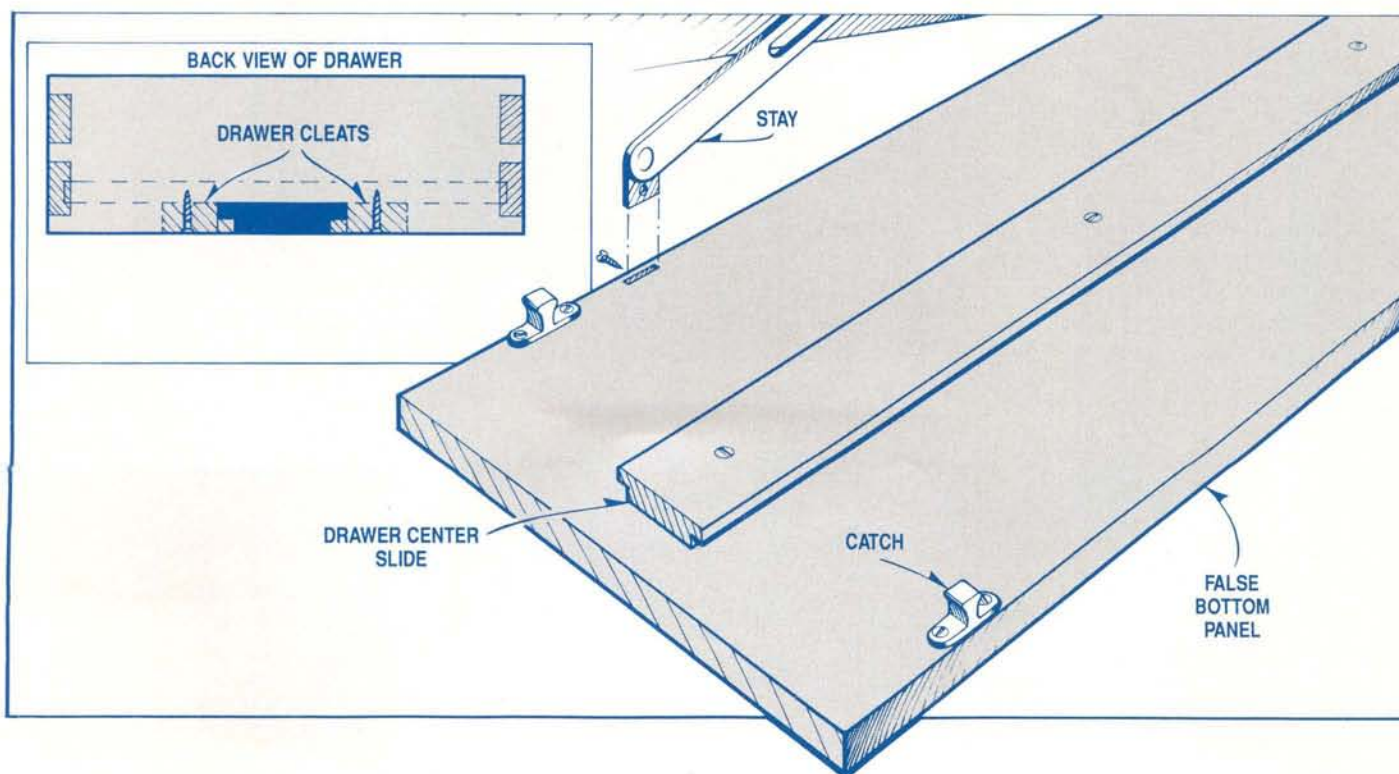
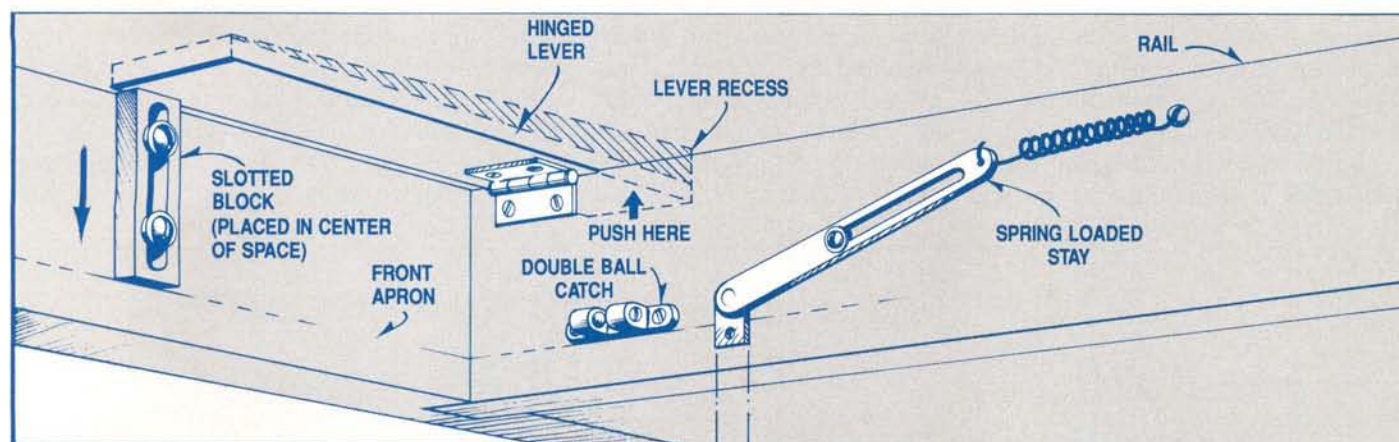


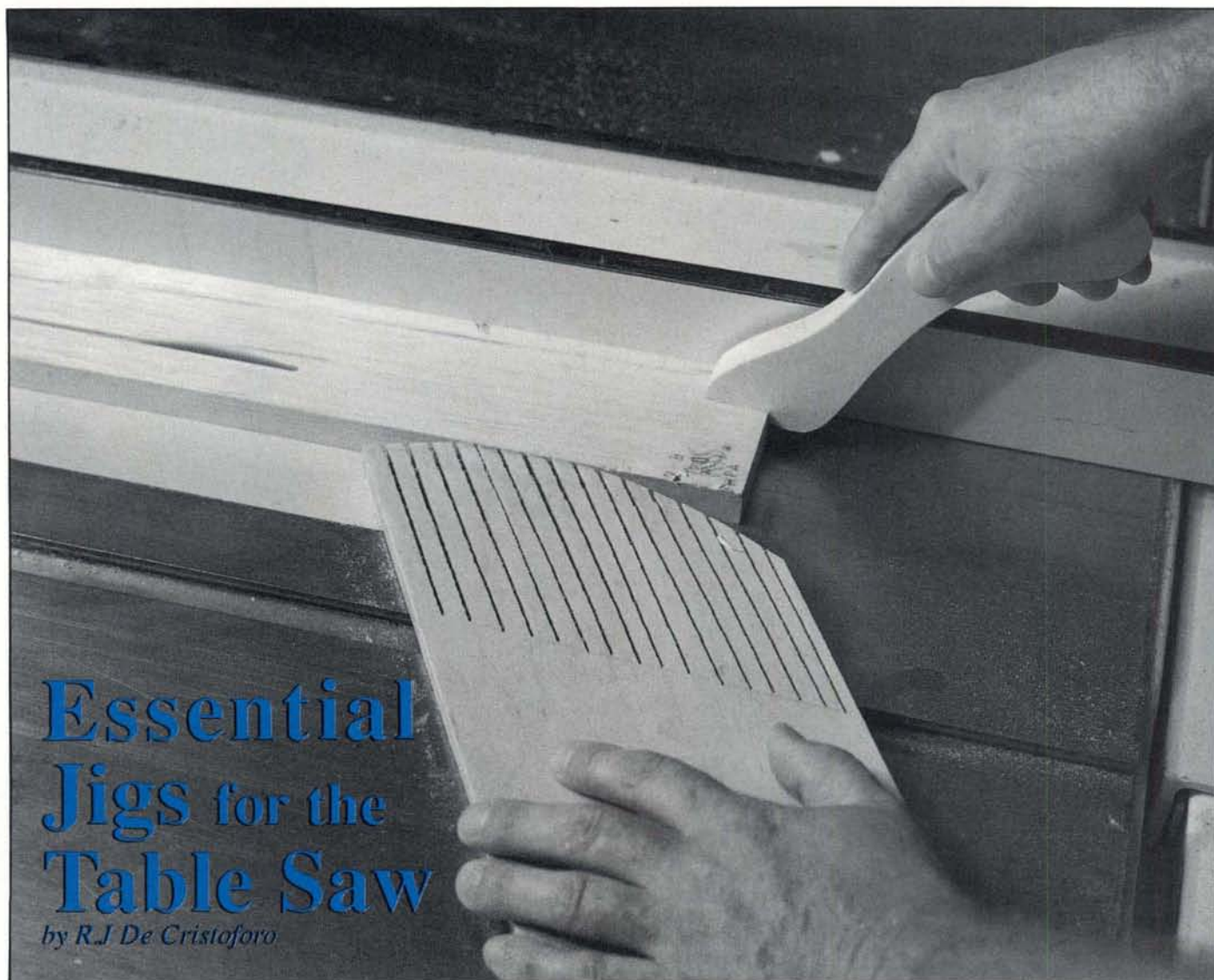
drawer to reach a lever that then activates the secret compartment. The lever is hinged to a structural rail that connects the front and back aprons on the desk. As one end of the lever is pushed up, the other end pushes down on a slotted block of wood that in turn pushes the false bottom panel open. The slot enables the block to slide up and down.

The panel is hinged at the back of the desk with a pair of Soss hinges. It is held in the closed position by two double ball catches and a spring-loaded stay. The stay, which is made from $\frac{1}{8}$ in. thick by $\frac{1}{2}$ in. wide solid brass flat bar stock, also serves to hold the drop-down panel open. The drawer is mounted to the bottom panel via a center slide system

that enables the drawer to be pulled out once the panel is dropped open.

The concept of a drop-down panel can be used just about anywhere there's available space and bottom access. But it's ideal for incorporating secret compartments into desks and tables with a leg and apron construction that creates a cavity below the top.





Essential Jigs for the Table Saw

by R.J. De Cristoforo

The experienced woodworker knows something the beginning woodworker soon learns—that the miter gauge and rip fence supplied with a table saw are necessary crosscutting and ripping gauges, but they are the bare beginning of accessories that are needed to help the operator work more safely and more accurately. The pro shop has a host of special jigs that allow table saw operations even the manufacturer hadn't thought of, but the accumulation always starts with the essential homemade projects that are offered here.

Pushsticks

Pushsticks, like the basic one shown in Photo A, are used whenever a rip cut is narrow enough to make it unwise to move the work by hand alone. At one time, when clothes hangers were made of wood, it was a trick of the trade to separate a hanger at the joint and then notch it so it could bear against a work edge. One hanger yields two practical, ready-made

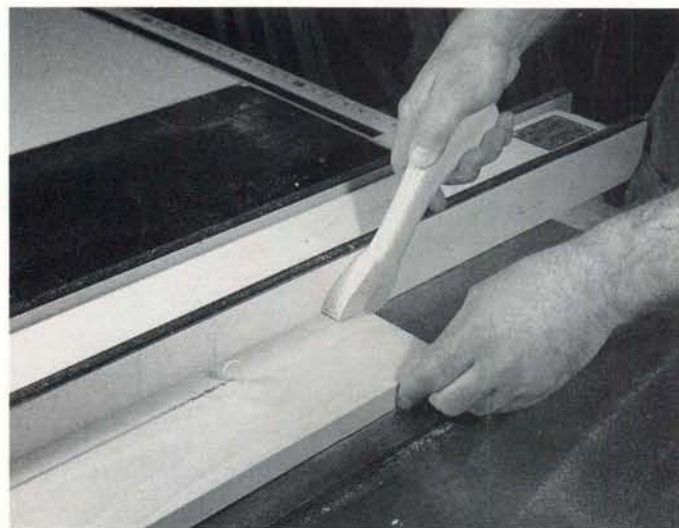
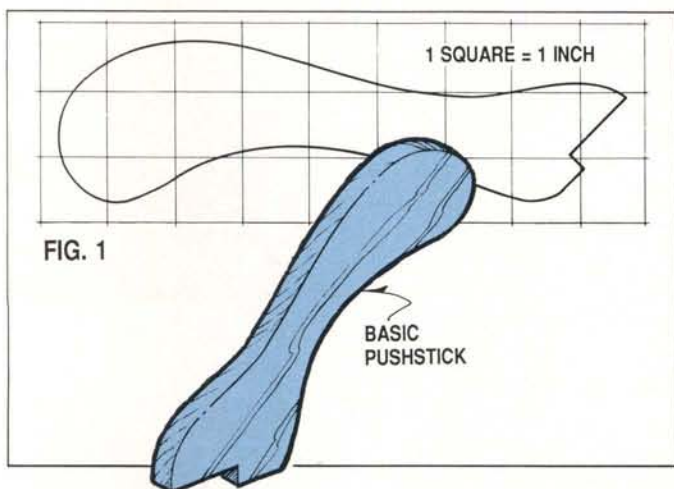
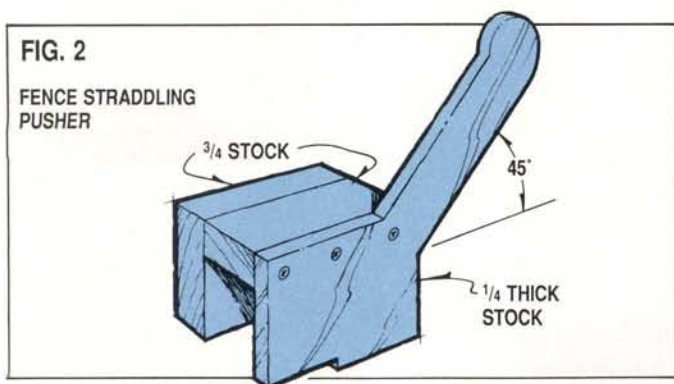


Photo A



pushers. Today, we make them along the lines shown in Fig. 1. It's a good idea to have several, each one a different thickness. If a band saw is available, cut the profile in 1½ in. or 2 in. stock and then resaw to provide several units.

The fence straddling design offered in Fig. 2 advances the idea by supplying additional security. Size it so it can slide easily on the fence but without wobble. A common idea is to attach the handle with just screws so several handles, each a different thickness, can be used with the same jig. The different thickness theory is a practical one since it allows a selection that is most suitable in relation to the width of the rip cut.



Pusher Hold-Downs

Pusher hold-downs do double-duty: they advance the work and also help to keep it flat on the table. The modification of the basic pusher design that is shown in Fig. 3 is one way to go, while the one in Fig. 4 (shown in use in Photo B) offers more substantial support. Don't limit its use to sawcuts; it's a smart extra hand for many *dadoing* and molding head jobs. Also, it's as practical for use on a jointer as it is on a table saw.

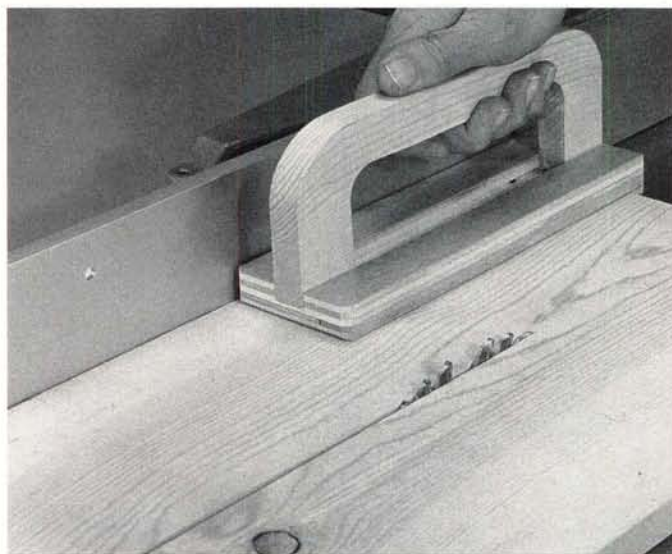
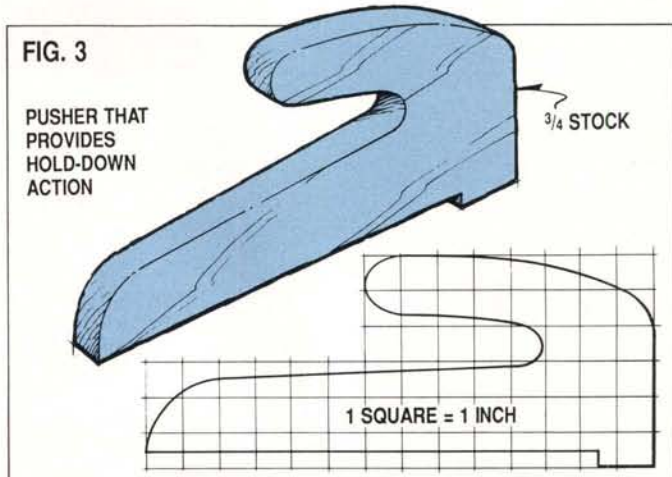
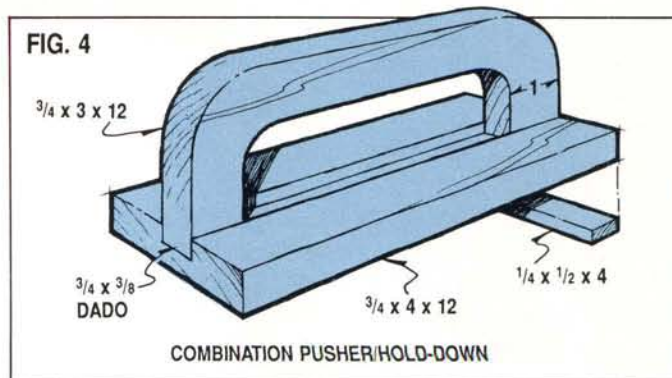


Photo B



Featherboards

Call them featherboards, spring sticks or fingerboards, their purpose is to relieve you of having to use only your hands to keep work secure when making cuts like the one in progress in



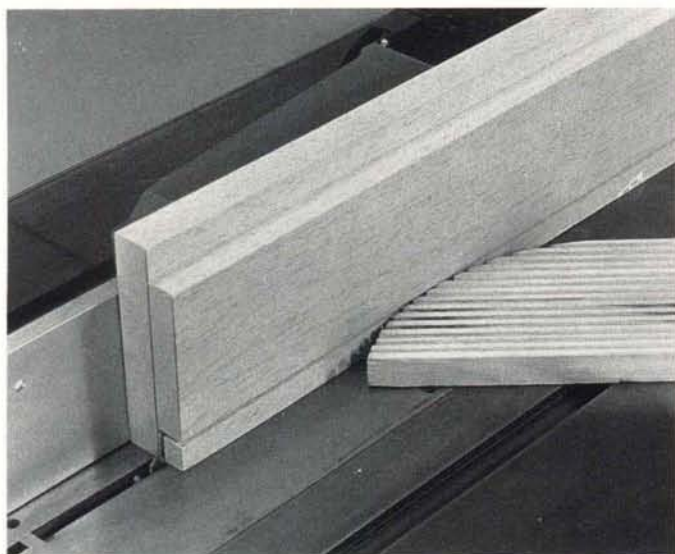
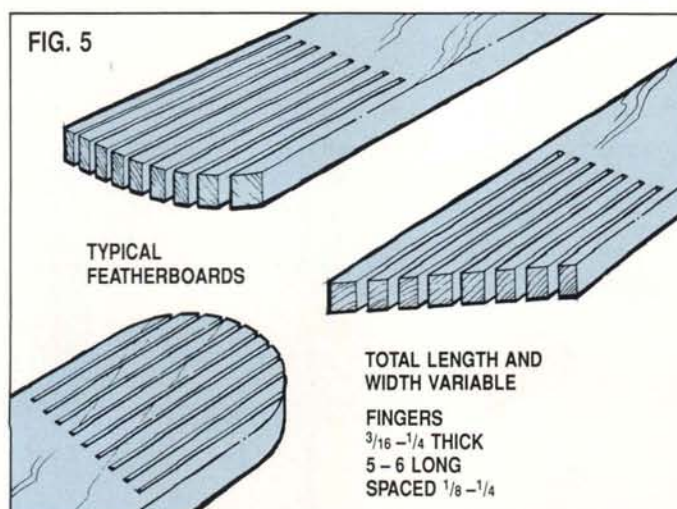


Photo C

Photo C. Thus they enable you to keep your hands away from danger zones and they ensure more accurate cutting.

The accessory can vary in length and width (most pro shops have an assortment), but the essential design is consistent (Fig. 5). Clear pine is a good material to use although many workers will vouch for maple. In use, they are clamped in place so the fingers bear against the work strongly enough to keep it positioned correctly while it is moved. Always clamp the featherboard so its fingers bear against the work *in front* of the cutter. You don't want the accessory to force the work against the blade.



extension is just a matter of using screws through holes that are already in place.

Extensions, in addition to providing additional work support, improve accuracy since a cut line on the work can be aligned with the kerf in the extension before contact with the blade (Photo D). This is an elementary example of how to eliminate the possibility of human error by setting up a mechanical means of determining a cut path.

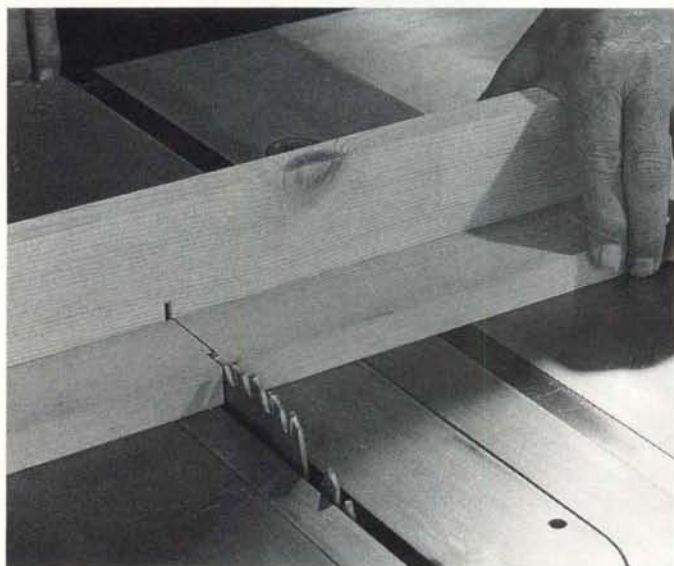


Photo D

An extra use for an extension is demonstrated in Photo E. A clamped stopblock allows cutting any number of pieces to exact length. When working this way, return the gauge and work to a neutral position in front of the blade before removing the workpiece.

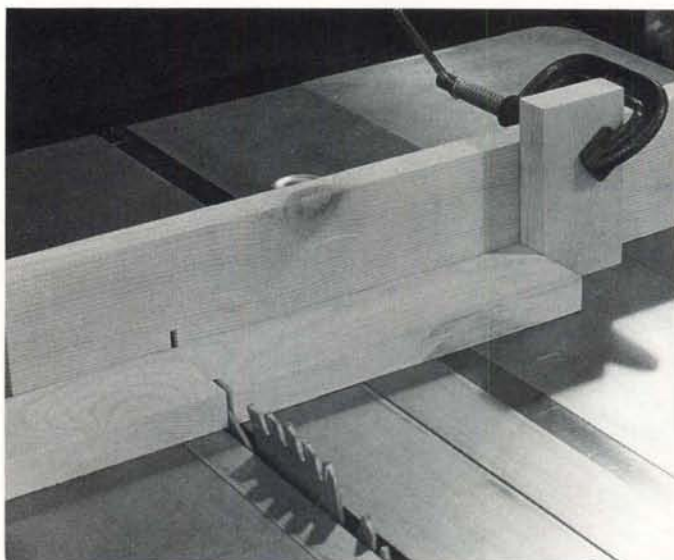


Photo E

Miter Gauge Extension

The bearing length of a miter gauge averages about 6 in., which is adequate but can be substantially improved simply by adding a strip of wood that is long enough to span across the cut path. Most miter gauges anticipate the addition, so securing the

Rip Fence Stop

We know, or should know, that the rip fence must never be used as a stop to gauge the lengths of cutoffs. Capturing pieces between the blade and the fence is, to say the least, dangerous. But the fence can come into play by adding a stopblock which can simply be a block of wood clamped in place (Photo F). The

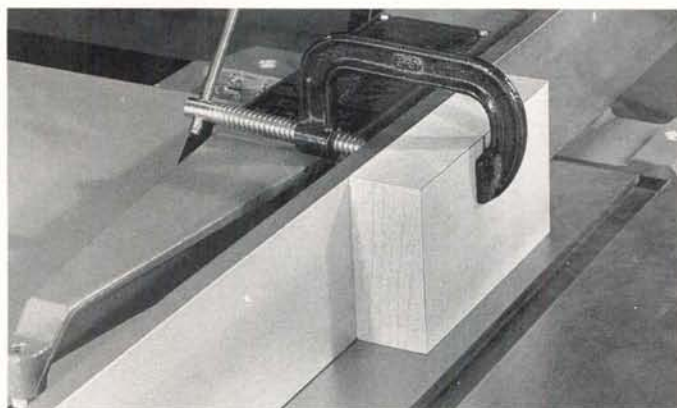


Photo F

stopblock is positioned well ahead of the saw blade; the fence is set so the distance from the surface of the block to the saw blade equals the length of the cutoff. The cut is started with the work butted against the stopblock. Since the distance from the fence itself to the saw blade is greater than the length of the cutoff, the work can't be captured.

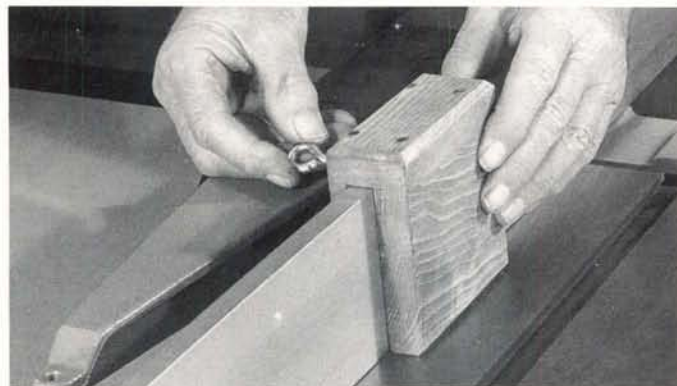
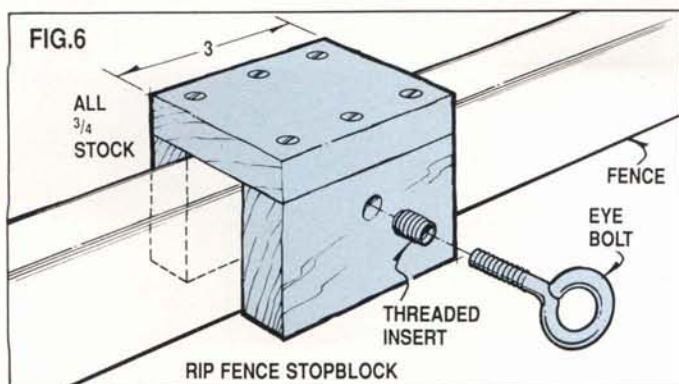


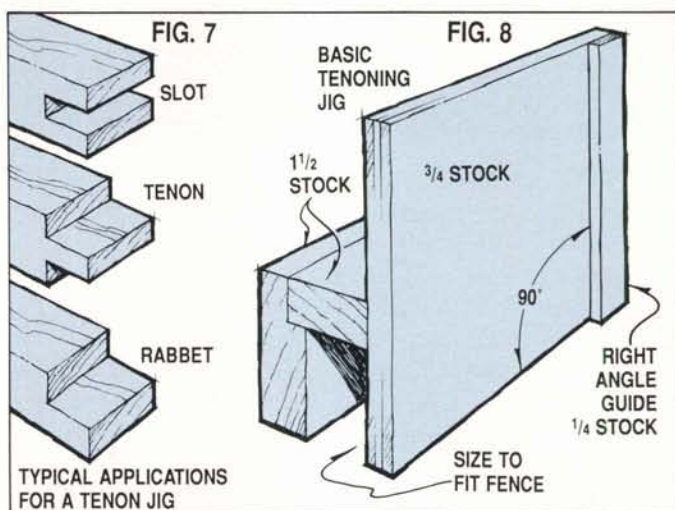
Photo G



Making a sliding stopblock as an accessory, like the one being mounted in Photo G, is a good idea since it will always be handy, making it unnecessary to hunt for a block of wood or a clamp. Fig. 6 offers plans for one that will serve nicely. If a T-nut is used, be sure to counterbore so the T-nut is flush on the inside surface of the part it is attached to.

Tenoning Jig

The cuts that are shown in Fig. 7 are often accomplished on a table saw by working with a saw blade or a dado assembly, but they must never be accomplished on narrow stock, held on end, without some means of assuring that the pass can be made safely. It simply isn't wise to try to do this type of sawing by



hand-holding the work. Thus, a tenoning jig which lets you work accurately and safely, enters the arena of first projects to make for a table saw (Photo H).

Tenoning jigs can be pretty elaborate, but the basic design that is offered in Fig. 8 will serve more than adequately if it is

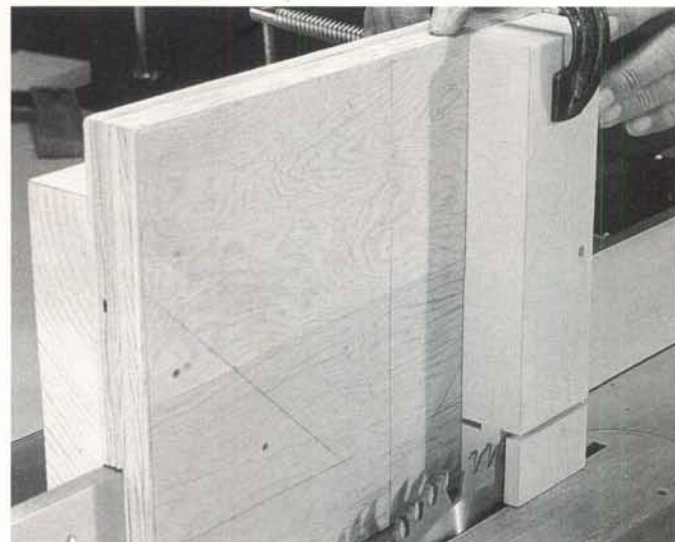


Photo H

carefully made. It should fit the rip fence so it won't wobble and can be moved without forcing. Size it for a snug fit and then, periodically, coat the fence and the bearing surfaces of the jig with paste wax. Cutting accuracy will depend on making sure that the angles between the face of the jig and the guide and the saw's table are 90 degrees.

Sliding Table

Making a sliding table for miter cuts, like the one shown in Photo I, solves several problems. It eliminates the need for miter gauge settings when making 45-degree miter cuts, and since jig and work move together, "creep," the bugaboo of miter cutting, is no longer a factor. The sliding table allows cutting on either side of the saw blade without the resetting chore that is needed with a miter gauge.

The jig (Fig. 9) is a platform that is secured to hardwood bars

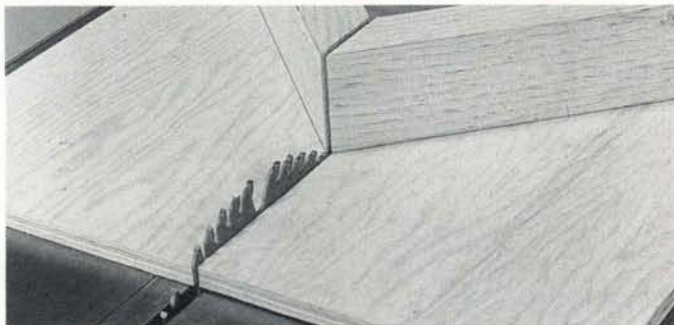


Photo I

that ride in the table slots. Cut the platform to a size that suits your equipment and then prepare the bars so they will slide smoothly in the slots. Put the bars in place and then, with the blade lowered so it is under the table, place the platform so it is centered over the blade and so its sides are parallel to the blade. Tack-nail through the platform into the bars and then move the assembly to and fro to be sure it moves as it should. Remove the assembly and attach the bars permanently with glue and short flathead screws driven from underneath.

Put the unit back on the table and form the kerf. When you

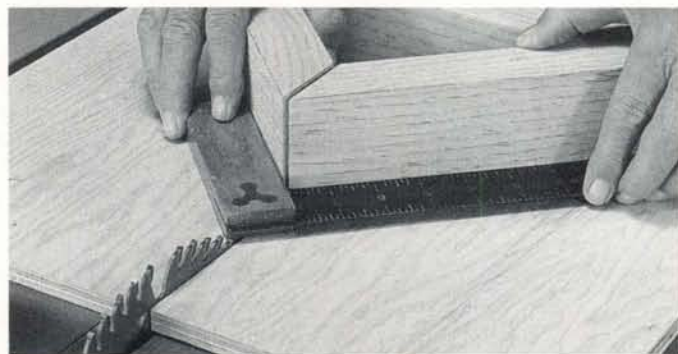
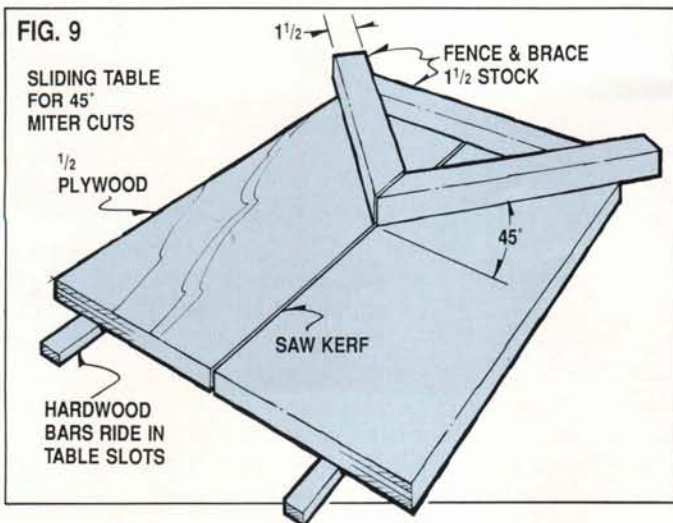


Photo J

add the fences, be sure they form a 90-degree angle and that the cut path will split the angle exactly in half (Photo J).

In use, workpieces are held snugly against the fence and the

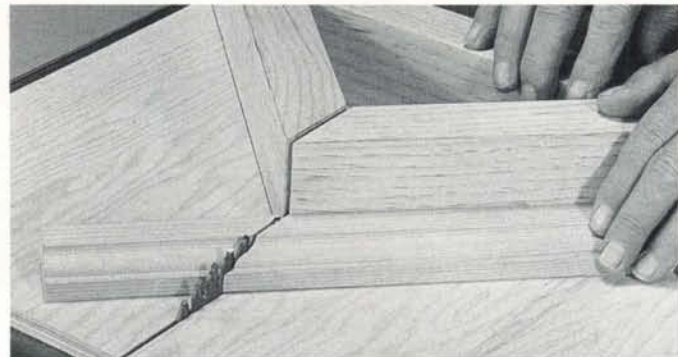


Photo K

jig is moved forward to make the cut (Photo K). Components can be cut consecutively from one piece of stock or parts can be precut to length and then mitered. When working with precut pieces, you can clamp a stopblock to the fence to position the parts for the miter cuts (Photo L).

There are two factors to remember when doing woodwork-

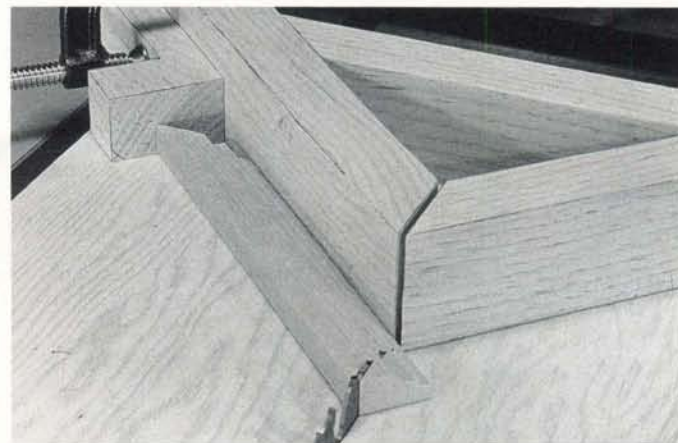


Photo L

ing, regardless of whether or not you use jigs. "Measure twice, cut once" and "Think twice before cutting."

A sturdy bench was a commodity much valued in the American colonies. It provided a welcome place to rest weary legs after a long day of hard work. Most early homes enjoyed several benches.

Back then, country cabinetmakers found benches quick and easy to make, which probably explains a good deal of their popularity. Well, not much has changed in the last 250 years or so. Today, a bench like this can still be made with a minimum of time and effort. And while it may not be as comfortable as your favorite reading chair, it offers optional service as a plant stand or portable table.

We used pine for all the bench parts, but this piece will also look good made from oak or cherry. For maximum strength, be sure to use stock that is free from knots or other defects.

The Legs

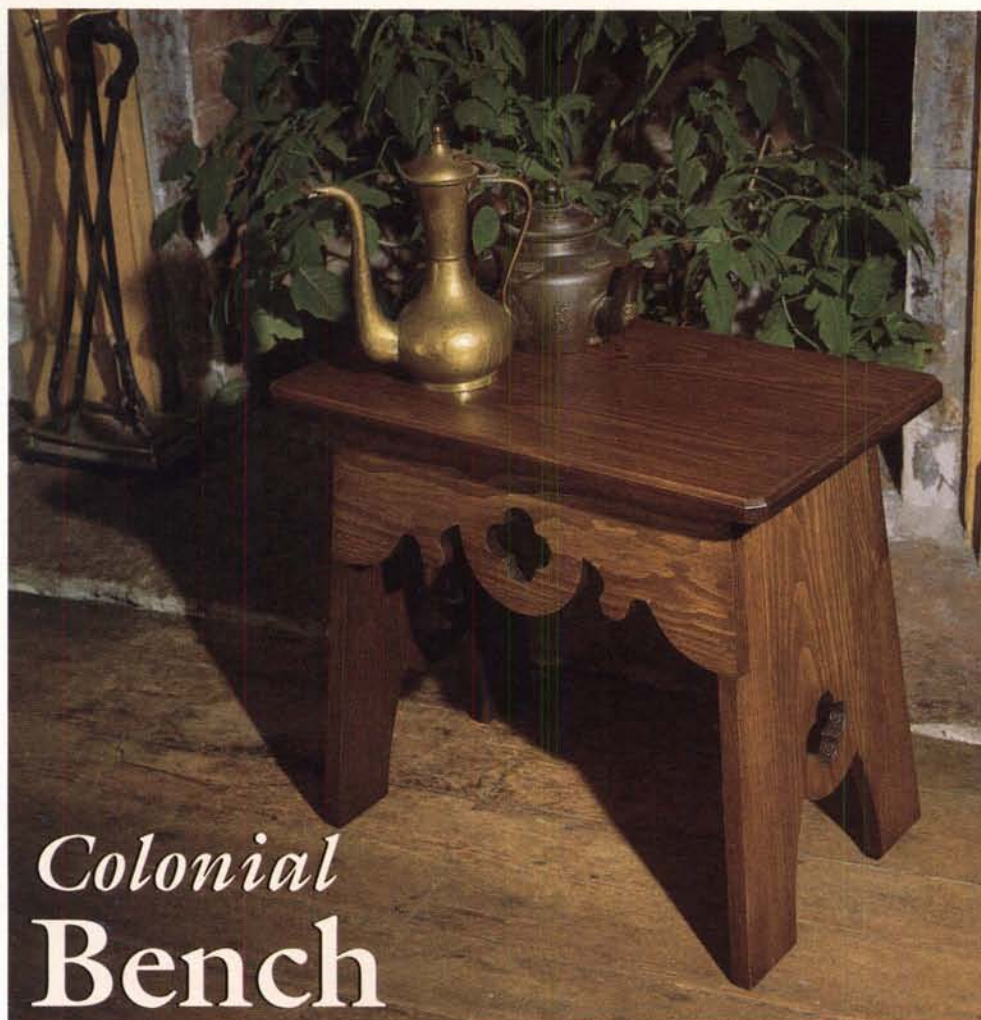
Begin by making the two legs (A). Since 12 in. wide stock is not always easy to find these days, you'll probably need to edge-glue a couple of narrower boards in order to get enough width. Cut the stock so that the glued-up boards will be slightly wider and longer than necessary.

To edge-glue, apply a thin coat of glue to the mating edges, then use three or four pipe clamps to apply pressure. When dry, remove the clamps and clean up any glue squeeze-out. A sharp chisel or scraper will come in handy here.

Note that the length of each leg is $17\frac{3}{8}$ in., and the leg ends are beveled at 5 degrees. To cut these bevels, set the table saw blade to make a 5-degree cut, then use the miter gauge to support the stock as it's passed over the blade. Make the cut on one end, then flip the stock over and turn it end for end before cutting it to length with the next cut.

The legs taper from a 9 in. width at the top to 12 in. at the bottom. Lay out and mark this taper on each leg, then use a band saw to cut just slightly on the outside of the marked lines. Once cut, use a sharp hand plane to trim the sawn edge exactly to the line.

Next, you'll need to cut the two notches in each leg that accept the aprons (B). Lay out and mark the location of each notch, keeping in mind



Colonial
Bench

that the bottom edge of the notch is angled at 90 degrees when viewed from the end, but when viewed from the front it is angled at 5 degrees (see end and side view illustrations). The band saw, with its table angled at 5 degrees, can be used to make the $\frac{3}{4}$ in. deep cut. The lengthwise cut, to complete the notch, is made with the table flat.

Next, make the cutout that creates the two "feet" on each leg. First, transfer the grid pattern from the illustration (see end view) to the stock. Use the band saw to cut it out, then smooth the sawn edge with a file and sandpaper. The cloverleaf is cut out later on.

The Aprons

Cut the stock for the two aprons so that each one is wider and longer than needed. With the table saw blade angled at 5 degrees, use the rip fence to cut the bevel along the top edge of each apron. Now, with the table saw blade at 90

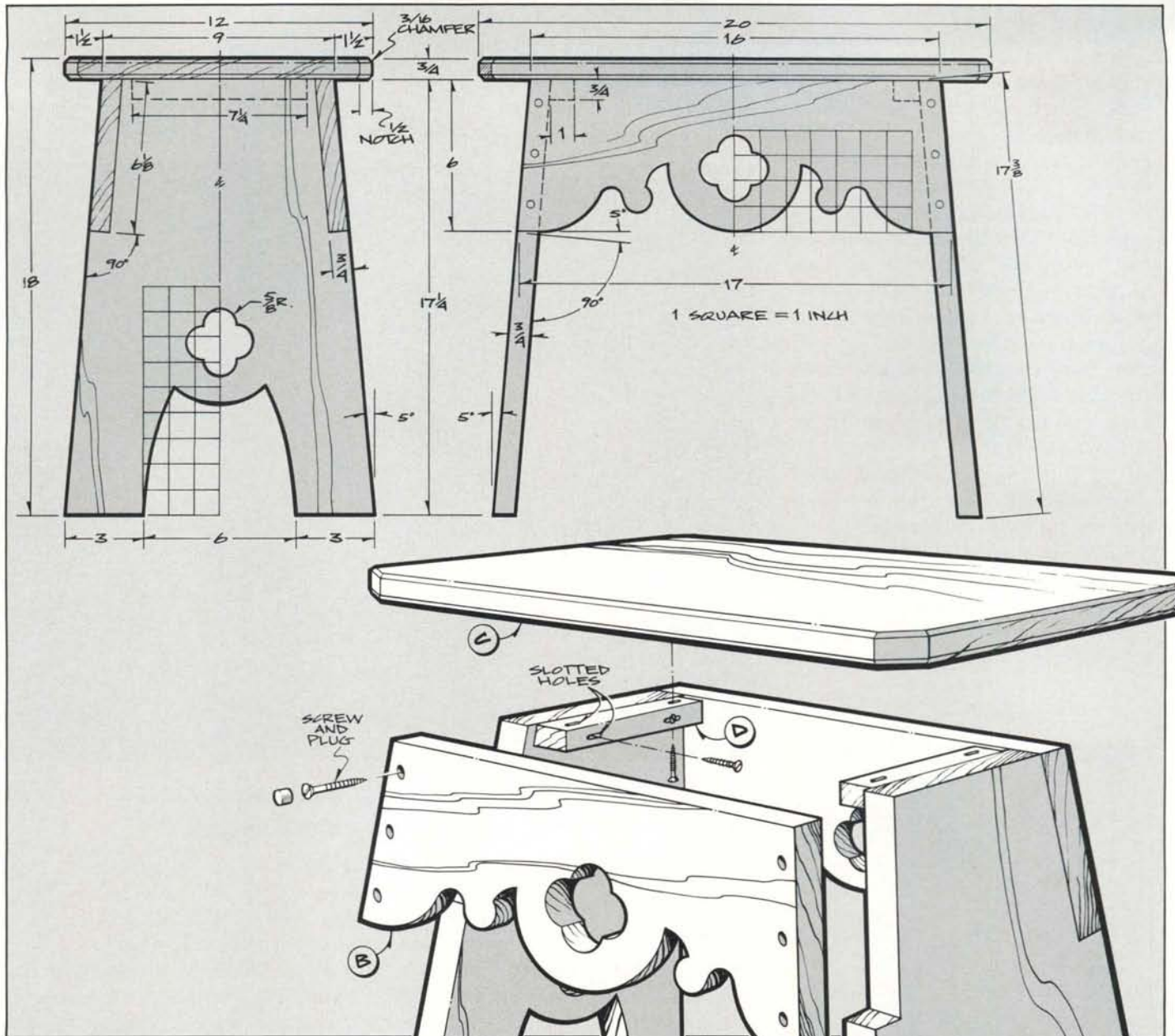
degrees, set the miter gauge to 5 degrees and cut the aprons to a 17 in. length.

Transfer the grid pattern (see side view) to the apron stock as shown. Note that the curve starts 6 in. from the top edge. Use the band saw to make the curved cuts. File and sand them smooth.

The cloverleaf can be cut with a saber saw, but we used a $1\frac{1}{4}$ in. diameter Forstner bit to drill four overlapping holes. Once set up, drill the cloverleaves in both the aprons and the legs.

The Top

You'll need to edge-glue stock for the top (C). Follow the same procedure used earlier to edge-glue the stock for the legs. After gluing, trim the stock to final length and width. The notch on each corner of the top is cut using the miter gauge set at 45 degrees. The chamfer all around the top and bottom edges is cut with a router and a $\frac{3}{16}$ in. ball-bearing guided chamfering bit.



The Cleats

You'll need to rip one edge of each cleat (D) to 5 degrees. Note that the ends of the cleats do not butt up against the inside of the aprons. Instead, they are cut slightly short on each end to allow for any shrinkage in the width of the legs. For the same reason, the holes in the cleats are slotted, as shown.

Assembly

Final sand all parts, finishing with 220-grit sandpaper. The aprons are joined to the legs with glue and 1 1/2 in. long by no. 10 flathead wood screws countersunk to a depth of 1/4 in. The plugs are glued in place and sanded flush with the surface.

The cleat is screwed to the leg with 1 1/2 in. long by no. 10 flathead wood

Bill of Materials (all dimensions actual)			
Part	Description	Size	No. Req'd.
A	Leg	3/4 x 12 x 17 3/8	2
B	Apron	3/4 x 6 1/8 x 17	2
C	Top	3/4 x 12 x 20	1
D	Cleat	3/4 x 1 x 7 1/4	2

screws, then the top is secured with 1 1/4 long in. by no. 10 screws. Don't use glue on either of these joints, as the legs and top must be able to expand and contract with changes in moisture content.

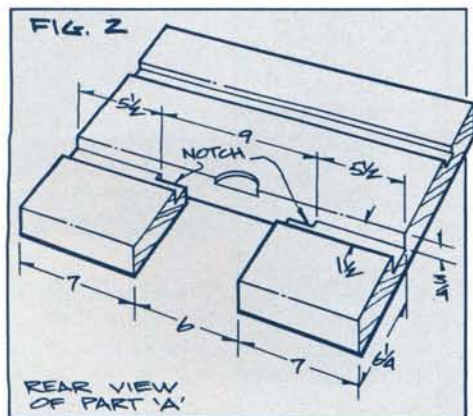
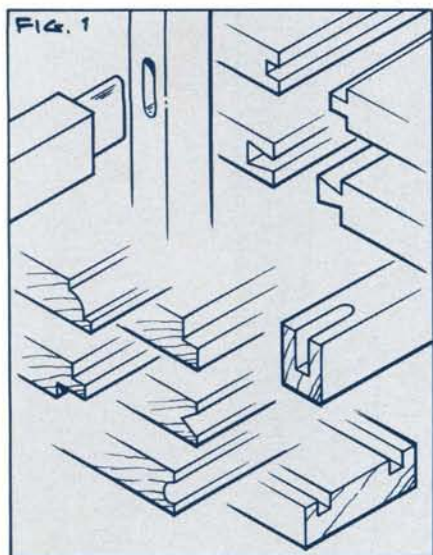
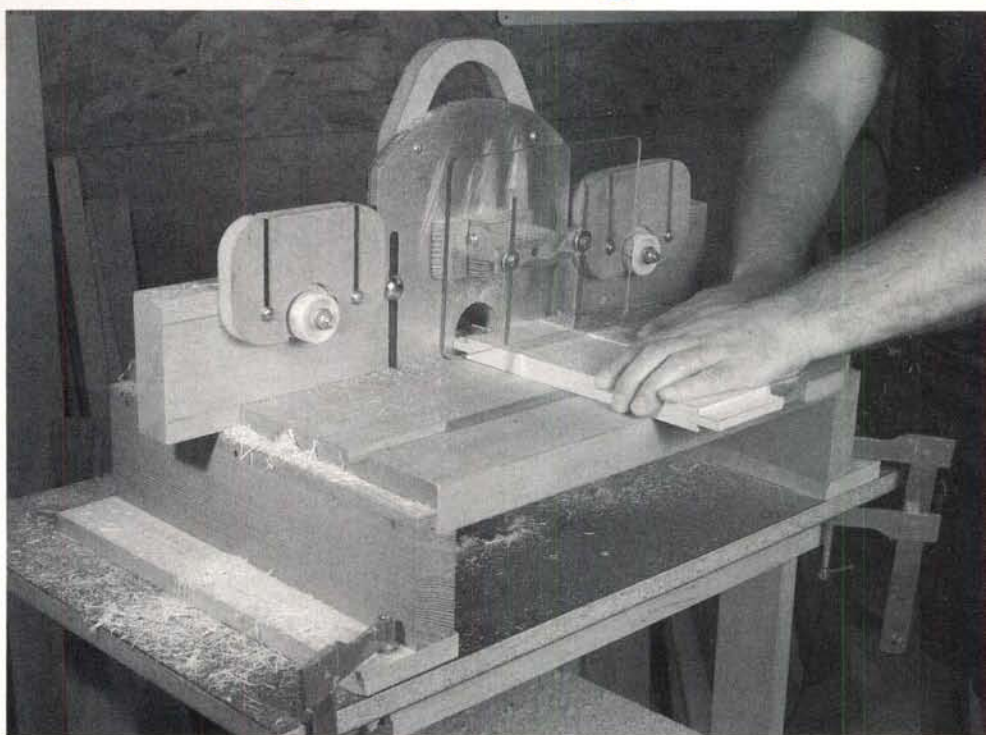
For a finish, we applied two coats of walnut stain, followed by three coats of penetrating oil. A light rubdown with 0000 grade steel wool completed the project.

The special jig adapts a portable router, preferably a plunge router, for use as a stationary tool. It does not negate the use of the machine in conventional fashion but there are times when accuracy is easier to achieve and it is more convenient to apply the work to the tool instead of the tool to the work. It's also true that even under normal conditions, router applications require extra attention for support and guidance. This "master" jig, in a sense, supplies a host of work setups in one compact package. The cuts shown in Fig. 1 are typical of work that can be done with the jig.

The jig includes a clear acrylic guard that is adjustable vertically to accommodate various stock thicknesses, and adjustable hold-downs that help keep workpieces, especially long ones, secure during the pass. A plunge router is highly recommended because of the convenience of being able to preset the depth of the cut.

Shop-Built Mortising/Tenoning Table

by R.J. DeCristoforo



With a plunge router, this workhorse router table will handle just about all your joinery needs

Making the Jig

Start with the 1 1/2 in. thick table (A). You'll need to edge glue two or three narrow boards to get the 15 1/4 in. width.

Next, use the table saw and dado head to cut a groove to accept your miter gauge. A 3/8 in. by 3/4 in. groove will fit most miter gauge bars, but check before cutting. After the miter gauge groove is completed, cut the 3/4 in. by 1 1/2 in. groove for the left and right fences (D).

Now, referring to Fig. 2, lay out and mark the location of the router cutout and also the location of the two notches. The router cutout creates clearance for the router and also establishes the spacing between the left and right fence. (The 6 in. spacing shown should be satisfactory for most routers, but it's best to check your model to make sure.) The notches allow clearance for the router mount (E) and facing (F). A notch that measures 1 1/2 in. long and 9/16 in. wide should be just about right.

Once the router cutout and notch locations are marked, use the band saw to cut them out. You'll need to use a

chisel to clean up the ends of the notches. The 2 in. diameter by 3/8 in. deep half-round cutout provides clearance for chips and sawdust.

After cutting the two ends (B) to size, cut the 3/4 in. by 3/4 in. rabbet along the top edge of each one as shown. Use glue and box nails (or screws) to secure the ends to the table. The two bases (C) can then be cut to size and joined to the ends in the same manner.

The router mount (E) should be made from a cabinet-grade hardwood plywood (birch plywood is a good one). Cut it slightly longer and wider than needed, then apply the mount facing (F). You can use either 1/32 in. thick Reynold's brand "Do-It-Yourself" aluminum (as I did) or plastic laminate (Formica) for the mount facing. Apply the facing with contact cement, then cut the mount to fit just inside the notches in the table. After using the band saw to cut the 6 in. radius on the top, the mount can be crosscut to its final length of 13 1/2 in.

Cut the left and right fences (D) to size. They should fit snugly in the table groove that was cut earlier. Note that

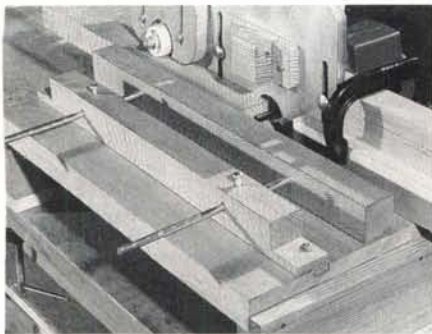


PHOTO A

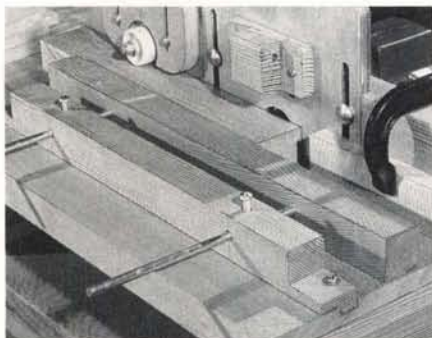


PHOTO B

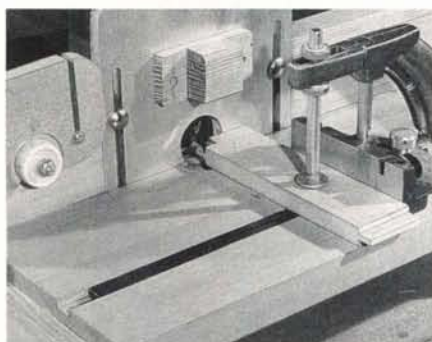


PHOTO C

The Right Cutter for Mortising

When it comes to router mortising, one type of bit, the spiral end mill cutter, stands head and shoulders above the others. Unlike straight cutters, spiral end mill bits both pull into the workpiece and efficiently eject chips. This is a marked difference from standard straight cutters, where constant pressure must be applied and the cutter seems to end up turning previously cut chips into ever finer dust. The spiral bits—sometimes called two flute spiral cutters—produce an exceptionally smooth bottom cut, with equally clean vertical walls, and no chipping or tear-out at the shoulder. Spiral end mill cutters are sold by most woodworking supply outfits.

shown in Photo A. Note how the auxiliary fence and the hold-down are used to guide the work. Feed the work only as fast as the cutter can perform. A stopblock, clamped to, in this case, the outfeed fence, is used to gauge the length of the mortise.

A true mortise is done as shown in Photo B (the cut can't be seen). The work is placed and secured before the bit

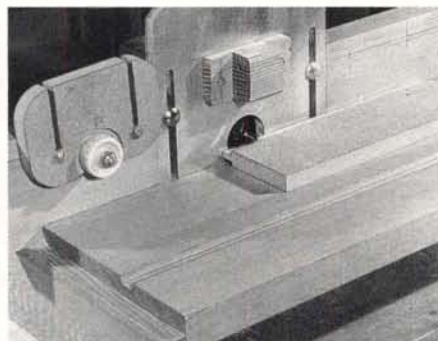


PHOTO D

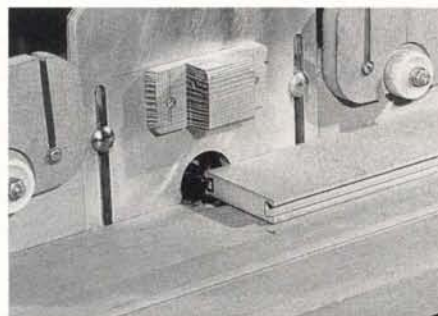


PHOTO E

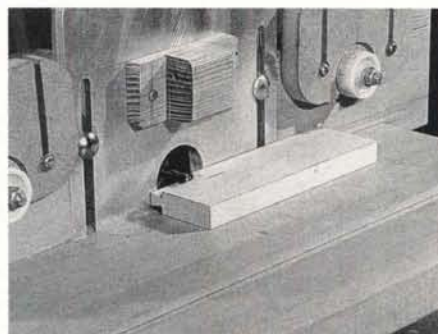


PHOTO F

is brought forward. This is one situation where the value of a plunge router is evident.

End-cuts, especially on narrow stock, are made by advancing the work with a miter gauge (Photo C). Don't freehand this kind of cut unless the workpiece has enough area for safe handling.

Cuts along edges are made by moving the stock along the fences. For a tongue, flip the stock for a second pass after the first one is accomplished (Photo D). When repeat passes or a shaving cut is required, make the first cut on all the pieces involved before resetting the bit for other cuts.

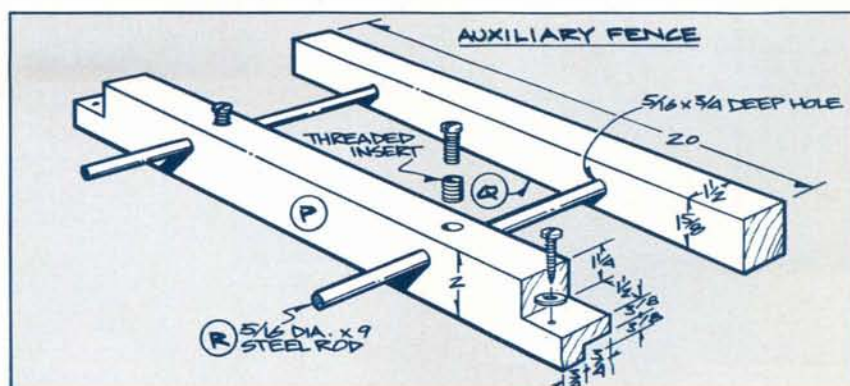
Photos E and F show the jig being used to form an edge-dovetail joint. You can't, of course, form the socket by

Bill of Materials

(all dimensions actual)

Part	Description	Size	No. Req'd.
Jig			
A	Table	1 1/2 x 15 1/4 x 20	1
B	End	1 1/2 x 4 x 15 1/4	2
C	Base	3/4 x 3 1/2 x 15 1/4	2
D	Left/Right Fence	1 1/2 x 4 1/2 x 9 3/4	2
E	Router Mount	1/2 x 9 x 13 1/2	1
F	Mount Facing	1/32 x 9 x 13 1/2	1
G	Handle	3/4 x 4 3/8 x 7 *	1
H	Hold Down	3/4 x 4 x 6 *	2
I	Roller	1 1/2 in. dia.	2
J	Guard Support	1 1/2 x 2 x 4	1
K	Guard Bracket	1/8 x 1 x 6 3/4	1
L	Guard Holder	1/8 x 1 x 4 1/2	1
M	Guard	3/16 x 6 1/2 x 9	1
Miter Gauge			
N	Fence	3/4 x 4 x 8 3/4 *	1
O	Bar	3/8 x 3/4 x 14	1
Auxiliary Fence			
P	Support	1 1/2 x 2 x 20	1
Q	Holder	1 1/2 x 1 5/8 x 20	1
R	Adjusting Rod	5/16 dia. by 9 long	2

* As shown, these parts are Medium Density Fiberboard, however hardwood plywood can be used as well.



making repeat passes, but if a single pass presents problems, you can use a pretty standard procedure to get by. First, form a groove with a straight bit, then replace the straight bit with the dovetail bit. The first cut will have removed the bulk of the waste so the dovetail bit will have little work to do.

The dovetail pin is formed following

the procedure used to shape a simple tongue. In the case, repeat passes can be used if necessary.

Photo G makes the point that the jig can be used to shape straight edges as well as for joint configurations. Be sure, when using piloted bits, that the pilot does not ride on the surface of the stock. Bits that have ball bearing pilots can be used pretty freely if the ball bearing is removed

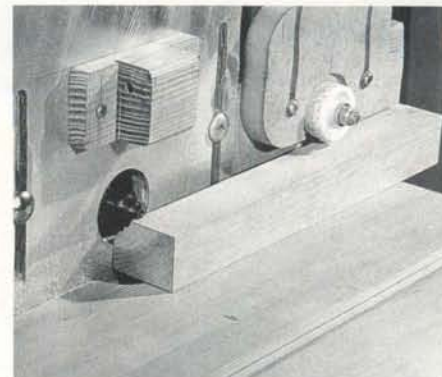
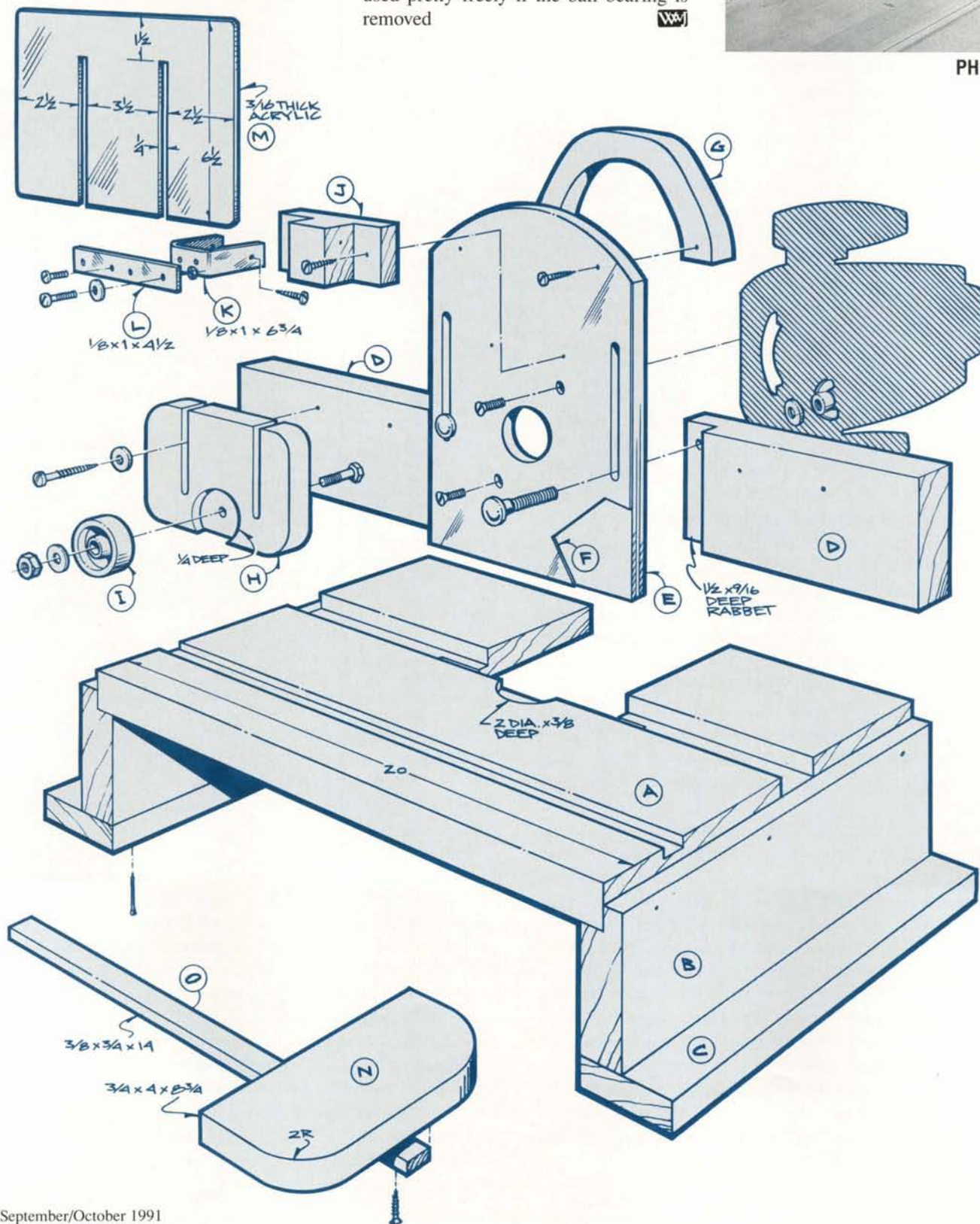


PHOTO G



Pine Wall Cabinet

with Louvered Doors

This Early American style cabinet will look good in any room, although it seems particularly well suited for the kitchen or bathroom. To make it easy to build, we simplified the joinery, using a basic butt joint secured with countersunk and plugged wood screws. The fixed-louver doors are available at most lumberyards and hardware stores.

The back is made from clear pine plywood. Not all lumberyards carry clear pine, but most will order it for you. The rest of the cabinet, including the louver doors, is made from solid pine.

Before starting, it's best to have the doors on hand. The door dimensions may vary slightly from the ones we show, requiring an adjustment of our case dimensions.

Begin by making the two sides (A). Cut each one to the length and width dimensions shown in the Bill of Materials, then lay out and mark the center line locations for the adjustable shelf peg holes. Once marked, use a $\frac{1}{4}$ in. diameter drill bit to bore each hole to a depth of $\frac{3}{8}$ in.

As shown in Fig. 1, the back edge of each side has a $\frac{1}{4}$ in. deep by $\frac{1}{2}$ in. wide rabbet that's cut to accept the back (E). Note that the rabbet is stopped flush with the underside of the bottom and 1 in. from the top end. The cut can be made with a router equipped with a straight bit and an edge guide.

The curved profile on each end of the sides is shown in the side view grid patterns. Transfer the two profiles to each side, then cut them out using a band saw or saber saw. When cutting, stay slightly on the waste side of the line. Once cut, use a file and sandpaper to sand the edge exactly to the line.

Now, cut the top and bottom (B) and the fixed shelf (C) to length and width. The roundover on the front edge of the fixed shelf can either be applied with a router and a $\frac{3}{8}$ in. radius roundover bit or it can be hand-shaped with a file and sandpaper.

The top, bottom, and fixed shelf can now be joined to the sides. We used $1\frac{1}{4}$ in. long by no. 8 flathead wood screws countersunk to a depth of $\frac{1}{4}$ in. There's no need to add glue here, since end-grain butt joints like this offer little glue strength. The plugs are glued in place and sanded flush with the surface. Also, at this time, measure the distance between the sides and cut the adjustable shelf (D) to length and width.

We used $\frac{1}{4}$ in. thick clear pine plywood for the back (E). Rip the plywood to fit snugly between the rabbets on the back edge of the sides. Then, transfer the grid pattern to the back and cut it to shape with the band saw.

For the doors (F), we used ready-made, $\frac{3}{4}$ in. thick by 8 in. wide by 20 in. long, pine fixed shutters. Fixed shutters have non-movable louvers. Your lumberyard will probably need to special-order them, since they will usually only stock the movable-louver shutters.



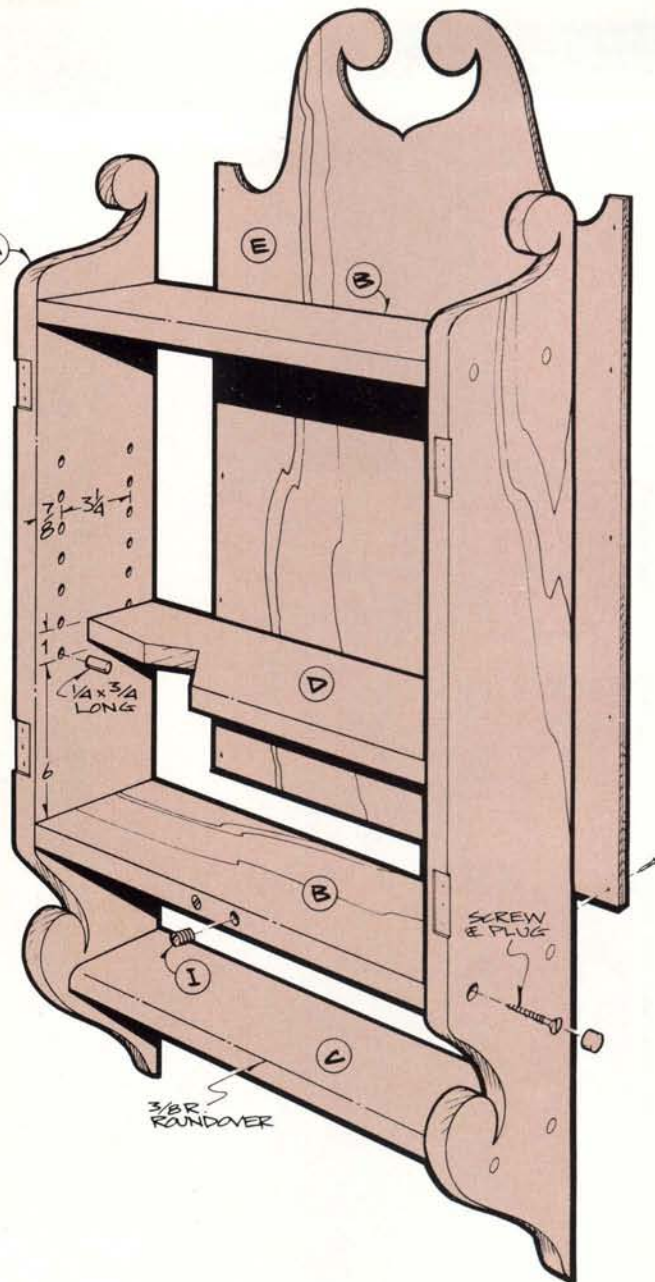
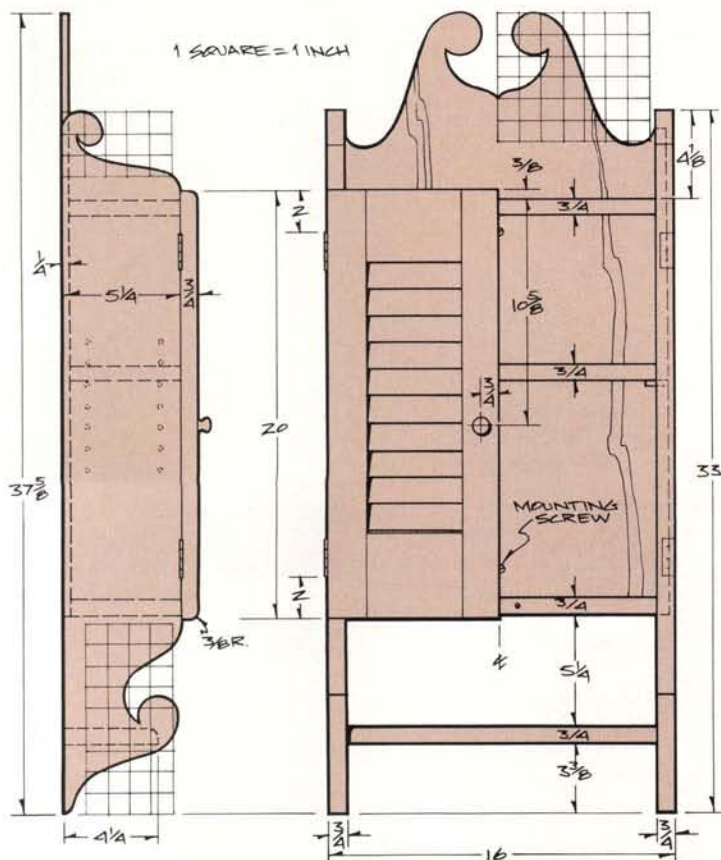
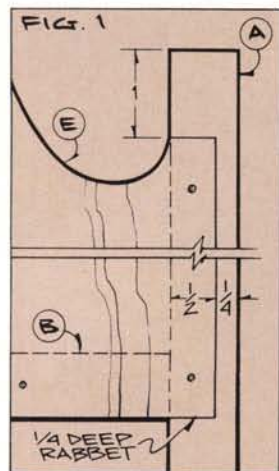
You could, if you prefer, use the movable-louver shutters—just be sure to locate the adjusting rod on the inside face of the door. Keep in mind, however, that you may need to cut a pair of notches in the front edge of the adjustable shelf to provide clearance for the adjusting rods.

Next, cut the mortises for the hinges (G) and mount the two doors. If all looks okay, remove the doors and hinges, then use the router table to apply a $\frac{3}{8}$ in. radius to the front edge of the top, bottom and outside edges of each door. The inside edge of each door, where they meet when assembled to the case, is only slightly rounded using a file and sandpaper. The $\frac{3}{4}$ in. dia. knobs (H) are available at just about any hardware store.

The doors, back and assembled case can now be final sanded with 220-grit sandpaper. We applied two coats of Stulb's Cabinetmaker's Blue Paint to the assembled case and the two knobs. If not available from your local paint store, Stulb's paint can be mail-ordered from Shaker Workshops, P.O. Box 1028, Concord, MA 01742-1028; tel. (617) 646-8985. Order part number A957. The current price is \$7.15 per pint plus \$2.45 shipping and handling. Since the back will be glued in place

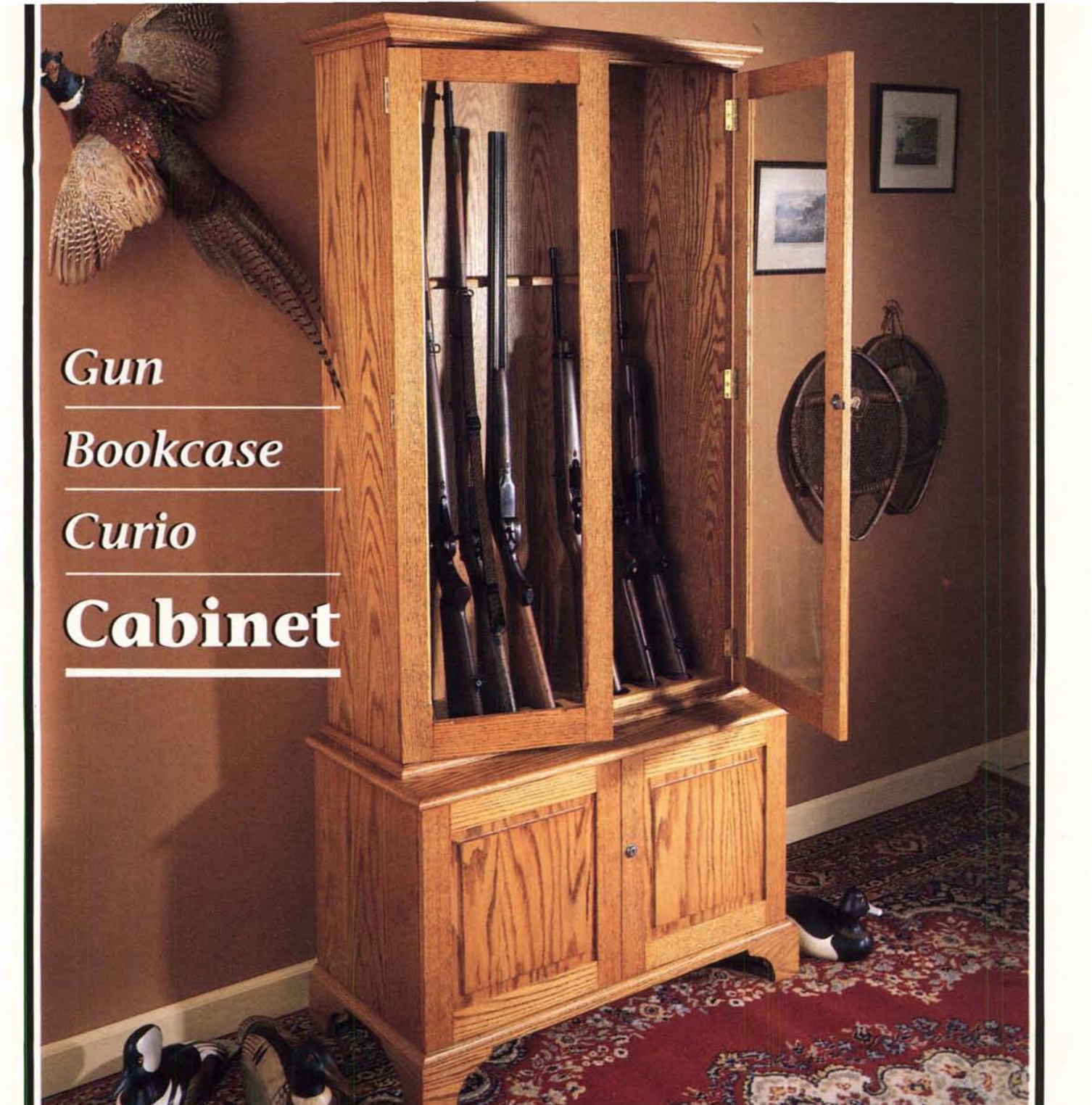
(all dimensions actual)

A detailed line drawing of a door assembly. The door is shown in a closed position, revealing its internal structure with horizontal louvers. The assembly includes a door frame and a door panel. Various components are labeled with letters in circles: 'A' points to the top of the door frame, 'B' points to the top of the door panel, 'C' points to the bottom of the door panel, 'D' points to the bottom of the door frame, 'E' points to the hinge on the right side, and 'F' points to the hinge on the left side. The door panel has a handle on the left side.



We finished the doors, back and adjustable shelf with two coats of Minwax's Puritan Pine. When dry, we added two coats of orange shellac, followed by a coat of McCloskey's Eggshell Varnish. For the reason mentioned above, the area of the back that fits into the rabbet should be protected from any finish. A strip of masking tape along each edge will do the job nicely.

To mount the cabinet, drive a pair of wood screws through the back and into a wall stud. If you can't locate a stud, or if the stud is not in an ideal location, use a Molly bolt or other suitable wall anchor to firmly secure the cabinet in place. 



Gun

Bookcase

Curio

Cabinet

No man can be all things to all people, but this cabinet comes as close to fitting multiple uses as any inanimate object can. We've pictured it on the cover as a gun cabinet and a bookcase, but that's just for starters. A glance at the exploded view (page 51) will tell you that the piece is comprised of two separate sections, a lower base section, and an upper cabinet section. Either can be used as a separate unit. The base section makes a fine floor cabinet, and the upper cabinet section can either sit on a surface or be wall-hung.

Whether your cabinet is destined for display and storage of a firearms collection, or for housing first editions of Tolstoy and Thoreau behind its glass-paneled doors, building the piece



A good place to start construction is with getting out and edge-joining stock for the various wide parts. On the base, these

parts are the sides (A), top/bottom (B), shelf (D) and door panel (M). On the cabinet the wide parts include the sides (O), top (P), bottom (Q) and, if you use it as a bookcase or curio cabinet, the optional shelves (DD). Once your stock is out of clamps, cut the parts to the required lengths and widths, then get to work on the joinery.

Consider this project as basically building two simple boxes, and then adding details, moldings and doors to complete the construction. The joinery on the base box consists of a stopped $\frac{3}{8}$ in. deep by $\frac{3}{4}$ in. wide rabbet in the base top, and a $\frac{3}{4}$ in. by $\frac{3}{4}$ in. notch in the base bottom accepting the base sides, with screws and plugs through the top and screws through the sides anchoring the respective joints. The upper cabinet joinery features the same $\frac{3}{4}$ in. by $\frac{3}{4}$ in. notch in the bottom to accept the sides, with a $\frac{3}{8}$ in. deep by $\frac{3}{4}$ in. wide rabbet in the top end of the sides to fit the top. Screws through the sides and into the



top and bottom anchor both these joints.

The easiest way to cut both the stopped rabbets and the notches is with the miter gauge on the table saw. For the notches, raise the blade a little over $\frac{3}{4}$ in. high, then put a piece of tape—or make a mark with a bright Magic Marker—on the saw table to indicate where the front edge of the blade is. The tape or mark will be used to gauge where to stop your cut, since you can't see the bottom surface of the stock being cut. Make a mark on the stock to indicate the notch location, then advance the stock with the miter gauge so the mark on the stock is just shy of the mark on the saw table. Back off the stock, stop the saw, then finish the notch with a sharp handsaw. For the stopped rabbets, raise the blade $\frac{3}{8}$ in. high and make a new mark or relocate your tape to again indicate the frontmost point of the blade. Use repeated passes with the miter gauge to establish the rabbets, stopping each pass so the mark on your stock is just shy of the mark on the saw table. Finally, square the inside corner of the rabbet with a sharp chisel.

About this time—before you actually assemble the upper cabinet box—you'll need to make up your mind as to its intended use. If you plan on installing shelves, or if you think you may want to at a later date, then now's the time to drill the shelf pin holes in the sides. We haven't given a suggested layout here, but a good spacing is about 1 in. apart. Also drill the shelf pin holes in the base sides, again using the 1 in. spacing. The easiest way to make consistent shelf pin holes is to make a single template for each set of holes, then align the end of the template with the top end of the sides for each row.

Clamp the base and cabinet boxes securely, check that your constructions are square, then set aside to dry. When out of clamps, use a bearing-guided rabbeting bit to cut the $\frac{1}{4}$ in. deep by $\frac{3}{8}$ in. wide rabbets for the backs (C, R). You can either round the corners of the plywood backs to match the radius of your rabbeting bit, or square out the rabbet corners to fit square-cornered back pieces of $\frac{1}{4}$ in. thick plywood. The backs can be attached with brads or screws.

Base Details

Completion of the base section of the piece (not including the door construction) is pretty much a matter of molding some edges and adding a foot assembly to get the box off the ground. Start by cutting sufficient $\frac{3}{4}$ in. thick by $4\frac{3}{4}$ in. wide stock to yield the bracket feet (E, F). Next, use a $\frac{1}{2}$ in. radius cove cutter to mold one edge of the stock. Angle the table saw blade 45 degrees, and use the miter gauge to cut the feet to the desired lengths. Then use a compass to lay out the $2\frac{1}{4}$ in. and $\frac{3}{4}$ in. radii that comprise the bracket foot profile. The profile can be cut by hand with a coping or jigsaw, or with a scroll or band saw, if you have one. Stay well off the line on the long flat that connects the bracket profiles, then use a block plane to smooth the flats and a chisel or bullnose plane to get into the corners. As shown in the front elevation, you should have $\frac{7}{8}$ in. of stock remaining between the molded edge and the flat.

For the bullnose molding (J) you'll need the router table equipped with a fence and a $\frac{3}{8}$ in. radius roundover bit. It's best to mold the bullnose on a wider board to start, and then use the table saw to rip the $\frac{3}{4}$ in. wide molding off once the router table work is complete. This process insures that your fingers stay well away from the cutter during the molding process. Glue the bullnose molding at the front and toward the front on the sides,

Bill of Materials

(all dimensions actual)

Part	Description	Size	No. Req'd.
Base			
A	Side	$\frac{3}{4}$ x $15\frac{1}{4}$ x $18\frac{5}{8}$	2
B	Top/Bottom	$\frac{3}{4}$ x 16 x $34\frac{1}{2}$	2
C	Back	$\frac{1}{4}$ x $18\frac{1}{4}$ x $33\frac{3}{4}$	1
D	Shelf	$\frac{3}{4}$ x 12 x $32\frac{7}{8}$	1
E	Bracket Foot (Front)	$\frac{3}{4}$ x $4\frac{3}{4}$ x 36	1
F	Bracket Foot (Side)	$\frac{3}{4}$ x $4\frac{3}{4}$ x $16\frac{3}{4}$	2
G	Back Foot	$\frac{3}{4}$ x 4 x 8	2
H	Foot Block	$1\frac{1}{2}$ x $1\frac{1}{2}$ x 4	4
I	Glueblock	$\frac{3}{4}$ x $\frac{3}{4}$ x $3\frac{3}{8}$	8
J	Bullnose Molding	$\frac{3}{4}$ x $\frac{3}{4}$	about 6 ft.
K	Door Stile	$\frac{3}{4}$ x $2\frac{1}{4}$ x $17\frac{1}{2}$	4
L	Door Rail	$\frac{3}{4}$ x $2\frac{1}{4}$ x $14\frac{3}{4}$ *	4
M	Door Panel	$1\frac{1}{2}$ x $13\frac{1}{4}$ x $13\frac{5}{8}$ **	2
N	Stop	$\frac{1}{4}$ x 1 x 2	2
Cabinet			
O	Side	$\frac{3}{4}$ x $10\frac{3}{4}$ x $53\frac{1}{2}$	2
P	Top	$\frac{3}{4}$ x $10\frac{3}{4}$ x $31\frac{1}{4}$	1
Q	Bottom	$\frac{3}{4}$ x $11\frac{1}{2}$ x 32	1
R	Back	$\frac{1}{4}$ x $31\frac{1}{4}$ x $52\frac{3}{4}$	1
S	Beaded Filler	$\frac{3}{4}$ x 2 x 32	1
T	Top Molding	$\frac{3}{4}$ x $\frac{3}{4}$	about 5 ft.
U	Cap Molding	$\frac{3}{4}$ x $1\frac{3}{8}$	about 5 $\frac{1}{2}$ ft.
V	Bottom Molding	$\frac{3}{4}$ x $\frac{3}{4}$	about 5 ft.
W	Door Stile	$\frac{3}{4}$ x $2\frac{1}{4}$ x $50\frac{3}{4}$	4
X	Door Rail (Top)	$\frac{3}{4}$ x $2\frac{1}{4}$ x $13\frac{1}{2}$ *	2
Y	Door Rail (Bottom)	$\frac{3}{4}$ x $2\frac{3}{4}$ x $13\frac{1}{2}$ *	2
Z	Glass	$\frac{1}{8}$ x 12 x $46\frac{1}{4}$ ***	2
AA	Retainer	$\frac{1}{4}$ x $\frac{1}{4}$	about 20 ft.
Optional			
BB	Stock Rest (for guns)	$\frac{3}{4}$ x 3 x $30\frac{3}{8}$	1
CC	Barrel Rest (for guns)	$\frac{3}{4}$ x $1\frac{1}{2}$ x $30\frac{3}{8}$	1
DD	Shelf (for books, etc.)	$\frac{3}{4}$ x $10\frac{1}{2}$ x $30\frac{3}{8}$	as req'd
Hardware****			
EE	Brass Butt Hinge	$2\frac{1}{2}$ x $1\frac{3}{4}$	5 pair
FF	Surface Bolt (Base)	4 long	2
GG	Surface Bolt (Cabinet)	6 long	2
HH	Door Lock	to fit $\frac{3}{4}$ thick stock	2
II	Threaded Insert	$\frac{1}{4}$ -20 thread, brass	4
JJ	Flathead Machine Screw	$1\frac{1}{2}$ long, $\frac{1}{4}$ -20 thread	4
KK	Leveler	as shown	4

* Length includes tenons.

** Door panel as sized allows $\frac{1}{4}$ in. across width and $\frac{1}{8}$ in. top-to-bottom for wood movement.

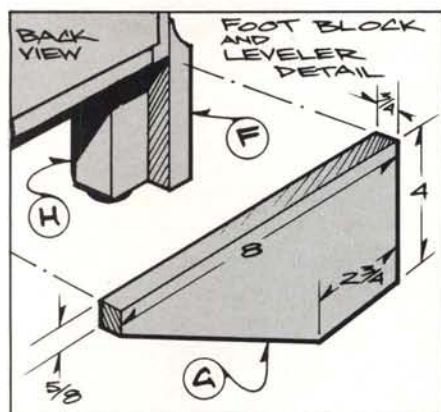
*** Glass dimensions as given allow no clearance. It's best to bring the doors to the glazier and have the glass cut to fit.

**** The brass butt hinges (Stanley), the surface bolts (Stanley), the door locks (Wright Products) and the levelers (Service Star) are all common hardware store items. Many hardware stores also carry threaded inserts, but if you can't find them locally, both the threaded inserts and the machine screws can be ordered from Bruss Fasteners, P.O. Box 88307, Grand Rapids, MI 49518; tel. (616) 698-8314.

but anchor the back half of the side bullnose molding with finishing nails, set and filled.

Completing the bracket feet assembly are the back feet (G), foot blocks (H) and some glueblocks (I). The foot blocks add rigidity at the front corners and serve as mounts for the levelers (KK). You'll need to be aware of wood movement during assembly of these parts, however. The front bracket foot is glued securely to the base front and the two front foot

blocks, but the side bracket feet are glued only at the base front and the front foot blocks. Don't glue the side bracket feet to the back foot blocks or the back feet. Instead, the pair of glueblocks at the back of the side bracket feet are slotted and screwed into the base bottom. This arrangement allows the base box to respond to changes in humidity without breaking the back foot blocks or back feet off. Glue the back foot blocks to the back feet and the base bottom, drive a screw through the bottom into each foot block for extra strength, then add the remaining glueblocks.



Cabinet Details

Next up is molding the various upper cabinet details. Use $\frac{1}{2}$ in. radius cove and roundover bits in the router table for the respective top and bottom moldings (T, V). Employ the same technique as with the bullnose molding on the base, starting with wider stock, molding the edge, then ripping to get the required $\frac{3}{4}$ in. final molding width. The $\frac{1}{2}$ in. radius roundover bit is also used to shape the edge of the cap molding (U), though you'll need either a half-round beading bit with the router table or the molding head in the table saw (we used Sears cutter no. 9HT2352) to establish the bead detail on the beaded filler (S). If you have decided to include the secret key stash, now's the time to make the cuts in the beaded filler and front cap molding (see page 53).

The beaded filler is glued along the front edge of the top and screwed into the front edges of the sides. As with the bullnose, the remaining moldings (the top, bottom and cap moldings) are glued at the front and toward the front on the sides, and fastened with finish nails, set and filled, toward the cabinet back.

Doors

Both pairs of doors employ a standard mortise-and-tenon construction. The primary difference between the base and upper doors is the groove in the base door stiles (K) and rails (L) to accept the panel (M), as opposed to the rabbet in the upper door stiles (W) and rails (X, Y) to fit the glass (Z) and retainer (AA). A smaller difference is that the bottom door rail on the upper door is $2\frac{3}{4}$ in. wide, meaning that you'll need to make a slightly wider tenon and matching mortise (see Upper Cabinet Door Detail). One final minor difference is the addition of a $\frac{5}{16}$ in. wide chamfer detail on the inside edges of the upper cabinet door stiles and rails. As shown, the chamfers stop $1\frac{1}{4}$ in. from the corners. If you plan on making our Shop-Built Mortising/Tenoning Table (page 42), it's the perfect tool for cutting the various mortises and tenons to complete the door joinery. Otherwise, just use the standard method of boring a series of holes with the drill press, cleaning the waste with a sharp chisel, and then using the table saw to cut the tenons to fit.

The raised panel on the base door is an easy two-step process, as shown in the Base Panel Detail. Use the router, edge guide and a $\frac{3}{8}$ in. diameter core box bit, set for a $\frac{1}{4}$ in. deep cut, to establish the raised panel profile. Depending on your router's power, you may need several passes (make the final pass a light clean-up cut) to get the full $\frac{1}{4}$ in. depth. Then set up the table saw with a high auxiliary rip fence ($\frac{1}{4}$ in. from the blade) to clear the waste. Use a scraper to clean the little remaining stock between the core-box and table saw cuts. Once the door frame and panel are assembled, use a pair of small brads at the panel center line, through the top and bottom rails (pre-drill for the brads), to center the panel within the frame. Don't forget to add a pair of doorstops (top and bottom) for the base doors.

Options

We've sized our stock and barrel rests (BB, CC) to fit most rifles and single-barrel shotguns. As shown, the cabinet is sized and the rests are shaped to fit eight firearms. A side-by-side double-barrel shotgun, and other specialized guns may require that you custom-make your rests. The bottom rest also serves as a door-

stop, and both rests are screwed in place to allow for future removal. We strongly recommend that you add a little felt to the barrel rest recesses. The felt (available at any yard goods store) will protect blued steel from discoloration, should tanins or oils leach out of the wood and come in contact with the barrel.

If you opt for shelves (DD), just make as many as are needed. A full-width shelf will serve as a doorstop, but you may find that adding separate doorstops, both top and bottom, provides a more positive stop.

Hardware

We purchased all of the hardware at a local hardware store. The solid brass Stanley butt hinges (EE), the Stanley surface bolts (FF, GG), the door locks (HH) and the levelers are fairly common. If your hardware store doesn't stock threaded inserts (II), we've included a mail-order source in the Bill of Materials for them and the matching machine screws (JJ). The threaded inserts are an important element, since they permit easy disassembly of the base and cabinet sections. Disassembly is an absolute must for moving, since this piece is quite large, and awkward to move as a whole.

Mounting the door locks just requires an appropriately sized hole through the two right-side doors for the lock cylinder. The surface bolts secure the left-side doors. For the surface bolts on the base and into the upper cabinet bottom, we bored $\frac{3}{8}$ in. diameter holes and then half-plugged them to fit the bolt. On the upper cabinet top we used the catch plate that comes with the surface bolt. If you'd rather not fuss with precisely locating the drilled holes, just make an oversized hole and use the supplied catch plates. The catch plates have one added purpose. They protect against the scratches that usually result from trying to slide the bolt home.

The Finish

For our finish, we started with one coat of Minwax Golden Oak Stain, followed by two coats of Parks Orange Shellac, and one coat of McCloskey's Heirloom Clear Varnish (eggshell). We rubbed out the finish after the second application of shellac, using 000 steel wool. If your shop is fairly dust-free, you shouldn't have to rub out after the varnish.

Key Stash Secret Compartment

The key stash is an interesting detail that helps make this project a little more special. While a key could be hidden just about anywhere, by locating the stash up high it's well out of the way of inquisitive young fingers. The reason we used a Forstner bit to start the compartment recess was to give one end of the key stash a radiused bottom. A bottom that terminates in four perpendicular walls makes it rather difficult to lift the key out, unless you have long fingernails. With the radiused end, you can slide the key up the radius a bit to get under it and easily extract it.

To make the key recess, first clamp a backup block to the beaded filler piece (S) and drill a hole as shown in Step 1 with a 1 in. diameter Forstner bit. Remove the backup block and clean away the remaining stock by making repeated passes with the table saw blade. Next, use the same Forstner bit, but set for a $\frac{5}{8}$ in. deep hole (Step 2), to continue the recess in the front cap molding (U). Clean out the waste with the table saw and a chisel.

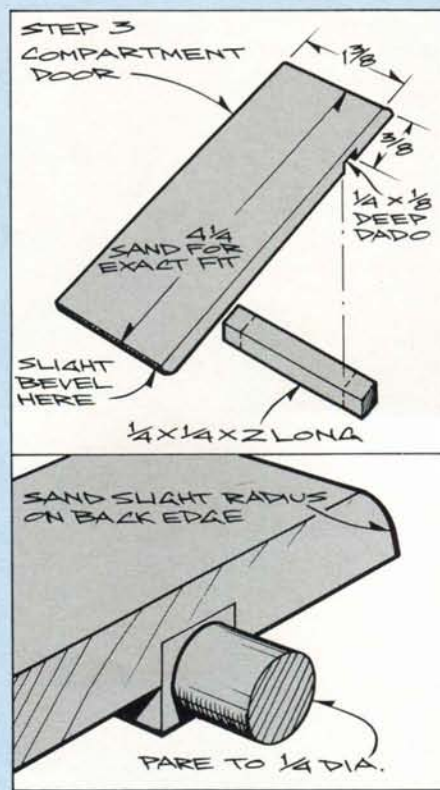
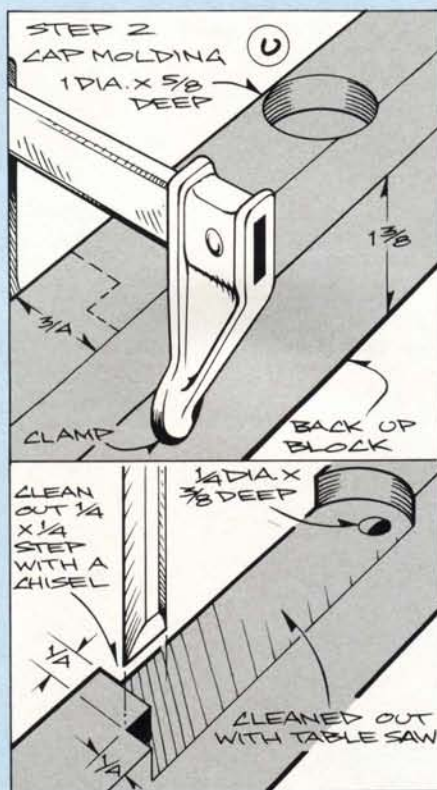
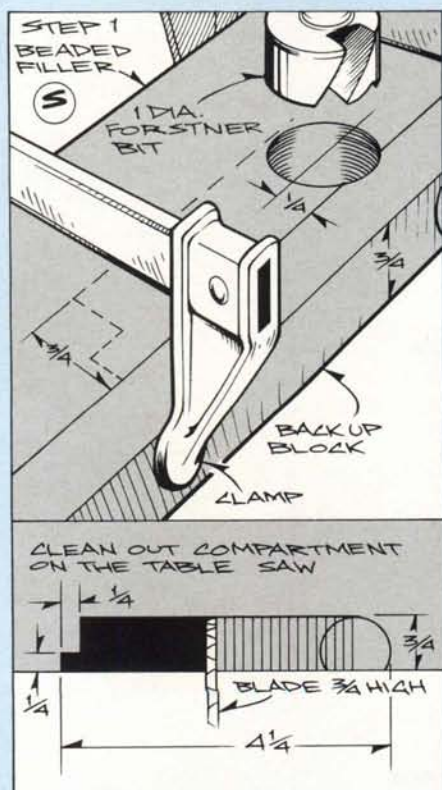
All that remains is to make a pivoting



secret compartment door (Step 3). The door is just a $\frac{1}{4}$ in. thick slip of oak, sized to accurately fit the compartment opening. Sand a slight radius on the end of the door to match the compartment radius. Then locate a dado in the door $\frac{3}{8}$ in. from the end, to accept a $\frac{1}{4}$ in. by $\frac{1}{4}$ in. strip, the corners of which are pared back as shown to form $\frac{1}{4}$ in. diameter pins. To accurately locate the holes for these pins, apply a little graphite (a pencil works fine) to the ends, then position the compartment door and rub the pin ends on the cabinet top and the cap molding, respectively. The graphite will leave a mark showing you exactly where to drill the corresponding pin holes. Size the holes for a snug fit of the pins, then add a little paraffin wax to minimize friction.

The holes must be drilled and the compartment door mounted before the cap molding is glued in place. Although we didn't include one, you could add a small magnetic catch to the compartment door to keep it closed under all circumstances, such as when the cabinet is being moved and may not be upright.

W&W



We know there's a fair number of you out there who can't get enough of these classic toys from Kansas woodworkers Fred Cairns and Kathy Dawson. But we're getting suspicious as to just who all these handsome cars and trucks are being built for. Is there a mini baby boom going on, or are most of these cars and trucks ending up as coffee table showpieces or desktop executive toys?

Whatever its ultimate destination, we know this sturdy dump truck has good bloodlines. Those of you who built the Pickup Truck (November/December 1988) and the Roadster (March/April 1991) will note that the dump truck shares much of its basic construction with these two earlier projects. Indeed, since many different vehicles can be built using this same hood/cab/chassis configuration, you can have fun designing your own cars and trucks by just adding on to the basic frame.

The construction of the dump truck is



Sand Box Special:
**TILT ACTION
DUMP TRUCK**

fairly straightforward. It's just a series of blocks assembled together with wheels, pegs, and a few details added for authenticity. The dump truck shown in the photo is made primarily from oak, with several padauk accent pieces. To further simplify the construction, Fred and Kathy's company, Lynes Unlimited, has agreed to supply a kit that includes all the wheels and pegs that you'll need (see Parts Kit Ordering Information).

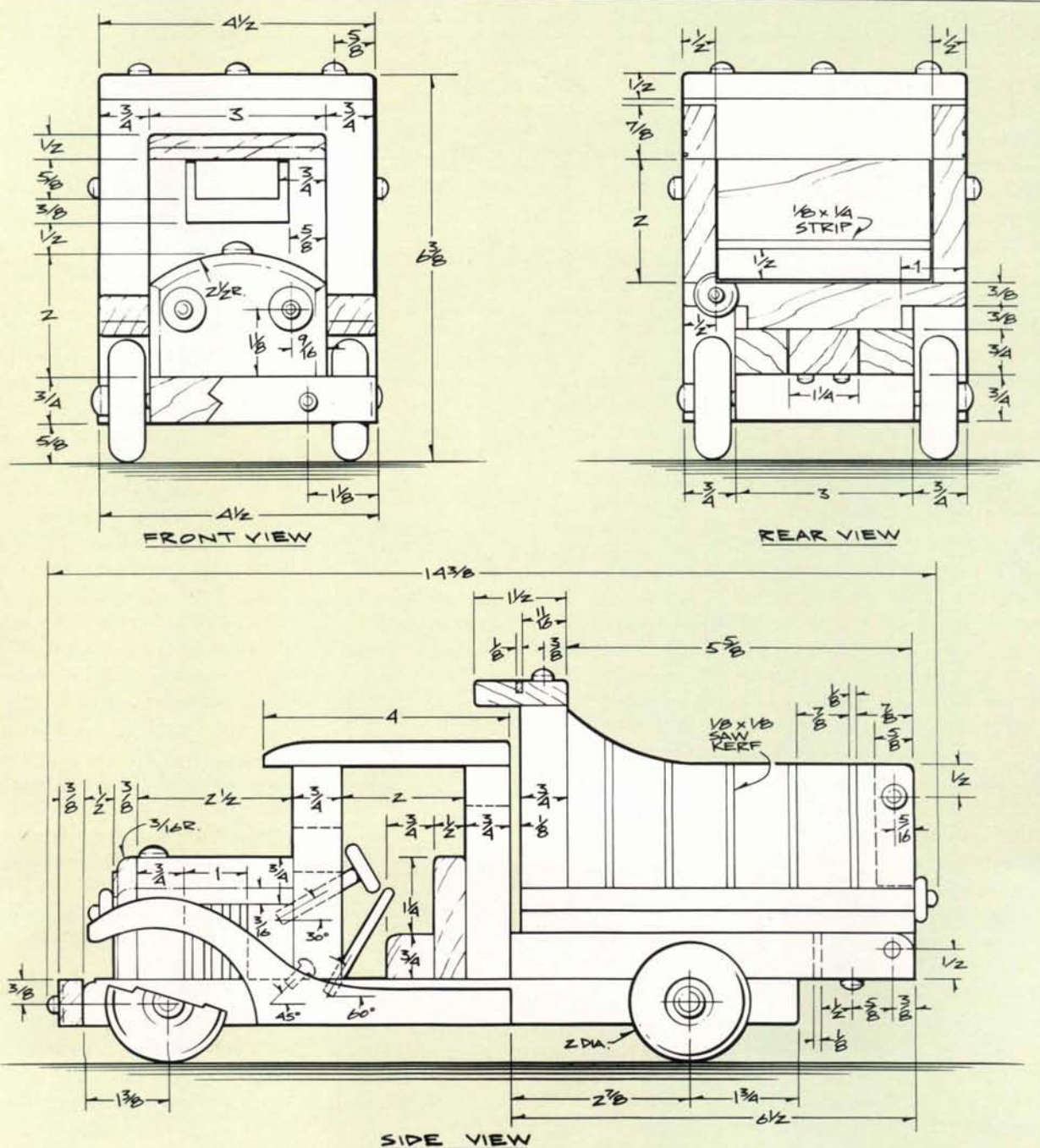
The best approach to making the dump truck is to work on several subassemblies before doing the final assembly. Start by cutting the various parts to rough length and width. You

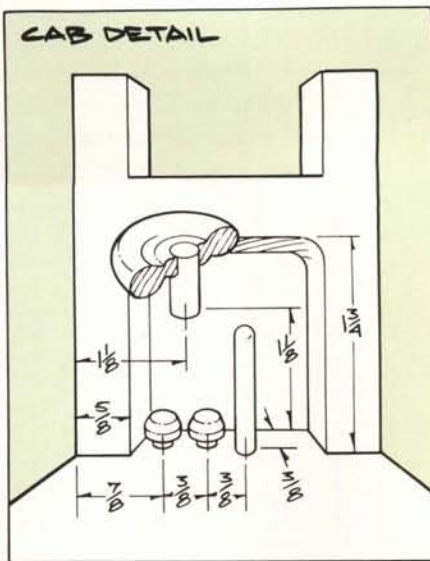
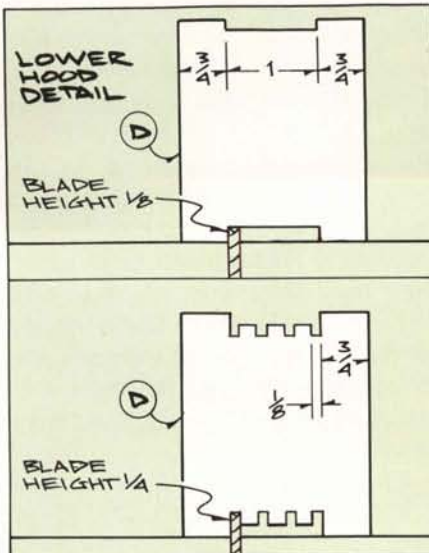
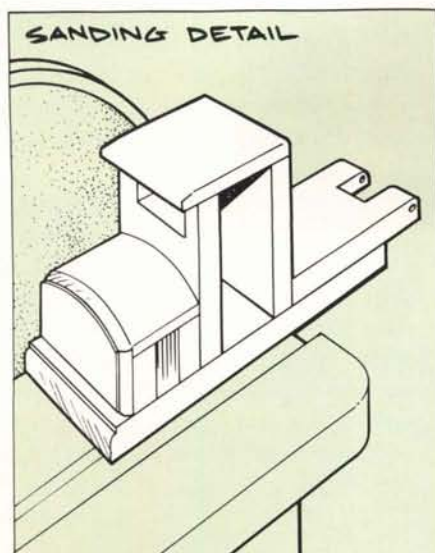
needn't be too fine here for starters, since sanding will be used to final size the parts later on. Once the chassis (A), chassis extension (B), hood (C), lower hood (D), grill (E), cab front and back (F), and roof (G) have been cut, you can go to work on the first subassembly—the hood, lower hood and grill. Use the table saw to cut the louver detail on the lower hood (see Lower Hood Detail), then add the hood and grill before laying out and cutting (with the band saw) the 2 1/2 in. radius hood arc. Note the use of padauk for the grill to distinguish it from the other parts.

After the 2 1/2 in. radius has been

sanded smooth, use a 3/16 in. radius bearing-guided roundover bit in the router table to establish the stepped roundover detail around the top and sides of the grill and on the top front end of the chassis.

Now mount the hood/lower hood/grill subassembly to the chassis, locating it 1/2 in. from the chassis front end, and drill the holes for the various controls (steering wheel, gear shift, pedals). Make the windshield cutout at the top end and the control cutout in the bottom end of the cab front, and the back window cutout in the cab back. Notch the chassis extension as shown for the





pivot block (O), and round the top back end so the dump body won't bind as it pivots. Glue the cab front and back and the chassis extension in place and finally add the roof. Once the chassis/hood/cab assembly is dry, use a disk or belt sander to sand the sides flush (see Sanding Detail). This is an important step since you'll need a flat surface on which to mount the fenders (P) later on. Assemble the seat (H) and seat back (I), round the edges, then glue the seat in place.

Now go to work on the dump body subassembly. Start by using the dado head in the table saw to cut the $\frac{3}{8}$ in. deep by 1 in. wide rabbets on the lower edges of the dump bottom (J). Cut the dump front (K) to size, then use the table saw blade to make the decorative kerfs in the dump sides (L). Referring to the full-size pattern, lay out the profile on the top edge of the dump sides, cut the shape, and sand smooth. Then glue up the dump bottom, front and sides. While waiting for these parts to dry, make the remaining parts to complete the dump assembly. The dump cap (M) and tailgate (N) both have decorative accent stripes that on our truck are just $\frac{1}{8}$ in. thick by $\frac{1}{4}$ in. wide strips of padauk glued into like-sized kerfs made with the table saw. Note that the tailgate must be sized to allow clearance on the sides and bottom for easy action. A trio of medium-sized pegs (V) provides a nice decorative detail and anchors the cap to the dump front, while a pair of the same medium-sized pegs (inserted through slightly oversized holes) serve as pivots for the tailgate. A second pair of the medium-sized pegs mount the pivot

Bill of Materials

(all dimensions actual)

Part	Description	Size	No. Req'd.
A	Chassis	$\frac{3}{4} \times 3 \times 11\frac{1}{2}$	1
B	Chassis Extension	$\frac{3}{4} \times 3 \times 6\frac{1}{2}$	1
C	Hood	$\frac{3}{4} \times 3 \times 2\frac{1}{2}$	1
D	Lower Hood	$1\frac{1}{4} \times 3 \times 2\frac{1}{2}$	1
E	Grill	$\frac{3}{8} \times 3 \times 2$	1
F	Cab Front/Back	$\frac{3}{4} \times 3 \times 3\frac{1}{2}$	2
G	Roof	$\frac{1}{2} \times 3 \times 4$	1
H	Seat	$\frac{3}{4} \times \frac{3}{4} \times 2\frac{1}{2}$	1
I	Seat Back	$\frac{1}{2} \times 2 \times 2\frac{1}{2}$	1
J	Dump Bottom	$\frac{3}{4} \times 4\frac{1}{2} \times 6\frac{3}{8}$	1
K	Dump Front	$\frac{3}{4} \times 4\frac{1}{2} \times 3$	1
L	Dump Side	$\frac{1}{2} \times 2\frac{7}{8} \times 5\frac{5}{8}$	2
M	Dump Cap	$\frac{1}{2} \times 1\frac{1}{2} \times 4\frac{1}{2}$	1
N	Tailgate	$\frac{5}{8} \times 2 \times 3\frac{1}{2}$	1
O	Pivot Block	$\frac{3}{4} \times 1\frac{1}{4} \times 1\frac{1}{2}$	1
P	Fender	See Full-size Pattern	2
Q	Bumper	$\frac{3}{8} \times \frac{3}{4} \times 4\frac{1}{2}$	1
R	Pivot Pin	$\frac{1}{4}$ dia. x 3 long	1
S	Steering Column	$\frac{7}{32}$ dia. x $1\frac{3}{4}$ long	1
T	Gear Shift	$\frac{3}{16}$ dia. x $1\frac{1}{4}$ long	1
U	Small Peg*	See Detail	5
V	Medium Peg*	See Detail	9
W	Large Peg*	See Detail	5
X	Small Wheel*	$\frac{3}{4}$ dia. x $\frac{3}{16}$ thick	3
Y	Medium Wheel*	1 dia. x $\frac{5}{16}$ thick	1
Z	Large Wheel*	2 dia. x $\frac{5}{8}$ thick	4

Parts Kit Ordering Information

* Wheels and pegs are supplied as a kit, available from Lynes Unlimited, Route 2, Greenleaf, KS 66943; tel. (913) 747-2612. Specify Turned Parts Kit for Dump Truck (cost is \$10.00 postpaid; checks or money orders but no credit cards). Please note that kit does not include any parts other than the wheels and pegs.

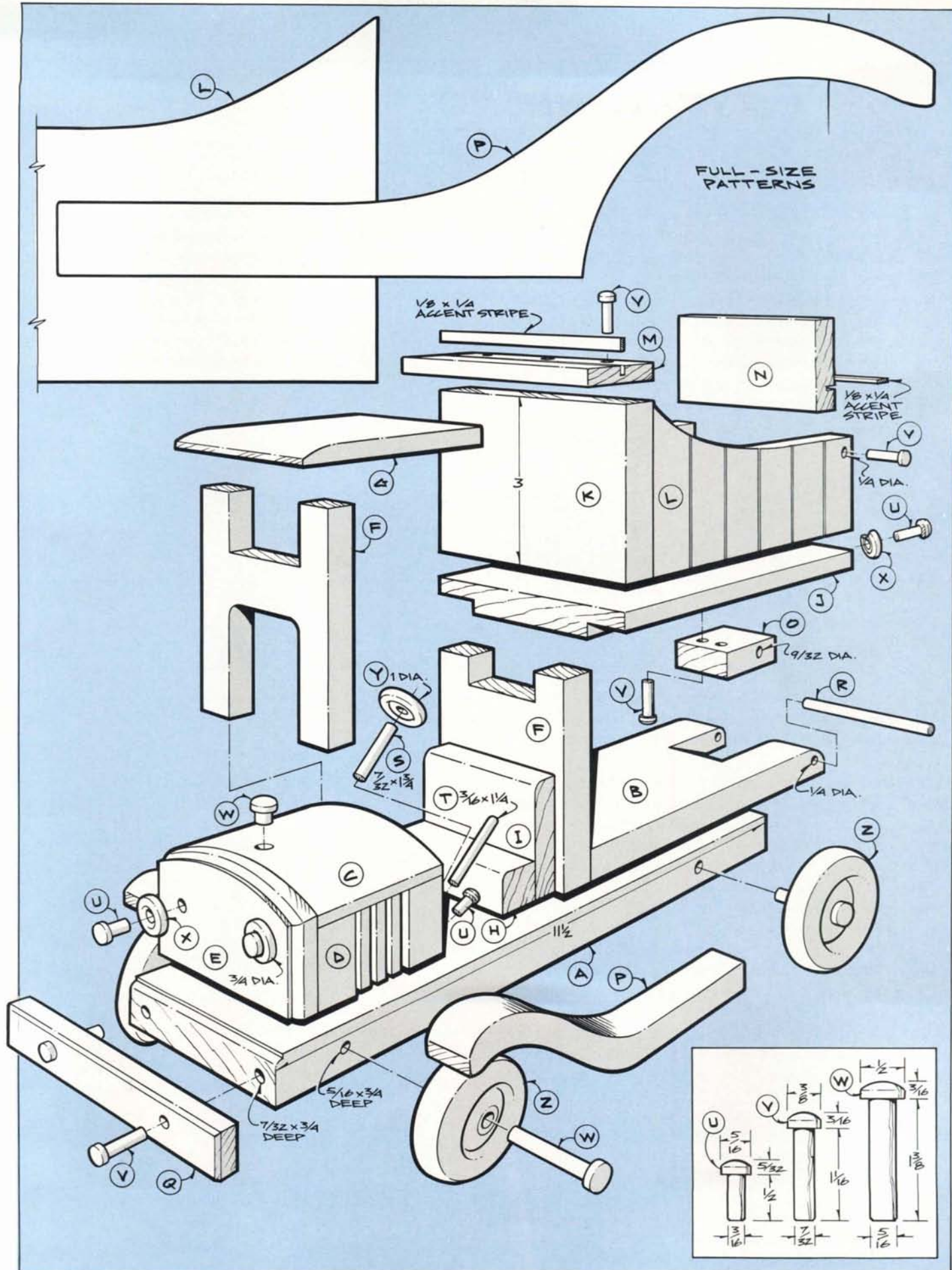
block to the bottom of the dump body, and a small peg (U) mounts a small notched wheel (X), which functions as a lock for the tailgate.

Next, transfer the full-size pattern to your fender stock, cut the shape of the two fenders, sand smooth and round the edges. Also, make the bumper, chamfering the front edges as shown.

Now move to the drill press (or use a hand drill, but make sure you hold it perpendicular to the work) and drill the axle peg holes. Your turned parts kit will have five of the large pegs (W)—four serve as axle pegs while the fifth is shortened and serves as the radiator cap. Also drill through the chassis extension for the pivot pin (R), and drill a slightly larger diameter hole through the pivot block. The pivot pin dowel is glued into the chassis extension but pivots inside the pivot block, which allows the dump body to be raised and lowered.

All that's left is to mount the fenders and large wheels (Z), and add a few last details. A pair of medium pegs anchors the bumper, while the two headlights are just a pair of small wheels (X) anchored by a pair of small pegs (U). The interior controls (see Cab Detail) consist of the gear shift (T), the steering column (S) with a medium wheel (Y) serving as the steering wheel, and a pair of small pegs (U) as pedals.

With the assembly complete, round any remaining sharp edges before applying a nontoxic finish. We prefer Preserve Non-Toxic Nut Oil, since it is the only finish we know of that's not only safe when dry, but as a derivative of nuts, is even safe straight from the bottle. 

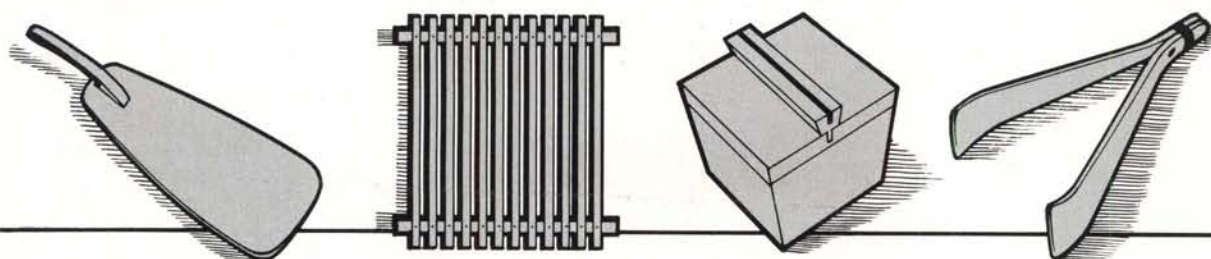


4 easy-to-make KITCHEN PROJECTS

When we discovered these four kitchen projects, by Pennsylvania woodworkers Brad and Sandy Smith, we knew we had something special. Though there's nothing spectacular about salad tongs, a serving board, a cooling rack and a recipe box, each of these projects has some unique feature. The salad tongs make use of a clever rubber band tensioning system, the serving board has the most comfortable handle we've seen in awhile, the cooling rack uses a dovetail slat-and-groove for both strength and beauty, and the recipe box combines a handy built-in recipe card holder with

fool-the-eye slanting sides that look (but aren't) hard to make.

To further ease your task of reproducing these projects, we've included full-size patterns for the salad tongs and the serving board, and step-by-step instructions for all four pieces. The four projects aren't intended as a set, though by using the same wood for each you could achieve a uniformity in appearance. As shown, the salad tongs are ash, the serving board is walnut, and the cooling rack and recipe box are oak. We recommend a nontoxic natural oil finish—such as Preserve Natural Non-Toxic Nut Oil—for all four pieces.



COOLING RACK

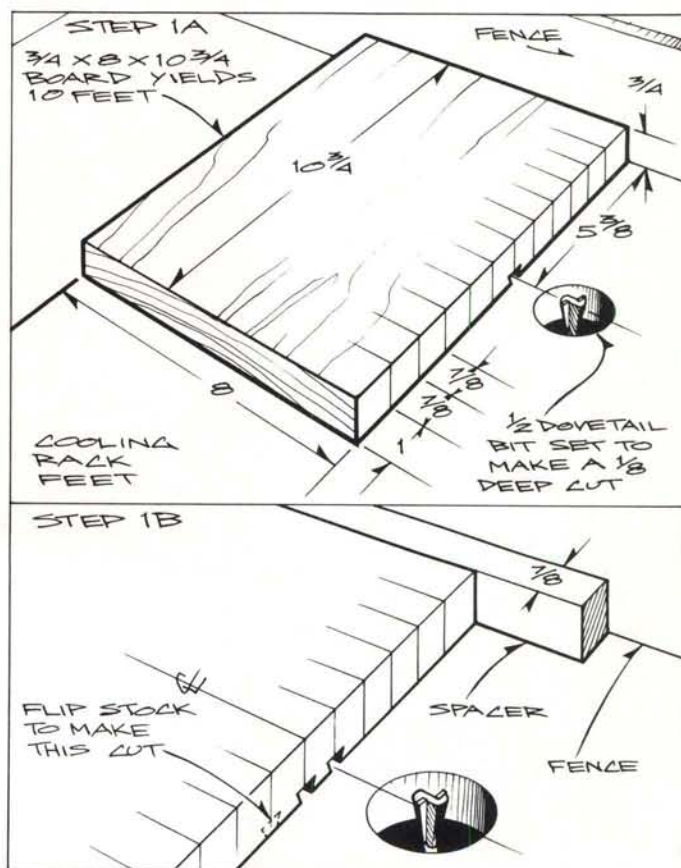
This is a great low-cost, clever project, with a construction that's ideal for making multiples. Our step-by-step illustrations show stock sized to yield five cooling racks.

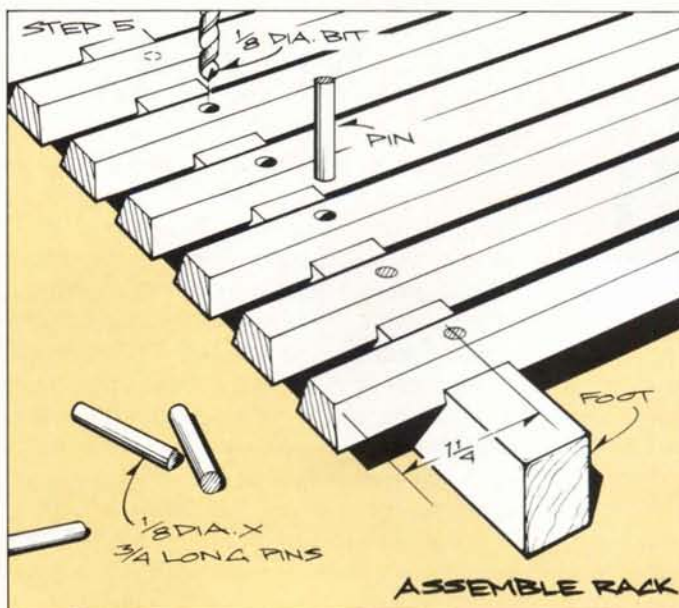
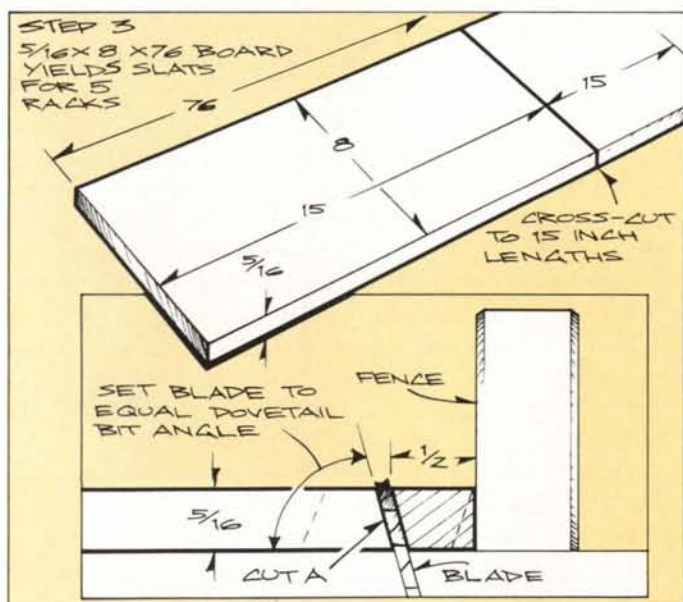
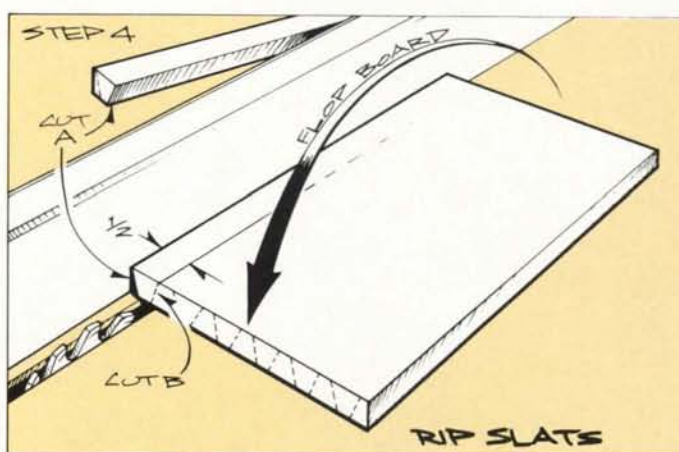
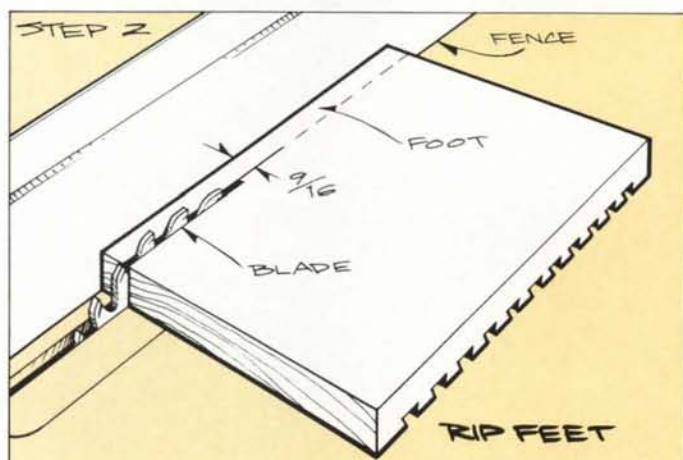
There are any number of ways to cut the dovetail grooves that hold the slats, but Brad and Sandy Smith tell us this router table method is the system they use. The center groove is cut first (Step 1A), then a $\frac{7}{8}$ in. wide spacer strip between the stock and the router table fence enables you to cut the two grooves adjacent to the center groove (Step 1B). For each subsequent pair of grooves you just add one more $\frac{7}{8}$ in. spacer between the workpiece and the fence.

Once the grooves are all cut, the table saw is used to rip off the feet (Step 2). The table saw fence is set just a hair over $\frac{9}{16}$ in. from the blade. After sanding, the feet should be a little over $\frac{1}{2}$ in. wide.

The slats are cut by setting up the table saw, with the blade angled to equal the angle of the dovetail bit that you used to establish the slat grooves in the feet. Locate the fence $\frac{1}{2}$ in. away from the blade to yield the $\frac{1}{2}$ in. wide slats (Step 3), then make each consecutive slat cut by flipping the board end-over-end, as shown in Step 4. But test your fence and blade setting on some scrap first, to make certain the slats fit snugly within the dovetail grooves. The fence setting should allow for a little finish sanding to remove any blade marks from the slats.

Once the slats are all cut, drill for and glue in place the $\frac{1}{8}$ in. diameter dowel pins that anchor the slats to the feet (Step 5). Sand the ends of the dowel pins flush, then apply the finish.







SALAD TONGS

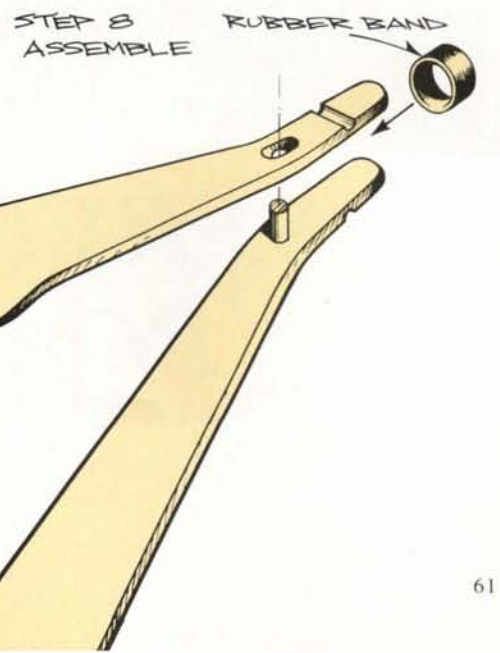
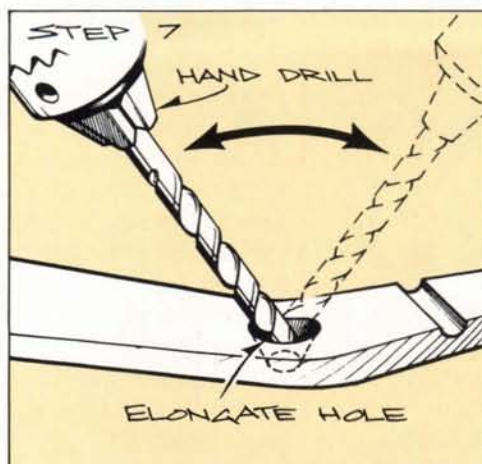
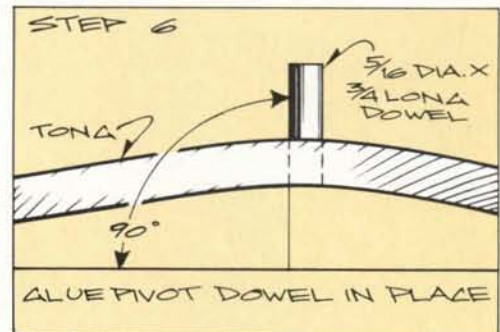
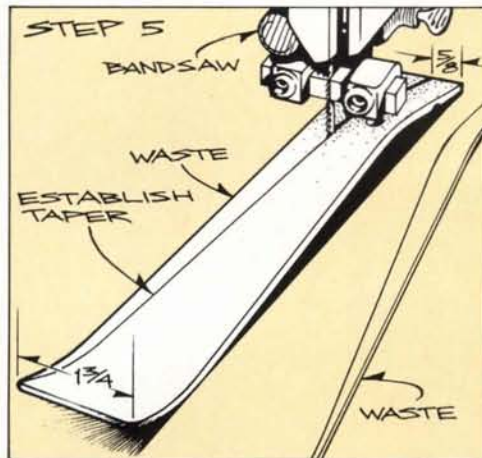
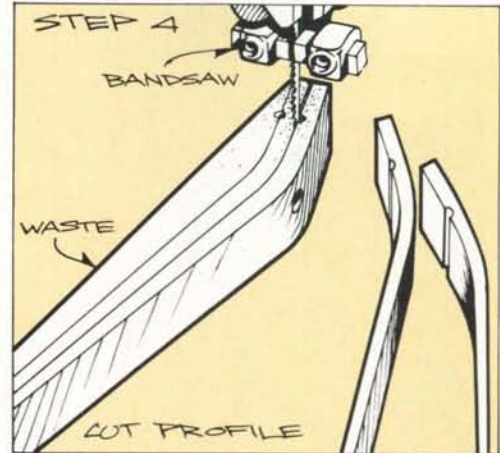
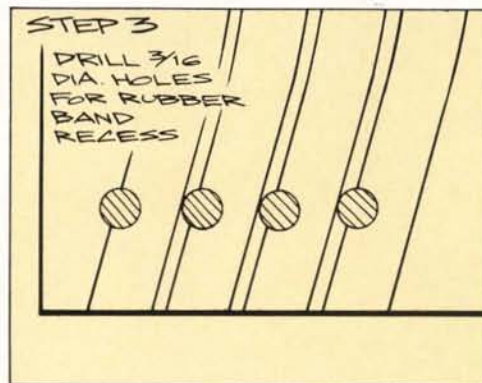
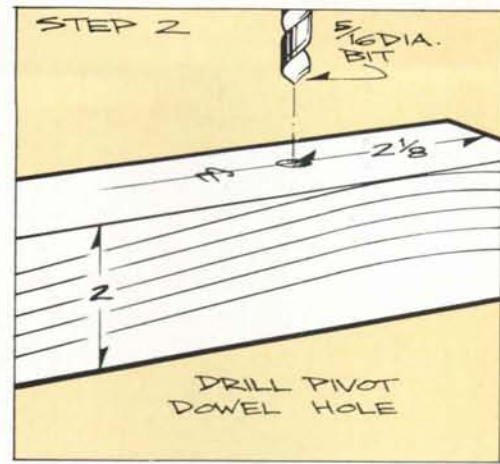
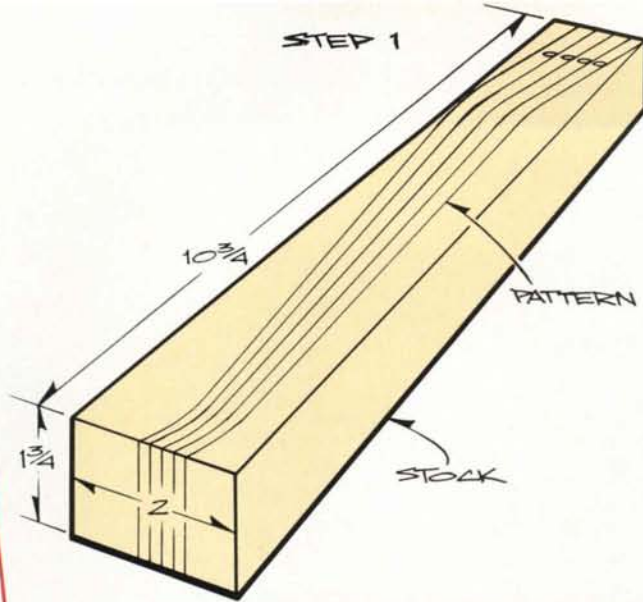
Here's another easy project, also well suited to making multiples. As shown in Step 1, all you need is some $1\frac{3}{4}$ in. thick stock. A board that's 2 in. wide by $10\frac{3}{4}$ in. long will yield four tong sides, enough for two salad tongs. Wider boards will yield more. Just be careful with the layout. You'll need to allow enough space between each tong side for the band saw blade kerf plus whatever sanding will be needed to clean up the rough cut and refine the final shape. Our full-size pattern has the tong sides properly spaced to allow for this. Just trace the pattern, using carbon paper, onto your stock.

With the pattern transferred, drill through your stock (using a $\frac{5}{16}$ in. diameter bit) for the pivot dowel holes (Step 2), then switch to a $\frac{3}{16}$ in. diameter bit and drill the holes that form the rubber band recesses (Step 3). Use the band saw to cut out the tongs (Step 4) and establish the tapers (Step 5). Final sand to

remove the band saw marks; refine the shape before gluing the pivot dowels into two of the four tong sides (Step 6). Elongate the outside face of the remaining pivot dowel holes (Step 7), and assemble the tong sides with a rubber band (Step 8).

A heavy-duty rubber band, such as those used for securing lobster claws, can be used to tension the salad tongs. But Brad and Sandy Smith use cut-off sections of $\frac{1}{2}$ in. diameter high-strength black latex tubing, which lasts much longer than rubber bands and looks quite a bit better. If you can't find black latex tubing locally, send Brad and Sandy a buck (\$1) and they'll mail you out six pre-cut black latex bands, enough for six salad tongs. Write to them at Bradford Woodworking, 3120 Fisher Rd., Box 157, Worcester, PA 19490. Don't forget to include your return address or Brad and Sandy will have trouble getting you your latex bands.

FULL-SIZE PATTERN





SERVING BOARD

As projects go, they don't get much simpler than this. You'll need some $\frac{5}{16}$ in. thick stock for the board and some $\frac{3}{4}$ in. thick stock for the handle. The easiest way to get the $\frac{5}{16}$ in. stock is to resaw $\frac{3}{4}$ in. thick material with the band saw. Resawing a $\frac{3}{4}$ in. thick by $5\frac{1}{2}$ in. wide by 14 in. long board will yield two serving board pieces. Trace the full-size pattern directly onto your stock with carbon paper, as shown in Step 1. Transfer the upper half of the pattern first, then the lower half. Once you've traced and cut out both the board and the handle (Step 2), all that's left is to drill and countersink the screw holes, final sand, assemble and finish the serving board (Step 3).

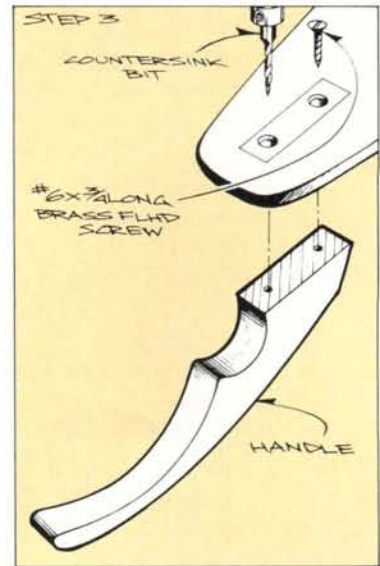
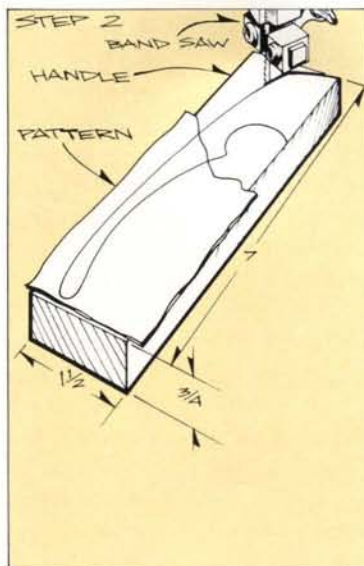
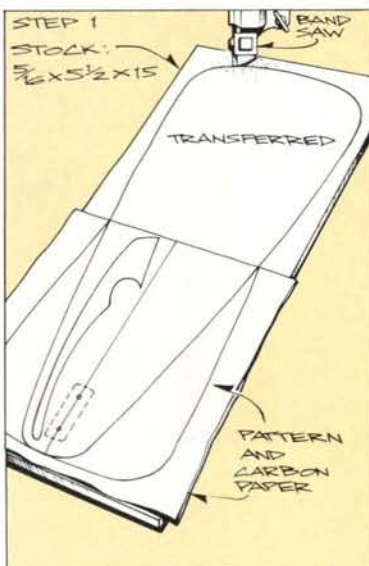
FULL-SIZE PATTERN

HANDLE

HANDLE LOCATION

BOARD-LOWER HALF (HANDLE SIDE)

BOARD-UPPER HALF





RECIPE BOX

If any of these four projects were to garner the mantle of “most challenging,” then this recipe box would be the winner. The slanting sides make the box look like a project that involves some rather complex compound angles. But, in fact, there are no compound angles. Since only two sides of the box slant, the angles involved are simple, and not compound.

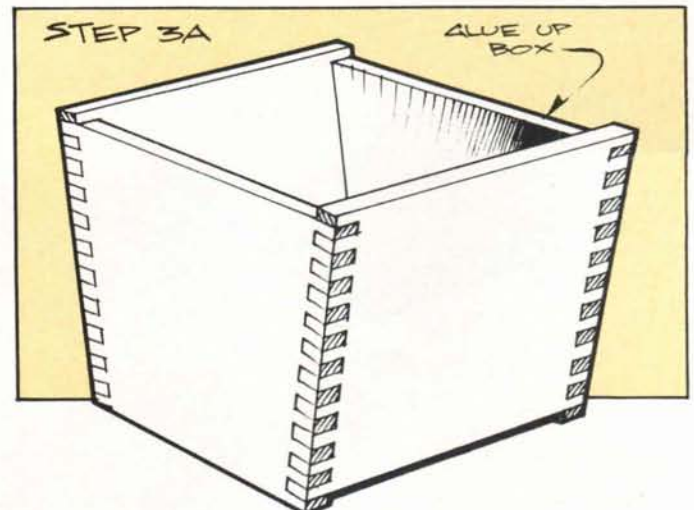
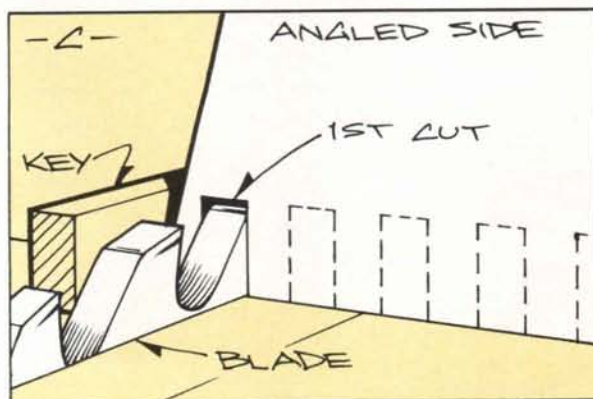
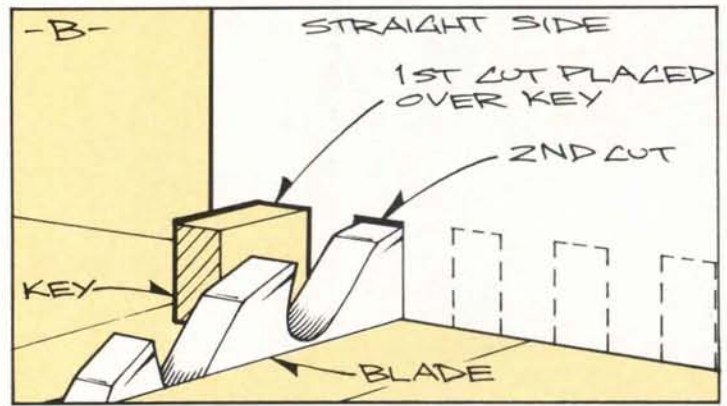
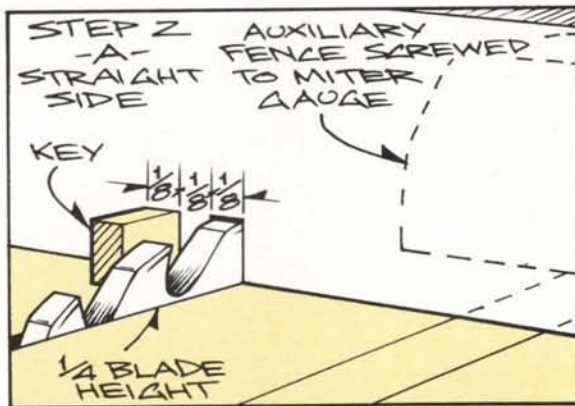
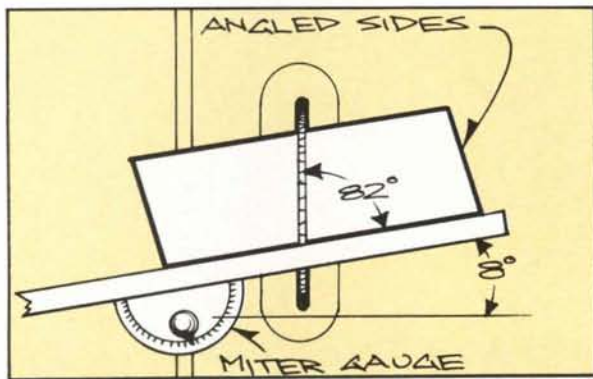
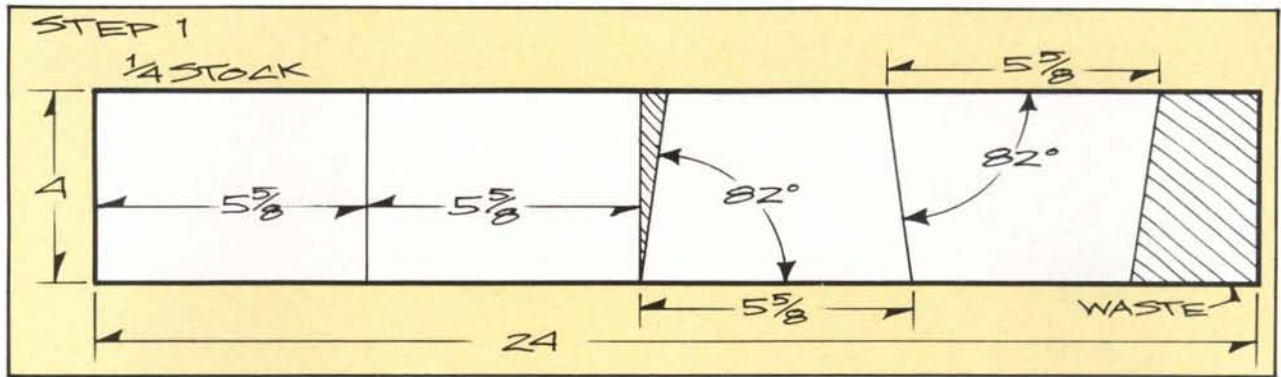
As shown in Step 1, all four box sides can be obtained from a single board $\frac{1}{4}$ in. thick by 4 in. wide by 24 in. long. Cut the two square sides off at a $5\frac{5}{8}$ in. length, then angle the miter gauge to 8 degrees and cut the two slanted sides. Note that you'll need to flip the stock to get the angle on the ends.

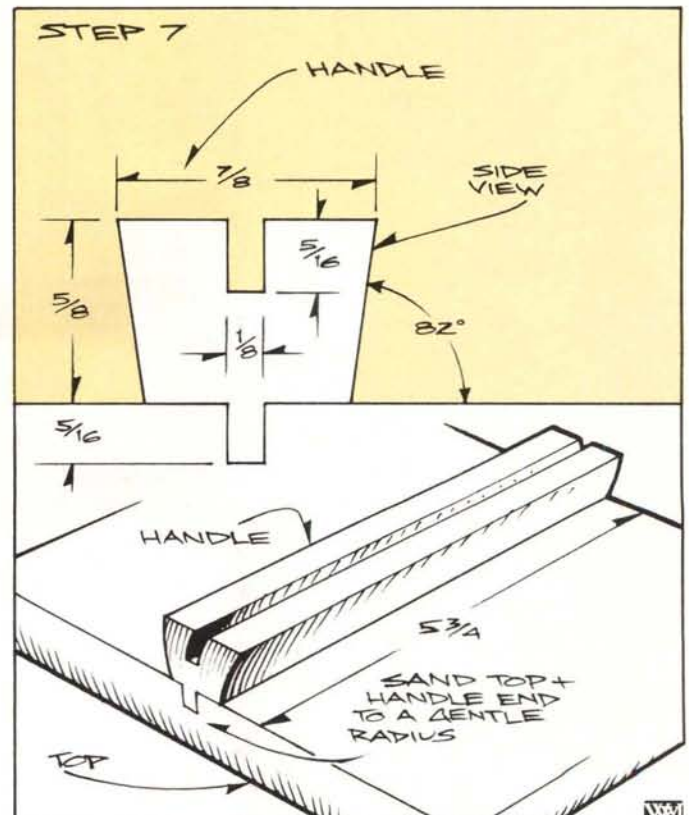
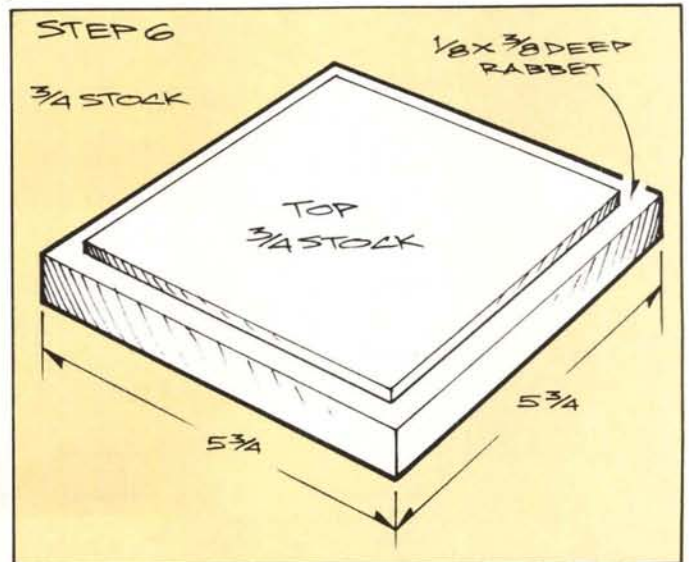
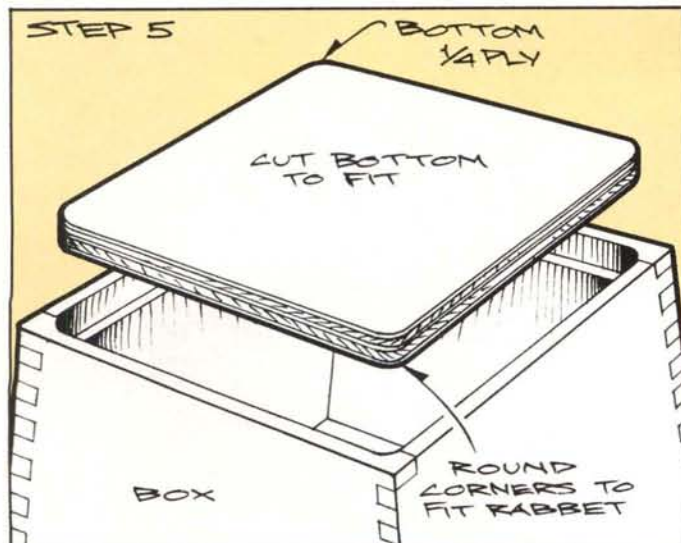
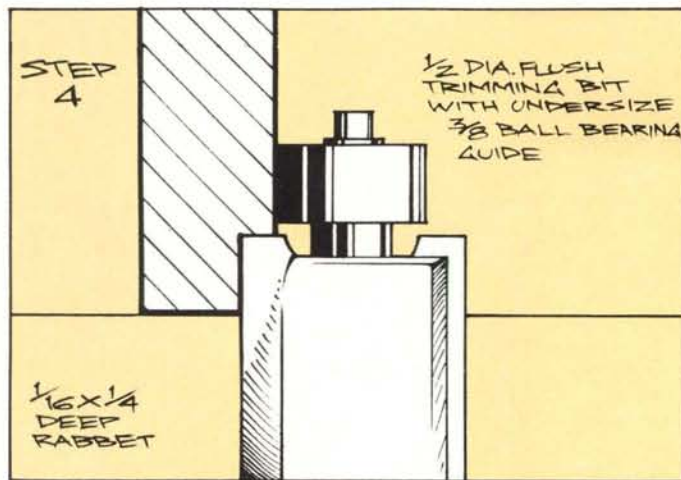
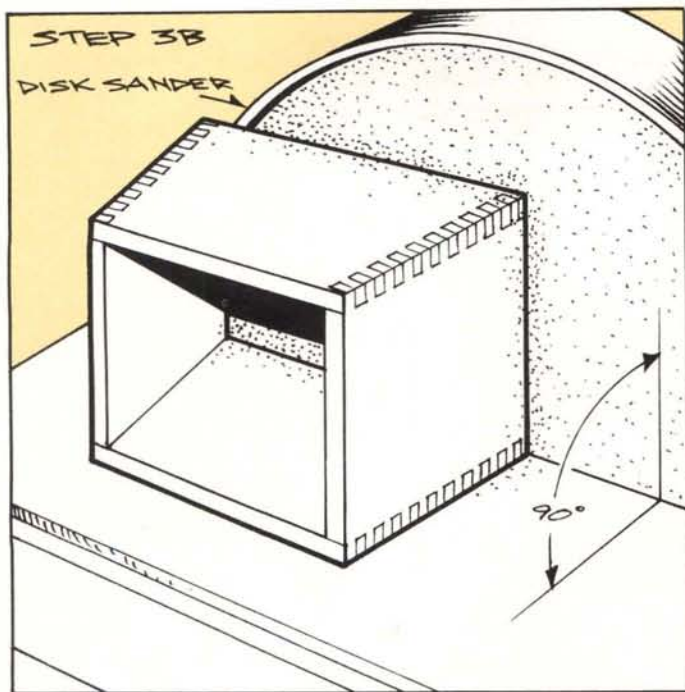
Next up is cutting the box joints. We show a standard box joint jig being used with a regular table saw blade, cutting a $\frac{1}{8}$ in. wide kerf and requiring $\frac{1}{8}$ in. pins (Steps 2A–2C). The jig is just a $\frac{1}{8}$ in. thick by $\frac{1}{4}$ in. wide by 2 in. long key glued into a like-sized notch cut in an auxiliary fence that is attached to the miter gauge. The same jig is used to cut the box joints on the slanted sides. Test your jig setup on some scrap and make a test assembly of the joint produced before going to work on your project stock.

Once the box joints are all cut, glue up the four sides and set aside to dry (Step 3A). A pair of sides will be a pin above or

below the other pair, but that's not a concern since the excess will be cleaned up next. When dry, use a belt or a disk sander to flatten the top and bottom of the box (Step 3B). Then move to the router table to establish the rabbet for the $\frac{1}{4}$ in. thick plywood bottom. Since standard rabbeting bits cut a rabbet that's too deep for our $\frac{1}{4}$ in. thick box sides, you'll need to improvise. We show a $\frac{3}{8}$ in. diameter bearing mounted on a $\frac{1}{2}$ in. diameter flush trimming bit. The result is a bit that will cut a $\frac{1}{16}$ in. deep rabbet, perfect for our purposes here (Step 4). Borrow a $\frac{3}{8}$ in. diameter ball bearing from another bearing-guided cutter to replace the regular $\frac{1}{2}$ in. diameter bearing on the flush trimming bit. Cut the plywood bottom to fit, then either round the corners of the bottom to match the $\frac{1}{4}$ in. radius or use a chisel and square the rabbet corners. Then glue the bottom securely in place (Step 5).

Now cut the top to size and establish the $\frac{1}{8}$ in. by $\frac{3}{8}$ in. rabbet that nests the top over the sides of the box (Step 6). Cut the handle to size as shown, rip the $\frac{1}{8}$ in. wide by $\frac{5}{16}$ in. deep grooves in the handle and top, and establish the matching tongue on the bottom edge of the handle (Step 7). Finally, glue the handle into the top, round the edges of the top and handle, and apply the finish.







Finishing

The New Safe Strippers — *How Well Do They Work?*



We test 5 leading brands

by Jim Barrett

The first chemical paint strippers on the market contained all sorts of highly toxic chemicals. Solvent-based strippers were laced with such nasties as toluene, methanol, acetone, methyl ethyl ketone (MEK) and xylene, which were not only highly toxic, but extremely flammable as well. Other strippers relied on highly caustic alkaline chemicals, such as lye. While not flammable, these caustic strippers couldn't tell the difference between paint and skin, removing both quite effectively.

About 30 years ago, the first methylene chloride strippers appeared on the consumer market. They were much more effective than solvent- or lye-based strippers, especially on tough finishes such as two-part epoxy finishes and polyurethanes. "Meth" strippers had the advantage of being nonflammable and noncaustic. The fumes, while unpleasant, were not considered especially toxic—that is, until 1985, when a study on laboratory mice indicated that methylene chloride may be a potential carcinogenic (cancer-causing) substance. Subsequent studies have also linked methylene chloride to other ailments, such as heart and kidney problems. (See "How Safe Is Safe?") These studies resulted in stricter label warnings on products that contained methylene chloride.

Then, in early 1989, 3M introduced a product called Safest Stripper, the first of a new generation of "safe" paint and varnish strippers. At the time of this writing, we found four other such products on the market: EasyOff Paint Stripper from Klean Strip, Savogran StrypSafer, Peel Away 6 from Dumond Chemicals, and Woodfinisher's Pride Paint-Stripping Gel. All except Woodfinisher's Pride rely on chemicals known as *dibasic esters*, or DBEs, to do their work. Woodfinisher's Pride uses *n-methyl pyrrolidone* (NMP) as the active ingredient in their paint and varnish removers. DBEs and NMP are

biodegradable chemicals that are presently considered relatively safe to use. None of these strippers contain methylene chloride, methanol, acetone, lye, or any of the other "hazardous chemicals" found in conventional strippers.

Caution: Because of the recent bad publicity given methylene chloride, some stripper manufacturers are now including phrases such as "Contains No Methylene Chloride" on their product containers. However, some of these strippers do contain methanol, lye, or other toxic chemicals, and don't fall into the same category as the safe strippers discussed here.

How Well Do They Work?

That was the million-dollar question in my mind. When 3M's Safest Stripper was first introduced, I had heard initial reports that it took much longer to work than the methylene chloride-based strippers; also that it wouldn't work on polyurethane and epoxy coatings. And, because it is water-based, it had the potential to raise wood grain. I'm never satisfied, though, until I try something myself, so I pitted the five "safe" strippers against a couple of my favorite methylene-chloride ones (Zip-Strip from Star Bronze, and Jasco Premium Paint & Epoxy Remover).

The test object was an 85-year-old door removed from my Victorian house for eventual stripping and refinishing. It was covered with several coats of latex enamel, several more of alkyd (oil-based) enamel, and probably a few coats of old lead-based paint underneath that. Which brings up a safety point—no matter how safe the stripper itself may be, the sludge you scrape off after the stripper has done its work may contain lead and other toxic paint residues, and thus should be treated as a hazardous material. The usual procedure is to scrape all the sludge directly into a coffee can or other open container as you

remove it (avoid skin contact). Then place the container in a safe location outdoors and allow the sludge to dry out completely before disposal. Most communities have regulations governing the disposal of paints and other hazardous materials—check with your local disposal service or environmental agency for proper disposal methods.

Back to the door. I tested each product to find out how long it would take (and how many coats were required) to strip the paint down to bare wood. I started by masking off small sections of the door, then applying a thick coat of each stripper to each section, per label instructions on the cans.

The speeds at which the products removed paint were moreover congruent with the recommended working times specified on the container labels. The two methylene chloride strippers went to work immediately, crinkling and bubbling off the top layers of paint as soon as they were applied. It took about 20 minutes for each to complete its work, after which time I scraped off most of the paint layers. I then applied a second, lighter coat, waited another 20 minutes, and scraped off the remaining paint down to bare wood. One characteristic of meth strippers is that the solvents do evaporate quickly, so you need to keep an eye on their progress. If you let the stripper sit for more than an hour or so (depending on the thickness of the coat, temperature, and humidity) it will dry out and the paint will harden up again, putting you back to square one.

The DBE strippers (3M Safest Stripper, EasyOff, Peel Away 6, and StrypSafer) performed entirely differently. For the first hour after they were applied, they didn't seem to be doing much of anything. After about two hours I was able to scrape off a thin layer of paint from part of each test square on the door. While each stripper had formed a dry surface film, they were still wet underneath and (I supposed) still working. I let them sit overnight (about 10 hours), and the following morning, the test areas were still soft and I was able to scrape off most of the paint layers. A second coat of each stripper and another four hours waiting time got me down to bare wood. While they do take longer to work, the DBE strippers stay damp a long time, so you don't have to keep a close eye on their progress—apply a thick coat in the evening, and scrape the following morning. To further prevent evaporation of the DBE strippers (thus increasing their effectiveness) you can cover the surface with plastic wrap or polyethylene sheeting. Peel Away 6 comes with a special plastic-coated paper for this purpose; when you lift off the paper, most of the sludge or residue comes off with it, making it easier to remove any remaining sludge.

The bottom line in my tests was that the DBE strippers took about 12–14 hours to do the same job that the meth strippers did in about one hour. Despite the longer working time of the DBE strippers, it didn't take any more material to strip the same size area; you'll probably end up using more if you try to rush the job, though.

With the exception of Peel Away 6, the DBE strippers are water-based, so they may raise the grain of some woods. I slathered some of each product on bare wood (oak and pine), and wiped it off several hours later. I did notice a slight fuzzing of grain with EasyOff, StrypSafer and 3M Safest Stripper,

How Safe is Safe?



As mentioned, methylene chloride paint strippers were considered safe until a 1985 study proved that the chemical produced cancer in laboratory mice. While I was researching this article, several manufacturers of meth strippers told me that in Europe methylene chloride strippers are still considered safe products. For example, the Health and Safety Commission of the United Kingdom does not recognize the 1985 study to be conclusive, and contends that methylene chloride has not been sufficiently proven to be a human carcinogen.

Since it did take some 25 years after meth strippers were on the market to discover that they might be potentially harmful to humans, it stands to reason that researchers may someday discover that DBEs and NMP might also be potentially harmful in some manner. I noticed on the container labels of the safe strippers, and on their MSDS, that the strippers will irritate the eyes and possibly sensitive skin, and overexposure to their vapors may irritate the respiratory tract. The MSDS sheets also state that the long term effects of these chemicals are unknown at present. After all, the “safe” strippers haven't been around more than a couple of years.

Presently, precautions on the safe strippers state that they should be used in well ventilated areas, and include first aid procedures if the stripper is accidentally swallowed.

Now, I'm not trying to suggest that methylene chloride strippers are safe or that the new “safe” strippers might not be as safe as manufacturers claim. But, hey, who wants to take chances? The point here is that you should take adequate measures to protect yourself according to label precautions. Given the aforementioned precautions on the “safe” stripper labels, I would probably wear a pair of light latex gloves when applying them, even though several manufacturers advertise that no gloves are needed. In addition, I'd wear safety goggles, do all my stripping outdoors if possible, and take care to avoid accidental ingestion or prolonged inhaling of fumes—whether I could smell them or not. After all, any chemical that can remove paint and varnish can't be healthy for woodworkers, either.

although a light sanding easily removed the fuzz. Peel Away 6, Woodfinisher's Pride and the two meth strippers did not raise the grain. I might add that while meth strippers don't raise wood grain, the water rinsable type will if you use water to

remove the residue. All the strippers I tried left some residue (sludge) in crevices and wood pores, which should be removed by scraping and scrubbing (without water)—a laborious process. Do not use steel wool or metal scrapers and putty knives to remove the water-based DBE strippers, because the metal will react with the stripper and stain the wood. 3M makes a special stripping tool that uses nonmetallic fiber pads (much like 3M's Scotchbrite scouring pads) for removing residue (see photo below). I've always preferred using this type of pad with all strippers because it picks up the sludge better, can be rinsed out and reused, and won't leave tiny strands stuck to the wood as steel wool does. I also prefer plastic putty knives to metal ones, because the latter tend to scratch the stripper-softened wood surface. Wood dowels with the ends fashioned into various shapes work well for removing residue from cracks, crevices, moldings and carved surfaces.

While the water-based DBE strippers will remove most paints and clear finishes, they're not recommended for removing polyurethane or two-part epoxy coatings. However, one DBE stripper—Peel Away 6—and Woodfinisher's Pride will remove most conventional polyurethane finishes.



You can't use steel wool or metal scrapers with the dibasic ester safe strippers; 3M offers this handy stripping tool with replaceable plastic scouring pads.

Woodfinisher's Pride Paint Stripping Gel is in a class by itself, and quite frankly, the best of the products I tried. It removed paint at the same speed as the meth strippers, yet stayed wet a few hours longer (although you still have to keep an eye on it). As with the other strippers I tried, two coats were required to reach bare wood on my test door. Like the DBE strippers, it is nearly odorless and, according to its Material Safety Data Sheet (MSDS), falls into the same safety category. Woodfinisher's Pride is not water-based, so it won't raise the wood grain. Woodfinisher's Pride also has a "safe" varnish stripping gel that removes oil varnish, shellac, lacquer, and polyurethane. It did a respectable one-coat strip job on a varnished antique chair I've been putting off refinishing (because I don't especially enjoy stripping furniture.)

How Much Do They Cost?

The safe strippers I tried range in price from \$23 to \$43 per gallon, while a good-quality methylene chloride stripper will cost between \$20 and \$28 per gallon. At \$43, Peel Away 6 is the most expensive of the DBE strippers, but I noticed that it

required a thinner coat to strip the same amount of surface area, so you'll get more coverage per gallon. (The manufacturer told me it is more concentrated than the water-based DBE strippers). The NMP-based Woodfinisher's Pride comes in quarts (\$8.50) and half-gallons (\$14.95) only, so a gallon would run about \$30. Suggested list prices for the others are given in the source list below.

Although I did not do any extensive tests on coverage, I'd estimate the costs to strip any workpiece would be comparable among the safe strippers I tried, provided you follow label directions and allow the strippers enough time to work.

Conclusion

Unless you're in a hurry, I'd recommend any of the DBE strippers over the methylene chloride ones. They are safer to use and kinder to the environment. More importantly, though, they don't have a noxious odor, probably won't make your eyes water, and shouldn't irritate your skin on contact, making them more pleasant to use.

Although more expensive, Peel Away 6 proved to be the most effective of the DBE strippers. If I wanted to get the job done in a hurry, though, the product I'd go with is Woodfinisher's Pride: It's the only one of the safe strippers that matched the speed and efficiency of a good meth stripper, without the strong fumes. No matter what you use, though, you'll have to face the messy, time-consuming job of scraping off the sludge—a strong case for sending your furniture out to a professional stripper.



Sources

Easyoff Paint Stripper

Klean-Strip
P.O. Box 1879, Memphis, TN 38101
(901) 775-0100
\$8 quart, \$25 gallon

Peel Away 6

Dumond Chemicals
1501 Broadway, New York, NY 10036
(212) 869-6350
\$45 gallon (also marketed in quarts and half-gallons as Safe n' Easy paint & varnish remover: \$17.95 quart, \$29.95 gallon)

3M Safest Stripper

3M Consumer Products Group, Do-It-Yourself Division
Box 33053, St. Paul, MN 65113-3058
(612) 733-1110
\$5.99 quart, \$11.99 half-gallon, \$22.99 gallon

StrypSafer

Savogran Company
P.O. Box 130, Norwood, MA 02062
1-800-225-9872
\$11.13 quart, \$32.75 gallon

Woodfinisher's Pride

The Softness Group
250 Park Ave. South, New York, NY 10003
1-800-457-7433
\$8.50 quart, \$14.99 half-gallon

Until Hegner introduced their parallel-arm "constant-tension" scroll saws to the U.S. market back in the late 1970s, the only type of scroll saw woodworkers were familiar with was the now antiquated rigid-arm saws. One such saw graced my college woodshop. As I recall, it was a slow-cutting machine of dubious accuracy. Worse, it snapped its tiny blades with such frequency that most of the students were afraid to use it lest they arouse the shop instructor's ire.

Hegner's parallel-arm design, with its pull-pull cutting action, plus other design innovations, not only cut with improved smoothness, accuracy and speed over the old rigid-arm saws, but moreover enabled the user to actually finish a simple project without breaking several blades in the process. Within a few years, a half-dozen or so other manufacturers came out with their versions of constant-tension saws, with either a parallel-arm or C-arm design.

Most of these saws carried a substantial price tag—anywhere between \$450 and \$1,800, which was far more than I was willing to pay for what I considered a specialized "hobby tool."

Within the last 5 years, though, a number of importers have introduced parallel-arm scroll saws for under \$200. For this report, I decided to see just how many I could find in this price range. I came up with eight companies offering a total of 12 saws: AMT, Delta, Dremel, Grizzly, Penn State, Ryobi, Sears and Wilke Machinery (Bridgewood). Although Sears and Wilke Machinery weren't able to send us their saws in time for evaluation, we have included them in the specifications chart on page 72.

It came as no surprise that all are manufactured in Taiwan. In fact, the four one-speed, 15 in. models from AMT, Delta, Grizzly, and Penn State, are virtually identical, save for the color, company decals, knobs, and other minor window dressings. Upon further investigation, I discovered that these saws, and all the others shown in this article, are manufactured by the Rexon Company in Taiwan. While several Taiwanese manufacturers make scroll saws, the importers agreed that Rexon makes the highest

quality saws (I did not find any spin-offs in my search to compare them with, however.)

Having played around with such "high-end" saws as the Hegner Multimax, RBI Eagle, and Excalibur 24, I wanted to find out how the Taiwanese imports performed by comparison. Now, I didn't expect these Volkswagens to give me the same ride as the Porsches and Mercedes of the scroll saw world. But, if they could get me from Point A to Point B without snapping blades, and could hold the road while navigating the hairpin turns, I'd consider a bargain. Enough so, perhaps, to provide me with the incentive to reach for my pocketbook instead of a coping saw the next time I had a project that required some fancy scrollwork.

After putting these saws through their paces, I was pleasantly surprised—they weren't quite as smooth-running or mechanically refined as their \$400-plus counterparts, but they weren't toys, either. All were durable, well-built machines that enabled me to do professional scrollwork with a variety of blades—good basic workhorses.

As an aside, all scroll saws will break blades now and again, simply because the blades are tiny and delicate. Special care must be taken to make sure they're installed and tensioned properly. With any new scroll saw (no matter how much you paid for it), you can expect to go through quite a few blades at first, until you get used to the saw's particular idiosyncrasies (optimum blade tension, hold-down pressure, blade speed, feed rate, and so on). So, don't be too quick to

blame the saw until you've taken some time to get a feel for it.

What's Available

The lowest priced saws I reviewed cost less than \$100, the highest priced ones about \$199. Whereas the list prices on several models well exceed \$200, you almost never have to pay list price. In the chart on page 72, I've included both the suggested list price, and the actual price for some of the saws, based on what they sold for in several major woodworking catalogs (Trend-lines, Woodworker's Supply, and others) at time of publication. On saws sold directly through importers (AMT, Penn State, Grizzly, Wilke), I've listed the actual prices taken from their latest catalogs.

As mentioned, four of the saws I looked at (AMT, Delta, Grizzly, Penn State), plus the Bridgewood Model SS-15 from Wilke Machinery (which I didn't test) are identical 15 in. one-speed Rexon saws. The size in inches refers to the throat depth, (clearance between the blade and the back arm of the saw), which, in turn, determines the maximum width of stock you can cut. Their 1.6 amp induction motors power the blades at 1,725 strokes per minute (SPM) which equals the motor RPM. The parallel arm on the saw is attached to the motor, and one revolution of the motor equals one stroke (one upward and one downward motion of the blade).

The Penn State model SVS-15 pictured on page 71 is essentially the same saw, fitted with a 1.7 amp variable-speed motor (400–1,800 SPM). The company also sells the motor separately for \$85

Scroll Saws for Under \$200

We look at 9 popular models

by Jim Barrett



AMT
4391



AMT 4602



Delta
40-150



Dremel
1371



Dremel
1671



Grizzly
G1572



Penn State
SS15



Penn State
SVS-15



Ryobi
SC-160

and you can retrofit it to other 15 in. saws mentioned (at the risk of voiding the other importer's warranties, however). The AMT 4602 is a two-speed (890/1,790 SPM) 16 in. saw. The body design is different than the others, with a shorter, wider work table, heavier base, and a bottom-mounted tensioning knob.

Dremel offers a one-speed 13 in. saw (0.9 amp motor, 1,725 SPM), and a 16 in. two-speed saw (890/1790 SPM) that uses the same two-speed Rexion motor and switch as the AMT 4602.

The Ryobi SC-160 is a 16 in. one-speed saw with the same motor as the 15 in. one-speed saws, and the same heavy base and parallel arm castings as the AMT 4602, but with a different work table design, saw housing, and a blade storage compartment attached to the

upper arm. Like the AMT, it also has a bottom-mounted tensioning knob, which I found was slightly less convenient to access than the top-mounted knobs on the other machines.

All of the saws I looked at use standard 5 in. blades and have a maximum cutting depth of 2 in. (another saw that I did not test—from Sears—had a maximum cutting depth of 1 in.). You could probably cut pine boards up to the 2 in. thickness, but cutting hardwoods over about 1 in. thick is a trial, even with a coarse, aggressive blade.

Features to Look For

Because all these saws come from the same Taiwanese source, many of the basic parts and accessories are identical. Other specifications are also similar, as

indicated in the chart on page 72. Not all the saws are exactly alike, though; there is some mixing and matching of parts and accessories, as you've probably guessed by now. A few of the saws do have some unique features, though. Let's take a look at some of the more important features to consider.

Blade Holders

All the saws I looked at are set up at the factory to accept pin-end blades (see photo on page 72). In addition, all can be fitted with clamps for plain-end blades (either as a standard or optional accessory—see chart). While pin-end blades are easier to install, especially for making internal cutouts, the sizes and tooth styles are limited (the blade body must be wide enough to accept the pins). If the

Scroll Saw Specifications

Company ¹	Model	Throat Depth	Blade Speed ² (SPM)	Amps @ 110V	Max. Cutting Depth	Stroke Length (inches)	Table Size (WxL)	Table Tilt	Dust ³ Blower	Accessories ⁴ Std.	Accessories ⁴ Opt.	Wt. (lbs.)	Price ⁵ List	Price ⁵ Street
AMT	4391	15	1,725	1.6	2	3/4	7 ⁷ / ₈ x 17	0-45	O	B,BC	B,BC,J	38	—	\$89.00
AMT	4602	16	890/1,790	1.65/1.68	2	3/4	7 ⁷ / ₈ x 14 ³ / ₄	0-45	S	B,BC	B,BC,J	44	—	169.00*
Delta	40-150	—	—	—	see AMT 4391	—	—	—	S	B,BC	B,BC	38	179.00	138.00
Dremel	1371	13	1,725	0.9	2	5/16	10 dia.	0-45	N	B,BC,J	B,S,BC,J	—	125.00	119.00
Dremel	1671	16	890/1,790	1.65/1.68	2	3/4	12 dia.	0-45	S	B,BC,J	B,S,BC,J	—	270.00	189.00
Grizzly	G1572	—	—	—	see AMT 4391	—	—	—	S	B,BC	B,BC	44	—	99.95
Penn State	SS15	—	—	—	see AMT 4391	—	—	—	O	B,BC,L,J	B,BC,D,S,F,W	44	—	109.95
Penn State	SVS-15	15	400-1,800	1.7	2	3/4	7 ⁷ / ₈ x 17	0-45	S	B,BC,L,J	B,BC,D,S,F,W	45	—	169.95
Ryobi	SC-160	16	1,725	1.6	2	3/4	10 ¹ / ₄ x 15	0-45	S	B,BC	—	44	251.00	149.00
Sears ⁶	23163	13	1,700	—	1	5/16	7 x 11	0-45	N	B	B,BC,S,L	29	—	87.88
Sears ⁶	23611	16	1,700	—	2	3/4	8 x 14	0-45	N	B	B,BC,S,L	33	—	139.33
Wilke ⁶	SS-15	—	—	—	see AMT 4391	—	—	—	N	B,BC	W	38	—	109.00

¹All saws manufactured in Taiwan by Rexion.

²(/) indicates 2-speed, (-) indicates variable speed; SPM = Strokes per min.

³S = standard accessory, O = optional accessory, N = none.

⁴Accessories: B = Blades, BC = plain-end clamps, L = lettering stencil kit, J = Blade-clamp jig F = footswitch, S = leg stand, W = worklight, D = dust catcher (mounts beneath table)

⁵List = suggested list price, Street = actual price based on direct mail-order from company, or average price in woodworking supply catalogs. (see text)

⁶Not tested for article

*Price of AMT 4602 includes \$50.00 of free merchandise from their tool catalog

saw doesn't come with plain-end blade clamps, be sure to order a set for it.

As shown in the photo (far right), with plain-end blades, the tiny blade clamps grip each blade end between jaws that are tightened with a setscrew. Small pins in each clamp fit into the blade holders in the saw. The biggest problem I had with the clamps was holding them stationary while loosening and tightening the setscrews with an Allen wrench (provided), while maintaining the recommended distance between the top and bottom clamps. In most cases, you either have to secure the clamps in a vise or hold them with pliers, or else go through a complicated procedure of first securing the bottom clamp into the clamp holder on the top arm, attaching the bottom end of the blade to it (teeth facing up), removing the bottom clamp from the top arm, installing it in the bottom arm clamp holder, securing the top clamp in the top arm, and attaching the top end of the blade to that. And, yes, it is as complicated as it sounds.

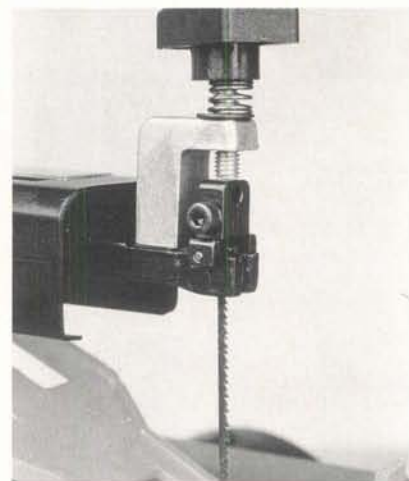
The blade length between the clamps isn't extremely critical (you insert each end about 1/16 in. to 1/8 in. into each clamp), but it should be close to the manufacturer's recommended distance (about 120mm, or 4⁷/₈ in.). Several of



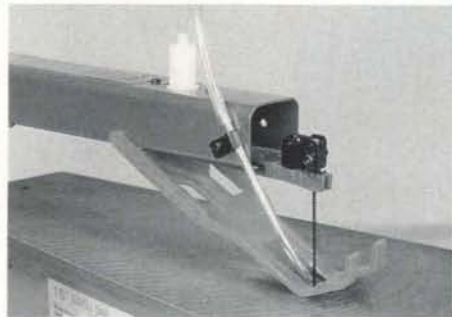
All scroll saws in this article are set up to accept pin-end blades, as shown at left. A set of small blade clamps (right).

the saws have printed full-size length guides on the top arm, but I didn't find these terribly useful because I still had to attach the blade to the clamps using one of the methods above.

The two Dremel saws have blade adaptor gauges built into the top arm of the saw, as shown in the photo on page 72 (model 1371 has the blade holder recessed into the arm). The gauge holds both clamps securely when loosening and tightening the set screws and automatically positions the blade at the correct distance between the clamps. The only drawback is that, because both clamps are attached to the blade before



you mount it on the saw, you would have to drill a hole in the stock large enough to pass the clamp through it when threading the blade for internal cuts. Both of the Dremel saws, the Ryobi, and the AMT 4602 do not have screws to lock the top clamp securely to the top arm for removing the blade from it, so you can't simply detach the blade from the top clamp and thread it through a small access hole in the stock. The other saws pictured have a large screw at the front of the top arm for this purpose (the screw must be backed off slightly during operation for the top clamp to pivot). On the Dremel saws, the clamps themselves



EZ-Set blade clamp attaches permanently to upper arm of saw to facilitate changing of plain-end blades. The dust blower and orange plastic hold-down are common to many of the models tested.

are unique, in that they also enable you to mount the blade "sideways" with the teeth facing parallel to the front edge of the table (like a band saw).

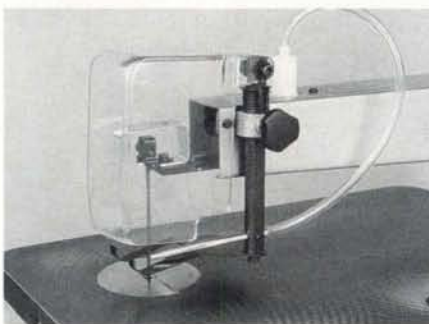
The best blade clamps, though, are Penn State's EZ-Set Bladeholders for use with their 15 in. saw (and others like it). The set consists of a standard bottom clamp, and a fixed top clamp and holder that replaces the conventional top clamp and clamp bracket (see photo above). Because the top clamp is fixed, you needn't tighten down bracket screws or remove the entire clamp assembly to change blades. The set also comes with a plastic spacer to keep the clamp from pivoting when inserting blades, and a jig (which can be attached to the saw or workbench) that secures the bottom blade clamp for changing blades. This set, along with three extra bottom blade clamps (so you can have three additional blades set up and ready to mount) is free with the Penn State 15 in. saws. The EZ-Set Bladeholder kit (without the three extra bottom clamps) is also sold as an accessory for \$17.00, and fits the other 15 in. saws from AMT, Delta, Grizzly and Wilke.

A final word on blade clamps: The ones that came with most of the saws I tested were already attached to a blade when I received them, and the setscrews were overtightened at the factory. If you find you can't loosen the screws on the holder, a shot of penetrating oil or WD-40 will help loosen them, but you still might end up breaking the blade (as I did), bending the small Allen wrench or stripping the hex heads in the setscrews when you try to remove the clamps. I suggest ordering a second pair of clamps (and wrench) to go with the saw in case you do ruin one of them.

Dust Blowers

As the name implies, dust blowers blow dust away from the cutting area. This not only keeps dust off the pattern lines so you can see what you're doing, but also prevents it from being dragged back into the cut by the blade, which can slow down the cutting action and dull blades more quickly.

Over arm dust blowers like the ones shown here come as standard equipment on most of the saws I tried. While the Delta saw pictured in this article doesn't have one, the model shown will by the time you read this article. An under arm dust blower is available as optional equipment for the Penn State SS15. The Dremel 1371, AMT 4391, and Wilke SS-15 have no provision for a dust blower. With both the under arm and



Adjustable hold-down on Ryobi SC-160 and Dremel 1671 holds work more securely than orange plastic type. Clear plastic blade guard is a nice safety feature.

over arm blowers, the motion of the saw's parallel arm operates a small bellows arrangement connected by flexible plastic tubing to a small brass tube aimed at the cut line of the saw blade. If your scroll saw doesn't have a dust blower and you're the inventive type, you could probably rig one up with a few clamps, sheet metal screws, brass and plastic tubing, and a small aquarium pump.

Material Hold-Downs

Because scroll saws cut with a reciprocating action, the blades have a tendency to lift thinner materials off the work table on the upstroke, causing them to "chatter." A material hold-down prevents this. With the exception of the Ryobi SC-160 and the two Dremel saws, all the saws we looked at have identical hold-downs made of orange plastic, attached to the upper-arm housing. While these work reasonably well when

new, I get the impression that they might lose their spring after awhile, and lose their effectiveness (especially on thin stock). The plastic hold-down on the Dremel 1371 has a firmer set than the other plastic ones, and because it's clear, does not interfere with vision. The two identical hold-downs on the Dremel 1671 and Ryobi SC-160 are sturdier, but must be adjusted to match the thickness of the stock. Also, if you decide to remove the hold-down for some reason, you also lose the benefit of the dust blower attached to it. While slightly less convenient than the plastic type, these hold-downs do enable you to adjust the amount of downward pressure on the stock, offering greater control over material "chatter." Also, the plastic guard attached to the hold-down protects eyes against flying chips and sawdust, and offers some additional protection against running your fingers into the blade.

Work Tables

Most of the saws have tapered, rectangular tables made of cast iron. The Dremel 1371 has a 10 in. diameter round table of stainless steel; the Dremel 1671 has a 12 in. diameter cast aluminum table. I have no strong preference for either type, although I found that the Dremel tables provide a bit more support in front of the blade (5 in. and 6 in., respectively) than the tables on the other saws (3-4 in.). Also, the table-tilt mechanisms on the Dremel machines operated more smoothly which, combined with the lighter table weight, made them easier to tilt and set.

Speed Control

While two-speed and variable-speed motors add considerably to the cost of a saw, these options are often worth the extra money. Slower speeds provide greater control over the work, especially when making intricate cuts in small, thin pieces. Slower speeds are also recommended when cutting metal to avoid overheating and premature blade failure.

On the two-speed models from Dremel and AMT the HI/LOW switch is separate from the ON/OFF switch; the induction motors are wound to run at two fixed speeds. The Penn State variable-speed SVS-15 employs a universal (brush-type) motor with an infinitely variable electronic speed control. As shown in the photo on page 74, the

SOURCE LIST

For more information on scroll saws and accessories, contact these companies:

AMT

Fourth Ave & Spring St.
P.O. Box 70
Royersford, PA 19468; (1-800-383-2681)

Delta

246 Alpha Drive
Pittsburgh, PA 15238; (1-800-438-2486)

Dremel

4915 21st St.
Racine, WI 53406; (414) 554-1390

Grizzly Imports, Inc.

West of Mississippi:
P.O. Box 2069
Bellingham, WA 98227; (1-800-541-5537)
East of Mississippi:
2406 Reach Rd.
Williamsport, PA 17701; (1-800-523-4777)

Penn State Industries

2850 Comly Road
Philadelphia, PA 19154; (1-800-288-7297)

Ryobi America Corp.

1424 Pearman Dairy Rd.
Anderson, SC 29625; (1-800-323-4615)

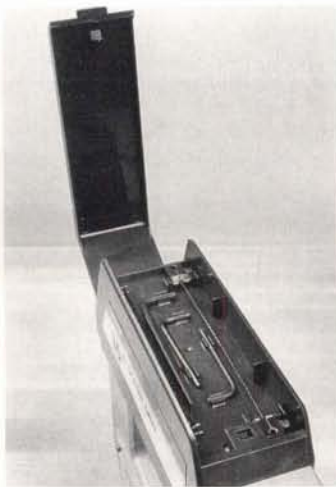
Sears

Sears Tower
Chicago, IL 60684; (1-800-366-3000)

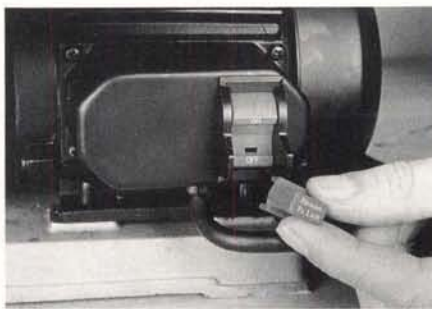
Wilke

3230 Susquehanna Trail
York, PA 17402; (717) 764-5000

If the above companies or local dealers can't provide you with the variety of blades you want, contact: **Olson Saw Company**, Rt. 6, Bethel, CT 06801; tel. (203) 792-8622, for catalog and nearest distributor.



Handy storage compartment is built into back of arm on Ryobi SC-160. The Dremel 1671 has a similar compartment.



All of the one-speed saws have a "remove to lock" switch, as shown here.

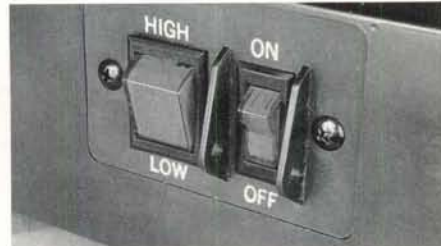
the electronic circuitry (two extra fuses are provided with the tool).

Safety Features

Scroll saws are, perhaps, the safest stationary power tools you can use; so much so, in fact, that I let my 10-year old son try a few simple cutouts on one of the models I tested (under close supervision, of course). The material hold-downs help keep your fingers away from the blade during normal operation, and the small blades won't slice off your finger in an instant as will a circular saw or band saw. As mentioned, the plastic guards on the 16 in. Dremel and Ryobi saws provide even more protection against cut fingers and flying wood chips (or chunks of blade, should they break and go flying).

It's a good idea to wear safety goggles when using a scroll saw. When doing fine work, the tendency is to move your face closer to the blade to see what you're doing. Good lighting helps.

Also, pay attention at all times while using the tool. Don't become overconfident or work when you're tired.



Two-speed saws have separate ON/OFF and HI/LOW switches. Holes in the projecting ears on either side of the ON/OFF switch enable you to lock it closed with a padlock, providing you can find one that fits.

To keep 10-year-old boys (and other unauthorized users) from operating the saw, most of the models I looked at have either a removable ON/OFF switch, or projecting ears on either side of the switch that enable you to lock it in the OFF position with a padlock. The Penn State variable-speed model has no locking switch (the owner's manual recommends unplugging it when not in use).

Accessories

Most of the saws I tried come with a few extra blades; plain-end blade clamps and dust blowers are standard on most models that use them. Penn State offers the largest array of standard and optional accessories, which includes their EZ-Set Bladeholder kit (with jig), a plastic lettering stencil kit, leg stand, magnifier worklight, momentary "ON" footswitch, and a plastic dust catcher box that fits under the work table to collect dust that falls through the blade slot. Other manufacturers also offer some of these accessories: see specifications chart on page 72.

Making the Best Deal

Because some of the models from the various companies are virtually identical, price is important, but not the sole factor in choosing a saw. See what the price includes. Some manufacturers offer incentives, such as free accessories or credit toward other purchases in their catalog. Also find out what type of warranty the company offers, if spare parts are readily available, and how quickly they can supply parts if something breaks. While many of the parts are interchangeable among most of these saws, some companies won't sell you parts for machines sold by other companies. By the same token, most importers will void their warranties if you use parts ordered from their competitors.



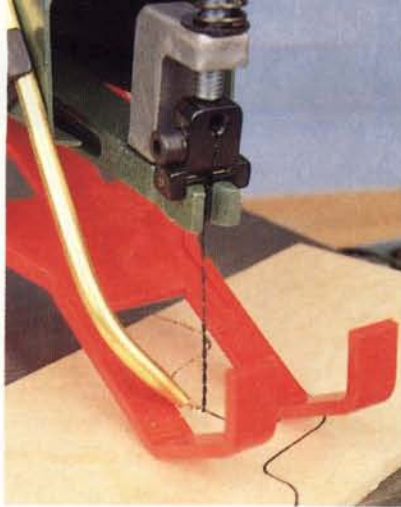
Variable speed switch on Penn State SVS-15 is fused to protect electronic circuitry. The variable speed motor and switch are sold as an accessory by Penn State, and can be retrofitted to most of the other saws in this article.

ON/OFF function is controlled by a push-pull action of the dial switch; speed is controlled by rotating it. A 3-amp automotive-type fuse (inserted behind the fuse button at left in photo) protects

Choosing Blades

If there's anything more numerous in the world of tool accessories than choices in router bits, it has to be choices in scroll saw blades. In fact, entire magazine articles and book chapters have been written on them. Alas, my editor didn't give me enough space here to present much more than a brief overview, but since scroll saw blades are cheap (20–30¢ apiece), it won't cost you much to experiment.

As mentioned, the choices in plain-end blades are far greater than in pin-end blades. Plain-end blades are usually sized by universal, or generic numbers, which indicate the blade's width, thickness and number of teeth. The higher the universal number, the coarser the blade. An exception to this is reverse-tooth blades, where the universal number specifically refers to the number of reversed teeth on a particular blade. The blade sizes chart gives the universal numbers, sizes and applications for standard 5 in. skip-tooth blades and reverse-tooth blades. The general rule of thumb is to choose the coarsest or heaviest blade that will provide the turning radius and smoothness of cut you need; the thicker the blade, the straighter the cut, and the less chance of breakage. Chuck Olson at Olson Saw Company (the largest U.S. manufacturer of scroll saw blades), says that the most



New spiral blades cut in any direction without having to turn workpiece. They do have several drawbacks, as explained in the text.

popular sizes for general scrollwork are nos. 5, 6, and 7. However, he suggests that if you're a beginner, you should start with a no. 12 to get a feel for doing scrollwork, then progress to thinner blades as you become more experienced.

Tooth design (see illustration below) also plays an important role in cutting speed and smoothness. Skip-tooth blades are the most popular. These have a flat gullet between each tooth to facilitate chip clearance, producing fast, smooth cuts.

A scroll saw tooth design doesn't cut as fast or smooth as a skip-tooth blade, but is generally more durable. This design usually comes in coarser sizes only and is recommended for gentle curves and straight cuts in thicker materials.

Double-tooth blades are similar to skip-tooth blades, producing fast, clean cuts with little chipout or splintering.

A reverse-tooth design has a set of reversed teeth at the bottom end of the blade, which virtually eliminates splintering on the bottom side of the workpiece. It's the blade of choice for cutting plywood and other splintery woods.

Spiral blades are the newest innovation in tooth design. The blades themselves are twisted into a spiral, which enables them to cut in any direction without having to rotate the workpiece.

Spiral blades do leave a wider kerf than conventional blades and are available in plain-end only. Unfortunately, the blades are twisted all the way to the ends, which makes all but the smallest sizes difficult to mount in the flat-jawed blade holders used with most saws (including those featured here). You can, if you're careful, flatten the last 1/8 in. or so of each end with a hammer and anvil to make them fit the holders.



Blade Sizes (Plain-End Skip-Tooth Blades)

Universal No.	Application	Width	Thickness	TPI*
2/0	For extremely intricate sawing. Very thin cuts in 1/16 in. to 1/32 in. materials.	.022	.010	28
0	Excellent for cutting wood veneer, plastics, hard rubber, pearl, etc.	.024	.011	25
2	For tight radius work in thin materials 3/32 in. to 1/8 in. wood veneer, bone, fiber, ivory, plastic, etc.	.029	.012	20
4		.035	.015	15
5	For close radius cutting in materials 1/8 in. or thicker. Great for sawing hard/soft wood, bone, horn, plastic, etc.	.038	.016	12.5
6		.041	.016	12.5
7	Popular sizes for cutting hard/soft woods 3/16 in. up to 2 in. Also cuts plastic	.045	.017	11.5
9		.053	.018	11
11	paper, felt, bone, etc.	.059	.019	9.5
12		.062	.024	9.5

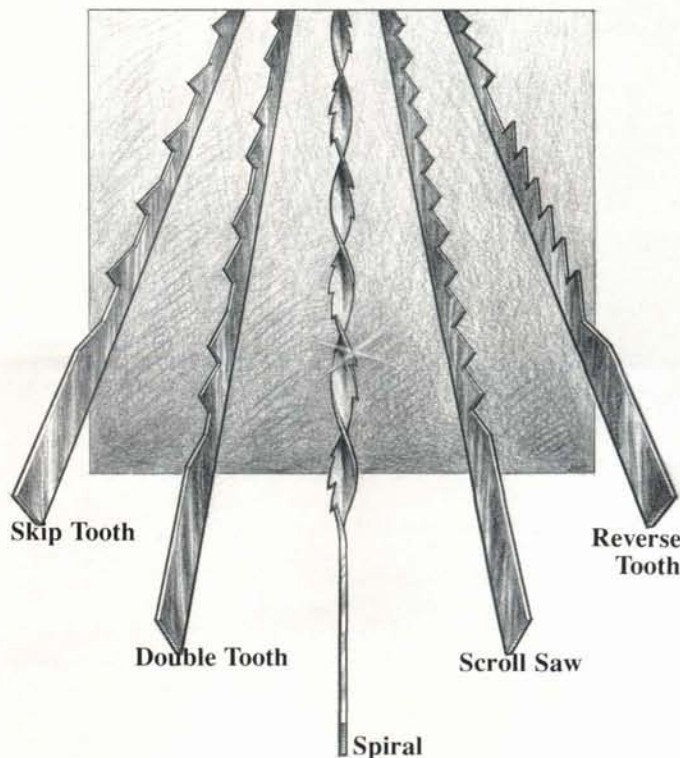
(Reverse Tooth Blades)

9 rev.**	For smooth, splinter-free cuts on top & bottom sides. Excellent for hard/soft wood, plywood, etc. with thickness of 1/4 in. or more.	.038	.016	12.5 w/9 rev.
6 rev.		.062	.024	9.5 w/6 rev.
5 rev.		.100	.022	9 w/5 rev.

*TPI = Teeth per Inch

**Number is the total number of teeth at the bottom end of the blade that are reversed

Chart courtesy Olson Saw Co.



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Kitchen Canister Set, Riding Biplane, Contemporary Serving Cart, Napkin Holder, Decorative Planter, Country Vegetable Bin, Medicine Cabinet, Shop Drum Sander, Vienna Regulator Clock, Display Pedestal; *Articles*: Penetrating Oils; The Jointer; Veneer, Part I; Dovetail Key Butt-Miter.

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Early American Bookcase, Trash Container, Low-Cost Workbench, Country Basket, Desk Calendar with Pen & Pencil, Butterfly Pull Toy, Vanity Mirror with Drawer, Apothecary Chest, TV/VCR Cabinet; *Articles*: Shellac; The Hand Plane; Veneer, Part II; Incised Carving.

Vol. 11 No. 5 Sept-Oct '87

Contemporary Love Seat, Two-Drawer Platform Bed, Snail Pull Toy, Routed Trivets, Spice Rack with Chip Carving, Joiner's Tool Chest, Shaker-Style Step Stool, Turned Shop Mallets, Woodbox; *Articles*: French Polishing Made Easy; Plane Iron Sharpening; Making a Splayed Leg Drill Guideblock; Traditional Chip Carving; Shop-Tested: 12 Jigsaws; Making the Knuckle Joint.

Vol. 11 No. 6 Nov-Dec '87

Rocking Horse, Three-Drawer Jewelry Chest, Tapering Jig, Rolling Toy, Folk Art Silhouette, Two Towel Racks, Early American Style Wall Shelf, Corner Cupboard, Stacking Wine Racks, Curio Cabinet; *Articles*: Glues and Gluing; Band Saw Setup; Making the Continuous Bracket Foot; Step-By-Step To a Flawless Finish.

Vol. 12 No. 1 Jan-Feb '88

Contemporary Coffee Table, Puss 'n Books Bookends, Cookbook Holder, Wooden Jewelry, Child's Duck Puzzle, Shaker Wall Clock, Stereo Cabinet and Speakers, Country Occasional Table, Drill Press Jig, Early American Pierced Tin Cabinet; *Articles*: Edge-Gluing; The Drill Press; Pierced Tin; Four Shopmade Finishes.

Vol. 12 No. 2 Mar-Apr '88

Oak & Glass Tier Table, Crystal Regulator Clock, Early American Candlesticks, Arrow Wall Decoration, Three-Drawer Country Wall Box, Key Cabinet, Contemporary Box, Shaker Carrier, Folk Harp; *Articles*: Use and Sharpening of the Hand Scraper; The Lathe: Basic Setup; Quartered Turnings; Lacquer.

Vol. 12 No. 3 May-June '88

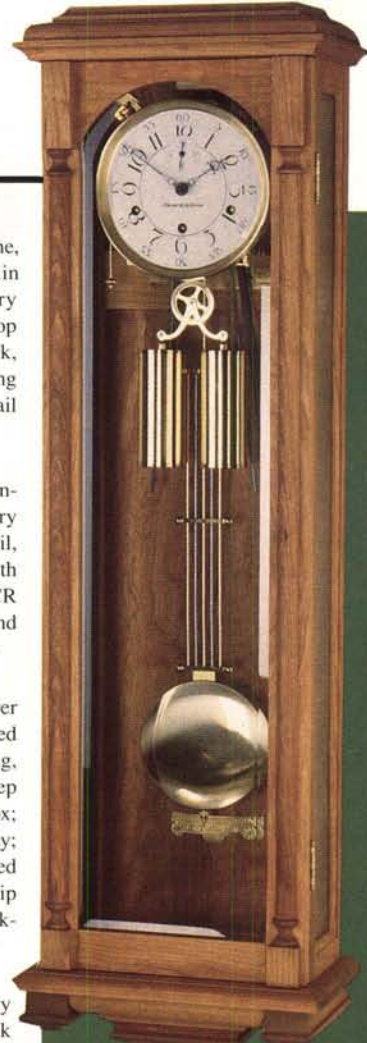
Loon Carving, Early American Dry Sink, Contemporary Dresser, Old-Time Pipe Box, Antique Knife & Fork Tray, Dutch Tulip Folk-Art Silhouette, Colonial Salt Box, Bud Vase, Miter Gauge Stop, Hunt Table; *Articles*: Spindle Turning; Selecting and Sharpening Lathe Tools; Recessed Finger Pull Step-by-Step; Coloring Wood: An Overview.

Vol. 12 No. 4 July-Aug '88

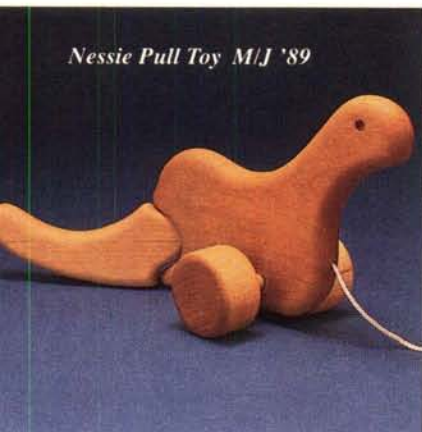
Magazine Rack, Occasional Table, Mitered-Corner Box, Heart Stool, Decorative Cutting Boards, Piggy Bank, Turned Bowl, Country Cupboard, Four-Drawer Lamp; *Articles*: Faceplate Turning; Workshop Layout; Cutting Dovetails on the Table Saw; Staining Basics.

Vol. 12 No. 5 Sept-Oct '88

Miter Cutting Jig, Captain's Clock, Country Coffee Table, Rooster Folk-Art Silhouette, Harvest Basket, Bird Push Toy, 18th-Century Pencil Post Bed and Nightstand, Bookcase Desk; *Articles*: Wood Movement; Joining Ring Segments; Drill Bits and Boring; Filling Open-Grained Woods.



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Shaker High Chest, Table Saw Crosscut Box, Country Vegetable Bin, Whale Pull Toy, Colonial Wall Sconce, Treetop Christmas Ornament, Classic Pickup Truck, Contemporary Cradle, Child's Carousel Lamp; *Articles*: Flattening Wide Surfaces with the Hand Plane; Making a Cove-Edged Raised Panel; Core-Box Bit Method; Polyurethane; A Sander For Large Surfaces.

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Shop-Built Disk Sander, Cherry Table, Wall Clock, Rock and Roll Toy, Contemporary Candlesticks, Merganser Decoy, Child's Table and Chairs, Shaker Wall Cabinet; *Articles*: Buying Hardwood Lumber; The Thickness Planer; Making Breadboard Ends; Ebonizing.

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Adirondack Settee, Country Village, 18th-Century Tilt-Top Table, Toy Fishing Trawler, Two Trivets, Folk-Art Cow, Greek Revival Birdhouse, Pine Armoire, Oriental Mirror; *Articles*: Transferring and Enlarging Patterns; Making Tripod Legs; Three Easy Finishes for Pine; The Portable Circular Saw.

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Storage Seats, Table Saw Gauge, Oval Extension Table, Nessie Pull Toy, Back Massager, Decorative Wall Key, Country Wall Shelf, Contemporary Mirror, Jewelry Chest; *Articles*: Panel Retainer Disk System; Understanding Circular Saw Blades; Cutting Box Joints; Non-Toxic Finishes; Massachusetts Woodworker Paula Garbarino.

Vol. 13 No. 4 July-Aug '89

Shaker Long Bench, Folk-Art Sign, Toy Farm Tractor and Wagon, Miniature Flower Cart, Kitchen Tongs, Wall Cabinet with Tinsel Art, Stacking Bookshelves, Country Pie Safe; *Articles*: Dealing with Uneven Wood; Tinsel Art; Coping with Your Radial-Arm Saw; Brushing Lacquer; A Visit to a Woodworking Show.

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Country Bake-Room Table, Chippendale Small Chest, Stacking Desk Trays, Pencil Box, Apple Doorstop, Space Shuttle Toy, Marquetry Coasters, Ice Chest with Marbleized Top, Globe Stand; *Articles*: Table Saw Basics; Cutting Full-Blind Dovetails; Marquetry: The Pad Method; Marbleizing; Mount Lebanon Shaker Village: A Museum in the Making; Tool Review: Four Portable Planers.

Vol. 13 No. 6 Nov-Dec '89

Mission Style Trestle Table, Jewelry Box, Kids' Bobsled, St. Nicklaus Carving, Carousel Toy, Box Drum, Dancing Man Folk Toy, Towel Rack, Secretary Desk, Bed Tray; *Articles*: Mortising Butt Hinges; Dado Heads; Marquetry: The Empty Window Method; Aniline Dyes; Lynes Unlimited: Making Toys in a Kansas Chicken Coop.

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Mortise & Tenon Mirror, Weaver's Chest of Drawers, Tissue Box Cover, Band-Sawn Napkin Holder, Grasshopper Pull Toy, Compact Disc Holder, Shop-Built Spindle Sander, Wall-Hung Ironing Board, Tavern Table; *Articles*: Clamps: One Shop Tool You Can't Do Without; How to Hang Wall Cabinets; Marquetry: The Direct Method; A Guide to Waxes and Polishes; Special Section: Back Issue Index.

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Small Early American Mirror, Shop-Built Sanding Blocks, Cookie Jar Holder, Hourglass, Candle Holder, Toddler Cart, Folk Fiddle, Plant Stand, Santa Fe Bench; *Articles*: Mak-

ing Drawers; Using Router Bits in the Drill Press; Finishing Outdoor Projects; Making Curved Instrument Sides; A Conversation with Allene and Harold Westover.

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Provincial 4-Poster Bed, Jewelry Box, Christmas Angel Folk Carving, Rocking Dolphin, Walnut Hand Mirror, Perpetual Calendar, Hanging Bird Feeders, Country Pine Table, Shaker Chest of Drawers; *Articles*: The Shaper; Finishing Problem Woods; 20 Ways to Hang a Shelf; Inlaying Mother-of-Pearl.

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Santa Fe Chair, Santa Fe Table, Clamp Rack, Provincial Bench, Step Stool, Box with Marquetry Top, Ash Wall Desk, Fork Lift Toy, Connecticut River Valley Highboy, Part 1; *Articles*: Tempering Steel Tools; Three Easy Finishes for Oak; Making a Cabriole Leg; Hand-Cut Dovetails; Special Section: Back Issue Index.

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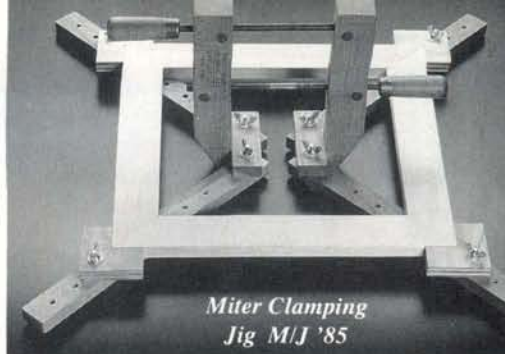
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Router Storage Cabinet, Eli Terry Shelf Clock, Adirondack Rocker, Pennsylvania Small Chest, Dresser-Top Coin Bank, Oak Music Stand, Toy Airport Baggage Train, Pierced-Tin Spice Cabinet; *Articles*: Boring Square Holes: Hollow-Chisel Mortising with your Drill Press; Resawing: How to Get Thin Boards from Thick Stock; Two Traditional Inlay Methods: The Line & Berry and Banding; Tips for Mess-Free Finishing; Tool Review: What's Available in Low-Cost Dust Collection Systems.

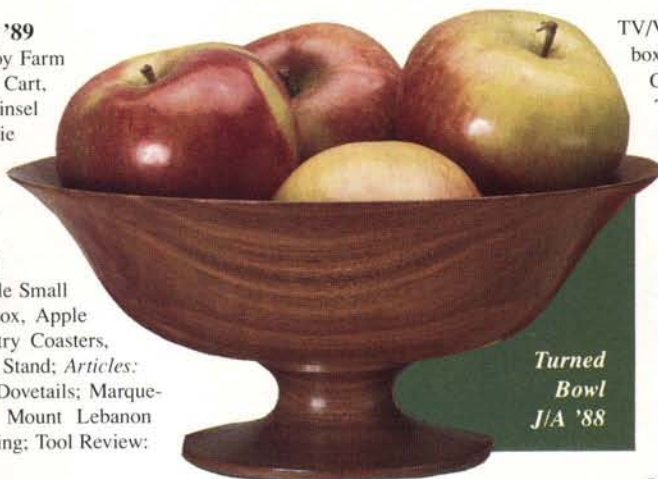
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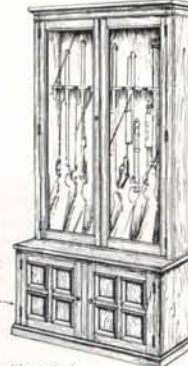
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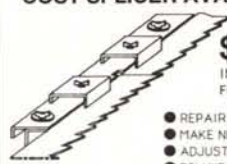
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from the Editors of The Woodworker's Journal

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By the Editors of
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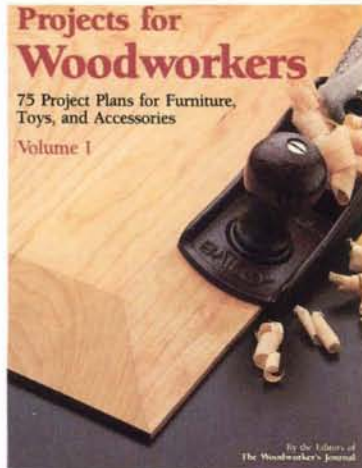
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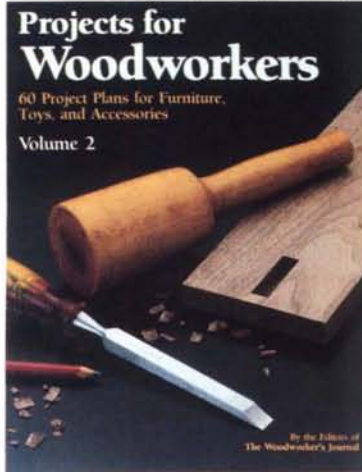
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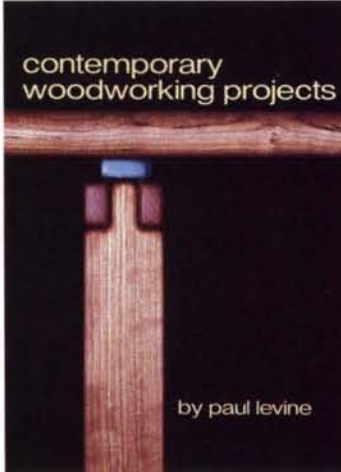


By the Editors of
The Woodworker's Journal

Projects For Woodworkers, Volume 2

Originally published in the 1982 issues of *The Woodworker's Journal* magazine, all 60 projects were chosen with a variety of styles and skill levels in mind. Each project has complete instructions and illustrations. You'll find household accessories like the Desk Caddy, Casserole Dish Holder, and Breakfast Tray easy to build. And you're sure to enjoy completing more involved projects like the Tambour Desk, Old Danish Chest of Drawers and Swinging Cradle.

contemporary woodworking projects



by paul levine

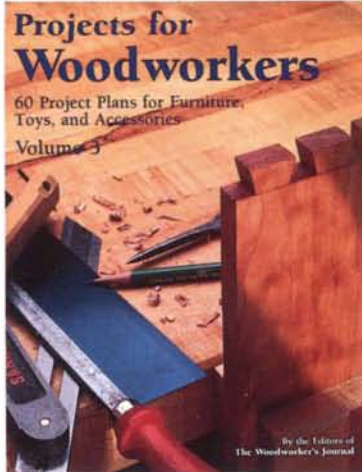
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Paul Levine guides woodworkers of all skill levels through room-by-room chapters of coordinated furniture and accessories. The clean angles and sturdy joinery are made easy with step-by-step instructions and illustrations. Among the 40 handsome projects are a Love Seat, Chair and Ottoman set, an Oak Credenza, a Platform Bed, and a Japanese Shoji Lamp. Children will enjoy their own table and chair, puzzles and a great box of dominoes.

Projects for Woodworkers

60 Project Plans for Furniture, Toys, and Accessories

Volume 3



By the Editors of
The Woodworker's Journal

Projects For Woodworkers, Volume 3

The best projects from the 1983 issues of *The Woodworker's Journal* magazine—toys, lamps, cupboards, chests, cabinets, tables, planters, mirrors, and much more. Clear illustrations and thorough written instructions make each project easy-to-understand and fun to build. A book you'll want to keep within easy reach of your workbench.

COUNTRY PROJECTS for WOODWORKERS

85 Project Plans for Furniture and Accessories



By the Editors of The Woodworker's Journal

Country Projects For Woodworkers

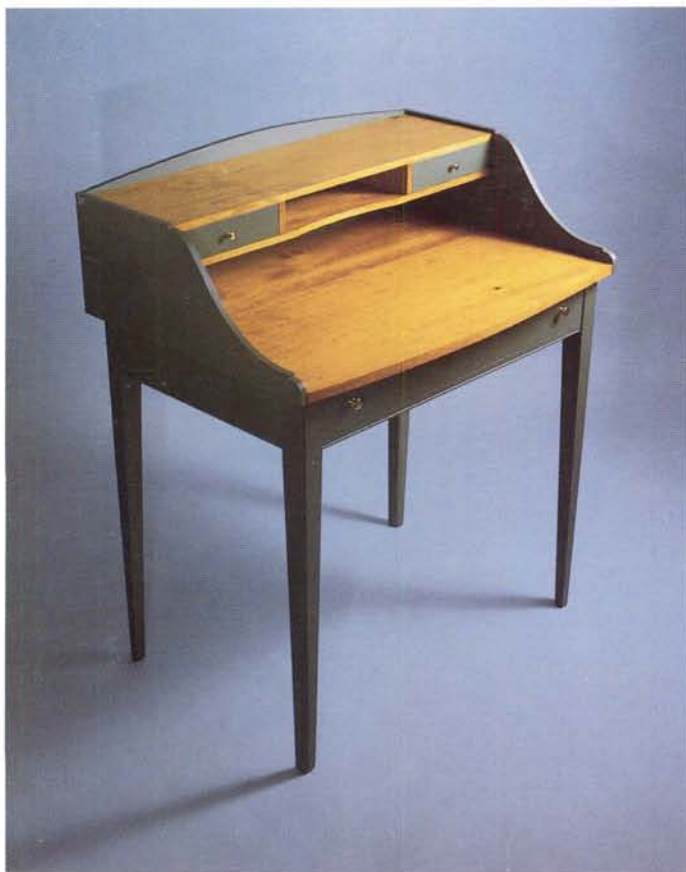
If building the simple, sturdy furniture of the old cabinetmakers appeals to you, then you'll want this collection of country projects from the 1980-84 issues of *The Woodworker's Journal*. 85 complete plans range from projects like Colonial Candlesticks and Fireplace Bellows to more challenging projects such as a Shaker Chest, a Stepped-Back Hutch, and an 18th Century Trestle Table. Some plans are also in *Projects for Woodworkers*, Volumes 1 and 2.

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NEXT ISSUE

Here's a preview of . . .



. . . our very special November/December holiday issue. Imagine this classic **Colonial Dollhouse** under the tree to greet the little ones come Christmas morning. Or how about our elegant Shaker-inspired **Country Pine Writing Desk** for the study? Carvers will delight in another fanciful Rick Butz **Santa**, and everyone will marvel at Robert A. St. Pierre's deceptively easy-to-make **Faux-turned Vessels** (Robert doesn't use a lathe; the vessels are stacked ring laminations, smoothed by sanding). We've also got a great **Toy Chest**, a handsome **Jewelry Box** and more than enough other projects to keep you knee-deep in sawdust 'til the new year.

