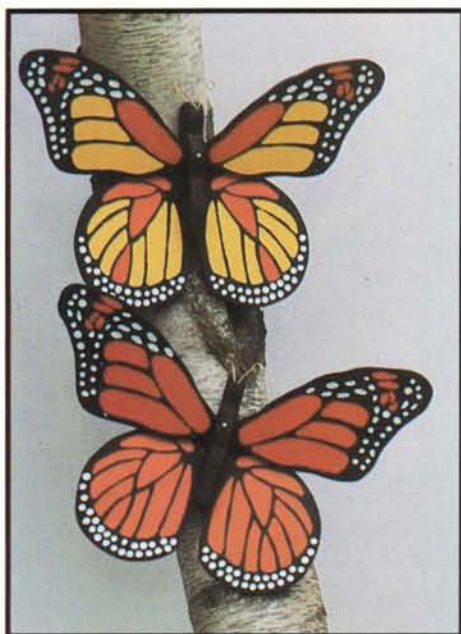


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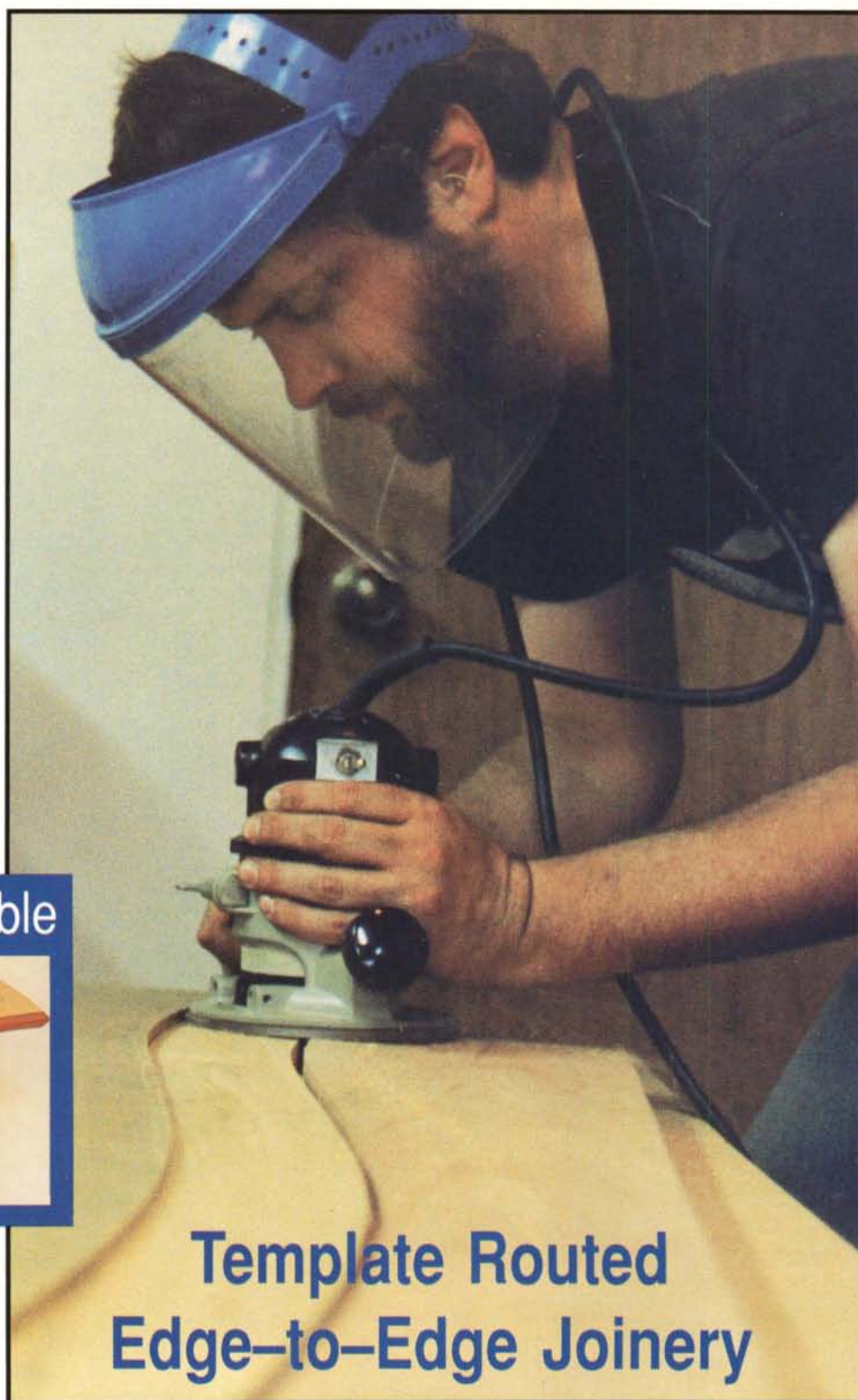
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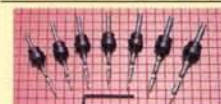
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On the Cover

Editor David Camp demonstrates routing curved edge-to-edge joints, one of the techniques involved in making Jon Seeman's "Sculptural Coffee Table." By taking several passes along a template, you can "joint" both pieces simultaneously to get a perfect fit. Reed Poverny explains the other tricks in making this elegant project in his article on page 64.

Phil Fischer



Clear Cuts

These are confusing times for woodworkers. It seems that the very soul of our avocation, this marvelous material we work with, is becoming a rather questionable resource.

You've heard about tropical deforestation. A political action group, Rainforest Action Network (RAN)—the people who successfully boycotted Burger King to prevent them from buying beef grazed on cleared rain forest land—has issued a list of tropical hardwoods for woodworkers to avoid using. The implication is that by using these materials we're contributing to the greenhouse effect and global warming, as well as to the extinction of "48 species of plant and animal life" *per day*—many of which may hold cures for life-threatening diseases, or provide other products that could benefit man.

Other voices argue that it is agricultural development that is contributing to this deforestation and not logging for hardwoods. They insist that the trees would be cleared anyway. If that's the case, it seems to me that the people of this planet should be trying to find ways to feed these third world countries and help them develop their economies along other than agricultural lines. While we're at it, we might help them to adopt sound forest management practices.

I consider myself an environmentalist. I don't know if making a table out of rosewood and koa is going to do irreparable damage to this planet, but if some serious people think it might, I'm going to take a conservative approach and use some other material. I took the RAN list with me when I went shopping for wood to make the "Sculptural Coffee Table" project in this issue, and I'll admit it was painful to walk past all those racks of teak, cocobolo, padauk, etc., feeling that I'd never get to work with those spectacular exotics again. I came out of there with ash, cherry, and walnut, and I felt a little guilty about the walnut because it's another hardwood that's not as plentiful as it once was.

Which brings up the question of using domestic woods. At one time in this country's history we cleared vast stretches of land for our own agricultural needs and created that ecological disaster known as the dust bowl. Are we now using our forests wisely? Some say no.

In the Pacific Northwest there is a battle raging over the preservation of old-growth forests on Federal land. Environmental groups such as the Wilderness Society and the National Audubon Society have formed an umbrella organization called the Ancient Forest Alliance (AFA) with the intent of preserving more of these old-growth areas as wilderness habitats. Forest products industry officials have formed their own coalition, the American Forest Resource Alliance (AFRA) to battle what they see as a growing threat to the nation's supply of commercial timber. A point of conflict between these two interest groups is the northern spotted owl, a species which the U.S. Fish and Wildlife Service has recommended listing as "threatened" under the federal Endangered Species Act. The environmentalists say that the owl needs an old-growth, wilderness habitat in order to survive; the loggers say that's not true, that the bird lives and reproduces effectively in managed, second-growth forests. The timber industry goes on to say that their jobs, and man's need for wood products are more important than the spotted owl, anyway.

To complicate things further, the Timber Framers' Guild of North America is encouraging the development of management practices that would provide for the sustained yield of old growth timber. They need big old trees for the beams they use in their industry, and they want to see that forests are managed in such a way that certain trees are allowed to age for future generations of timber framers to use, and that the old trees that are harvested aren't simply milled into two by fours.

All of this leads me to conclude that we probably aren't being as careful as we

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should be in the ways we obtain our material. What can we do about it? Well, we can write letters to the U.S. Forest Service, the Bureau of Land Management, and Congress to help influence public policy on the management of our forests, of course, but there are other things, too. RJS Custom Woodworking, a mail-order supply house, has an agreement with the U.S. Forest Service whereby for every order of \$30.00 or more from their catalog they will make a donation to have a tree planted in a National Forest. The Luthier's Mercantile, a supplier of woods, tools, hardware, etc. for the stringed instrument builder, is importing and promoting the use of "lesser known species" in an effort to make use of rain forest woods that are overlooked in the harvest of the few popular species we are accustomed to using.

We can be more aware of this marvelous material we use and where it comes from and what it means to use it, and we can teach our children to be wiser with it than we have been.

And we can plant trees.

If we decide that we are more important than the northern spotted owl, more important than the tropical rain forests, that the earth and its resources are ours to exploit to the point of depletion, we will find that we ourselves are actually every bit as disposable.

David M. Camp

For More Information

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International Society
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Bethesda, MD 20814
(301) 897-8720

The Ancient Forest Alliance (AFA)
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Computer Assistance

I received my first issue of Popular Woodworking, and I was quite impressed with its contents. I was especially impressed with Alan Marks' article "Computer Assisted Furniture Design" (PW #49, June/July 1989 and PW #51, October/November 1989). It is the first article I have read that very clearly tells the layman how it all works, and then proceeds to take the reader by the hand and walk him through the whole process. I am absolutely delighted with it, as I have been contemplating buying a computer for some time now, but I knew absolutely nothing about them. Now, thanks to Mr. Marks' article, I am beginning to be appraised as to just what I will need.

Jack S. Karnes
South El Monte, CA

A Great Idea, But...

I am a relatively new subscriber to Popular Woodworking. The idea of your PullOut™ Plans is a great one and of immeasurable help to those of us who lack drawing skill. However, errors in either the text or a PullOut™ Plan can be disturbing.

Referring to issue # 50 (August/ September 1989): In the PullOut™ Plan for the "Colonial Shelf": the notch for the rear brace is shown as 1-1/2" but the text and the cutting list call for a 2" wide brace to fit in there. I would like to know which is correct. I realize I can make the notch 1-1/2" and cut the brace to fit, but often a minor change affects the grace of the piece.

John D. Selvaggio
Pittsburgh, Pa

Sorry about the screw up. The brace and the notch should be 1-1/2" wide. That's the nice thing about full-size PullOut™ Plans: you don't have to trust the words; you can measure right from the plans. We'll still try to get the words right, too, though!

Editor

Praise for Projects

Your woodworking projects are just great. I enjoy making items that are different and require challenge. My daughter just loves her corner pewter hutch (PW #45, October/November 1988) and my wife enjoys the wall cabinet (PW #49, June/July 1989). I learned a lot while making the wall cabinet from your PullOut™ Plans and the explanation of how to make the half spindles on my lathe.

Robert Murray
Elizabethtown, PA

On Guards

I read with interest your editorial in PW #50 (August/September 1989) on the subject of the use of guards on table saws. I am a firm believer in the use of guards with good judgment. In over 50 years experience in wood shops, large and small, I have concluded that the chief cause of injuries is unsafe operations, not failure to use guards. Over the years, I have witnessed hundreds of injuries, minor to near fatal. One of the worst accidents I can recall was a ripping operation on a large industrial

table saw. All the proper guards were in place, but the operator was standing directly in line with the blade. The blade grabbed a narrow strip, threw it back, and punctured the operator's stomach. Had he stood slightly to one side of the blade, this could not have happened.

Before beginning any operation, ask yourself the questions, how can I do this safely? How can I get hurt?

Some simple safe practice rules are:

1. Never put your fingers or hands in the path of the blade or cutter.
2. If possible, cover the cutter or blade to keep your fingers from being pulled or pushed into the cutter.
3. Never take chances. If the operation looks risky, figure out another, safer method.

Regarding aftermarket safety guards: I have very little confidence in these. The aftermarket fences on the other hand, are one of the best things that ever happened to woodworking. Woodworking safety is a lot like automobile safety. "The best safety device is the nut behind the wheel." Even the most dangerous machines may be used safely if the operator makes the operation safe.

Devore O. Burch
Fort Worth, TX

When I was taught how to use a table saw, there wasn't a guard either, but my instructor showed me some simple tricks that made ripping and cross cutting just as safe as, if not safer than, using a guard. Norm has used all the tricks I know of on his show, and I've even learned some new ones by watching how he makes certain cuts safely without using a guard.

When I bought my table saw, I didn't even consider taking the guard out of the plastic wrap it was sent in. I think better instructions from the manufacturers are needed to explain how to rip and cross cut safely. I am sure there are enough lawyers out there who could word instructions in such a way that would release the manufacturers from any liability. Moreover, I think it's ignorant of a manufacturer to assume that people are going to use their guards. They are difficult, cumbersome and awkward to work with.

I think it's a plot by equipment manufacturers to force table saw owners into buying a radial arm saw just so they can cross cut, instead of explaining how to do it safely on their table saw.

Brian Dumsick
K. I. Sawyer, MI

I read with interest your editorial in Issue #50 concerning the use of blade guards or lack thereof. I am a retired custom yacht builder. In our years of operation we seldom used a blade guard unless required to do so by OSHA. Because we did custom work rather than production, we seldom made straight ripping cuts. More often, they were dado or rabbet type operations which were impossible with a guard in place.

In our many years of operation we had no, I repeat, NO accidents on our table saws. We did, however, constantly stress safety while using any and all power tools.

In my own shop, I have a 10" Delta Unisaw® with an aftermarket fence, the Excalibur®, and Shophelper® anti-kickback devices—a fantastic combination I can highly recommend. One would have to make a drastic effort to get his

hands anywhere near the blade. In my opinion, this setup is much safer and more practical than any standard guard I have seen.

Ted Elliott
Brookings, OR

I have got to respond to your "Clear Cuts" editorial on table saw guards. I, too, have removed the guard on my table saw—not for photographic clarity, but for safety.

First off, let me say that my friends call me "Mr. Safety" in my home workshop. I always, but always wear goggles, and a sign in a frame serves as a reminder in case I forget. Second, I always

"I think it's a plot by equipment manufacturers to force table saw owners into buying a radial arm saw just so they can cross cut, instead of explaining how to do it safely on their table saw."

wear ear muff-type hearing protectors when running certain noisy machines. Third, I always wear a respirator for dust or other toxic fumes. Now, I admit I'm quite a sight with all this equipment, but I am safe. Health is Job One.

On my Delta 10" contractor's saw, the guard has three functions. It has the splitter, the finger guard, and the anti-kickback paws. With all this it should be safe, right? Wrong. Although it does a good job of keeping my fingers out of there, try to use a pair of push sticks with it; no way! As far as the anti-kickback paws are concerned, no gripe here. But that

blasted splitter has caused me more grief! With some cutting operations, the wood drifts slightly from the fence; then it hits the splitter instead of passing through. Not only do I lose my concentration and repeat some cuss words I thought I'd forgotten, but I've got two options: I can try to align the stock to clear the splitter (which is dangerous), or I can take the guard and throw it into my neighbors yard (which has its own dangers).

But there is an answer: the Shophelper® anti-kickback device (and let me point out that I am not a stockholder with this company). This inexpensive safety device has several advantages. First, its bright colored wheels remind me where the blade is. Second, the wheels only turn one way to prevent kickback. Third, there is no #\$\$@% splitter. Fourth, the wheels are shaped to keep the stock tight against the fence helping to give a really straight cut, which is worth the price itself.

Now, the boys at Delta really know how to design a table saw, but when they designed that guard it must have been close to quitting time. Sorry to blast you, Delta; your machines are still tops in my book.

Was the Shophelper® worth the expense? You bet! Do I recommend removing guards? Only if you replace them with a similar aftermarket device or something shop built. After all, glued-on fingers or "Sorry Elmers" just don't work as well as original equipment.

Ron Holladay
Oxnard, CA

I was especially interested in your editorial comments regard-

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ing table saw safety. I'm a retired shop teacher, and I think a lot of teachers can relate to the "hang the guard on the wall near the saw syndrome." When our shop classes began to grow at the school I taught in, we changed our ways in a hurry. To top it all off, I was called in as a material witness on three cases where students were injured in high school (and junior college) shops where guards were hanging on the wall.

Our shops were almost 100% equipped with Delta /Rockwell machines, and each school year we ordered spare parts for all machines to keep them in good working order. When Delta intro-

duced their new Uniguard®, we were first on the bandwagon to put it to use, forbidding any student to remove it at any time. It had several good points, including raising one or both sides of the guard for special cuts or for blade inspection. The anti-kickback/splitter unit mounted directly behind the saw blade had to be perfectly aligned, and when it was, it worked great. The guard itself, however, was really too light-weight, and one or two cramped pieces of stock flying out of the saw blade wrought irreparable damage to the guard. We even bought replacement parts to take care of this situation. Although the overarm support allowed for bigger stock, one could not cut a piece of 4 X 8 plywood on the saw without swinging the guard down out of the way completely.

We then became quite interested in the Brett all plastic saw guard, and equipped all our saws with that device. It had its own anti-kickback feature mounted underneath which served its purpose well. Its main drawback was buildup of pitch and gum. We cleaned the guards two or three times a week and then sprayed them with silicone which helped a little. We even tried applying clear cellophane tape, peeling it off when the pitch buildup got too bad.

All the teachers in the department preached safety, safety, safety so much that I often meet former students who thank me for those terrific safety programs. School budgeting created some havoc for us because we were assigned 30 to 35 students per teacher, but we watched our P's and Q's and managed to rack up ten years of a clean safety record with no serious accidents.

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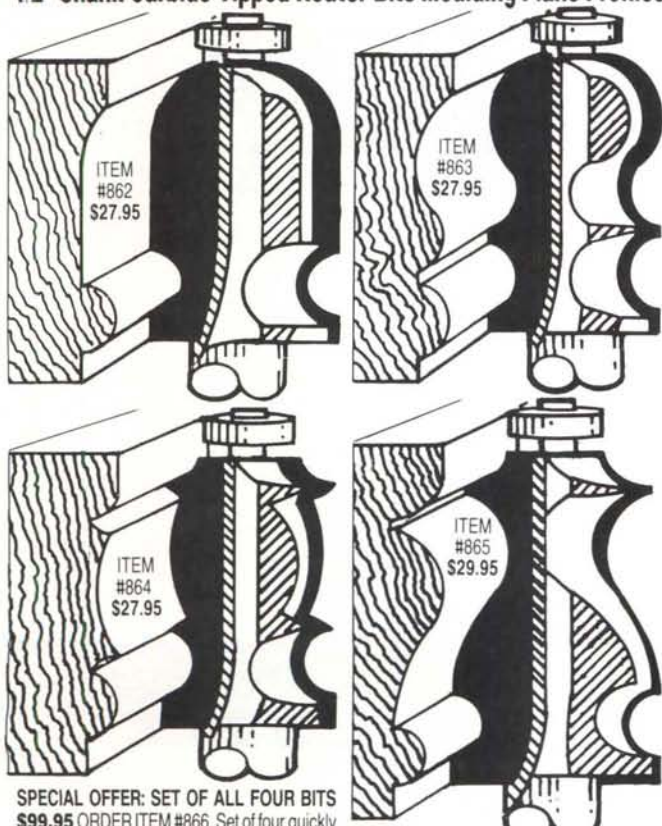
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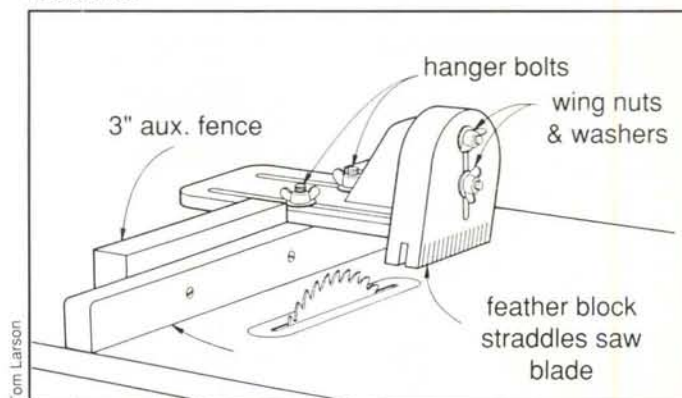
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Just before I retired, we hit on the idea of supporting the table saw guard from the ceiling. The guard would always be in place—even when cutting 4 X 8 panels. I don't know if the teacher who replaced me ever carried it out or not.

I think woodworkers take their destiny in hand when they remove the guards from their own equipment at home. No one is safe from getting hurt, no matter how well they think they know everything there is to know about their table saws.

The drawing above shows an easy-to-make guard which can be designed to completely cover the blade, moulding head or dado head with no chance of getting fingers into the blade. It's based on the old idea of the feather block, and when the block gets too cut up you can replace it. Once again, it won't be appropriate for all situations, but you should use it whenever you can. Another helpful rule to remember is to never have the blade set higher than 1/8" above the material.

Don Kinnaman
Phoenix, AZ



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#491		1 1/2" Classical		1 1/2"	3/4"	1/4"	\$25.00
#792		1 1/2" Classical		1 1/2"	7/8"	1/2"	\$25.00
#231		5/32" Roman Ogee	5/32" R	1 1/4"	1 5/32"	1/4"	\$17.00
#232		1/4" Roman Ogee	1/4" R	1 1/2"	3/4"	1/4"	\$18.00
#661		1/4" Roman Ogee	1/4" R	1 1/2"	3/4"	1/2"	\$21.00
#340		1/8" Cove	1/8" R	5/8"	1/2"	1/4"	\$12.00
#341		1/4" Cove	1/4" R	1"	1 1/2"	1/4"	\$13.00
#342		3/8" Cove	3/8" R	1 1/4"	9/16"	1/4"	\$14.00
#343		1/2" Cove	1/2" R	1 1/2"	5/8"	1/4"	\$15.00
#644		3/4" Cove	3/4" R	1 7/8"	3/4"	1/2"	\$28.00
#350		1/8" Round Over	1/8" R	3/4"	1/2"	1/4"	\$11.00
#351		3/16" Round Over	3/16" R	7/8"	1/2"	1/4"	\$11.00
#230		1/4" Round Over	1/4" R	1"	1 1/2"	1/4"	\$12.00
#354		3/8" Round Over	3/8" R	1 1/4"	5/8"	1/4"	\$15.50
#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
#657		1" Round Over	1" R	2 1/2"	1"	1/2"	\$33.00
#370		3/8" Rabbeting	3/8" Deep	1 1/4"	1/2"	1/4"	\$14.00
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#402		3/8" Dovetail	8 degree	For Leigh	3/8"	1/2"	\$12.00
#404		1/2" Dovetail	8 degree	Leigh	1/2"	1 3/16"	\$12.00
#708		1 1/8" Dovetail	8 degree	Jigs	1 1/8"	1"	\$17.50

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#416		3/8" Core Box	round nose	3/8"	3/8"	1/4"	\$11.00
#417		1/2" Core Box	round nose	1/2"	1 1/32"	1/4"	\$14.00
#418		3/4" Core Box	round nose	3/4"	5/8"	1/4"	\$15.00
#719		1" Core Box	round nose	1"	3/4"	1/2"	\$18.00
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#472		3/8" Straight	plunge cutting	3/8"	1"	1/4"	\$ 7.00
#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
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#846		Tongue & Groove	Wedge	1 5/8"	1"	1/2"	\$30.00
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#451		3/16" Beading	3/16" R	7/8"	1/2"	1/4"	\$11.00
#233		1/4" Beading	1/4" R	1"	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
#375		45 degree Chamfer	45 degree	5/8"	1 1/2"	1/4"	\$15.00
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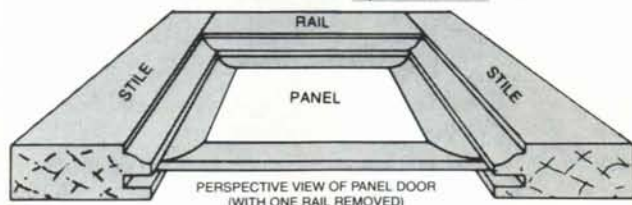
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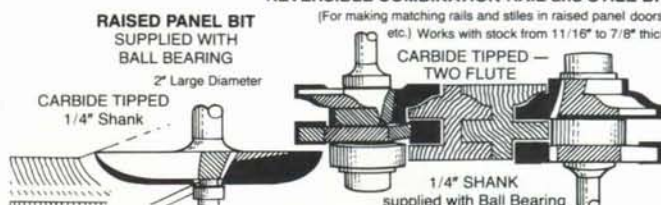
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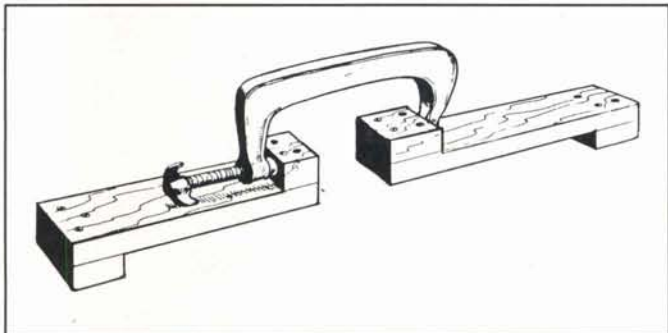
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Tricks of the Trade

"Tricks of the Trade" shares readers' tips for making woodworking tasks easier and safer. If you've come up with a trick that would help other woodworkers, send it to "Tricks of the Trade" C/O Popular Woodworking, 1320 Galaxy Way, Concord, CA 94520. Include any photos or sketches that help illustrate your idea (we'll redraw them). We pay \$25 for each trick we publish. In this issue we've devoted the whole column to tips from Don Kinnaman.

Substitute Bar Clamps

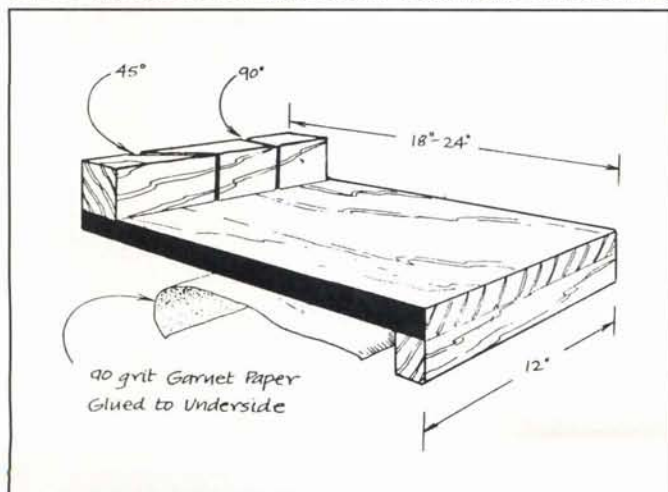
Handscrews, C-clamps and most any other clamps you have can be used in place of bar clamps, if you make these accessories. Cut several 1 X 3's to 2', 3' and 4' lengths (or even longer.



if you need them). Add cleats at each end on opposite faces (like an elongated bench hook). Use the bottom cleats to grip the work, and apply a clamp to the top cleats to draw them together. Combine the different lengths to make the size you need.

New, Improved Bench Hook

The traditional bench hook has many uses. Made from 3/4" plywood that is 12" wide by 18" to 24" long (though any dimensions will be fine), it has a 3/4" X 2" X 12" cleat attached to each end on opposite faces. The bottom cleat hooks onto the front



edge of the workbench, while the stock is held firmly against the other cleat for cutting or for "shooting" the ends (see "Tried and True: Miter-Trimming Devices" in *PW* #44, August/September 1988 for more on shooting boards).

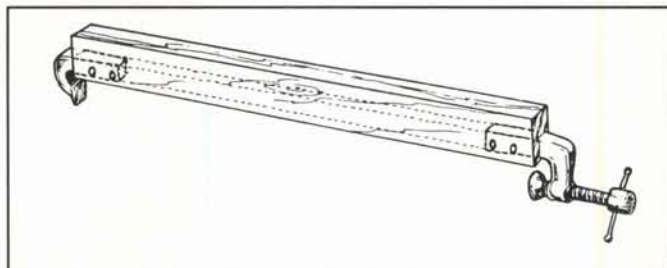
You can improve your bench hook by making saw cuts in the top cleat at 45° and 90° for a “mini-miter box.” Turn it over and

Don Kinnaman is a retired high school woodshop teacher from Phoenix, AZ.

glue a sheet of 90-grit garnet paper to the other side. This is useful for hand-sanding small pieces, or you can set small pieces on the sandpaper base to keep them from slipping while you use a power sander.

Shop-Made Rip Fence

The day may come when you need a rip fence for a machine that doesn't have one; here's a quick, inexpensive way to make

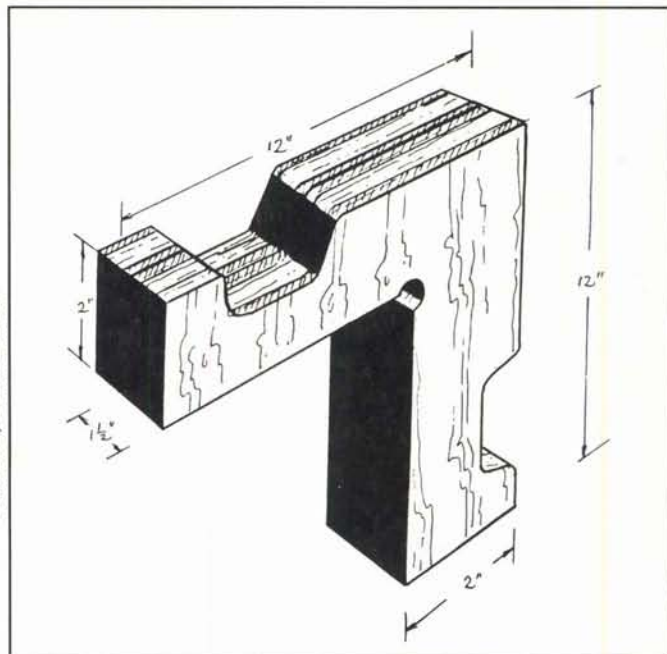


your own. Use any good straight-grained hardwood that is at least 3/4" thick, and cut it to 2" wide X the width of the machine's table. Cut a cheap C-clamp in half, and saw a slot on the underside of your fence wide enough for a good snug fit of the clamp. Drill and counterbore two holes through each end of the fence and the clamp pieces to accept hardware that will hold the clamps in place. Make sure no bolt heads or screws stick out on the surface of the fence.

Use a framing square to scribe lines in the tabletop for referencing the fence, or align the fence with a framing square each time you use it.

Scrapwood Framing Clamp

All shops accumulate large amounts of plywood, often in hardwoods like birch, ash, oak, etc. We often don't want to throw



out even 10" to 12" square chunks because we might have a need for them later. Here is your need right now.

This is a corner clamping aid to be used with C-clamps, handscrews or bar clamps. These aids are designed to "squeeze

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in the corners" of bookcases, picture frames, or other hard-to-clamp projects. The hole on the inside corner permits perfect fit of a 90° mitered joint, and prevents any oozing glue from sticking to the aid.

The notches on the top and side are for positioning C-clamps for a tight fit, or they can be used with bar clamps to pull the corners on each end toward each other. Make these aids from two or three thicknesses of 3/4" plywood for extra strength. The measurements shown here are not critical; make them to suit your own needs.

Cross-Grain Sawing

Certain kinds of wood have a tendency to tear out when cross cut on the table saw. To prevent this, set the saw blade for a very shallow cut (about 1/8") and make the first pass. Now turn the panel over, raise the blade and complete the cut with no splitting.

Bouncy Drill Bits

Small drill bits (like 1/16" bits) break easily when pressure is applied because of side play caused by centrifugal force. If you push a sponge rubber ball (like those used to play jacks) onto the bit, it will eliminate this side play. The ball will compress as the bit is pushed into the work.

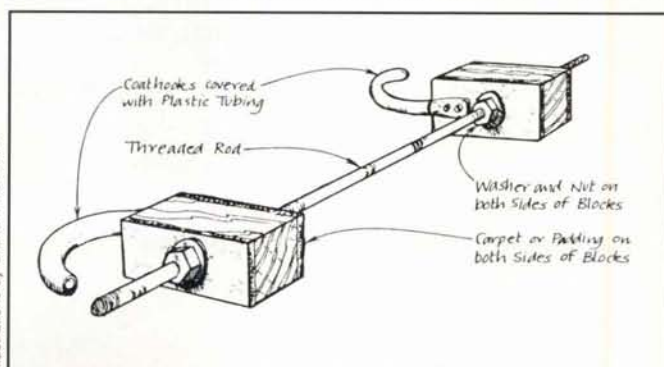
Livening Up a Dead Center

Many turners use a drop of oil on the dead center of the tailstock when turning wood. A better method is to rub this portion vigorously with bar soap or a block of hard paraffin. Better still,

drill a small hole in the tailstock end of the wood, and tap in a T-nut. The barbs on the T-nut will hold it in place, and it makes a good bearing surface for the tailstock.

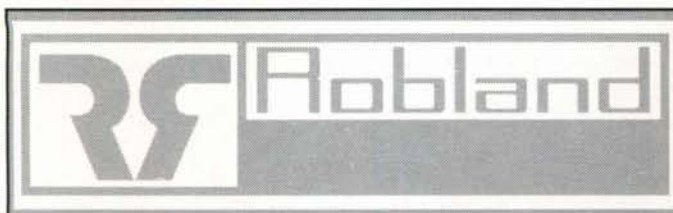
Pushme Pullyou

This shop-made clamp can be used to pull things together or pull them apart, depending on your needs. It is made from two 1-1/2" X 1-1/2" X 6" blocks that are padded on both sides with foam rubber or carpet scraps. Drill holes for the threaded rod somewhat off-center in the length, and mount a coat hook on the inside



surface of each block. Slip some rubber tubing over the hooks to keep them from marring surfaces. This tool works great for pulling apart chairs for re-gluing without breaking any rungs or legs. **PW**

Illustrations by Graham Blackburn



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C1014	5/8	\$15
C1015	3/4	\$10
C1016	3/4	\$15
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C1068	3/8	\$7
C1069	1/2	\$7
C1070	9/16	\$8
C1071	3/4	\$9

1/2" SHANK

PART NO.	D	PRICE
C1074	1/2	\$7
C1076	3/4	\$9
C1077	1	\$12

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1/4" SHANK

PART NO.	A	PRICE
C1214	3/8	\$14
C1215	1/2	\$18
C1216	3/4	\$20

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PART NO.	A	PRICE
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Getting the Word Out

As I mentioned in the last issue, communication with your potential customers is a key factor in the process of marketing your goods or services. Before you can

*As the owner of Grand Openings in Oakland, California, **Peter Good** manufactures doors. He also gives seminars at national woodworking shows on the business aspects of running a small shop.*

communicate with them, however, you have to find out something about their habits, so you can select a productive method of getting their attention. You have to find a way to insert your commercial message into their lives, without being too offensive about it. We are all bombarded with thousands of commercial messages of one type or another, every

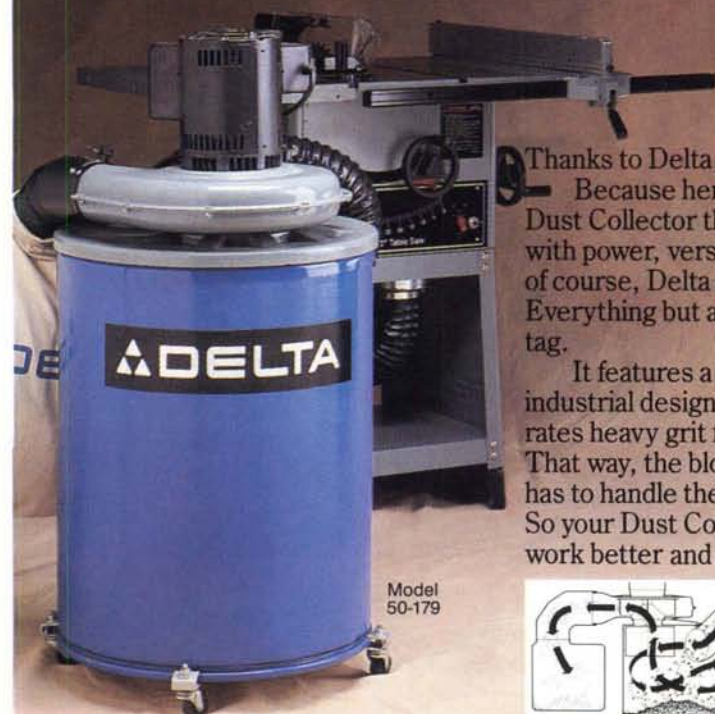
day. We have developed a certain degree of immunity to these solicitations, and most of them are quickly discarded by our mental "filtering-out" process. Once in awhile, though, one of the messages gets through, and may lead to our purchasing the product or service.

The first thing you need to do is determine your advertising budget. Business advisors often toss around figures about how much "should" be spent on advertising, but I tend to look suspiciously on such pronouncements because rules of thumb often don't work, and don't address the other monetary needs of an individual business. A better approach is to decide how much *you* can afford to spend each month for advertising and promotion—a standard, fixed amount that you can set aside for this purpose.

Sometimes, as in the case of brochures, there may be a large initial outlay for production of the advertising material. When this happens, the cost should be spread out over the length of time that the material will be used. For example, if you spend \$1,200 to have brochures printed and you expect those brochures to last you for a year, it works out to \$100 per month. If you also have an ad in the yellow pages that costs \$50 per month, a classified ad in a local paper at \$25 per month, and a booth at an annual craft fair for \$240 (\$20 per month), then you're spending a total of \$195 each month for advertising. If that seems like a figure you can comfortably handle, then it could be an appropriate figure for your advertising budget. If you want more business and feel that you could spend more, increase the budget. If \$195 is more than you want to spend, reduce it to what sounds reasonable.

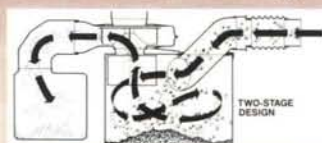
The next job is to figure out how to use that money to the best advantage. This will take a bit of time and research, but you'll be in a much better position to select your methods of reaching the buyers. Start by making a list of all the possible ways to spread the word about your business. Be creative. In addition to the obvious things such as yellow pages, newspapers and the like, consider craft fairs, flea markets, radio and TV (including cable), direct-mail postcards, free gifts, free loan of your products or use of your services in exchange for promotional consideration,

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press releases, membership in appropriate organizations where networking may occur, making presentations to groups, unusual business cards and so on. The more creative you can be, the more likely it is that your message will be seen or

"An important part of any advertising or promotional effort is to carefully monitor the results. Figure the total dollar value of the business you get from each ad."

heard in the sea of commercialism we live in. Also, because our world is one in which the individual is receiving less and less attention (something most people want more of), the more personal your approach is, the more likely you will be to make a sale because you will have created a direct bond between your product or service and your intended customer.

The next step is to plan your advertising approach, based on your budget limitations and the available possibilities for getting the word out. After investigating the costs and probable effectiveness of all the methods you can think of, decide what your plan of action will be.

You may want to use methods which are different from what other businesses are using. Cleverness counts a lot in this game. Think of what you can do to make your message appear to be different from all the rest. Think of how you can appeal to the buyers' emotions and touch them on some level that other advertisers don't. Through your advertising, talk to them on a deeper level and let them know that you understand their fears, needs and desires. Show them that you can supply what they want, at a price they can afford, and that they won't be disappointed.

An important part of any advertising or promotional effort is to carefully monitor the results. To do this, keep a log of the number of responses you get from an advertisement, and how many of those responses actually become customers. Record the average dollar amount spent by customers who responded to particular ads, and figure the total dollar value of the business you get from each ad. This all helps you determine which methods of advertising work for you and which don't. I should also point out that it's important to give any advertisement a fair test before making a decision about its effectiveness. In general, an ad should be tried for a year

(a typical business cycle) in order to accurately determine how effective it is. Keep in mind that repetition in advertising is very important; most one-time ads produce very limited results.

All advertising is a gamble, or at best, a calculated risk. Persistence and repetition, however, will often pay off if the basic concept of the ad is sound.

Your advertising plans should be flexible. If, after a fair test, a particular method does not produce the desired results, drop it and put the money into some other kind of advertising. Continuously re-evaluate your advertising methods and, because

nothing works forever, always be on the lookout for new ways to reach customers. Keep up with trends, new products, economic changes, technological advances and communications developments which could enhance your business prospects. Learn how to get on the same frequency as the buyers and talk to them in a language they understand. Most of all, let them know that their lives will be better with your products or services. Once you get their attention, keep telling them these things again and again. If you can prove everything you say, you may just end up being the only game in town. **PW**

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Biscuit Joiner Handbook by Hugh Foster, ©1989 (Sterling Publishing Co., 387 Park Avenue South, New York, NY 10016) 192 pp., paperback, \$14.95

When I see the word "handbook" in a title, I expect a volume in which all the information on the topic can be retrieved as quickly, accurately, and concisely as possible. Hugh Foster has created that handbook for biscuit joiners. As he points out, this tool is a relative newcomer to the woodworking world, and this comprehensive study and evaluation of the devices, their techniques and applications is the first that I am aware of. While a number of articles have compared the different tools on the market and discussed use of the equipment, none cover the material as completely as this book.

Especially valuable is the serious, in-depth evaluation given to each of the nine principal biscuit joiners on the market in terms that are both technical and understandable. Foster's reviews make it clear that each machine was tested to the full extent of its capabilities, and that every attempt was made to make the comparisons fairly. Even more to Foster's credit is the fact that while his obvious choice is at the top of the price range, his apparent second choice is just about at the bottom and costs only about 1/4 as much. When you decide to buy, I heartily recommend that you reread the evaluations to help narrow the field down, and then follow the author's recommendation of testing the various machines before purchasing.

I was pleased with the emphasis given to shop safety, and with the fact that even the most basic maintenance steps were covered in enough detail that the reader could handle the work on all machines without even having seen the tools.

The section on cutting techniques really sold me on the advantages of this tool over traditional joining methods. The presentations on setting up, on holding and locating methods, and on the sequences of cutting and assembling are all clearly stated and illustrated. Users will find this information helpful the day they read the book, as well as the day they run into a problem they can't quickly solve themselves. Many woodworkers try to get the most out of their tools by making modifications that are either unsafe or impractical, but Foster's modifications are reasonable, practical and cost-effective. His detailed knowledge of the tools enables him to recommend modifications that make intelligent use of components from one brand to enhance the utility of another machine, enabling the user to have the best of both.

What I especially like about the *Biscuit Joiner Handbook* is that it's an honest book written by a user for a user. It's one I can wholeheartedly recommend to both present and prospective owners of the tool.

Making Noah's Ark Toys in Wood by Alan & Gill Bridgewater, ©1988 (Sterling Publishing Co., 2 Park Ave., New York, NY 10016) 160 pp., paperback, \$9.95

If you've dreamed of making wonderful toys that children will play with and enjoy for more than a year or two, this is the book for you. It begins with a brief but fascinating look at the origin of toys, and then describes how to build four distinctly different sets involving increasing levels of difficulty. For those with limited tools and experience, the Pennsylvanian Ark is a nice starting point since the basic tool required is a coping saw. Whittlers will

enjoy making the animals in the Berchtesgaden style, while turners will have fun making figures for the Erzgebirge Ark. Finally, there is the Cremer Ark which combines both turning and carving.

Building an ark and filling it with animals can easily become a family project, as the figures need sanding and painting after they are cut to shape. There is probably no better way to introduce little ones to woodworking, or any hobby for that matter, than by having them participate at their level of ability. Creation of the ark and its inhabitants can be an ongoing project

"While some projects are of interest to woodworkers, I wouldn't spend the money to add this book to my library."

as beginners start with the basic set and then add more animals and figures as their skills improve. Patterns and instructions are clear, easy to understand, and may be used easily at all skill levels. I recommend this book to those who want to try their hand at making toys with assurance that their labors will be appreciated.

Classic Furniture Projects by Thomas H. Jones, ©1987 (Sterling Publishing Co., 2 Park Ave., New York, NY 10016) 257 pp., paperback, \$12.95

As I skimmed the table of contents to this book, I was pleasantly surprised—twenty projects are presented that can be built by woodworkers of just about every skill level, and each will be something you can be proud to have in your home. Even some of the projects clearly designated for those with limited skills and equipment are really good looking pieces of quality furniture and not the usual footstools and benches. Jones has done an excellent job of describing the work required with words and pictures that are neither boring nor pedantic.

The byword for this book is 'ingenuity' as shown in his development of three distinct credenzas by modifying a single basic design. The process he uses is easy to understand and can readily be duplicated. Jones' treatment of the design and construction of tambours is especially clear, concise, and still comprehensive. Those who've never built a tambour should be well satisfied with the results achieved by following his instructions.

For those who feel that building furniture is beyond their capabilities, or that a book with as broad a spectrum of woodworking skills as this one is not for them, let me assure you that this volume is worth the expenditure.

Country Classics by John A. Nelson, ©1989 (Stackpole Books, P. O. Box 1831, Harrisburg, PA 17105) 220 pp., \$16.95

Even if country style items are not your cup of tea, you will like John Nelson's latest book. Oh yes, there are the usual footstools and candle boxes often found in works of this type, but there are other designs that more than compensate. For example, the country watch hutch is an interesting piece that can be used to display a family heirloom, the picture frame project provides a "new" approach to an old problem, and the 1840's vintage whale shelf has a distinctly modern flavor that will suit any decor.

While the introductory sections on material selection and hardware are well written, the section on finishing really interested me. His descriptions of how to produce both a crinkle finish and smoke graining may be old hat to those into the country look,

Guest reviewer **Jacob Schulzinger** is an industrial engineer in the aerospace industry. Woodworking is his part-time business and hobby.

This book's projects include both those for home remodeling and for general woodworking. Geared primarily toward plywood built-ins, it has some interesting designs that make it worth considering. For example, the design for a cabinet having a curved top and front is fresh and the method of construction worth reading. Other interesting free-standing furniture projects in-

The clarity of the colored drawings is very good, and those who attempt any of the projects will have no problem working from them and the instructions that accompany them. While I wouldn't rush right out to buy it, this volume is worth your consideration, especially if you're interested in remodeling your home.

The book is interesting but of limited value, especially since some of the items shown are not readily available in the United States. While Sainsbury does an admirable job of presenting the information in words and pictures, I can't recommend this book to any but the most ardent of router enthusiasts. **PW**

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Installing Doors and Windows with Tom Law, ©1989 (Taunton Press, P. O. Box 355, Newtown, CT 06470) 60 minutes, \$29.95

I like a tape that previews the topics to be dealt with, as does this one—it gives me an orientation and some expectations to be fulfilled. Law promises to show us how he installs two types of windows, one a manufactured unit and the other an insulated glass unit. In the door department, he'll install a prehung exterior door; hang an interior door using jamb material, mortising hinges and boring for a lockset; and finally, he'll show how he deals with a real nightmare, a door hung in a jamb with everything out of kilter. He makes good on all these promises.

Certain demonstration highlights impressed me. For example, Law shows how to use shim shingles for window jambs in a way I needed to know about long ago, when I did it wrong. The installation of the fixed window unit was enlightening, especially his use of glazing tape and setting blocks. Law probably should have mentioned the source for these materials (your local glass shop) because builders' supply places usually don't stock them.

For me, the best part of Law's discussion on installing the exterior door came afterward, when he showed how to let a regular door sill into a subfloor in the old-fashioned way. Prehung sills receive different treatment. They simply fasten on top of the subfloor. Law also shows how to hang an interior door "from scratch." In addition to assembling his own jamb, he mortises the hinges and bores for the lockset. This one demonstration in itself is worth the price of the tape. Many tricks of the trade are revealed here. Finally, Law deals with a real problem opening, one with a head out of level, one jamb out of plumb, and the other jamb crooked. In short, his solution is to scribe the door and then pare it down to fit.

Tom Law does an excellent job in this video. He speaks with the authority that comes from a thorough professional background, and he holds the viewer's attention throughout. The video comes with a useful little booklet that more or less reiterates in written form what the tape contains, but also has plans for the cleverly-designed door bench Law uses to hold doors for planing and hinging operations. This is an outstanding tape, professionally produced and presented.

Installing Trim with Craig Savage, ©1989 (Taunton Press, P. O. Box 355, Newtown, CT 06470) 60 minutes, \$29.95; companion book, **Trim Carpentry Techniques**, 185 pp., \$17.95

After you've installed your doors and windows, you'll need to trim them out. Don't despair—Taunton Press has all the answers ready in this new video and book. Once again we have an experienced craftsman, Craig Savage, presenting his material as an on-stage instructor.

I began by viewing the video before perusing the book. I wanted to know whether the video could stand on its own, and it can. The rudiments are more than adequately presented in the sixty allotted minutes. But if you want to know more than I ever thought possible to know about trim, plus instructions on installing doors and windows, not to mention a wealth of inspiring photos, get the book. The book deserves a review of its own and we intend to give it one in an upcoming issue. If you do decide to buy the book, numbers referring to its

pages appear in various corners of your TV screen throughout the video.

In the video, Savage shows you how to make a *tight joint*, how to apply various trim styles, and how to solve the many problems that crop up when jambs, floors, and walls don't cooperate. He begins by showing the three basic joints—the butt joint, the miter joint, and the cope joint. I think the purpose of the cope joint should have been illustrated more thoroughly before introducing it, since most novices have no familiarity with it. The rest of the tape divides into three appropriate sections: window trim, door trim, base trim and ceiling trim.

Window trim styles assembled are a basic picture frame window using a clamshell casing, a contemporary stool and

"In addition to assembling his own jamb, he mortises the hinges and bores for the lockset. This one demonstration in itself is worth the price of the tape. Many tricks of the trade are revealed here."

apron, and a butted head casing with a stool. You'll learn some excellent tips and tricks on how to make things fit and last. And of course, he solves some of the more common problems created by irregularities in the jamb and wall surface. I was intrigued by phantom hammer noise in the background—I couldn't figure out where it was coming from. Does videotape suffer from audio print-through, I wonder?

After this follows an installation of worst-case door trim, where nothing is flush and everything is cockeyed. Then, back to windows again to install jamb extensions and fit a traditional window stool. I can't understand why the producer didn't stick to windows before taking up doors, but this doesn't detract in any way from the value of the information presented. Finally, Savage sets one-piece base moulding under less than perfect floor and wall conditions, sets three-piece base, and to wrap things up, introduces crown moulding installation. I can recommend this excellent tape to anyone who needs to learn professional trim work.

Building Your Next Home with a Future with John Pulasky, ©1988 (Production West Inc., marketed by Sunterra Productions, P. O. Box 20804, Billings, Montana 59104) 60 minutes, \$29.95

Our discussion of doors and windows leads naturally to a consideration of the latest concepts in home design—presented by this video. Its title seems a bit cumbersome, and I confess I really didn't understand the phrase "with a future" until the very end, when the meaning becomes clear. "With a future" implies a home that uses the latest technology and techniques to achieve energy efficiency and liveability levels that, hopefully, will keep it up-to-date for many years to come.

I was leery at first. In the titles, sponsorship credit is given to a number of corporate giants, among them Celotex and Vanguard Plastics. Usually this presages a sales pitch, but in this case my fears were unfounded. Product hype was very low-key, and the emphasis was placed on alternatives to conventional housing. For this purpose, examples and illustrations have been taken from educational, public, and private sectors alike, the goal being to show housing construction that is more energy efficient, healthier, more comfortable, and more affordable.

Alan Marks is a cabinetmaker in Carmel Valley, California, and a contributing editor to PW.

The tape begins with examples, including Purdue University's Griffin Home I project, a 2000 square foot home designed to be heated and cooled for \$400 yearly. Then follows a discussion of homes built in Ashland, Oregon, following parameters established by the "Super Good Sense House" program. Finally, a private company—Sunterra Homes of Billings, Montana—presents some of its viewpoints. After these general examples, specific considerations come into focus. The first is site selection, orientation and placement of a home, including how to take advantage of earth sheltering in combination with the sheltering effects of trees and vegetation.

A general discussion of insulation, windows, and doors follows, centering on what could be called the outer shell of the house. Always practical, the video points out how climate and fuel cost considerations should determine the extent of investment in the shell. You'll be shown examples of triple-insulated double stud wall construction, the all-out choice, and something new to me called the "strapped wall", a 2 X 6 stud wall with 2 X 2's or 2 X 3's nailed in horizontal bands on the inside to provide extra thickness for added insulation and nailing for the interior finish. Something else relatively new are the so-called "radiant barriers" used on interior walls and ceilings to reflect heat back inside. These have a double function. Not only do they help prevent heat loss in cold weather, but they reduce heat gain to keep the house cool on hot days as well. And here's an interesting fact mentioned about operating windows: casements provide the best seal.

The video compares three heat choices—electric baseboard, forced air, and floor radiant—in terms of original expense and

payback over a few years. The systems are ranked in terms of desirability—response time, visibility, service costs, efficiency, evenness of temperature, comfort, and whether or not they can also be used for air conditioning. With the advent of super-insulated, super-sealed houses, a new concern presents itself: air quality and adequate ventilation. When you seal in the heat, you also seal in air fouled by cooking odors, products of respiration, moisture, ozone from electrical appliances, spray-can propellants, to name only a few contaminants. Enter the Air Exchanger, a heat recovery ventilation system ducted throughout the house. Before the bad air gets exhausted outside, the majority of its heat is recovered efficiently through an exchanger and transferred to the incoming fresh air that replaces it.

Solariums are glassed-in, south-facing rooms that function to trap heat for circulation throughout the house. As the video points out, a solarium or sun-space should be used for other purposes than merely collecting heat. For example, put in a hot tub or a wood stove.

Wood or coal stoves are one of the considered alternative energy heating systems in the tape's final segment. The others are passive solar, active solar, air-to-air heat pumps and ground source heat pumps. The latter is a relatively new development which holds great promise for people building in more moderate climates. The earth itself is used as a source of heat, soaked up by a fluid medium pumped through a loop of buried pipe or tubing. Anyone considering building a home ought to avail himself of the information contained in this important tape. Consider it an overview and then prepare to augment its ideas with further research. **PW**

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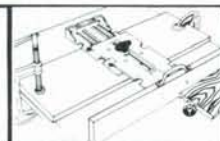
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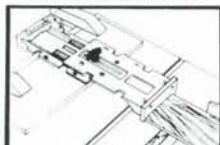
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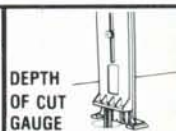
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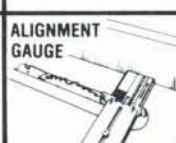
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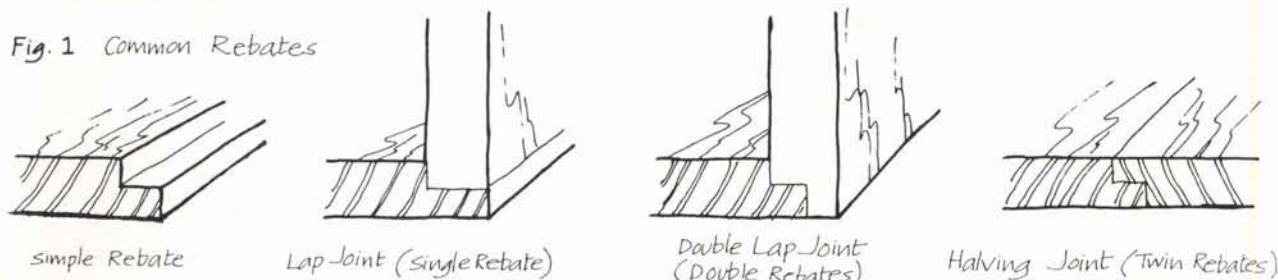
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The Rebate Plane

Fig. 1 Common Rebates



The word 'rebate' comes from the old French *rabattre*, meaning to beat back or reduce. This is the sense in the financial use of the word and also in woodworking—a rebate is indeed a reduction of the wood being worked on. The word tended to be pronounced more like rabbit by British woodworkers who first learned the technique from Flemish craftsmen several centuries ago. As a result, 'rabbet' is now the common spelling on both sides of the Atlantic—but 'rebate' remains *correct*, pronounce it how you will! This article deals mainly with tools originally sold as rebate planes, so I have chosen to stay with the older spelling.

Not A Moulding Plane!

What is usually perceived as one of the commonest of all moulding planes, the rebate plane is not actually a moulding plane at all. At least half of the old wooden planes floating around woodworking shops, flea markets, antique stores, and in the hands of collectors are probably rebate planes. It's true that most rebate planes are more or less the same size and shape as moulding planes, but a rebate plane does not make a moulding. Although it may be very useful in the preparatory stages of forming certain mouldings, its primary use—as its name indicates—is to form a rebate.

A rebate, as most woodworkers know, is the ledge formed along the edge of a piece of wood when a step-like portion is removed. Figure 1 shows the commonest forms of rebates used in everyday woodworking, including simple, double, and lap rebates. The rebate not only exists in its own right as a finished joint or structural feature, but also forms part of many more complicated assemblies. Making them is undoubtedly one of the basic operations common to all woodworking. It's hardly surprising, then, that there are so many tools in existence to help make it.

Nowadays most people will reach for a router fitted with a rebating bit, or even a simple straight bit, or take the piece to be rebated over to the shaper, router table, or table saw. Set up correctly and used with care, these tools can do a fast and exact job. But hand tools designed to make rebates can also be very efficient, and in some cases can form

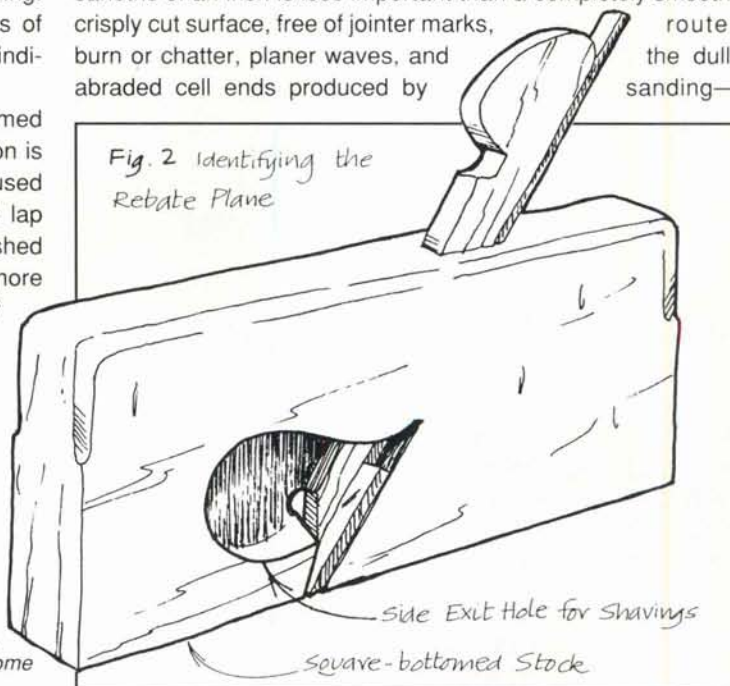
rebates that would be difficult if not impossible to make with machines.

For many people the end result is all important, but perhaps more than in many other crafts, woodworkers are attracted to the means as well as the end, and especially to the nature of the material they choose to work with. Although safety and economy often require it, I regret having to be distanced from my work and the feel and smell of my material by ear protectors, face masks, and all manner of guards and push sticks. It is a source of great pleasure to me to be able to feel, safely, the surface of the wood I am working on, smell the aroma given off as a fresh shaving curls quietly away from the surface, and hear the distinct but quiet noise made by well-sharpened planes and other hand tools.

In ultrafine quality work, the surface finish obtainable with a hand tool is invariably superior to that attainable by any machine—despite the machine's often superior accuracy. I am working with wood, after all, and accuracy to the tens of thousandths of an inch is less important than a completely smooth, crisply cut surface, free of jointer marks, burn or chatter, planer waves, and abraded cell ends produced by

router
the dull,
sanding—

Fig. 2 Identifying the Rebate Plane



Graham Blackburn is a furniture designer/maker in Rio del Mar, California, and the author of many books on woodworking and home maintenance including *Floors, Walls and Ceilings*.

no matter how fine the grit. If my finer surface is a trifle less exact, who will tell the difference after changing moisture conditions and time have had their effects on what is, after all, a living material?

For these reasons I still find myself reaching for a rebate plane—at least as often as I walk over to the table saw—and I am grateful to the craftsmen of past centuries who developed so many wonderful ways of performing one of woodworking's commonest operations.

Basic Forms

The simplest form of rebate plane is the standard 9-1/2" long wooden tool. It looks similar to a moulding plane in basic outline, but has a square-bottomed stock. Moreover, that it is not a moulding plane is evident from the distinctive exit hole (see Figure 2) cut in the left-hand side of the stock—which casts the shavings off the bench rather than allowing them to exit up through the top of the plane's mouth.

This side mouth is unique to rebate planes and one other special-purpose, non-moulding plane—the dado plane. Made by boring into the side of the throat with a tapered auger, this graceful shape is typical of the elegant simplicity evinced by so many old tools whose forms are the result of centuries of development.

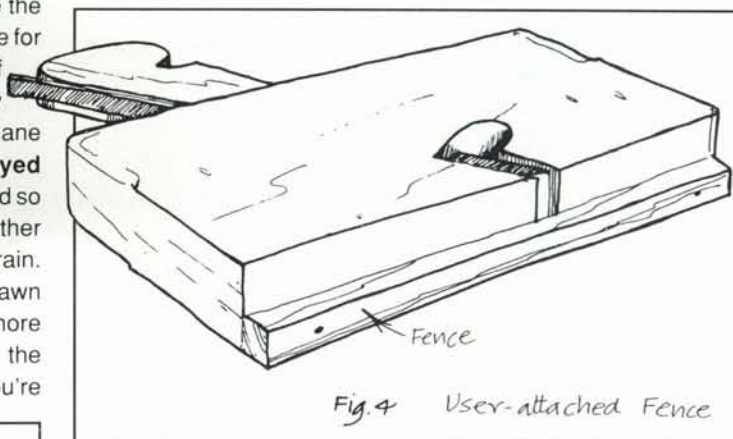
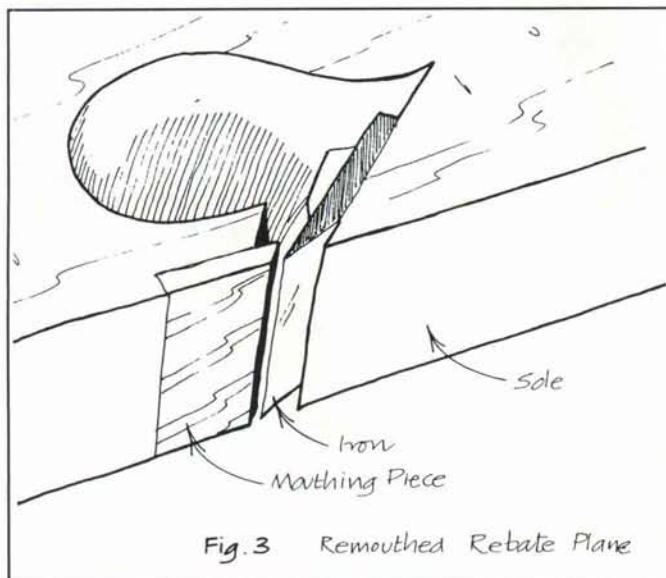
The basic model may be found in a variety of widths, from as narrow as 1/4" to as wide as 2". The cheapest models have the cutting iron set square across the sole of the stock. This is fine for straightforward rebates formed along the edge of a piece of wood with regular straight grain, but when cutting directly across the grain, such as at the end of a board, a rebate plane with a skewed iron—sometimes known as a **skew-eyed plane**—is a better tool to use. Since the iron is always skewed so that its trailing edge is towards the off-bench side, it has two other advantages besides that of more easily cutting across the grain. First, the leading edge helps keep the corner of the plane drawn into the corner of the rebate, and second, the shavings are more easily thrown off-bench, thereby preventing choking of the mouth. In fact, the majority of simple rebate planes that you're

likely to find now are those with skewed irons.

To make them work well, the mouth of the plane may have to be made smaller by remouthing, a simple process of inserting an extra piece of wood in front of the iron's cutting edge as shown in Figure 3. This becomes necessary when the sole has been worn down by use and constant jointing—a result of the fact that it's equally important to ensure that the sole is perfectly flat and perpendicular to the sides of the plane. If the iron is skewed, you must sharpen it carefully to maintain the correct skew, or it will not line up properly with the mouth or the sides of the stock.

A plane that has been repeatedly jointed (and remouthed) may be shorter (in height, not length) than originally made, possibly to the extent that the bottom of the wedge may have to be trimmed. But first notice how the bottom tip of the wedge is not simply cut square or finished to a point. It is shaped so that it presents no blunt edge to the shavings coming off the wood, instead directing them towards the curved mouth.

If these points are borne in mind, and the irons well sharpened with proper bevels, the simple rebate plane will perform easily and well. There are further levels of sophistication, however, that can make these tools even more efficient. These levels of sophistication can be user-added or can be found in superior factory-made models.

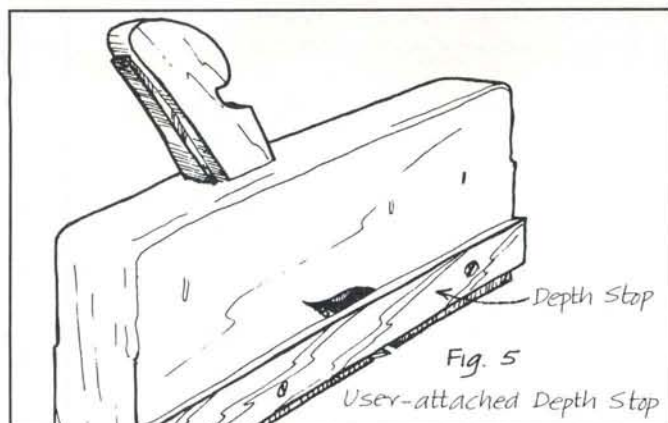


Fences and Depth Stops

The first thing that becomes apparent to the first-time user is that, unlike most moulding planes, the simple rebate plane has no built-in fence. Most attempts to guide the plane in a straight line along the edge of a board will result in a less than perfectly straight rebate. A skilled worker using a skew rebate plane can cut a narrow V-shaped groove close to the inside line of the rebate by tilting the plane to the right, and then using this groove as a guide for subsequent vertical passes, but the operation is tricky and easily led astray by strong-grained wood. Usually the solution is to clamp a straightedge to the work.

Since rebate planes are made in a variety of widths, it is also possible to use a plane of exactly the width required and fix a fence to the sole of the plane as shown in Figure 4. Assuming the edge of the board is true, this will produce a straight rebate, and indeed many old rebate planes bear evidence—in the form of nail or screw holes—of having been used in this way.

Illustrations by the author

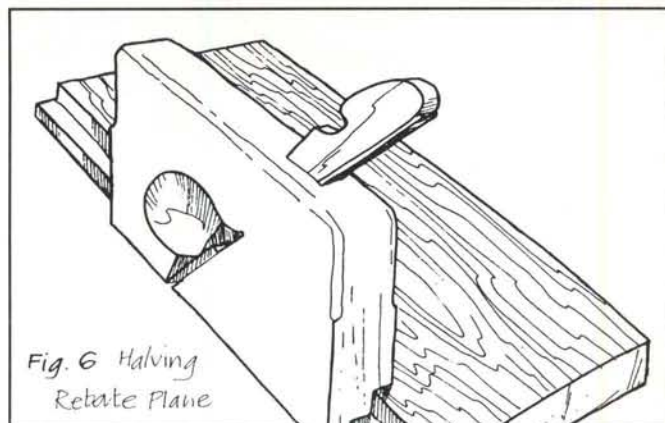
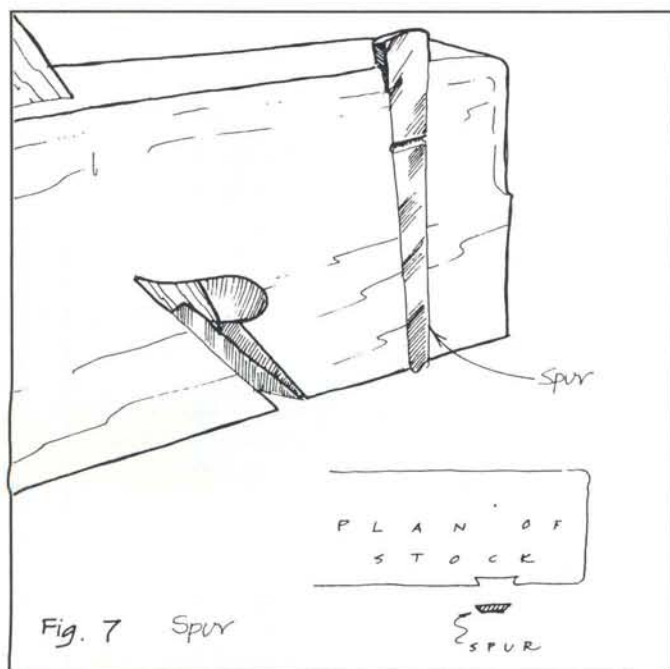


A similar problem may be encountered with regard to the depth of the rebate. Because the simple rebate plane has no depth stop, care must be taken in planing to the marked line if consistency is to be achieved. It is possible to fix a depth stop in the form of a narrow strip to the side of the stock, as shown in Figure 5. Many old rebate planes show evidence of this procedure, too.

If a rebate of a particular width and depth is to be made repeatedly, however, it pays to use a plane with a built-in fence and depth stop. Such a double-fenced rebate plane is known as a **standing fillister** (more on this coming up) or a **halving plane**. As the latter name implies, this plane is designed to cut a rebate whose depth is exactly half of the thickness of the material (Figure 6).

Spurs

The better class of rebate plane, especially the skewed version, was often fitted with a spur or tooth in the form of a narrow blade vertically dovetailed into the side of the stock just ahead of the cutting iron (see Figure 7). When properly sharpened (with an



inside bevel) and correctly adjusted, it cuts the fibers exactly in line with the inside edge of the rebate, thus ensuring a crisp inside shoulder.

Larger and Smaller Sizes

Rebate planes, both square and skew, have been made as long as 24". The advantage is the same as that of a jointer plane: greater accuracy when dealing with long boards. Although most rebate planes are fitted with single irons, some of these long versions have double irons.

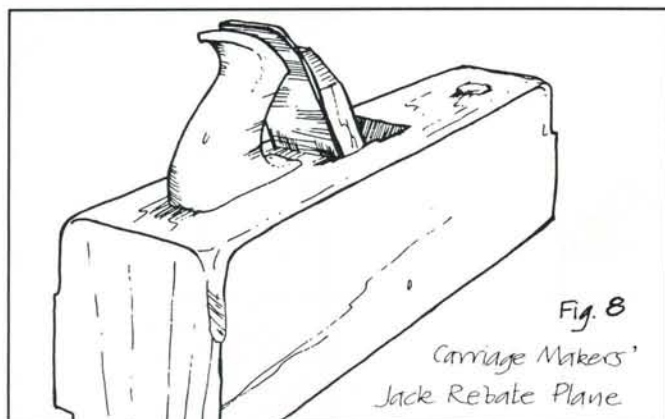
Long rebate planes were also made extra wide, approximating the width of a regular jack plane, and are known as **bridge builders'** or **ship carpenters' rebate planes**. All of these varieties may be found with regular **totes** (handles). Sometimes the handles are centrally mounted, but more often than not they are offset, being screwed to the side of the stock which is otherwise too thin to accept a mortised handle. At the other end of the scale—though rarer—are much smaller planes, some as short as 4". Most of these are related to the next major group: the carriage makers' planes.

Carriage Makers' Rebate Planes

Carriage or coachmakers' rebate planes comprise two distinct groups. The first resembles ordinary bench planes with rebates worked in the sole of the stock on either side of the iron (see Figure 8). Although such planes are listed in old makers' catalogs, many prove upon close and expert examination to have started life as regular planes that were reworked by their owners.

The second group is known as **T-rebate planes** since their profile, when held upside down, resembles the letter T. Although this shape makes cutting rebates in confined corners easier—leaving room for the fingers holding the side of the stock—and although many of the differently shaped soles, curved from front to back and side to side in a variety of radii, are undoubtedly designed for the tight, curved work that was necessary in coachbuilding, these T-rebate planes can also be extremely useful in fine joinery and cabinetmaking. They're excellent for operations such as cleaning out small, curved rebates in all sorts of non-rectilinear work. The irons are usually set at a steeper angle than in most rebate planes—which makes them especially suitable for hardwood—and the range of curves, shapes, and sizes is almost unlimited.

The majority of T-rebate planes are about 6" long, but smaller



versions, often with a tail formed from the end of the stock, are also fairly common (see Figure 9).

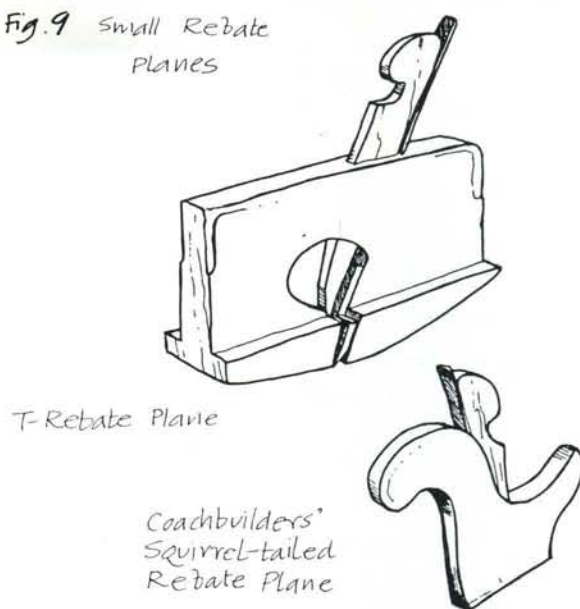
No law says a plane may not be altered by its user, and when done to good effect, such an alteration constitutes an equally valid tool. Of all the various user-made modifications found in different planes, that of turning a square-ironed rebate plane into a compass rebate plane is perhaps the easiest. Many compass rebate planes (Figure 10 below) are just such modifications, and it is impossible to tell them apart from factory made examples—yet such do exist (to the relief of the purist collector).

Fillisters

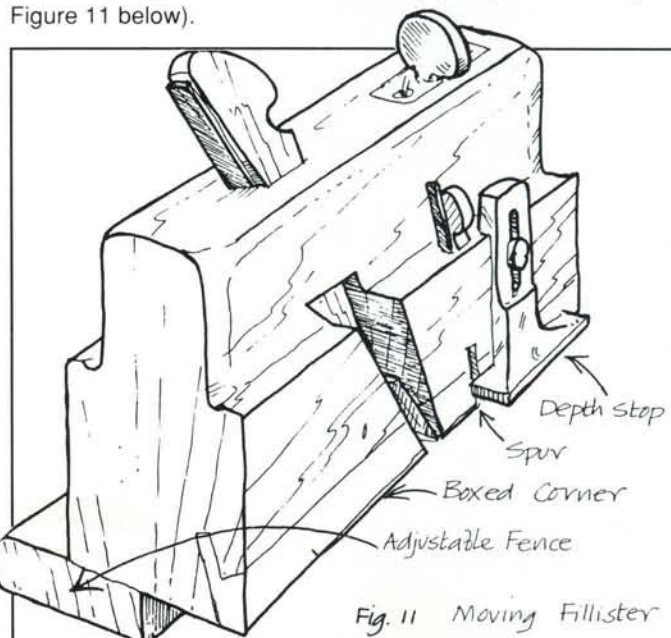
The fillisters may be called the aristocrats of the rebate planes, and indeed rival the king of planes—the plough plane itself—in quality and sophistication (see “The Plough,” PW #40, December/January 1988). The derivation of this peculiar word is unknown, ‘fillister’ being the older and more usual spelling in Britain, although ‘filister’ is also found in old tool catalogs. Since Stanley Tools called their early metal versions ‘filletsters’ this latter spelling has become more common in America, but with little apparent justification since the pronunciation remains the same.

Fillisters provide the advantages of fences and depth stops; the simplest kind, the standing fillister, has already been men-

Fig. 9 Small Rebate Planes

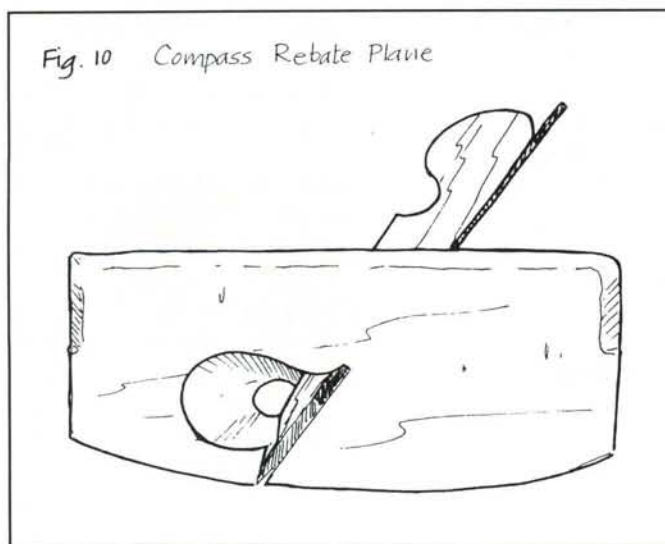


tioned. The standing fillister, as the name implies, stands fixed and allows for no variation in depth or width. A more useful tool is the **moving fillister**, whose fence and depth stop (if so fitted—not all moving fillisters have depth stops) may be moved (see Figure 11 below).



All moving fillisters have skewed irons and spurs. The fence, which in the simplest kind of moving fillister is fixed to the sole of the stock by two or three screws, and often seated in recessed brass-lined channels, is as wide as the sole and so may be adjusted to expose almost all or only part of the cutting edge. The iron does not usually extend all the way across the sole as with simple rebate planes, since the left-hand edge is necessarily always covered by at least part of the fence.

A more complicated form of moving fillister has a fence



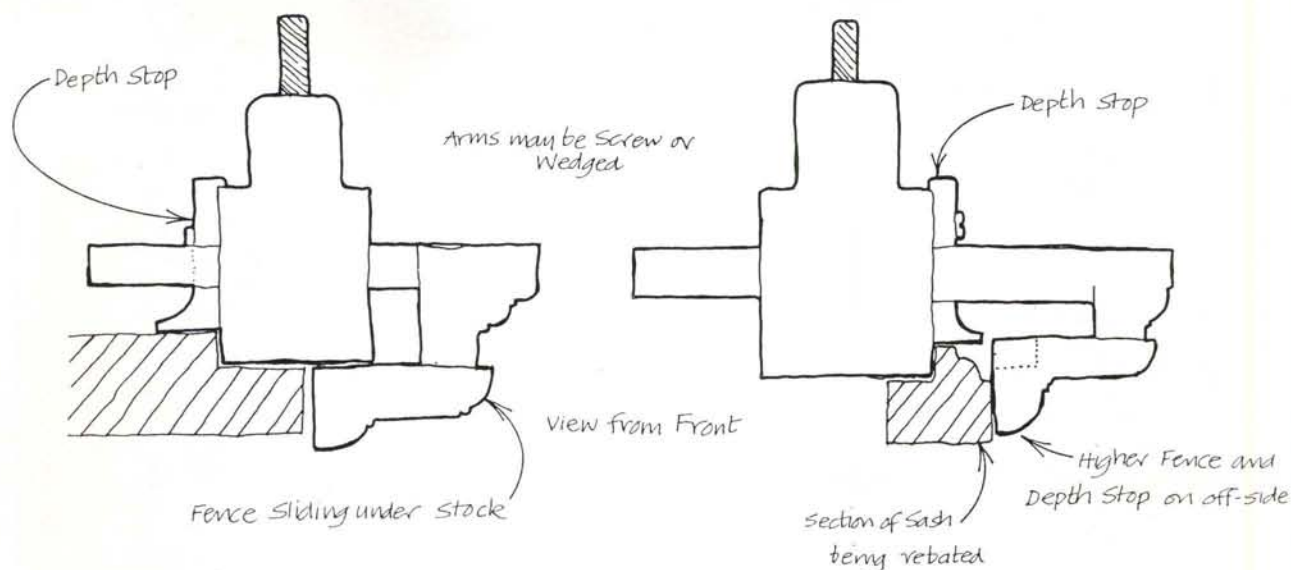


Fig. 12 Armed Moving Fillister and Sash Fillister

attached to arms which pass through the stock in the same manner as the arms of a plough plane. These arms may be held in position by wedges or wooden nuts operating on threads chased into the arms themselves.

Moving fillisters with fences adjusted by sliding arms may be further categorized into two distinct types: regular moving fillisters and **sash fillisters**. The latter is designed to cut the rebate needed in window sash, often formed after the moulding has been made. The moulding makes it difficult

for a regular fillister to find a surface against which to rest its fence—which, of course, must be on the side opposite the rebate. Consequently, the fence in a sash fillister is fixed on the opposite side and its top surface is recessed to accommodate the depth stop. Figure 12 above makes these differences clear.

Related Planes

One of the best ways of cleaning up a rebate is with the use of a small bullnose plane or even a shoulder plane. Sometimes, however, there's not much room for such large tools and a narrower one is necessary. **Side rebate planes** (Figure 13) were developed for just this purpose. Contemporary metal side rebate planes (both Stanley and Record manufacture a double-ended version) are sometimes adequate, but lack the length and height of the wooden side rebate planes which make using the latter so much surer an operation. Wooden side rebate planes are 'handed,' that is, they're made in pairs so that it's possible to work on either surface of a rebate from either direction.

Related to side rebate planes are a variety of other special-purpose rebate planes designed to clean up odd-angled rebates, V-grooves, and two sides at once.

Badger planes and **panel raising planes** are also forms of rebate planes in that they both form rebates, but for such specialized purposes that they are best treated separately and will form the subject of a future article.

Metal Versions

Towards the end of the last century there was an explosion of metal planes of all types, a few of which are still being made. Included in this category are various rebate planes beyond the scope of this article, but worthy of consideration by the interested user. Since even second-hand examples of these planes cost many times more than the common wood rebate plane, it can still be worthwhile to experiment first with the older versions. **PW**

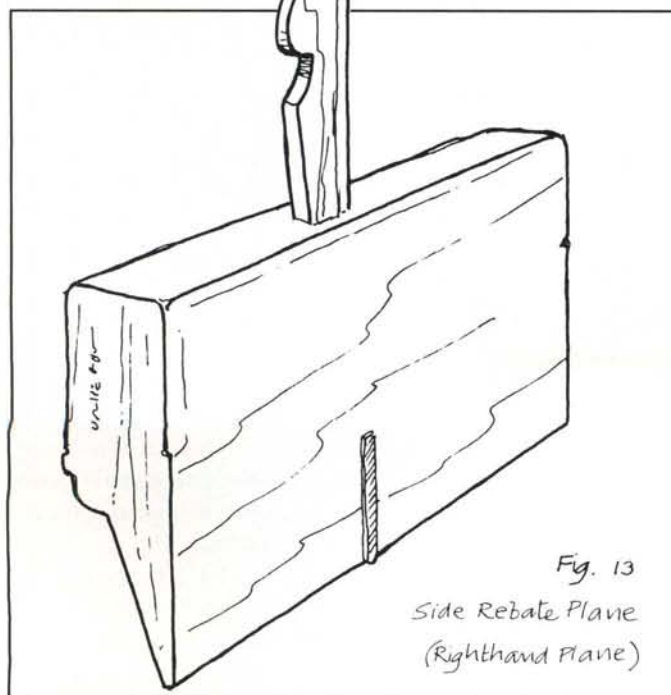


Fig. 13
Side Rebate Plane
(Righthand Plane)

Extension Cord Reel

by Don Kinnaman

Perhaps one of your handiest shop devices may prove to be this extension cord winder. Mine has seen twelve years of service, indoors and out, and despite the weatherbeaten look of the unfinished wood, it's still going strong. The dimensions can easily be altered to suit your shop's needs.

Begin by laying out and cutting three 8" diameter wooden discs (A) from 3/4" plywood. Birch will work well here. The two discs doubled up on one side (see the illustration) can be replaced by one disc cut from 2" stock if you like. It's cut thick in order to leave room for a pocket to hold the duplex outlet which faces out on the end of the reel.

Shape the winding drum (B) from a 9"

Don Kinnaman is a retired high school woodshop teacher from Phoenix, AZ.

length of 4 X 4 stock, or use a stack of 3/4" plywood discs, 4" in diameter, glued and nailed together. With a 1" bit, bore center holes accurately through the drum or stack of 4" discs. Make the axle (C) longer than the 14-1/2" needed, and trim it when you are finished. Then secure it through the center with glue and nails so it stays tight in the drum.

Stack the two side pieces (D) together, and cut both at the same time on the band saw. While the sides are together, bore the 1" axle hole so they line up properly. The winding drum will be kept centered between the side pieces with 3" diameter hardboard washers, 1/8" or 1/4" thick, at each end, and between the side piece (D) and the crank (E). First, bore the crank on each end for the axle and the handle (F). The crank can be pinned solid to the center axle or, with a little ingenuity, can

be made to swivel. Like the axle in the drum, the handle must be glued and secured solidly in the crank.

Now slip the axle through one 3" hardboard washer, through a side piece, through another washer, through the winding drum, through a third washer, and finally into the second side piece. Fasten the top and bottom pieces (G, H) to the sides using screws and glue.

Make sure that the hole required in the drum end for the duplex outlet will clear the side piece. Bore a 3/8" hole near the center so the wire can be fed to the receptacle from behind. Be sure to secure it directly to the wood to take any pulls. Wire the ground and attach the outlet plate. Add a coat of sealer; then apply lacquer, varnish or urethane.

You can reel out only three feet as you need it, or 100' or more, depending on the length of your extension. If you make the drum of greater diameter (and the side pieces correspondingly larger), you can add another duplex outlet on the same drum end. If you do, be sure to use 12 gauge wire. For smaller size wire, such as 14 or 16 gauge, stay with a single duplex outlet as shown in the drawing. **PW**

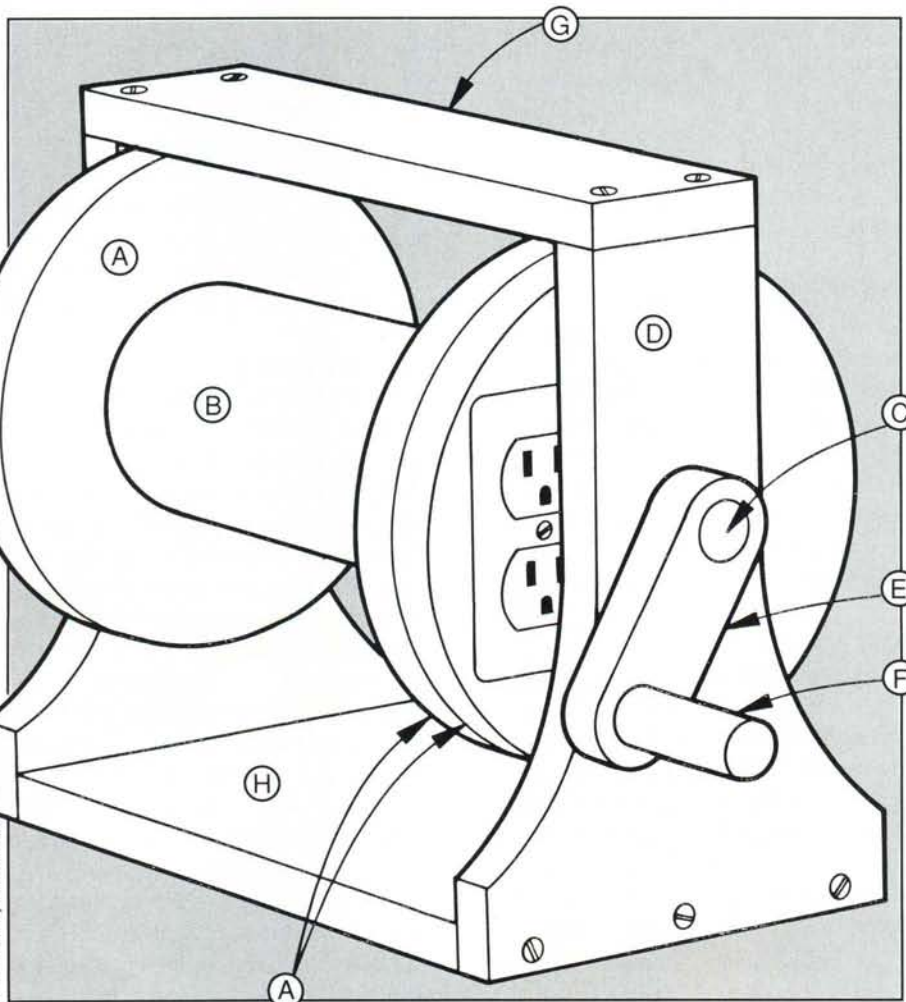


Illustration by Tom Larson

Extension Cord Winder

Cutting List

Qty	Part	Finished Size			Piece
		T	W	L	
3	A	3/4"	8" diameter		drum ends
1	B	4"	4"	9"	drum
1	C	1" diameter		14 1/2"	axle
2	D	3/4"	7 1/2"	10 3/4"	sides
1	E	3/4"	1 1/2"	4 1/2"	crank
1	F	1" diameter		2 1/2"	handle
1	G	3/4"	3"	13 1/2"	top
1	H	3/4"	7 1/2"	12"	bottom

Supplies

3	3" diameter hardboard washers
1	duplex outlet with ground
	wood screws

Finishing with Shellac

by Thomas Wisshack

There were craftsmen in the 1800's who were incredibly skilled with shellac, either French-polished or applied in very thin coats with a brush. Because shellac dries so fast, however, very few of us contemporary craftsmen have the patience to use it on a large piece of furniture. It has another disadvantage—it is very prone to damage from water and alcohol, as anyone who has worked with antique furniture knows. Even so, shellac is such a versatile finish and comes in so handy around the workshop that it deserves to be considered.

For the purist, shellac is available in flake form and comes in several grades. Dissolved in high quality denatured alcohol, it gives a state-of-the-art finish. Since I use such small amounts of shellac, I find the premixed kind sold in cans satisfactory. You can buy a very good quality shellac (Bulls Eye brand) from William Zinsser and Co., 39 Belmont Drive, Somerset, NJ 08873.

General Practice

It's a good idea to have both white and orange shellac on hand along with the highest quality denatured alcohol you can find. Begin by experimenting with shellac on scrap wood to get a feeling for how it works. Pour a small amount of white shellac into a glass jar. Though it is supposedly ready to use, you will have to add alcohol to it in order to bring it to a workable consistency. How much? There are no exact formulas, but a very simple test will tell you when you have it right. Flow a coat onto a piece of well-sanded scrap wood with a soft, pure bristle brush. When dry, most of the shellac should have soaked into the wood and disappeared, leaving only a sparkling residue in the open pores. You now have what wood finishers call a **wash coat** of shellac, the foundation for all good shellac finishes.

The main secret of success with this material lies in applying very thin coats and building them up to form a substantial surface. You may find that, if you plan to finish up with a coat of fine paste wax and if your piece will not be exposed to much abuse, one or two coats is enough. This will give you an open-pored finish that is very attractive and one that I personally prefer on many of my pieces. You can build up more coats, which will give you more protection and a somewhat formal look. Avoid applying the shellac too thick, which will give you a harsh shine and a gummy buildup. (This look has probably turned more people off to shellac than anything else.)

Decide from the start whether your project is suited to a shellac finish. Though it is not a good finish for a kitchen table top, it may be the ideal solution for a jewelry box, a mirror, a picture frame or even a small table that won't be exposed to hard use. The antique pieces that have survived from former times testify to the fact that with care, shellac will certainly hold up and even age to a beautiful golden color. If you have trouble brushing shellac onto a wood surface and don't seem to have the knack for it, there is a foolproof method for the amateur wood finisher, provided your project is relatively small. Quickly flow a coat of

shellac onto one surface of your piece and immediately wipe it off with a clean cloth. By thickening the mixture each time, you can apply several coats either as a final finish or as a foundation under other finishes.

The finish on the pipe box shown in the photo at right was done with shellac. Because it dries quickly to a virtually dust-free surface and has absolute clarity, shellac is ideal for such small reproduction work. To recreate the finish on the pipe box, first prepare the surface by hand sanding, with #320 and then #400 wet-or-dry sandpaper. Gently round all edges with worn sandpaper to give a soft, antique look. Don't attempt to cover your entire project with shellac in one operation—it may run and become difficult to handle. Instead, place the piece horizontally, and flow a wash coat of shellac onto the surfaces that face upwards. If some of the shellac happens to run onto the sides, wipe it off immediately.

In about fifteen minutes, you should be able to rotate your work and complete the remaining sides, until all surfaces are covered. Edges or cut out areas can be done with a pointed, soft bristle artist's brush. By wiping one side of your brush on the rim of the jar after dipping into the shellac and applying the liquid in quick, light touches, you should be able to avoid overlap marks and bubbles. In about an hour you can rub the wash coat down with #000 steel wool and create a glass smooth surface. Repeat this process, with one or two hours' drying time between coats, until you have built up three coats of shellac. For the second and third coats, add a small amount of the ready-mixed shellac to your wash coat mixture, so that each coat has a slightly thicker consistency. Let your project dry for about two days so that the shellac can cure; then give it a final rub-out as follows.

Begin by saturating a pad of #0000 steel wool in mineral oil. Sprinkle it with rottenstone powder and rub down all surfaces with moderate pressure. Check your progress by wiping off a small area with a soft cloth or paper towel, and avoid rubbing through the finish (be especially careful on the edges). In a very short time you will have a beautiful, hand-rubbed shellac finish. Remove all traces of the oil and rottenstone. In most cases nothing further will need to be done to the wood.

Special Effects

For an antique look, you can "spice" white shellac with a small amount of orange shellac. Begin by adding only enough orange to slightly change the color of the white, and experiment on a scrap piece of wood. Play with the proportions until you get the desired effect: a slight amber tone to the wood. The photo above far right, shows a mahogany and satinwood mirror that was treated with this solution and later antiqued. Here's how you can give your project the same finish. Start by applying three coats of shellac exactly as I described before, but spice the solution with progressively more orange shellac. The final result should be a rich amber tone. If it is glaringly orange, strip it off and begin again. You probably put too much orange shellac in the mixture. Let the piece dry for several days or a week; because orange shellac is less refined than white shellac (the white being a more processed version of the raw material that is orange shellac), it may contain impurities which impair the drying process.

This time, omit the steel wool and make a **wood finisher's ball** by surrounding a wad of cotton with an old piece of T-shirt material and tying it with a rubber band. Dipped in mineral oil and sprinkled with rottenstone powder, you now have a classic wood

Thomas Wisshack is a furniture maker, restorer, and finisher in Galesburg, Illinois.



The natural beauty of the figured mahogany in this pipe box (made by the author) is at its best with a clear coating of shellac.

finishers tool. (The traditional finishing method known as French Polishing uses a "rubber" such as this. The methods described here can be said to be variations on the painstaking French polishing process, modified for our modern tastes.)

The paste that is formed by the mineral oil and rottenstone powder—together with some elbow grease—will bring the surface to perfection. After removing the residue, follow up with a coat of Georgian Mahogany Staining Wax. In about an hour you can buff it off and prepare for the final step. To do this you'll need to find someone with a coal furnace or a wood burning stove. Gather a small amount of black soot in a tin can and dip a fresh ball of cloth into it. "Dust" the surface of your project with the soot, working it into tight corners or carvings with an old toothbrush. With a wax-impregnated rag, vigorously burnish the surface of your piece, leaving the soot only in the intricacies. With a little practice you can rival the look of an antique original.

Other Uses

One of the great advantages of shellac is its compatibility with other finishes and techniques. If you have used an oil stain on a piece of furniture and are considering putting an oil finish over it, a wash coat of shellac will prevent the stain from "bleeding" or "melting" off as you apply the finish. After a light rub with steel wool you can apply the finish of your choice.

Another example of shellac's versatility is also related to staining wood. If you are afraid the wood on your project will soak up too much stain or become blotchy when you apply it, a wash coat of shellac may be the answer. This will reduce the amount of absorption and give you more control over the final color. On



Photos by Mike Godsil

The author's mahogany and satinwood mirror has been given several coats of white shellac, spiced with orange shellac for an antique look.

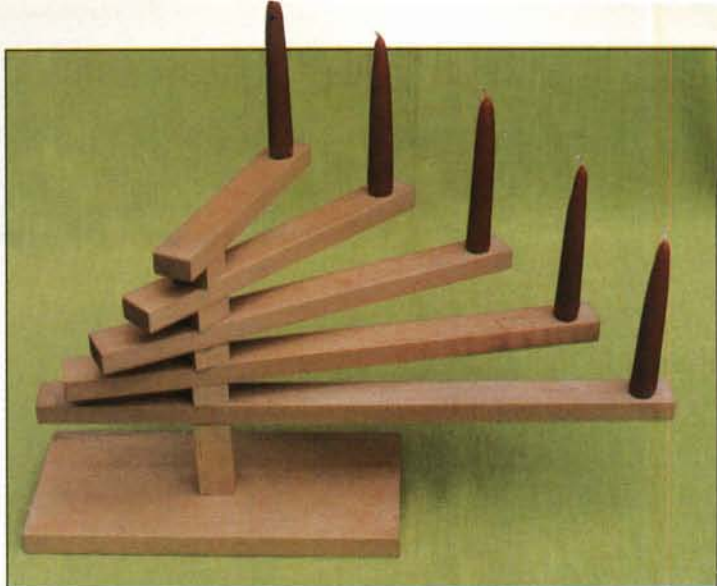
pine, a wood that seems to give craftsmen particular trouble when staining, the wash coat of shellac can sometimes be tinted with a small amount of orange shellac, as described earlier. This has the effect of mellowing and softening the wood grain, so that the stain will react less harshly with it.

Remember that when you brush shellac onto a wood surface you must use a light touch and cover the wood in one pass before moving on. Chances are you won't get to go back over it since it dries so quickly, so practice until you've mastered the technique. Don't hesitate to remove a shellac finish with pure alcohol if you are not happy with it; your second attempt may give you the results you want, and traces of shellac left on the wood sometimes act as an aid in creating certain antique effects. If a coat seems especially rough, rub it down with a worn piece of #400 wet-or-dry paper instead of the steel wool. A fine white powder means that the shellac is dry.

You can buy shellac in aerosol cans, which is very handy for misting a coat over a piece that has been given an oil stain. This serves to isolate the stain from subsequent finish coats and is often much easier than brushing on the shellac. Shellac is compatible with a number of finishes. Provided it is put on thin, it makes a good foundation under oil and synthetic varnishes (including some polyurethanes) and will bond with penetrating finishes. It should not be used under lacquer.

Anyone who has worked with antique furniture knows how indispensable shellac is for repairs and matching up old finishes. I would never recommend shellac for all your projects, but on the other hand, I would not want to be without it in my shop. **PW**

A Pair of Folding Candelabra



by Warren Asa

When Thomas Edison invented the incandescent light bulb, many thought he'd stamped "ancient history" on the kerosene lamp, the gas light, the whale oil lamp, and the candle. Of the four, the candle, of course, refused the label. Just as beeswax and beef tallow have been around since the dawn of history, so the candle preceded these other light sources, and has certainly outlasted them, for there's scarcely a home without several. Whether for decor, dining or emergency lighting, the candle seems a permanent fixture in our society.

The Butcher, the Baker...

I suspect most woodworkers have turned a candlestick holder at one time or another, but for the candle to truly come into its own, it deserves a candelabrum. A large candle holder looks wonderful, with its many points of light penetrating the darkness, but storage can be a problem. The two shown here are designed with a storage solution in mind—when not in use, they fold up. One folds completely flat, the other nearly so, but can be completely disassembled in seconds for really tight storage. Both candelabra can be set up in a variety of ways. One design features curves, the other straight lines, so take your pick, or make them both. Each is a one-evening project, so find some interesting wood and get started!

Warren Asa has been whittling and woodcrafting since his scouting days. He specializes in native American folk craft.

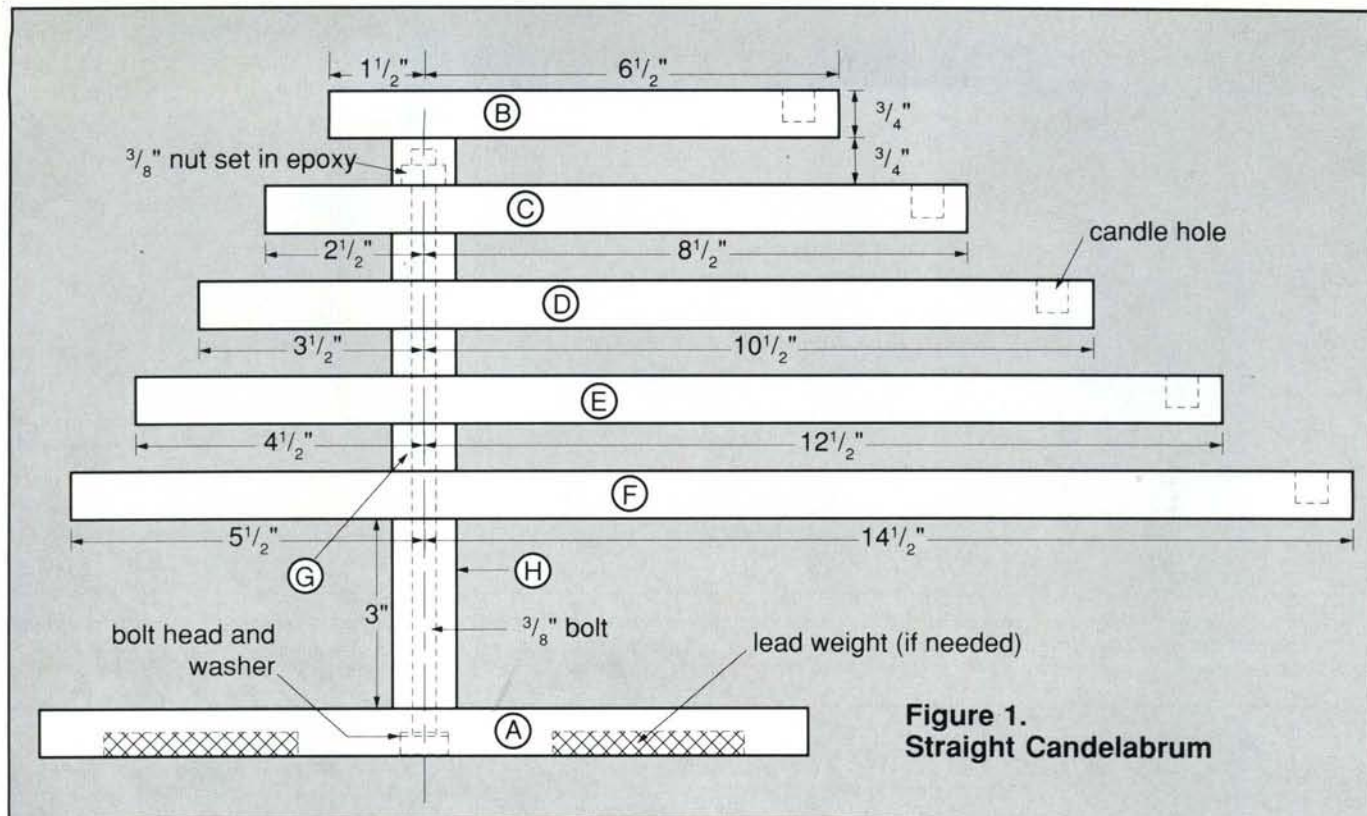
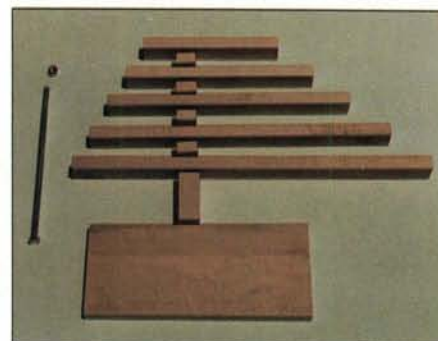


Figure 1.
Straight Candelabrum

Straight Candelabrum

The first design consists of a base (A) with a column incorporating five arms of different lengths (B, C, D, E and F), each supporting a candle, and five spacers (G and H). You can vary the number and size of the candle arms if you like, but I've found the design here to be most handsome. I used hard maple, but any cabinet quality wood is suitable. First saw and sand all the pieces to size. If the base doesn't appear to be heavy enough, epoxy some lead in a hollow on the underside. Next, drill the

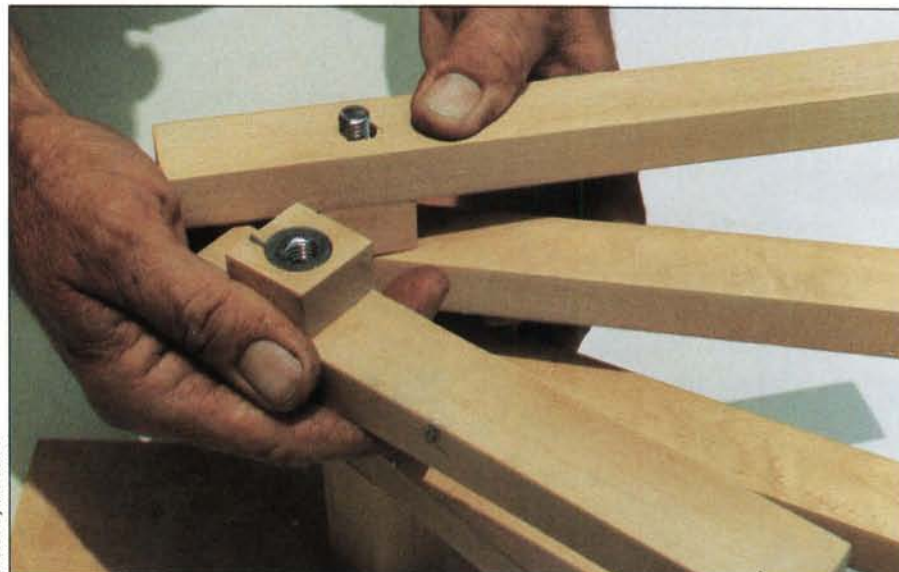
holes for the 3/8" bolt that holds everything together. Make sure it's fully countersunk in the bottom surface of the base. Then countersink and epoxy a 3/8" nut in the bottom surface of the top spacer (G). Stuff the hole in the nut with waxed paper to protect the threads from the epoxy. Cut the bolt to length and drill the holes in the arms for the candles (see the sidebar on the following page). Finally, glue each spacer to the arm above it, and when the



In the photo above, all the parts are laid out ready for assembly—or storage. Below, you can see—embedded in the top spacer—the nut that will hold the entire candelabrum together.

Straight Candelabrum					
Cutting List					
Qty	Part	Finished Size			Piece
		T	W	L	
1	A	3/4"	5 1/2"	12"	base
1	B	3/4"	1"	8"	arm
1	C	3/4"	1"	11"	arm
1	D	3/4"	1"	14"	arm
1	E	3/4"	1"	17"	arm
1	F	3/4"	1"	20"	arm
4	G	3/4"	1"	3/4"	spacers
1	H	3/4"	1"	3"	bottom spacer

photos by the author





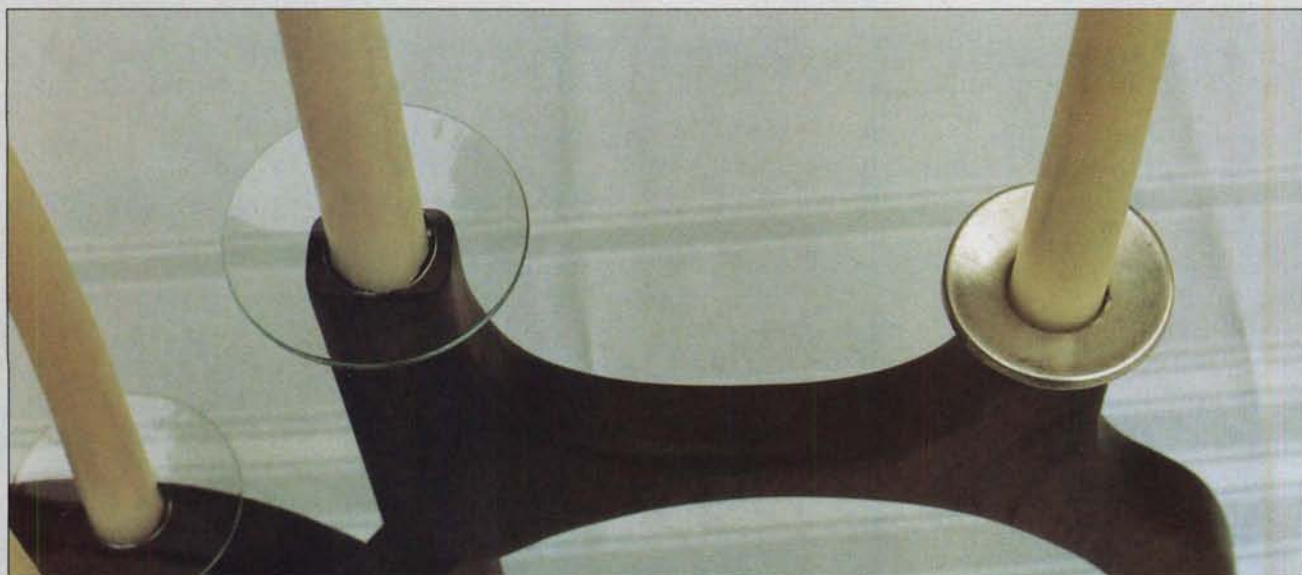
photos by the author



The wings of this candelabrum can be set up in a number of ways, as the two photos above show. With or without the drip guards pictured below, candelabra add style and grace to formal dining or holiday table arrangements.



The curved candelabrum folds flat for easy storage. The grain pattern makes it clear that all three wings were cut from one piece.



About Candles

Years ago at a university banquet I sat next to a professor of engineering. We got to talking about standardization, and he allowed that members of his profession around the world had standardized just about every replaceable object—except candle bases. With that in mind, what size should you drill the holes for your candles?

By far the best advice is to purchase a supply of candles, measure the base diameter, and drill the holes in your candelabra to accept those particular candles. I've found them as thick as 1" in diameter at the thickest part, down to

13/16" measured at the same point. And there are smaller candles of 5/8" and 1/2" diameter. Suffice it to say, the professor was correct—be prepared to do some trimming.

What candles are made of, and how, varies, too. Most are paraffin, which produces a good, inexpensive candle, but one that may drip. If you'd like to avoid the dripped look, or scraping it off your candelabra, spend a bit more for beeswax candles. Candles cast from molds drip more than dipped ones, which also cost a bit more. However, under certain conditions—especially air drafts—even the

best candles will drip. So what's a person to do with candelabra, like those presented here, that don't lend themselves to large drip cups? The photo above shows the two best ways I know of catching drips on candelabra. They're called *bobeche*s. One is a glass or plexiglass collar surrounding the candle, while the other is a metal socket that includes a drip cup. Plexiglass guards are available from hobby shops and craft suppliers. The metal socket and drip cup is available from Constantine's, 2050 Eastchester Rd., Bronx, NY 10461, tel. (800) 223-8087.

Figure 2. Curved Candelabrum

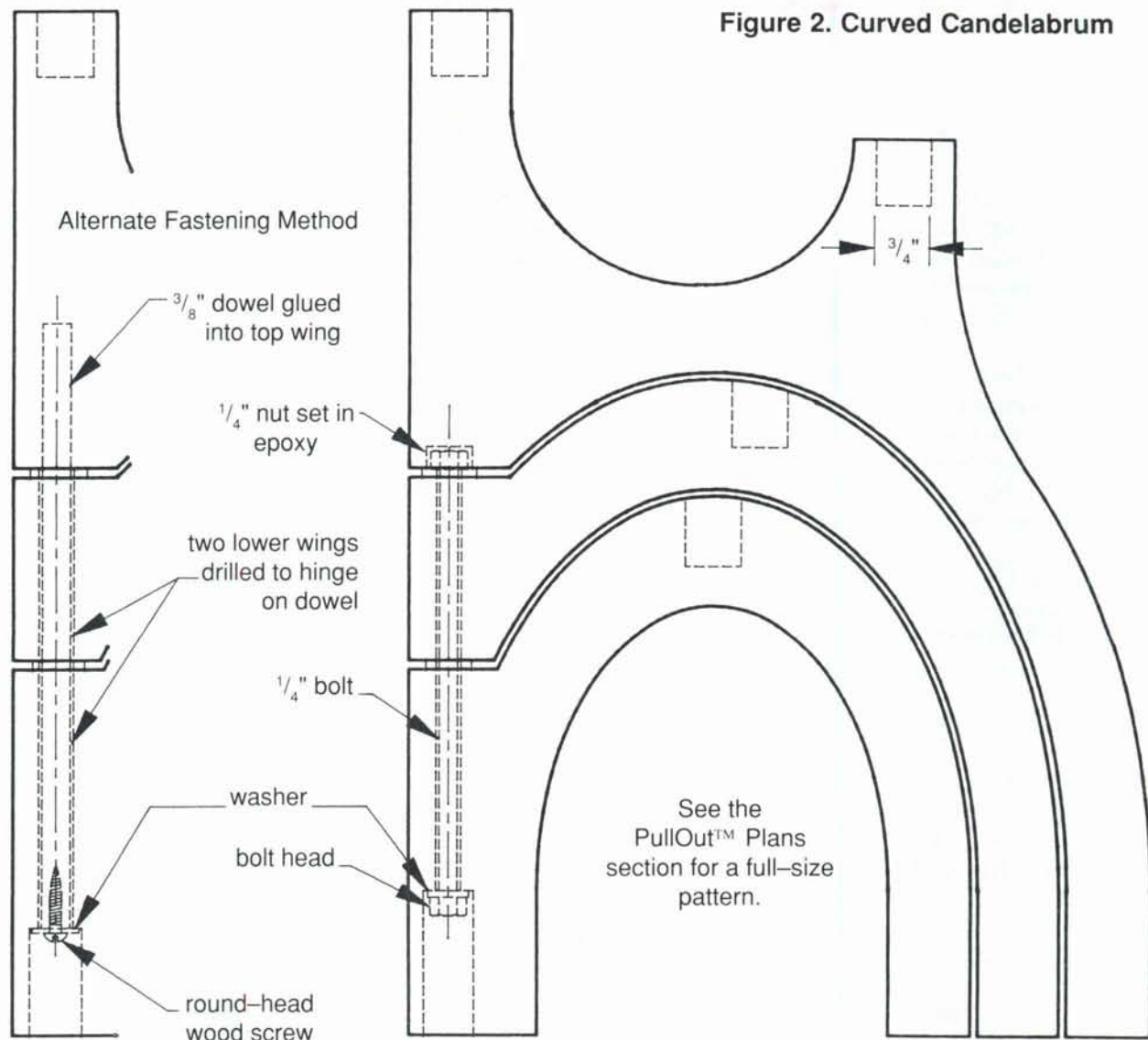


Illustration by Tom Larson

glue has set, assemble all the pieces. Turn the top arm/spacer subassembly until all the subassemblies are snug but still capable of being adjusted to various positions.

Curved Candelabrum

The three wings of my curved candelabrum are made from a single piece of 4/4 walnut left over from a cabinet top, but again, any quality wood will do. You'll find a full-size pattern for this project in the PullOut™ Plans section in the center of the magazine. I'm a fan of the band saw, so I did all the cuts on that machine, but a scroll, sabre or coping saw would be just as effective.

After the three wings are cut, drill the holes for the bolt that holds everything to-

gether, as well as the holes for the candles. Countersink the bolt head fairly deep into the bottom surface of the lower wing. Round all the edges to enhance the candelabrum's gracefully curved look.

Next, epoxy the 1/4" nut in the base of the top wing and cut the bolt to length. Although they're not absolutely necessary, I placed metal washers between the wings. Tighten the bolt only enough to hold the pieces in place. An alternate method of connecting the wings is to glue a 3/8" dowel into the bottom of the top wing. Then drill the other two wings so they hinge on the dowel. A round head wood screw and washer, deeply countersunk in the lower wing and screwed into the dowel end, will hold everything snug.

Finishing

Many different finishes are possible. I hand-rubbed the curved black walnut candelabrum with a mixture of boiled linseed oil, turpentine and beeswax. The maple candelabrum received two coats of paste wax rubbed in thoroughly with a clean cloth. Paste wax is an easy finish to apply and, because it's a natural lubricant, makes sense in a project where wood rubs against wood. After the wax has dried for a few hours, rub it again to bring out the wood's natural beauty. Candle wax drippings seem to stick to all finishes, but on these two, no harm is done when you scrape them off. Just rub with a cloth and they look as good as new. **PW**

How to Make Smooth-Sliding Drawers

by W. K. Alexander

From time to time, many of us undertake projects that involve drawers. Whether you're building a small nightstand or a complete set of kitchen cabinets, you'll want the drawers to operate smoothly and effortlessly for years to come. The drawer construction techniques described here will assure just that. The instructions assume that you'll be building your drawers from scratch and, with the possible exception of store-bought pulls, not using any manufactured parts, such as metal drawer slides.

Depending on the project's design requirements, there are several different approaches to building the drawers themselves, which I'll cover later. The real key to smoothly operating drawers, however, lies in the mating surfaces that support the drawer in the carcass. In the simplest kind of drawer/carcass construction, the drawer rides on two wooden cleats attached to the side of the carcass. This arrangement works fine for small, lightly loaded drawers, but not for large or heavily loaded ones. The slide/track combination I'll describe here is a much better way to go, provided you form and install the parts accurately so the assembly slides freely without undue play.

The illustrations give the basic assembly details for the slide/track combination. The dimensions and positioning shown are typical for medium-size drawers, such as those used in most dressers and kitchen cabinets. Drawers over 40" wide may require two slide/track assemblies, positioned several inches in from each side of the drawer.

The assembly shown will easily provide two-thirds extension of the drawer—if your design calls for full (100%) drawer extension, you'll need a more sophisticated arrangement, such as a fully extending metal track assembly.

The moving part of the assembly, which I'll call the slide, is attached to the drawer bottom, as shown in Figure 1. The

fixed part, or track, is installed in the carcass (Figure 2). I prefer to make this assembly from hard rock maple, but you can use any hard, tight-grained wood that can be sanded to a silky smooth finish. Just make sure that the wood you select is thoroughly dry and straight-grained.

You can make the track and the track base from two separate pieces, as shown in Figure 4, or machine them as one piece. Depending on the carcass design, one end of the base fits into a notch cut in a vertical or sometimes horizontal support attached to the back of the carcass. The other end of the base is attached to the rail

on the face frame of the carcass with 1/2" angle brackets.

The top edge of the track base should project 1/16" above the top edge of the rail, as shown in Figure 3 on the facing page. The underside of the base serves as a rubbing strip for the back of the drawer beneath, which prevents it from tilting downward when it is pulled out more than halfway. You'll need to install an additional rubbing strip for the top drawer in the carcass, as shown in Figure 2 below.

In order for the slide/track assembly to operate smoothly, the carcass must be assembled perfectly square and the track

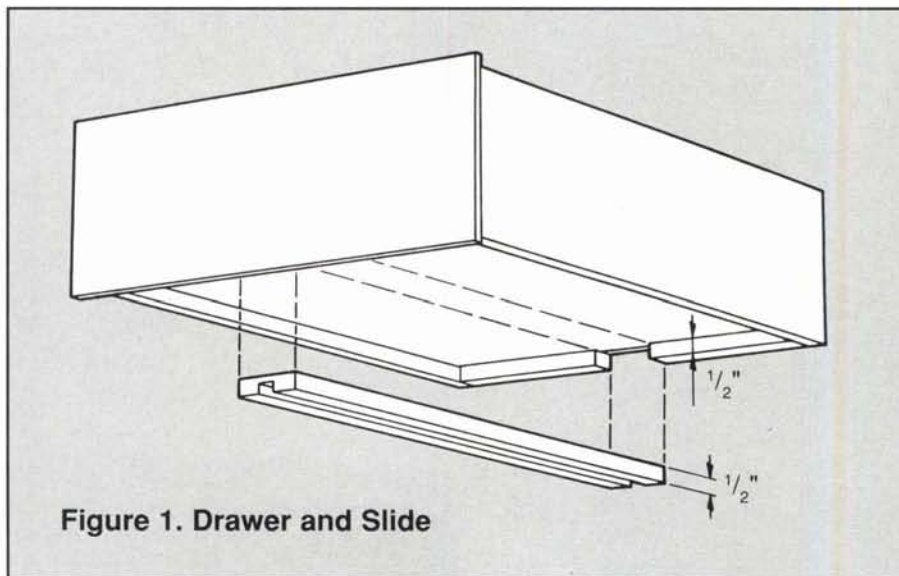


Figure 1. Drawer and Slide

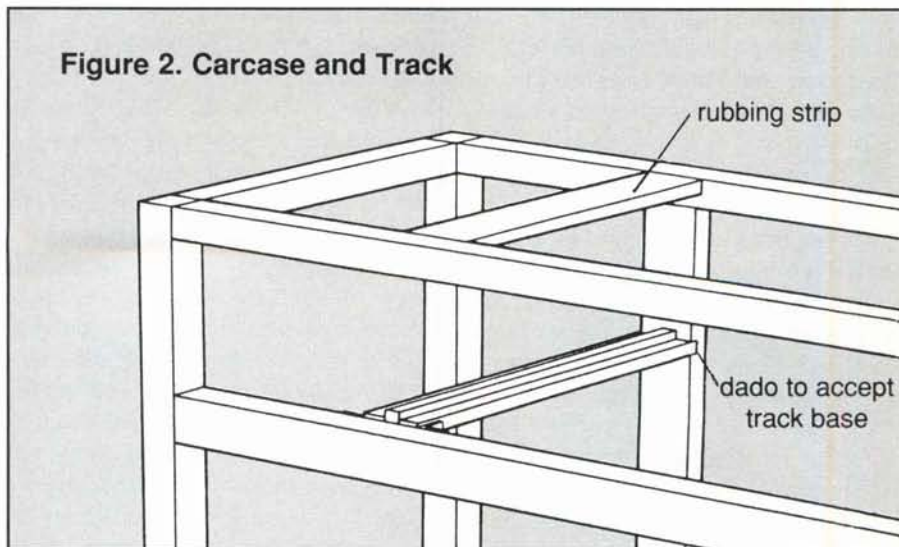


Figure 2. Carcase and Track

W.K. Alexander is a woodworker from Richland, Washington.

Illustrations by Tom Larson

base installed perfectly square and level. Make sure to dado the rear vertical support such that it matches the $1/16$ " rise at the front of the track.

Lay out and cut the slot in the drawer slide so that it provides about $1/16$ " clearance at the top and $1/32$ " clearance at each side of the track, as shown in Figure 4. The overall thickness of the slide should equal the depth to which you recessed the drawer bottom ($1/2$ " in the Figure). The slide will then be installed flush with the bottom edge of the drawer back piece. Notch the drawer back as shown in Figure 1, then tack and glue the slide to the drawer bottom.

After installing the slide and track pieces, sand the mating surfaces as smooth as possible, then rub them with a bar of pure soap such as Ivory. I like to keep a bar in the shop for lubricating sliding wood surfaces as required.

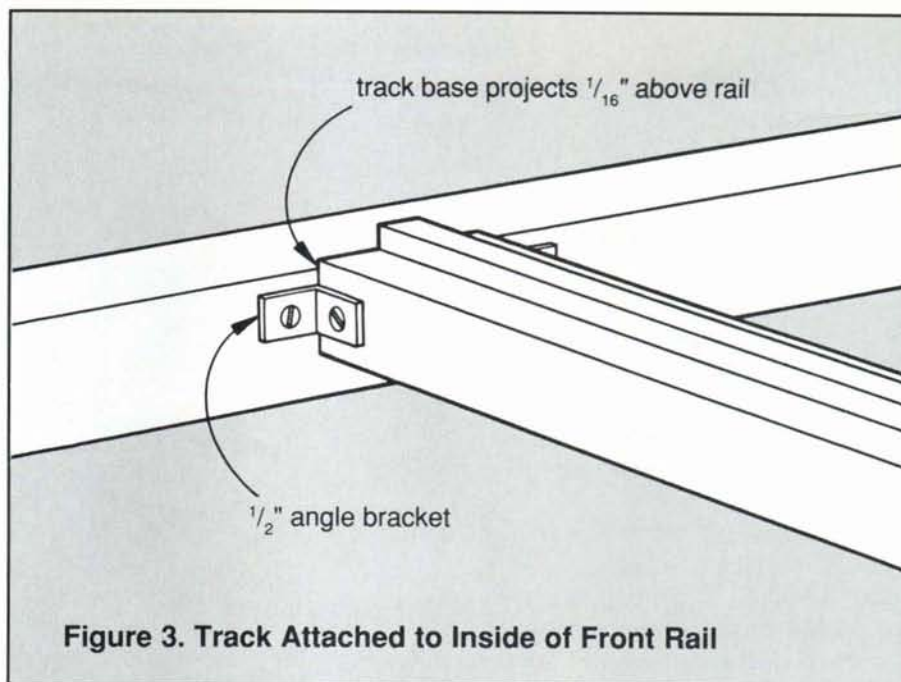


Figure 3. Track Attached to Inside of Front Rail

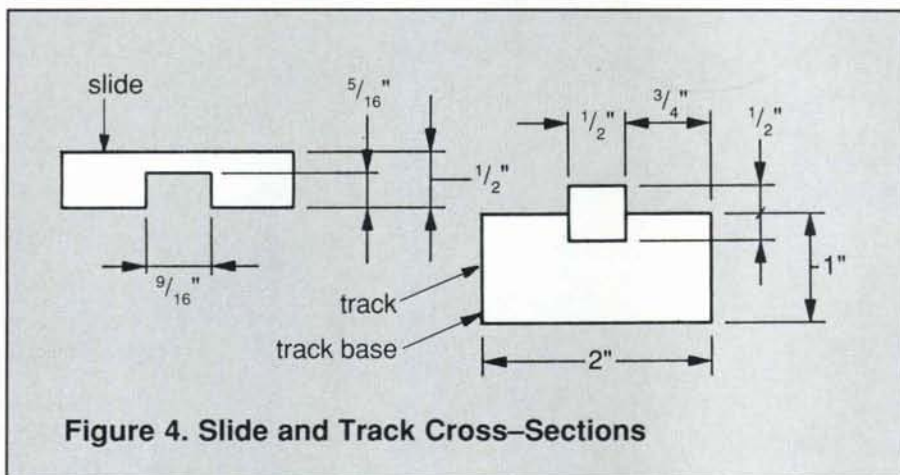


Figure 4. Slide and Track Cross-Sections

More Tips on Drawer Construction

Depending on the design of your project, you can make the drawers either with flush-fitting or lipped fronts to conceal the opening. If you choose flush drawers, you may need to install a stop block in the slide to prevent over-insertion of the drawer in the opening. If you have the tools and know-how, you can assemble the drawers with dovetail joints, but I've found that simple nailed and glued joints as shown in Figures 5 and 6 give adequate strength.

I usually make the front and back drawer pieces from $3/4$ " stock, the sides from $5/8$ " material, and the bottom from $1/4$ " plywood or tempered hardboard (Masonite®). Grooves cut in the back, front and sides hold the bottom loosely to allow for small dimensional movement in the wood due to changes in humidity. For the same reason, I prefer to use a good grade of hardwood-veneer plywood for the carcass because it is less affected by such changes. When building the face frame for the carcass, allow clearance at the top and sides of the drawer opening to provide for such dimensional changes. About $1/16$ " in dry climates and $1/8$ " in humid climates should suffice. You can use lipped drawer fronts if you need to cover any loose fitting required. When practical, leave the back off the carcass until the drawers are fitted to provide easy access for making any final adjustments to the drawers. **PW**

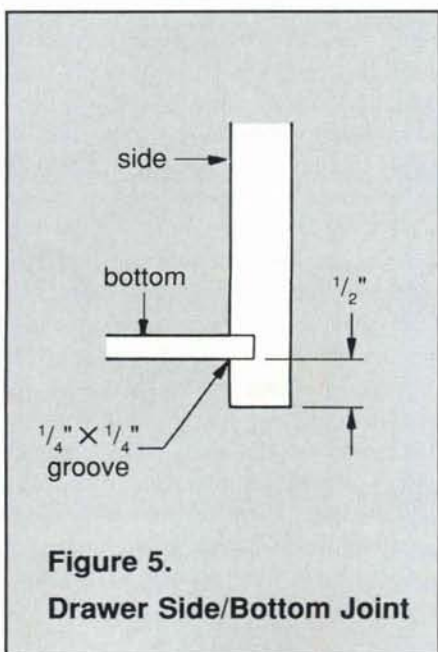


Figure 5.
Drawer Side/Bottom Joint

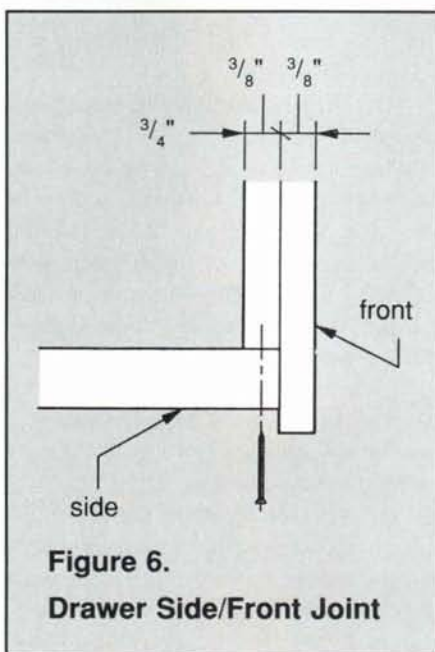


Figure 6.
Drawer Side/Front Joint

Poplar

by Ken Textor

"The days of working with good, cheap white pine are over," the old cabinetmaker was telling me. "Time you switched to popple."

My expression of puzzlement brought a smile to his face.

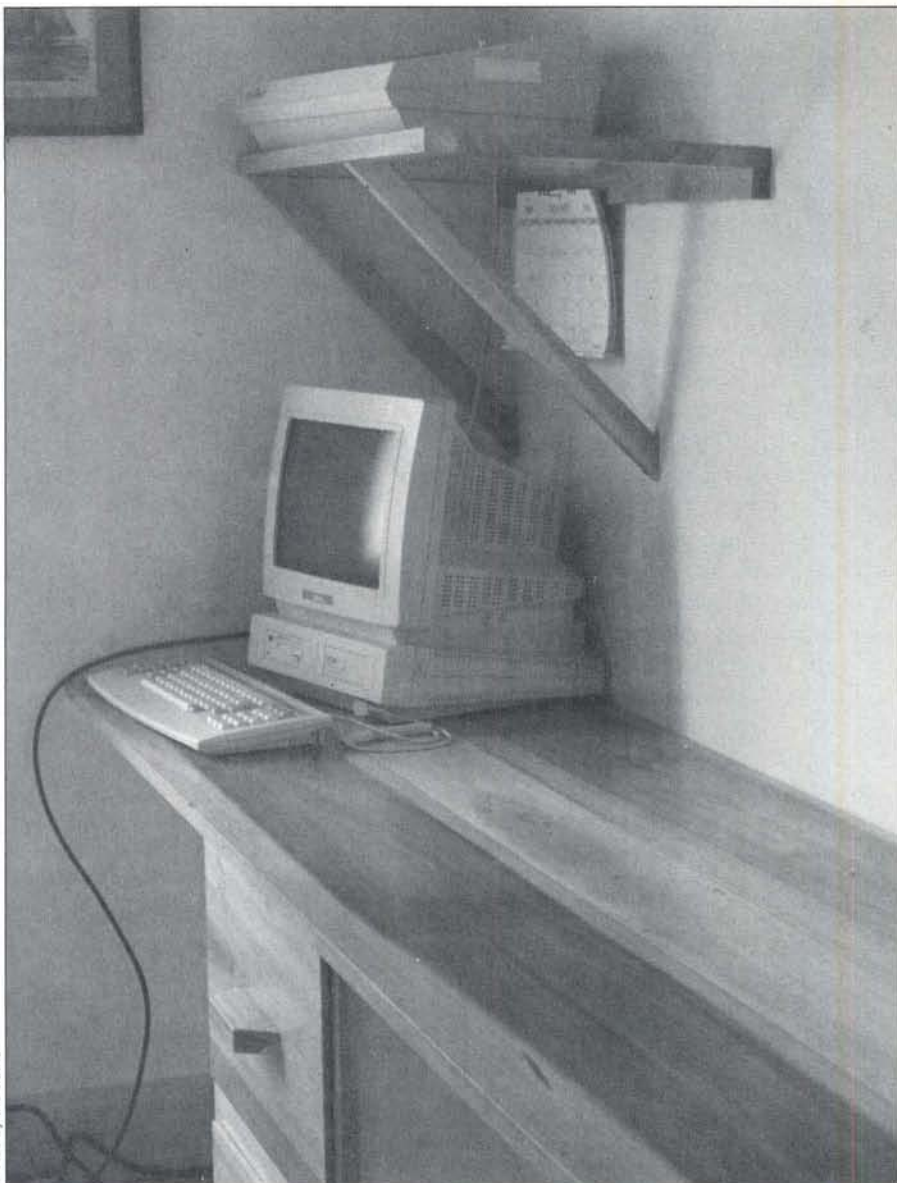
"Never heard of it?" he said. "Well, does poplar, quaking aspen or even cottonwood ring a bell?" Poplar did, and the next day it rang the bell on the till at the local lumber yard. Since then, most everyone I've introduced to poplar has ended up, as I did, singing praises of the wood:

"I use it for interior trim now, instead of pine," says Maine architect Josef Tara. "It's cheaper, clearer, harder and takes a coat of paint better than pine," he says, adding it is easier for his carpenters to work and produce superior results.

In making furniture, my customers often think that poplar, with a heartwood that ranges from greenish/brown to dark chocolate brown, must be some sort of exotic imported wood. The whitish sapwood often sets off the heartwood to make desk and countertops particularly attractive.

So how can this hardwood compete with a softwood that has been pre-eminent in the United States for hundreds of years? And why has it been overlooked for so long? The story begins in Colonial America when poplar was not as plentiful as it is today. Although it probably grew in large numbers in some pure stands, poplar usually is not a very prominent tree in the climax forest, which is the type of forest that settlers first saw. It generally grows best in recently burned or cut areas because it thrives on lots of sun. But early settlers were trying to create open pastures and growing fields, so poplar quickly became known as a nuisance tree. Since it can grow up to ten feet in a single year, early farmers were forever

Ken Textor is a woodworker and writer in Arrowsic, Maine.



photos by the author

trying to keep it from seeding into the edges of their fields.

The reputation for poplars (*populus tremuloides* Michx., *populus grandidentata* Michx., et al) also suffered because early settlers found the wood itself useless. Compared to the plentiful hardwoods of oak, elm, maple or birch, it isn't very strong or hard. Though it's stronger and harder than common white pine, it lacks that softwood's elasticity. Also, it tends to rot fairly easily when exposed to the weather. What's more, it burns slow, cold, and with a choking smoke. Early settlers understandably shunned it.

At the beginning of this century, however, huge poplars became available in large numbers. Forests cut off in the early 1800's were growing back with poplars at the forefront. Moreover, first-growth

pinus were becoming scarce. Second-growth white pine was noticeably softer than first-growth, and tended to be knottier and less rot-resistant, too. So carpenters were willing to try woods that grandfather had once scoffed at. They found what I found: A beautiful wood that is easily worked and far less prone to the problems that white pine presents.

In comparison with common white pine, poplar is tougher. It has been in common use as stair treads, cores for stuffed furniture, expendable turnery items, drawer sides and bottoms, pallets and excelsior (shavings used in packaging). Though it is harder than white pine, poplar is much easier to sand. Power sanding does not raise poplar's grain, thus, when you paint or varnish it, fewer coats are needed to achieve a smooth



Some Poplar Data

The poplar family is a big one, with varieties residing everywhere in the continental United States. In addition to quaking aspen and popple, there is eastern cottonwood, white or silver poplar, lombardy poplar, balm-of-gilead poplar, balsam poplar and white-barked quaking aspen. There are also many local names for these different species, as well as local variations on the *species*. Poplars are a sub-group of the larger willow family.

Regardless of the type of poplar in your area, identifying standing trees is relatively easy. The leaves tend to be tear-drop shaped with the wide end attached to the stem. The edges are serrated to varying degrees. The seeds generally appear in mid-spring, looking much like long wooly caterpillars hanging from the twigs. The seeds are light and very numerous and can be

carried long distances by the wind.

If you are cutting your own poplar trees for lumber, it is best to do so in winter and get them to the sawyer before spring. Decay sets in logs very quickly, as the bark tends to hold moisture in the log. Once sawn, however, poplar dries very quickly. I have air-dried it under cover to a moisture content of 20% in less than two summer months.

The leftover cuttings of lumbered poplar can be used as firewood. Anything greater than 4" in diameter should be split for good drying and it's best burned in combination with other woods. This takes advantage of its slow-burning, long-lasting coals. Poplar planer shavings, by the way, are excellent in the garden since they break down readily and hold moisture well.

finish. I have even seen it used as flooring in low-traffic areas. Its variable colors can be very attractive.

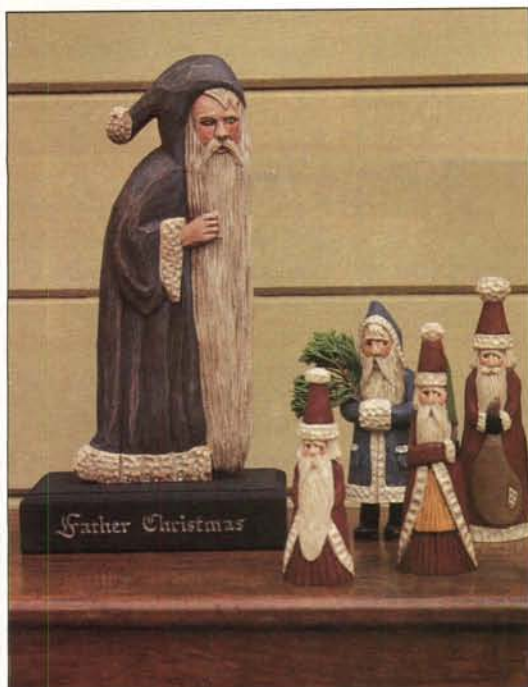
Shaping poplar is a pleasure in comparison with white pine. It is straight-grained and tends to be knot-free. Thus, power and hand planing almost always leave a very smooth surface. Moreover, the splintering and gouging common in planing many harder woods is basically non-existent. So you can run it through a planer set up with moulding blades, or a shaper, without being concerned about getting a ruined area in the middle of your finished moulding.

Fasteners are a pleasure to use with poplar. The wood is strong enough to hold a screw tightly where pine might let it go. Also, it is soft enough to drive a nail into without the fastener crumbling under the blow, as they can with harder woods like oak and cherry. When bolted, the wood will not crush as readily as pine.

The price and availability of poplar are also making it very attractive. Select, kiln-dried, rough-cut boards can be purchased for as little as 90 cents a board foot. Although national hardware stores and lumber yards will probably tell you they can't get it, most lumber mills east of the Mississippi mill one of the five varieties of poplar (see sidebar). You can also get poplar plywood, but you have to be careful: the heartwood's colors can vary enough to make matching plywood with solid boards very difficult. Also, the saved plywood face sheets don't usually look as good as planks, but they sand and take paint just as well.

Furniture makers will especially appreciate poplar's ability to resist swelling and shrinkage. It's far more stable than white pine, which is another reason housing architects have begun turning to it. I've tried a variety of glues with poplar (epoxies, hide and resin-based) and all seem to hold well. Thus, with little shrinkage to worry about, inexpensive glues can be used.

If all this makes poplar sound like the new miracle wood, remember that it is still very prone to rotting when exposed to the elements. But I have seen antiques made of poplar that are over one hundred years old. So rest assured, if taken care of, most anything you make out of poplar will probably outlast you. **DW**



photos by the author



Olde Tyme Santa Carvings

by Deborah R. Upshaw

The spirit of Christmas is something that dwells in the heart of Marilyn Shomier Thompson twelve months of the year, and she wouldn't want it any other way. Her talent is woodcarving, and her subject is none other than old St. Nick himself.

"It's the child in me that led to carving Santa Claus figures," says Marilyn. "For me, it's Christmas every day of the year."

Before embarking on a full-time career as a woodcarver, Marilyn studied woodworking and art books, and enrolled in a woodworking class.

"I read many books and magazines on the history of folk art in America," she states, "because this was my special interest. Then I took woodworking classes offered at a community college and at the local high school."

Marilyn found her niche in carving "Santas," but when she first began, she experimented carving various folk art figures—both reliefs and in the round carvings. She made everything from barnyard animals and rocking horses to cowboys and wooden sailors.

Today Marilyn creates her own original designs, some of which are inspired by Santas of the 1800's and early 1900's. She calls them "folk art Americana." Whether it's Father Christmas, Pere Noel, St. Nicholas, Pelze Nichol, or simply Santa Claus, her carvings often depict this famous figure as he

appeared hundreds of years ago. Many have distinctive cone hats and long white trailing beards that hang to the floor. Sometimes their arms are folded or they carry evergreen boughs.

"One of my most popular carvings," says the sixty-year old woodcarver, "is my sitting Santa. He's about 14" high, and holds a bundle of sticks in a burlap sack for the naughty boys and girls!"

Her Santas range in size from 2" to 24" high. Some are two-dimensional reliefs, others are wall hangings. She also creates carvings in the round.

She uses the traditional basswood, as well as redwood, sugar pine, and jelutong—a higher-priced Malaysian wood that she says "cuts like butter."

On larger carvings, Marilyn glues 3" boards together, clamping them overnight. Initially she sketches her designs on paper, and when she's satisfied with the image, transfers the design onto wood. Then she rough cuts the Santas on a 12" band saw.

Following these operations, she uses basic woodcarving tools to add realistic, definitive features to her carvings. "I use a mallet and chisels on my larger pieces," she explains, "and I use the 'U'-shaped veiners and the 'V'-shaped parting tools. The parting tools are excellent for carving eyes, nostrils and fingers."

For the smaller Santas, or when carving details on larger pieces, she sits with a carpet-covered lap board and carves with whittling knives and palm-handled chisels.



Deborah R. Upshaw is a freelance writer from Eureka, California and a frequent contributor to *Popular Woodworking*.

"I position the carving on the lap board, and for safety's sake, I wear a 20% steel mesh butcher's glove on my left hand."

"I learned about safety precautions the hard way," she continues, "after receiving ten stitches in my forefinger when a knife slipped a few years ago. I was carving a lamb's leg when the wood suddenly broke in two. The knife slipped and cut me deep enough to send me to the hospital. Since then I always wear a glove."

In addition to the hand tools Marilyn uses, much of the finely detailed carving comes about through the use of a Foredom rotary power tool with a flexible shaft. She also uses a Dremel moto-tool with interchangeable bits. Again, she protects herself by wearing safety goggles, dust mask, and a full-length leather apron.

"The Dremel tool is great for somebody just starting out. It's affordable and good for carving small details. I use it to carve the hair and the fur trim on the Santas' cloaks."

Marilyn then smooths the wood figures with a Sand-o-flex sander mounted on a hand drill. She also uses a palm sander. She prefers using fine grit paper to avoid losing fine details.

Marilyn makes bases for her larger carvings on

her router tables. "I have a large, 1/2" carbide tip round-over bit on one. And I use a smaller, 1/4" round-over bit on the other. This makes it so I don't have to keep changing bits. It saves me time."

The next step involves painting and finishing the carvings. But red and white aren't the only colors Marilyn selects to paint her Santas. Brown, blue, and even green decorate the carvings. She uses acrylic paints and a variety of different sized brushes. She paints in a well-lighted spare bedroom that she converted into an "art studio." Although she did enroll in a tole painting class and read books on painting techniques, she admits her skill came about mostly through trial and error.

"Doing the actual painting is easy," the California craftswoman says. "Choosing the right color is what's difficult. But if you're patient and love what you're doing, you're willing to take the risk of learning to paint."

After the paint dries, she applies an "antique" finish—a combination of one part boiled linseed oil to two parts paint thinner, and a bit of burnt umber oil paint. It takes about a day and a half to carve and paint a Santa Claus figure.

On occasion, Marilyn shares her love of wood-carving with others by offering lessons for begin-





Marilyn uses a Foredom rotary tool for both rough work and detailing.



When she uses hand tools, she carves on a lap board, and wears protection for her hands.

ners in her home. "I have one student who is already at a skill level that took me years to reach. And that makes me very happy," she says. Marilyn suggests that her students look for ideas in books and magazines, especially carving books.

"As a beginner, I tried to imitate the work of others. It's the way you learn. I read somewhere that 'copying folk art is like recycling our American heritage.' After a number of years, I've finally reached the point where I've developed my own style. But this doesn't come overnight; it's a continuing process."

Marilyn keeps busy at her craft working daily from four to six hours. She stops only to teach others or to attend woodcarving seminars. "I attend workshops in Northern California. There's always something I can learn from others." She also belongs to groups such as the California Carvers Guild and the Humboldt Woodworking Society.

As her wide range of carving reveals, she's never lacking for ideas. "I get ideas from my different woodcarving teachers, my friends, and other woodworkers. Oftentimes I wake up in the middle of the night with a fresh, new idea. That's when it's really fun... a sort of sudden inspiration. But most of all it is my mother, Lee Shomier, who has made my woodcarving possible with her never-ending inspiration. She features my work in her antique shop in Virginia Beach, Virginia, and many of her customers now collect my Santas." Other gift shops in California also feature her work. Another marketing avenue is an annual "open house" held in her home, which has been very successful. She also attends an arts and crafts show once a year in her



photos by the author

home town of Eureka.

"One couple saw my Santas at the crafts show, and they said they had searched all over Europe looking for 'antique, Old World Santas.' They were delighted when they saw mine."

When Marilyn retired from nursing several years ago, she never imagined herself taking up woodworking. "I never dreamed I would be starting a new career as a woodcarver and folk artist," she says. "But it's a relaxing hobby that anyone, any age, can learn. It just takes practice and the love of working with wood." **PW**

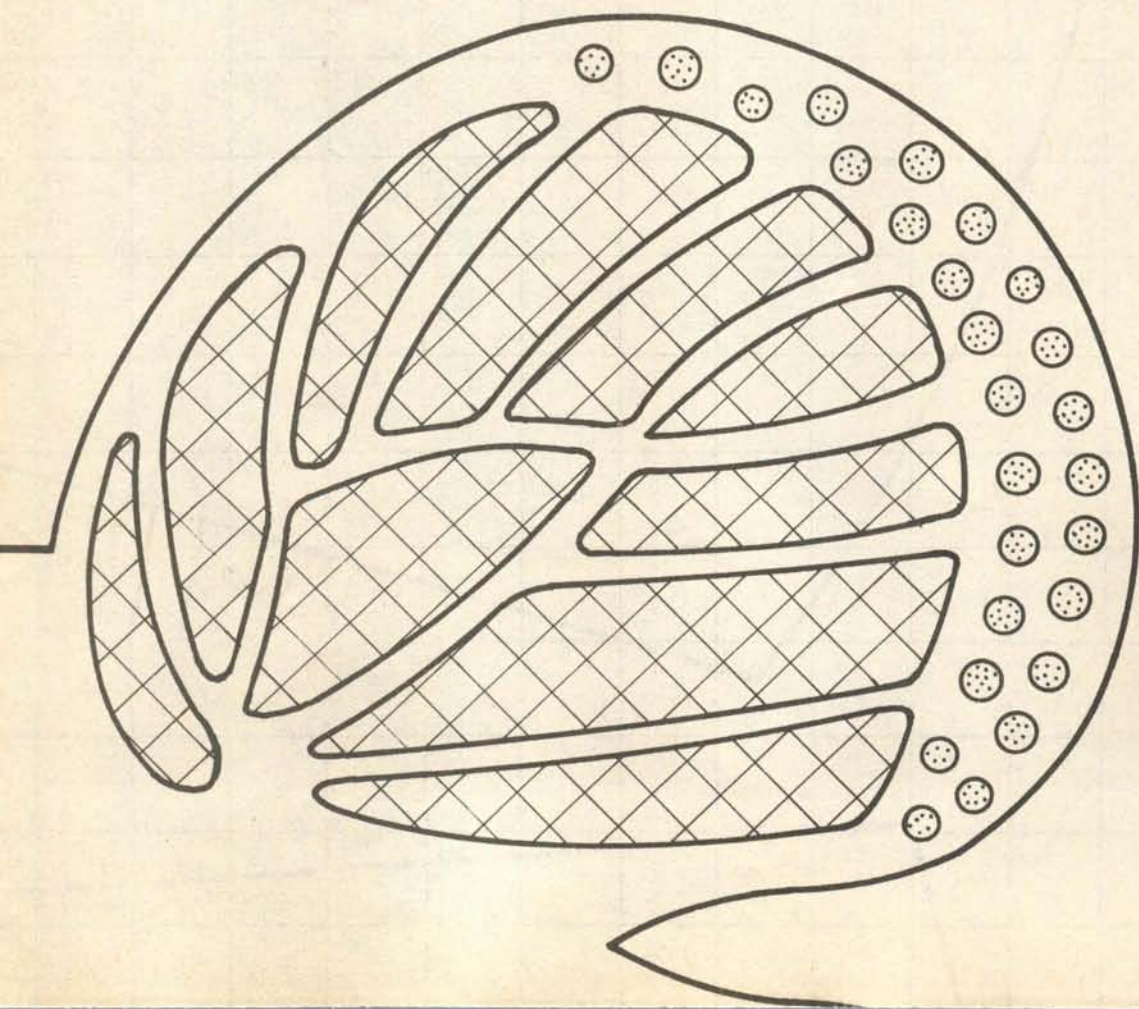
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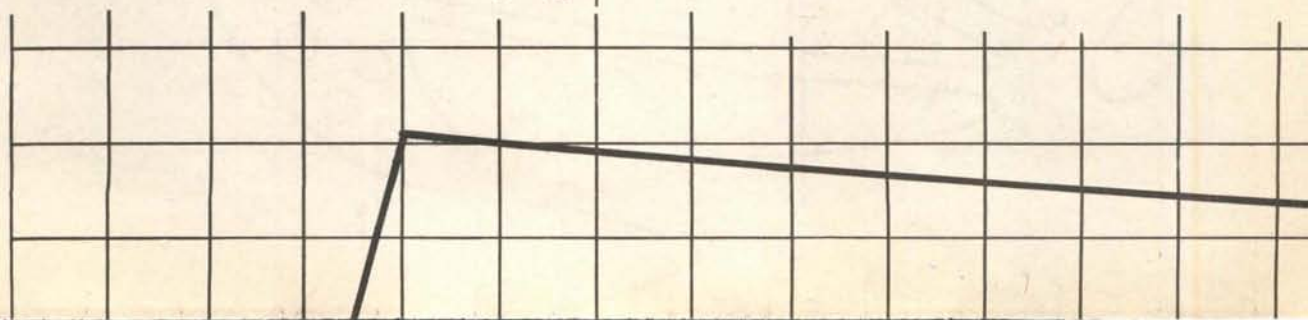
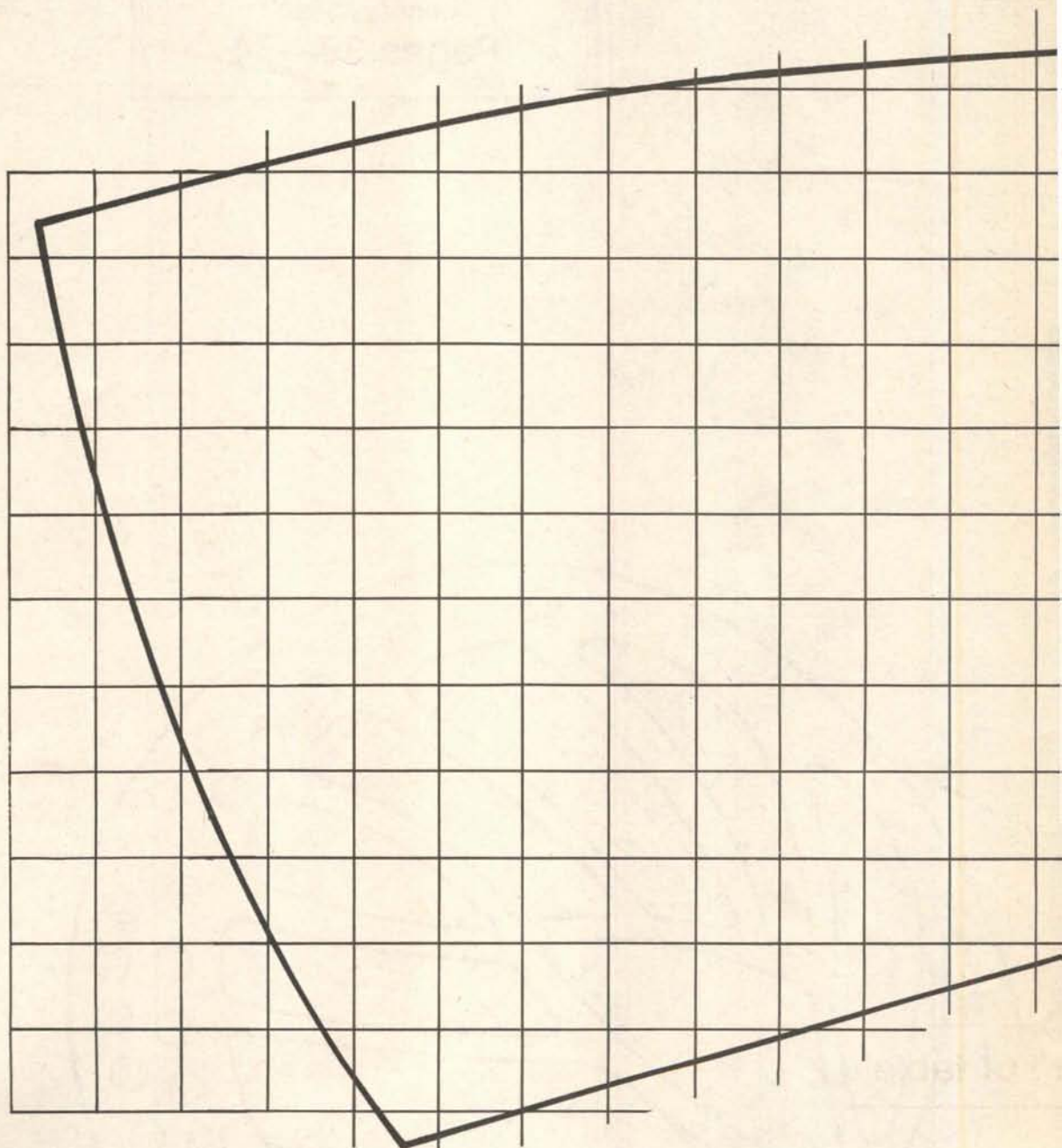
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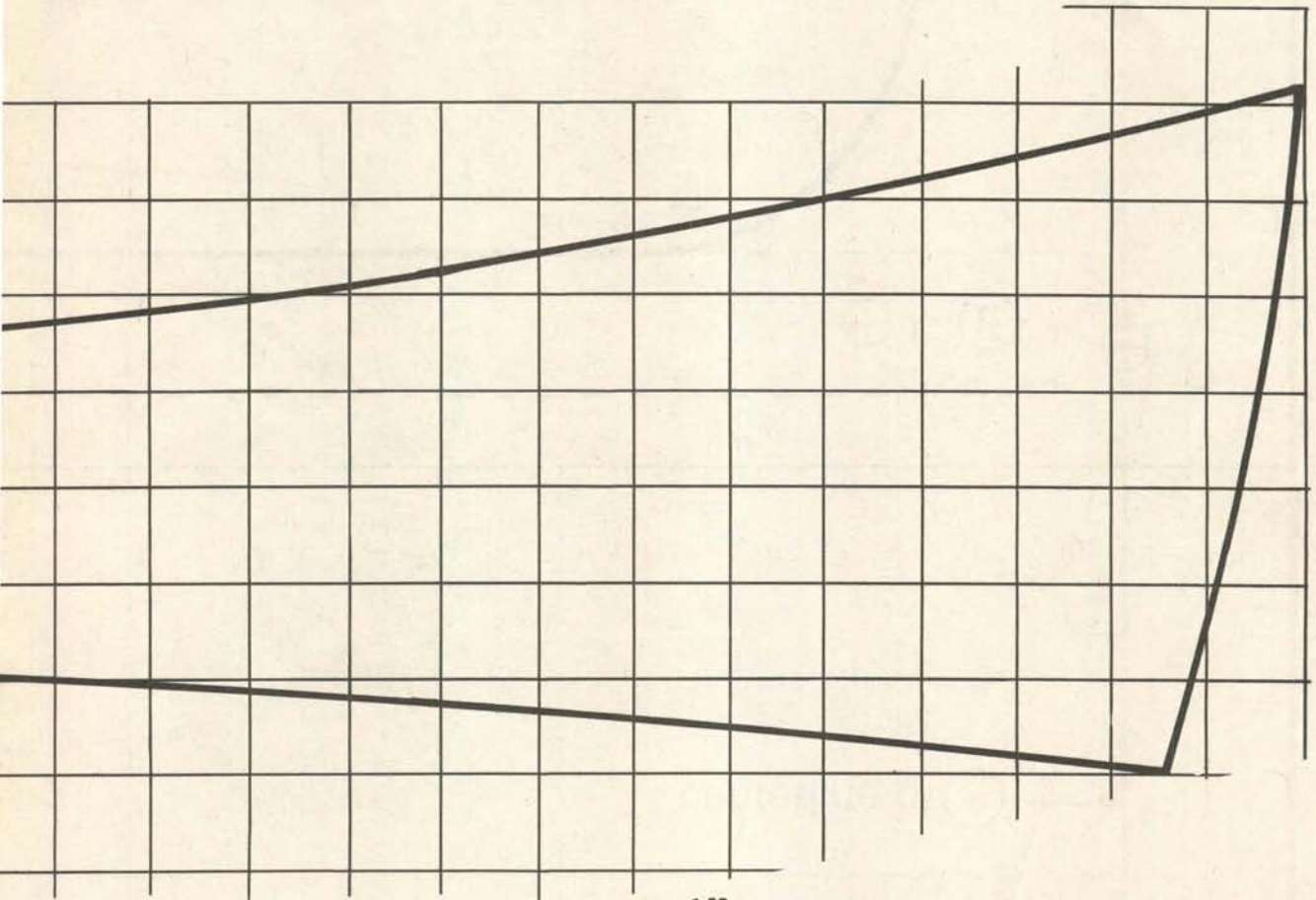
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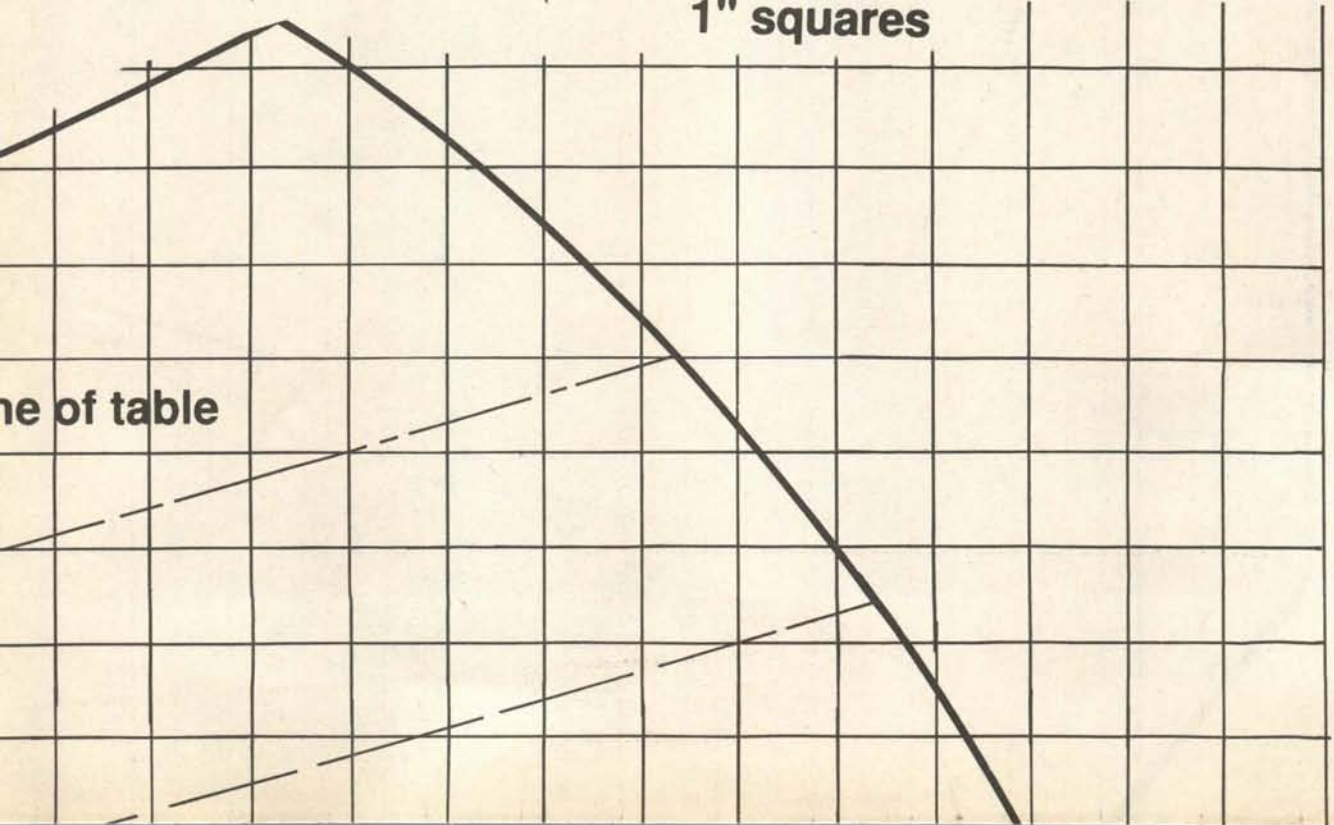
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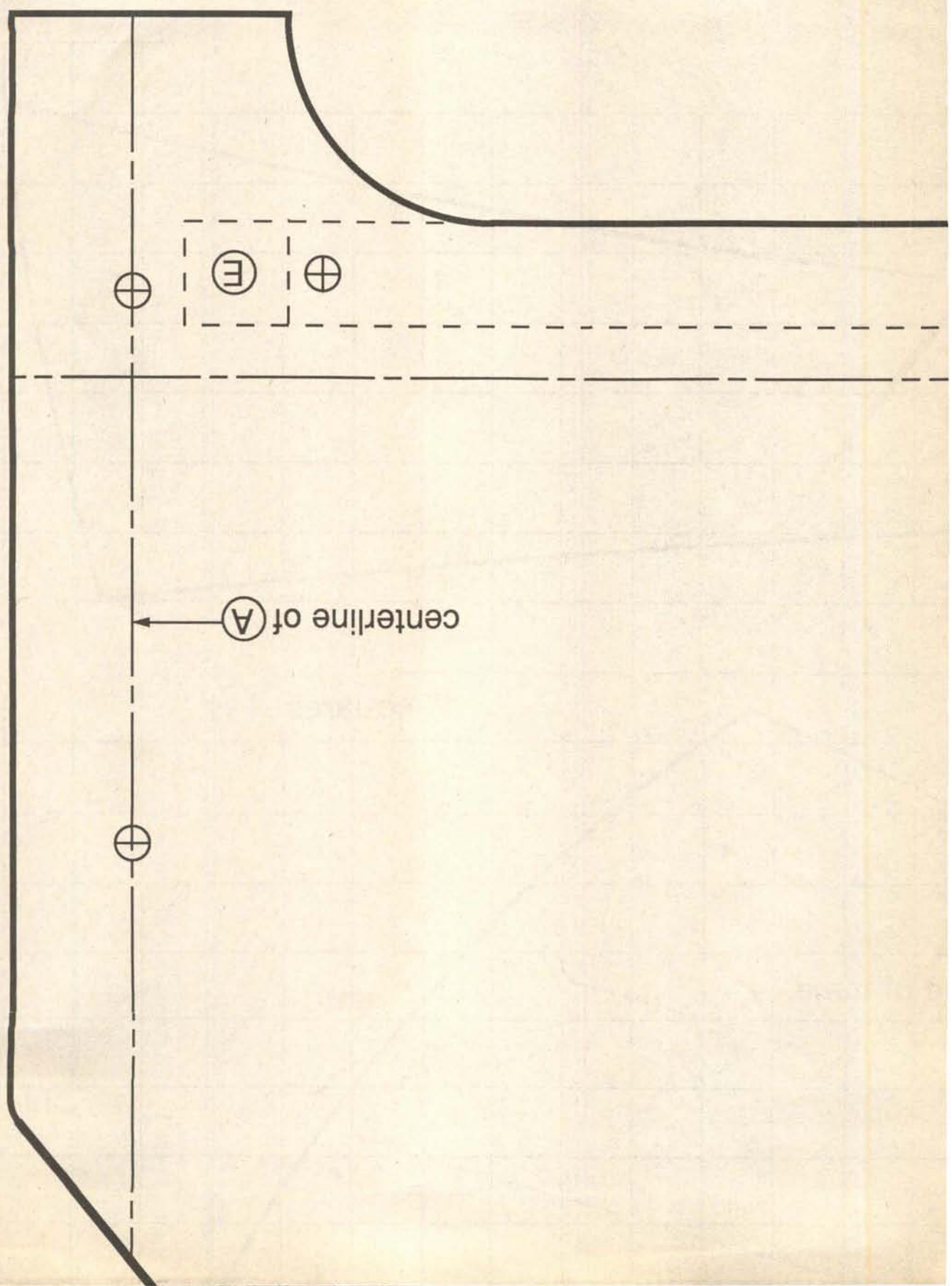




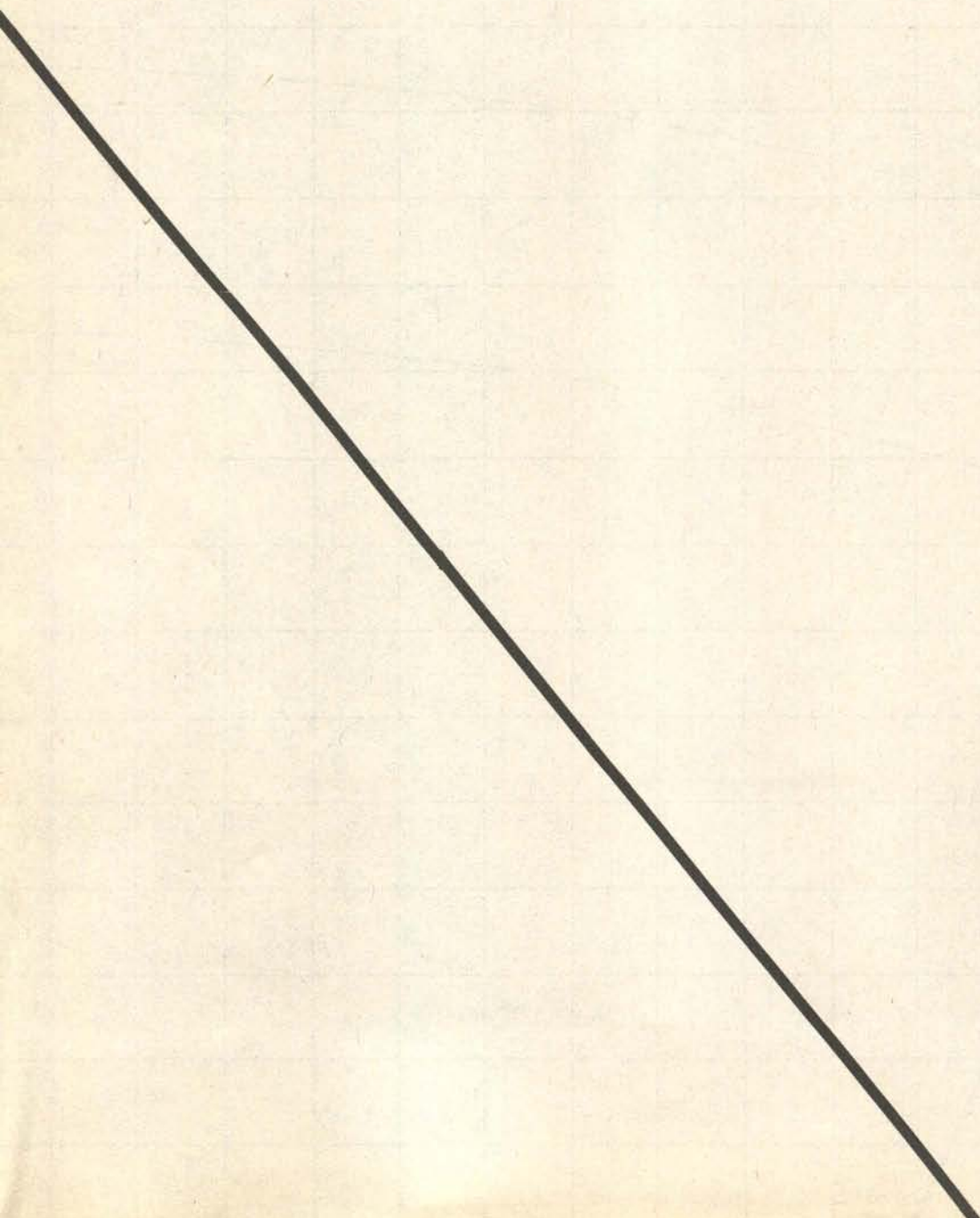
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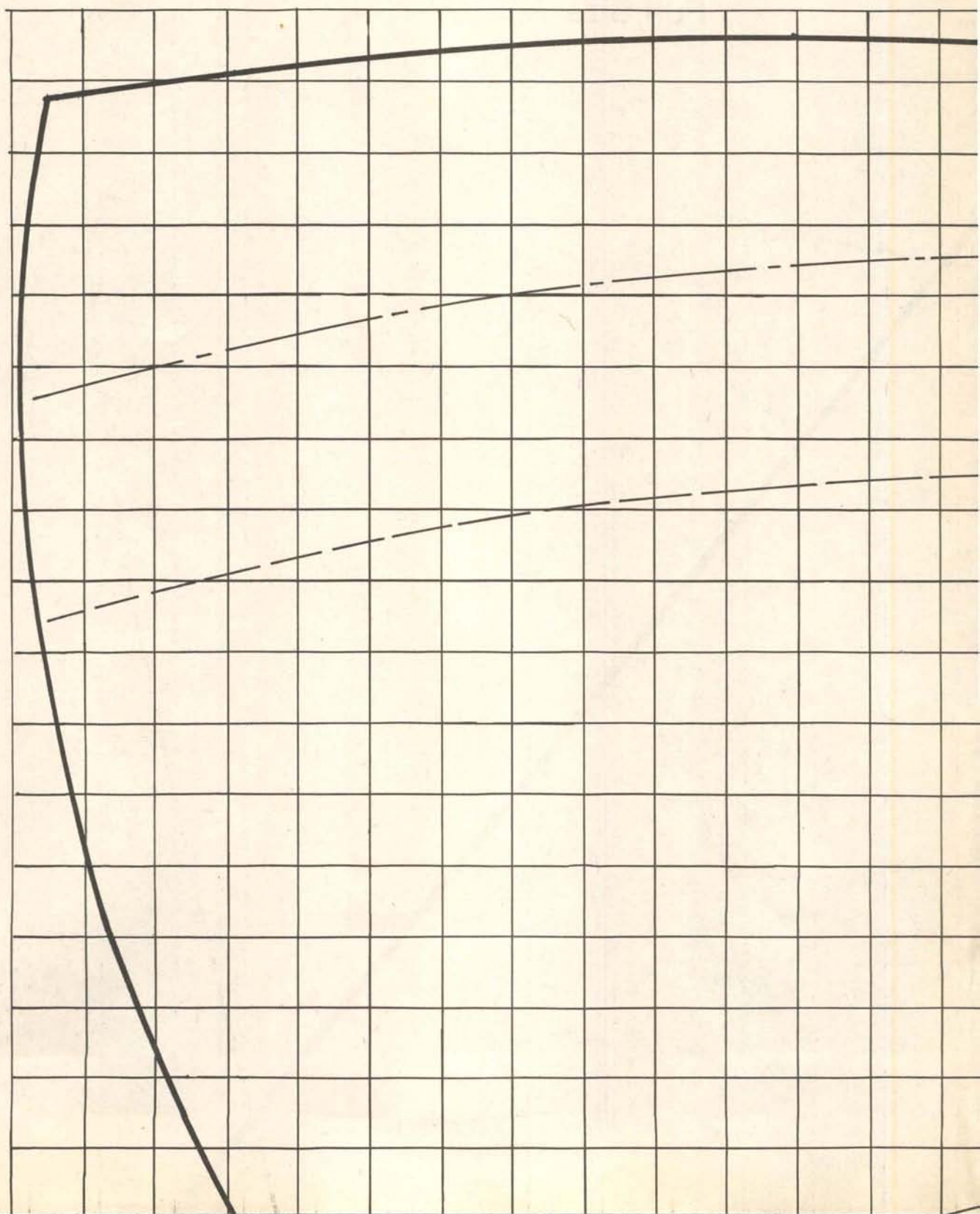


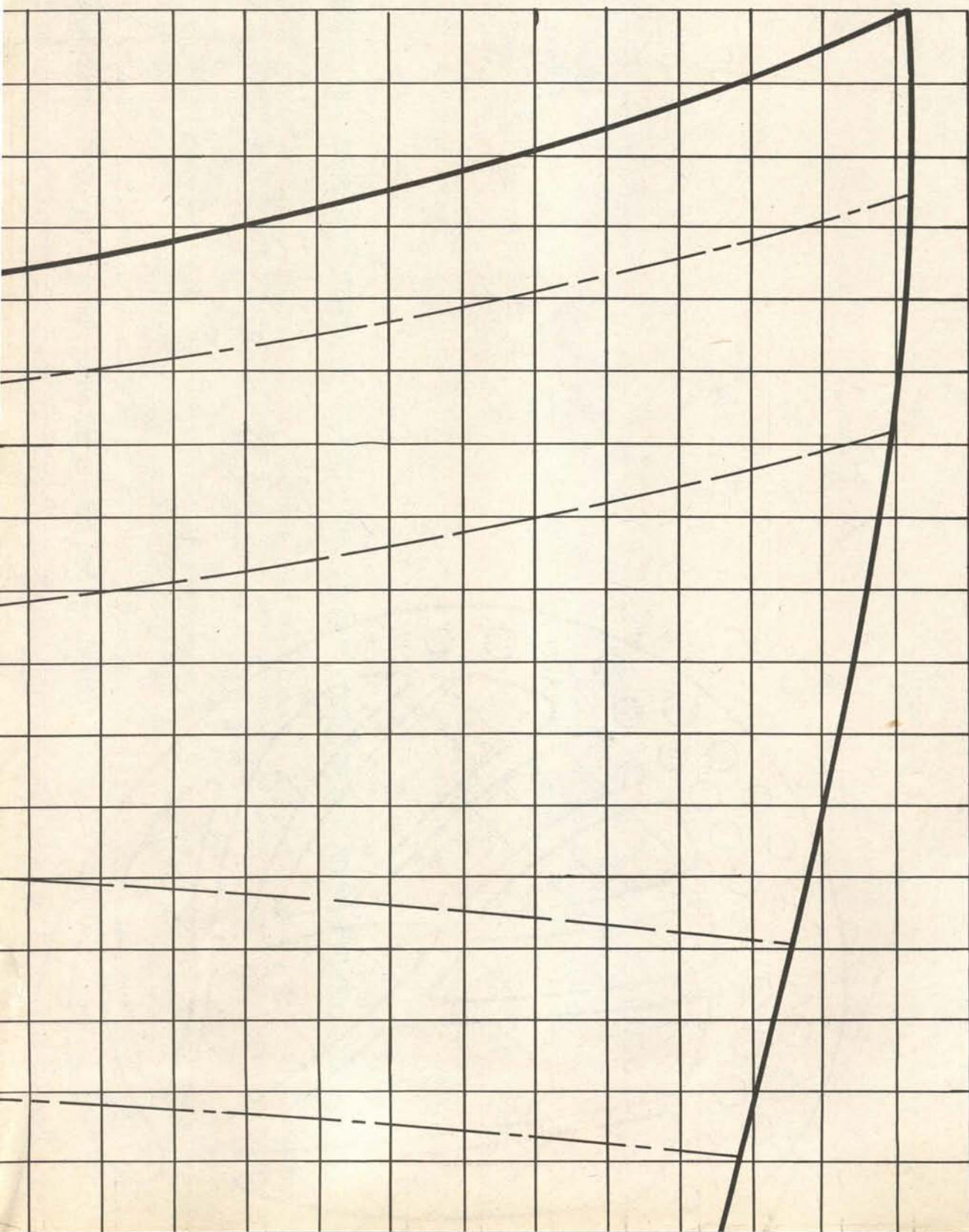
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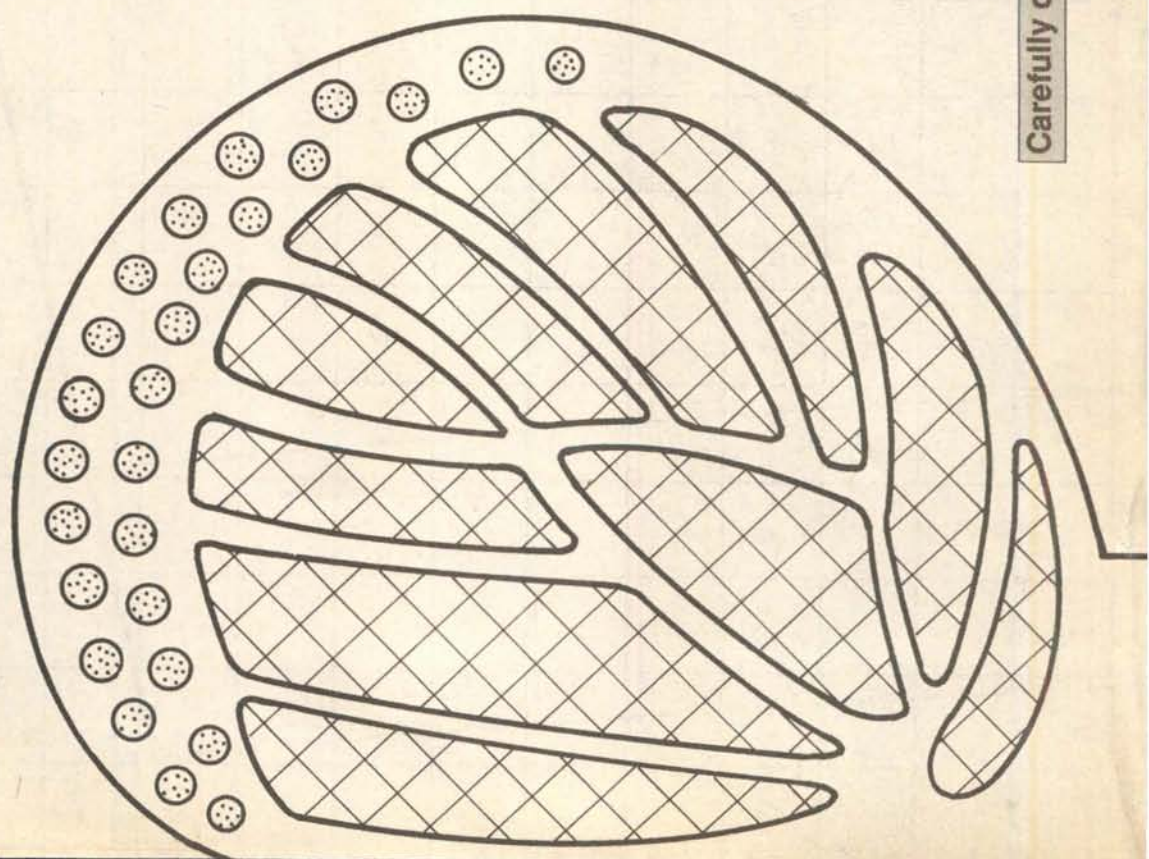


Firewood Box
Full Size

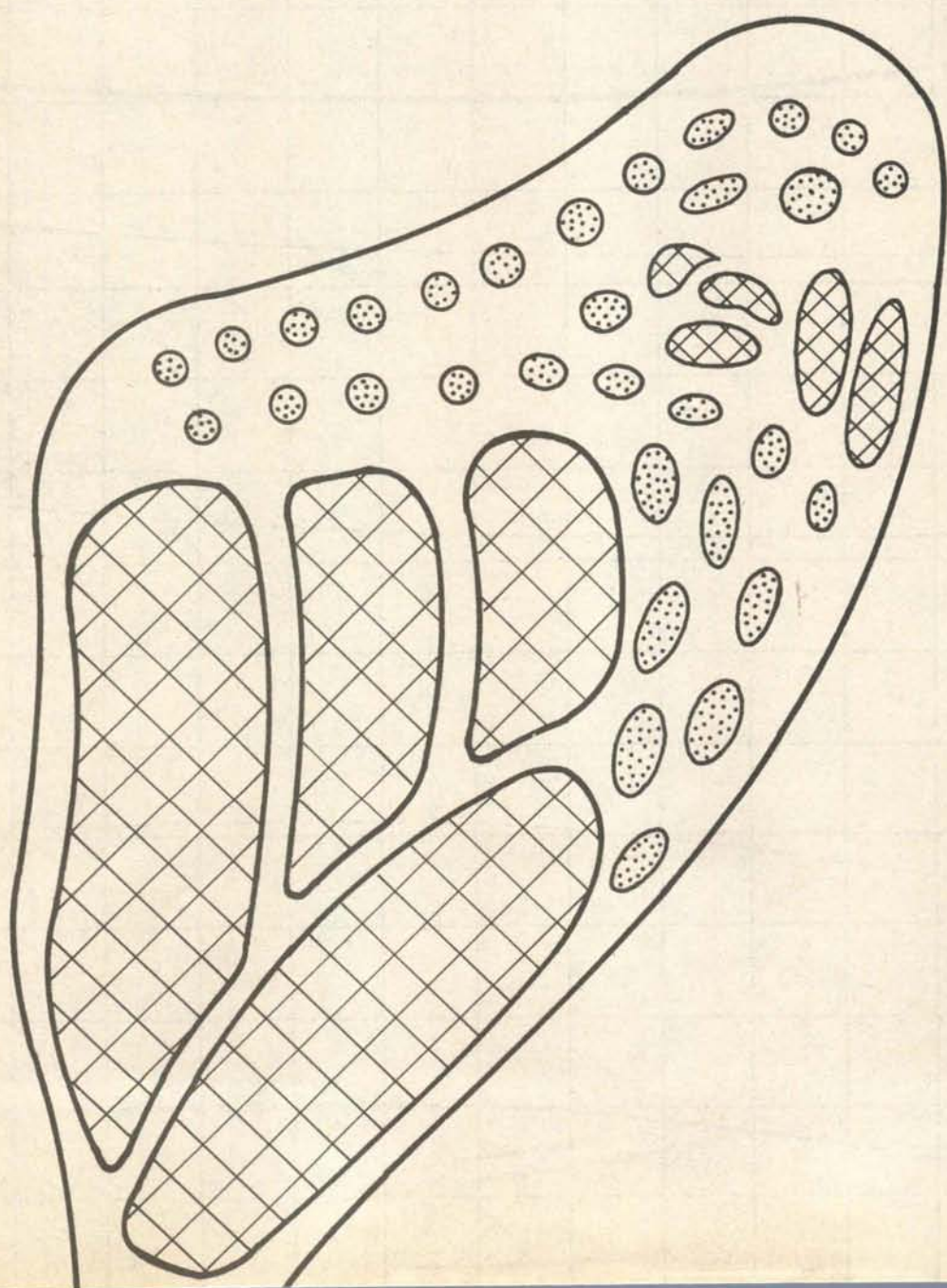


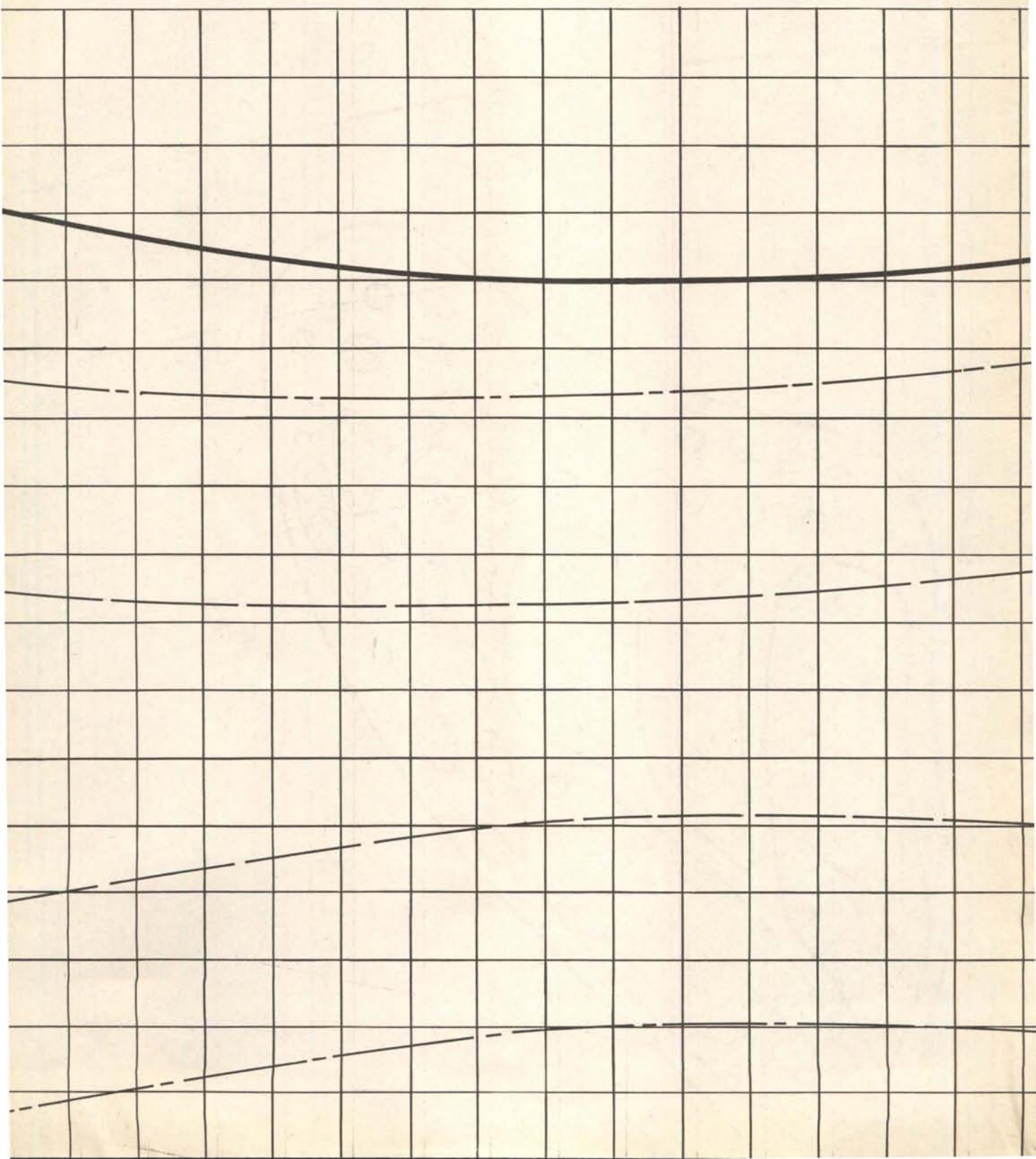


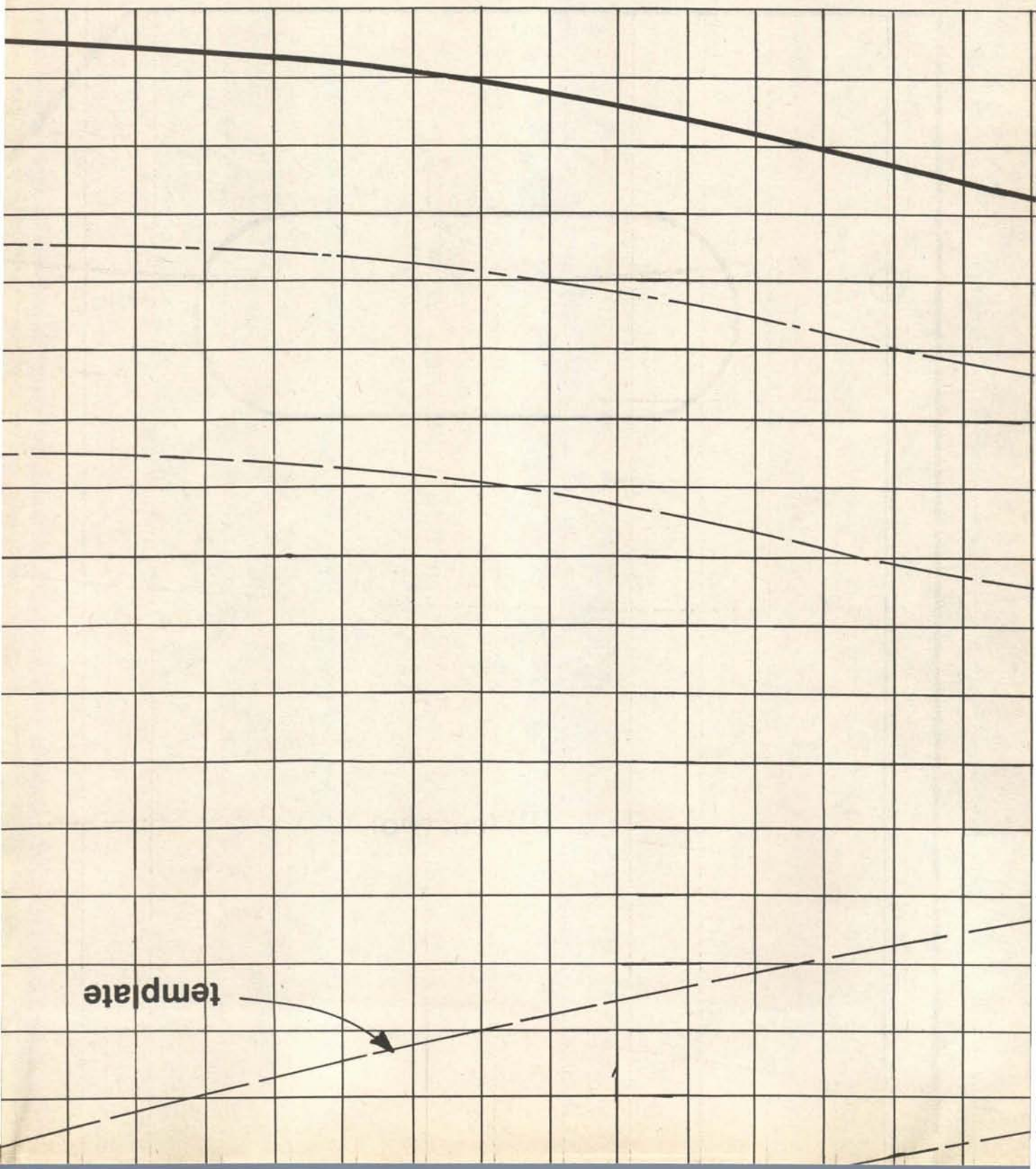


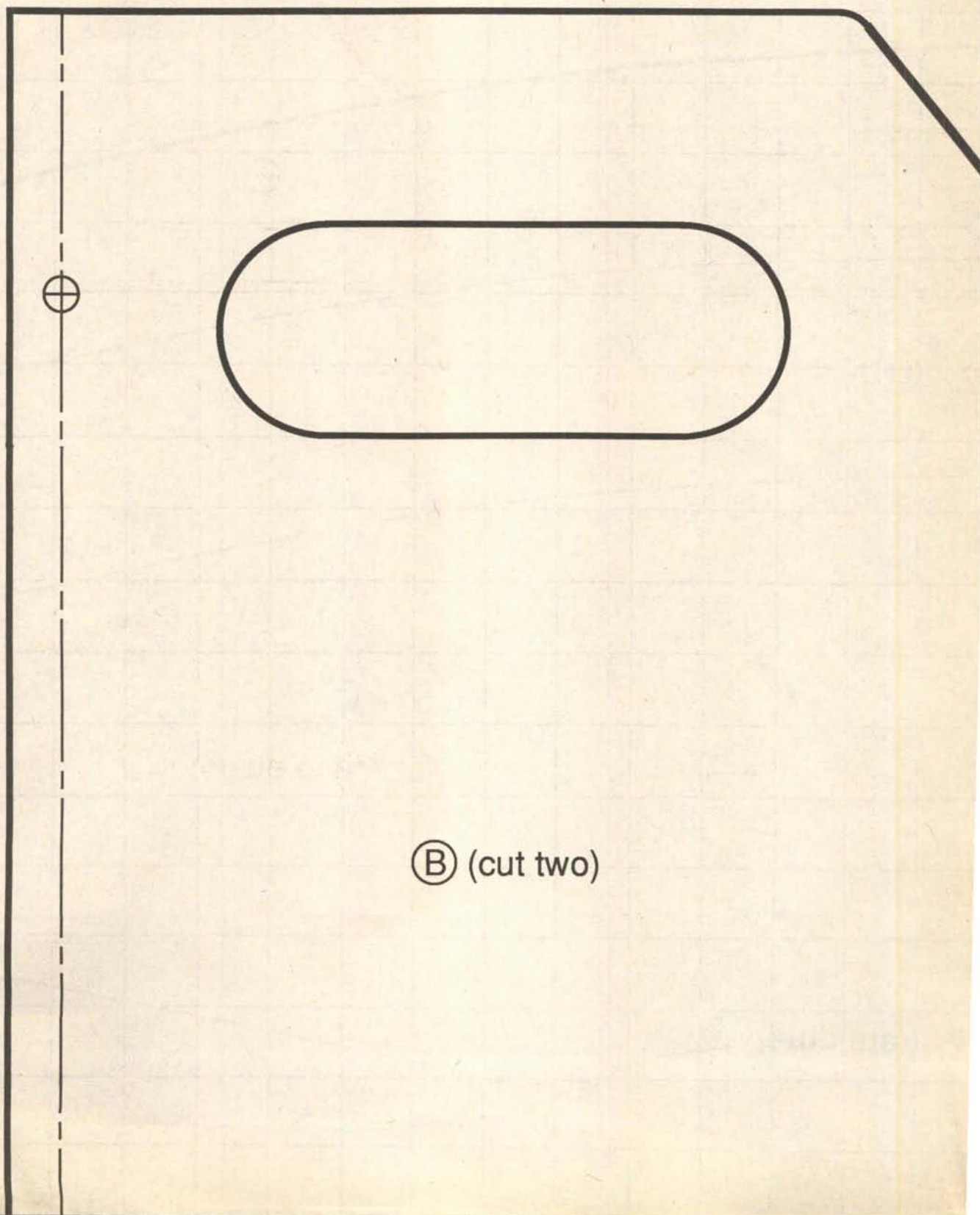


Carefully open staples to remove plans, then bend them closed again.

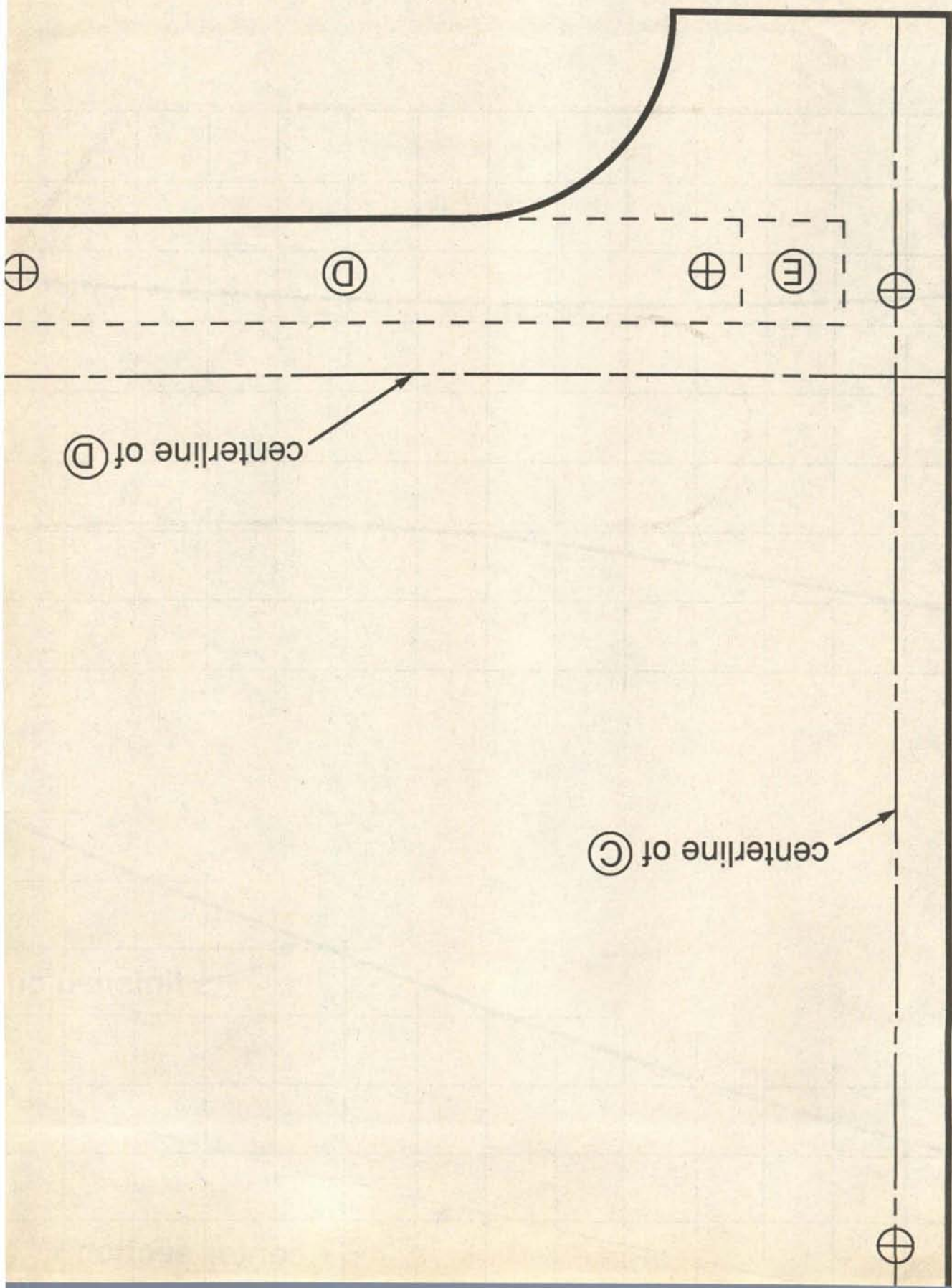


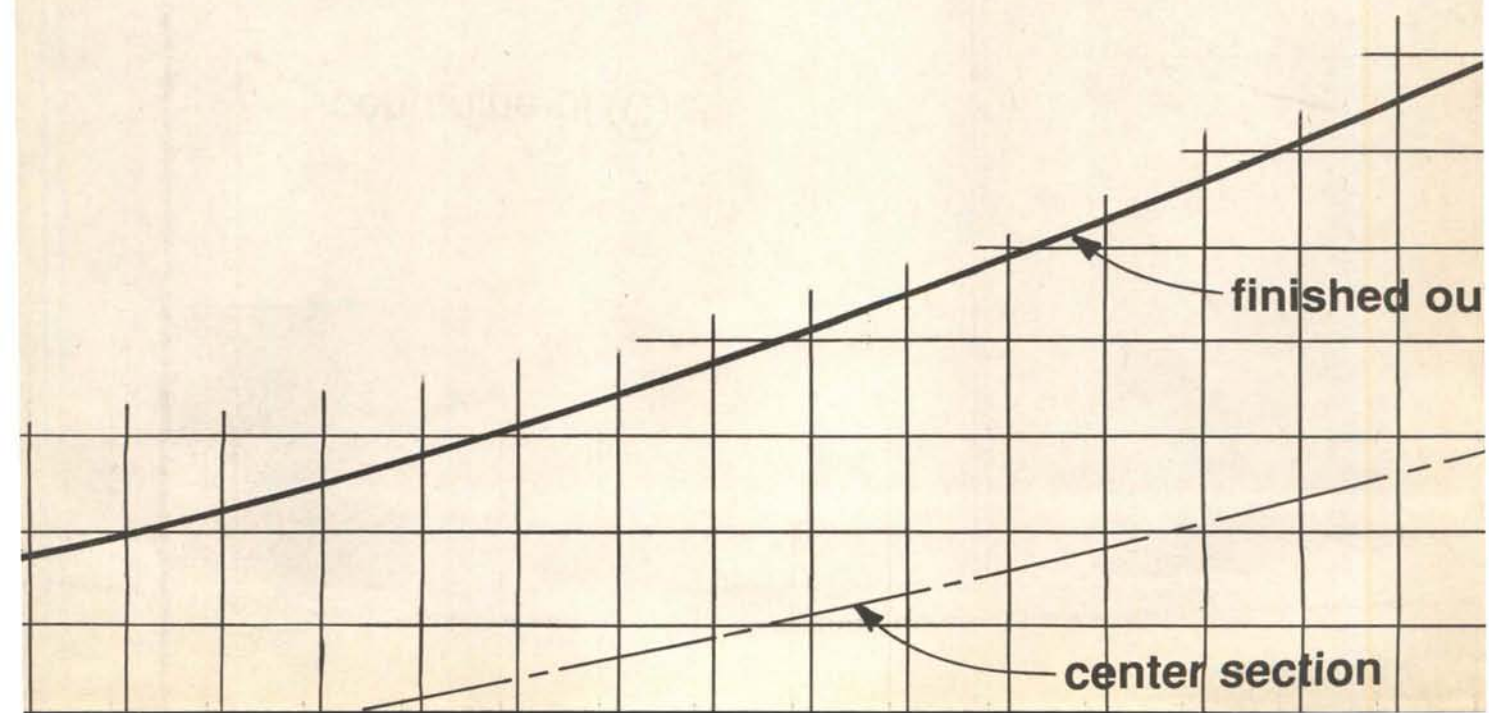
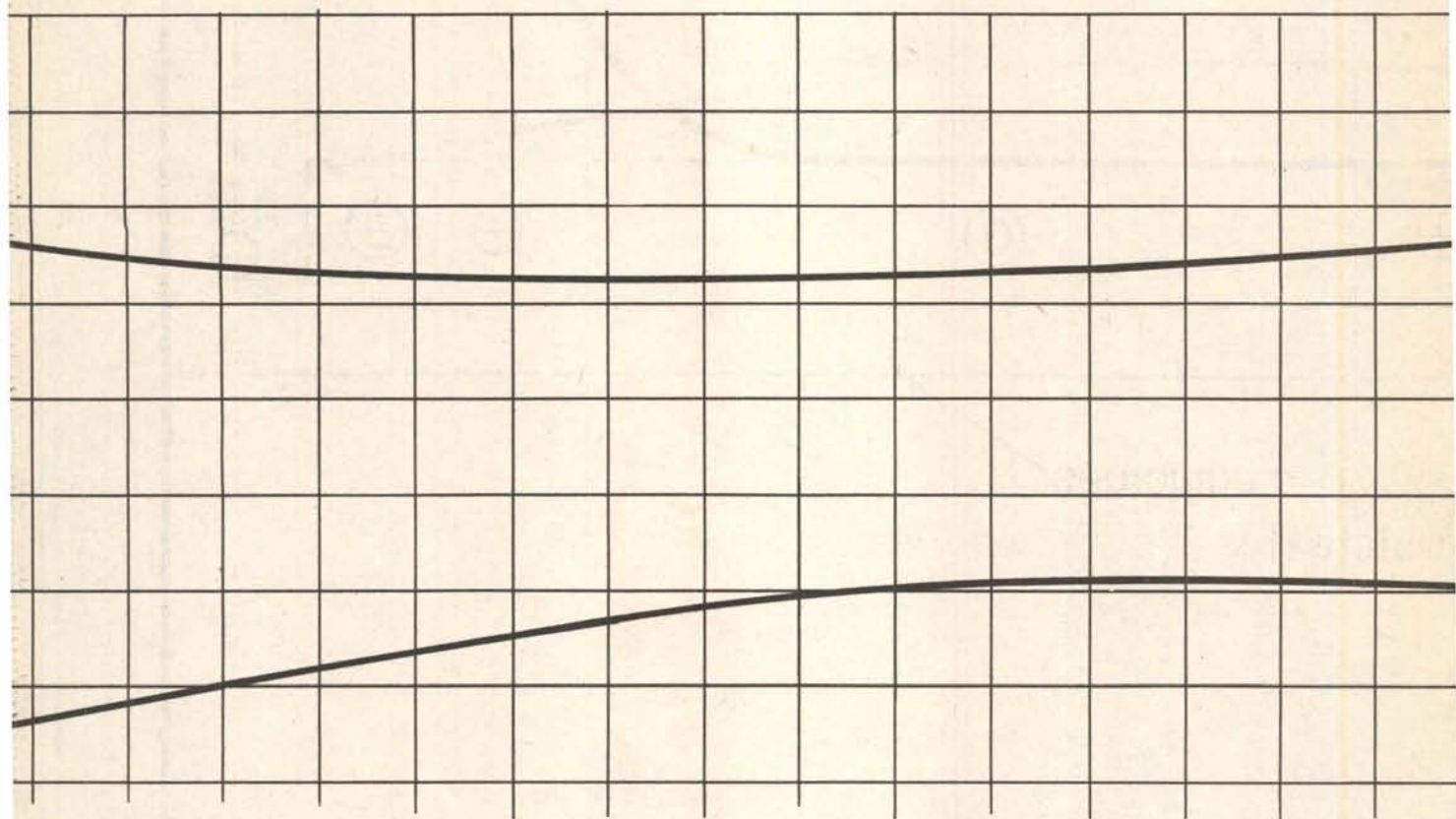


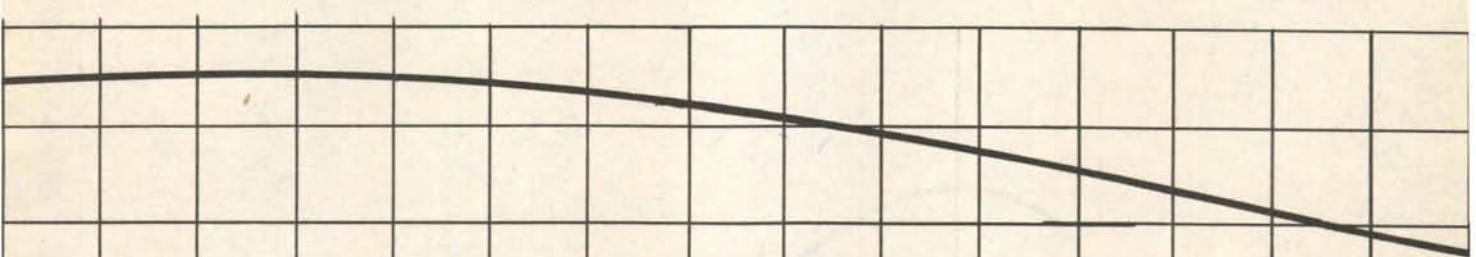




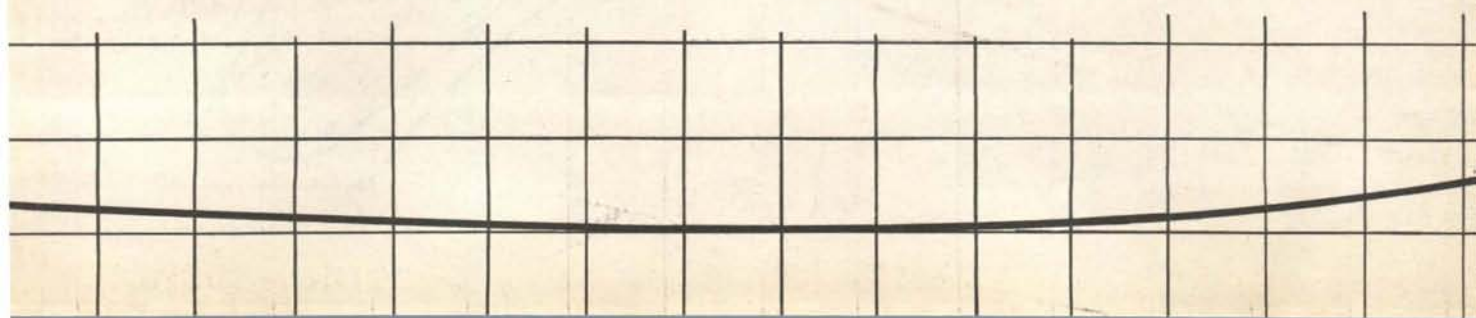
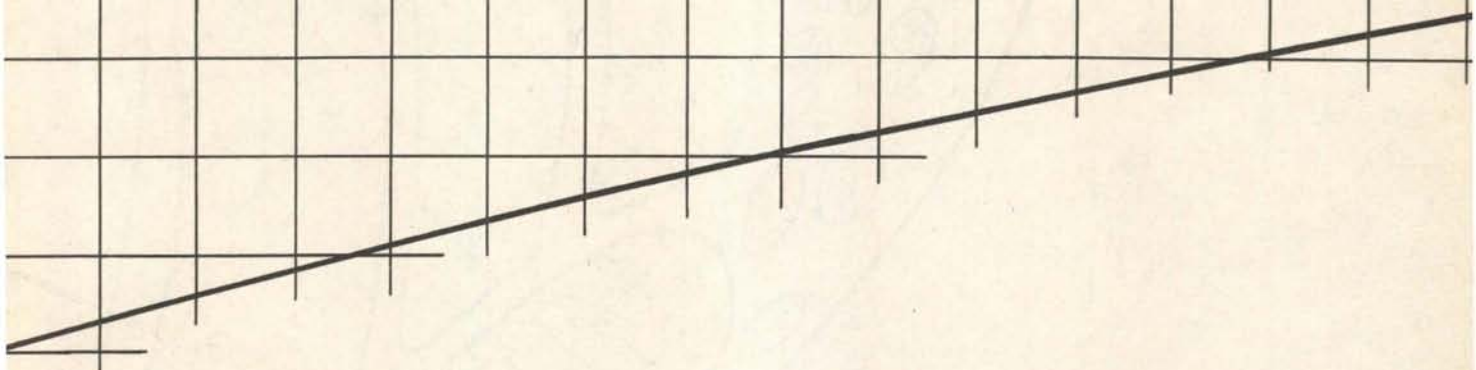
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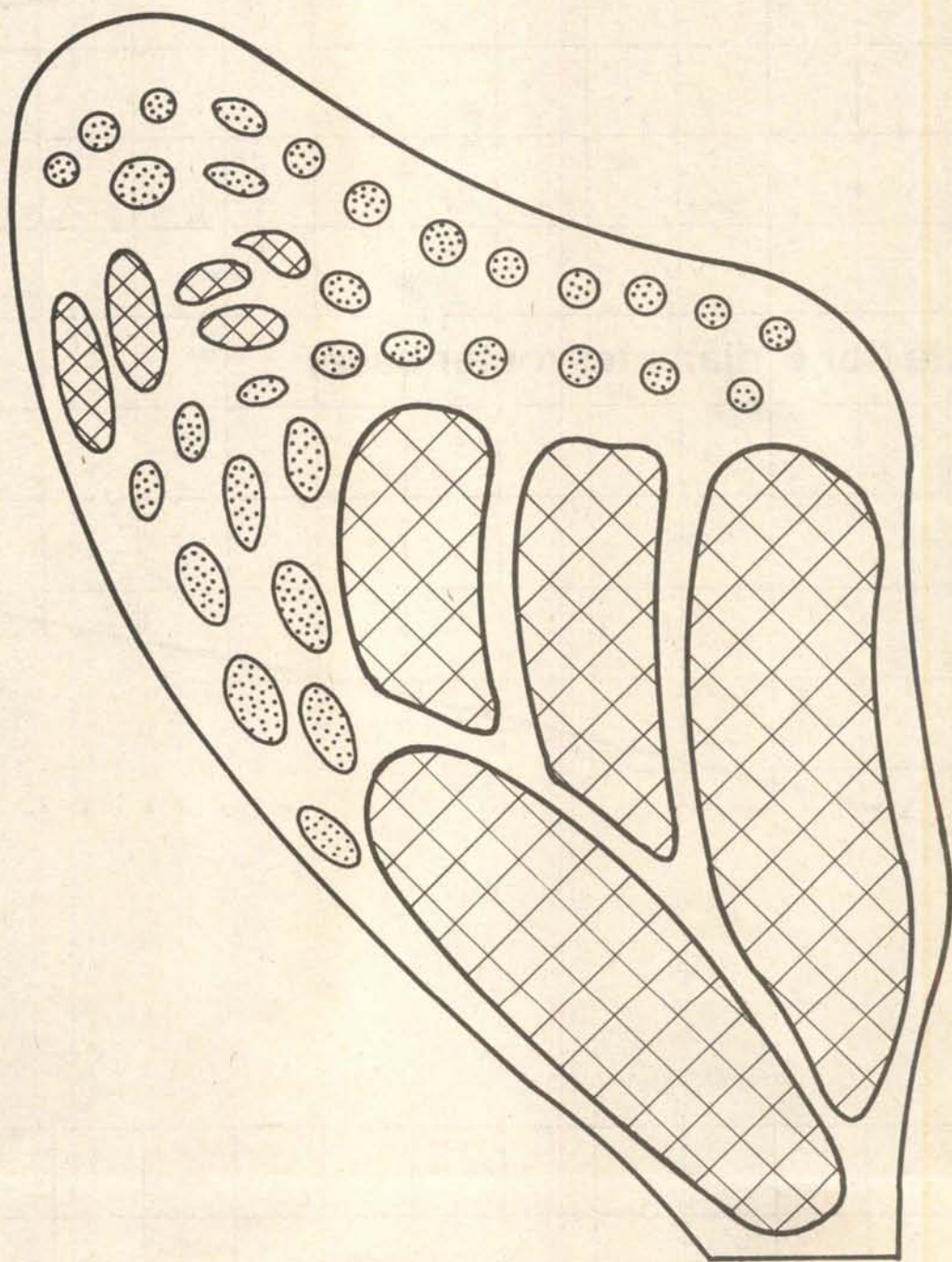






template (for 6" diameter router base)





Butterfly Figures

by Phil Keller

Here's a colorful, eye-catching figure to adorn your house or grace your yard. This is an easy woodworking project that will challenge your painting skills. Make one, or several while you're at it. Finished figures make great gifts. They can also be profitable; butterfly figures are very popular sellers at craft fairs and garden centers. Try different colors and size variations—use your imagination.

Construction

Cut two 6" X 7-1/2" wing blanks and a 7" X 10" tail blank from 1/4" A/C exterior plywood. Tape the Grade A surfaces of the wing blanks together with double-faced tape so that duplicate right and left wings can be cut in one operation. Transfer the wing and tail patterns from



photos by the author

Tape the wings together and cut them out simultaneously.

the PullOut™ Plans section of the magazine to the plywood with carbon paper, and cut them out with a scroll or band saw. Fill any voids in the plywood with wood filler, and sand the edges smooth.

The body is made from 3/4" pine stock. Again, transfer the pattern to the stock and cut it to shape. Smooth the edges and break the corners with a 1/4" radius. Complete the body by drilling two 3/32" holes as shown in Figure 1. One hole is for

Phil Keller is a woodworker and writer in Pompton Plains, New Jersey.



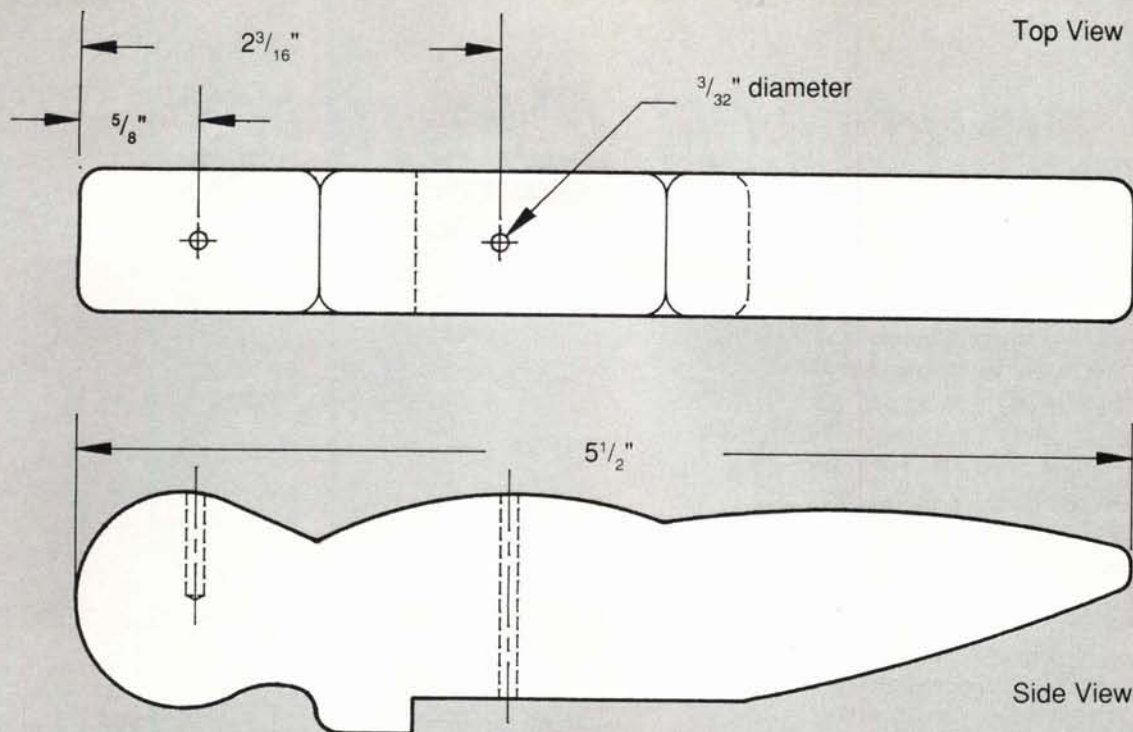


Figure 1. Full-Size Pattern for the Body

See the PullOut™ Plans section for full-size patterns of the wings.

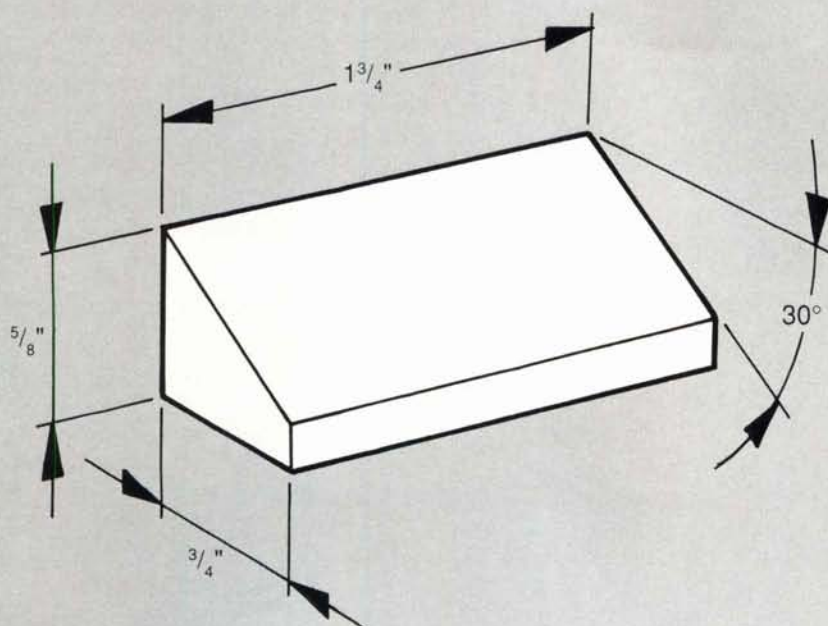


Figure 2. The Wing Mounting Block

the antennae; the other is for the nail you'll use to mount your completed butterfly.

Make two wing mounting blocks from 3/4" pine stock as shown in Figure 2. These parts can easily be made on your table saw; just bevel one edge, rip to width, and cross-cut to length. Sand all rough edges. Make antennae from a 6" length of 16 gauge (0.051") solid copper electrical wire. Bend the shape as shown in Figure 3. Trim the excess wire (which was provided to aid in forming the end loops) off the ends; then bend the end to be inserted in the body 90°.

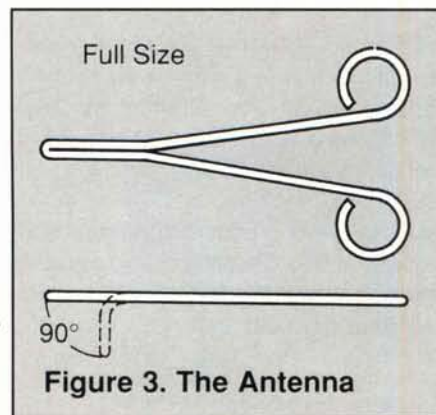


Figure 3. The Antenna

Illustrations by Tom Larson

Finishing

Lay out and paint the patterns on the wings and tail before assembling the butterfly. First apply a black base coat to all wood parts. Transfer the design outline from the patterns to the wings and tail using a colored transfer paper, such as Saral® (see the Source List below). If transfer paper is not available, coat the back of the patterns with white chalk; when you draw over the pattern on the front, the chalk will transfer it to the boards.

Use small artist brushes to apply the colors; 3d and 4d common nail heads, dipped in paint, are also useful for applying the white dots. Complete the wings and tail by carefully painting the colors in the outlined areas.

Assembly

Assemble the parts with plastic resin glue. This glue is highly water resistant and adheres well to painted surfaces. To eliminate clamping the glued parts, apply dabs of hot-melt glue to the joint edges to hold the parts together while the plastic resin glue dries.

First glue the body, then the wing mounting blocks to the tail. Then glue the right and left wings to the mounting blocks as shown in Figure 4. Complete the assembly by inserting the bent antenna wire into the body and secure it with a small dab of hot-melt glue.

Finish your butterfly figure with a coat of clear polyurethane. This will seal the glue lines and add durability to the painted surface. Now find a good location to fasten your finished creation for all to enjoy. **PW**

Source List

Saral® transfer paper can be ordered from Saral Paper Co., Inc., 322 W. 57th St., New York, NY 10019, (212) 247-0460. It is also available from many art supply stores.



Paint the wings and tail with a black base coat; then use white transfer paper, or cover the back of the pattern with chalk to transfer the pattern onto the pieces.

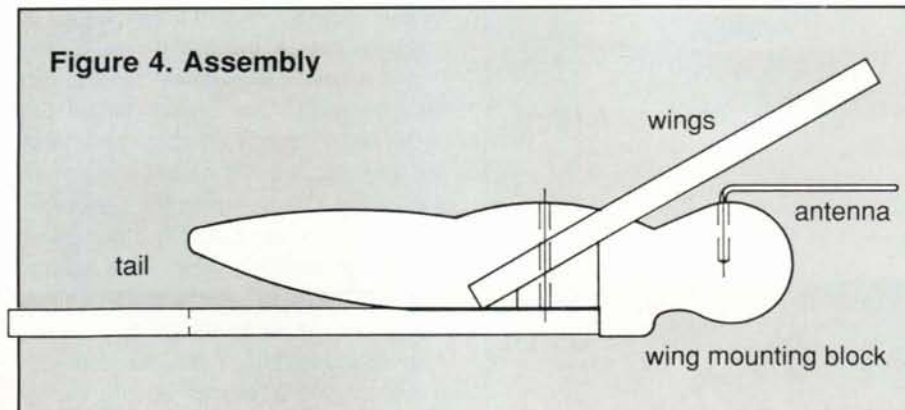
photos by the author



A 3d common nail, held here in a drafting pencil, makes a good tool for painting on the white dots.

Use dabs of hot-melt glue to hold the parts together while the plastic resin glue dries.

Figure 4. Assembly



Portable Firewood Box

by Ralph Thacher

Simple and practical in design, this handsome firewood box can readily be altered in dimensions to fit your particular fireplace or woodstove needs. The one I built is made of ordinary 3/4" fir plywood. Knotty pine or hardwood might be used, although you'll need to join the material to make pieces wide enough for the various panels. Since about eight square feet is required, a piece of 3/4" plywood 48" X 30" will suffice, with some left over to cover mistakes in layout or construction. Most lumber yards will cut a piece this size from a 4' X 8' sheet. You'll also need four feet of 3/4" square pine moulding (or the equivalent cut from a pine board) for the cleats supporting the bottom of the box.

If you plan to use a clear or stained wood finish, the wood grain or pattern should be the same for the front, back and side panels. Figure 1 shows a layout that meets this need. You'll find a full-size pattern for the sides (A) in the PullOut™ Plans section in the center of the magazine.

Once you've cut the panels, you're ready for the details. Drill 1-1/2" diameter holes in the sides to form the curved ends of the handholds; then saw out the center portion with a sabre saw, as shown in the

Ralph Thacher is a woodworker from Taft, California.

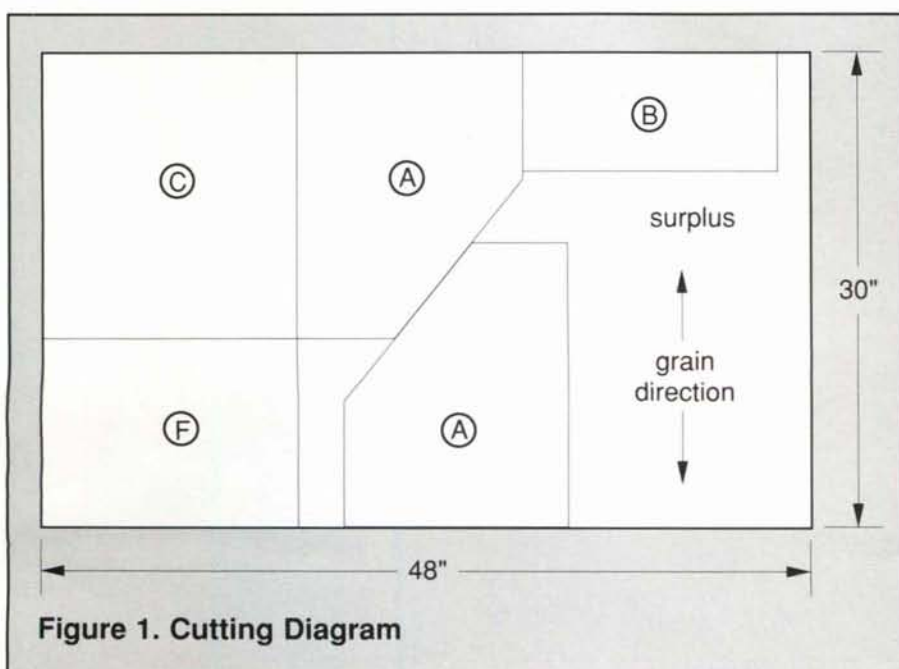
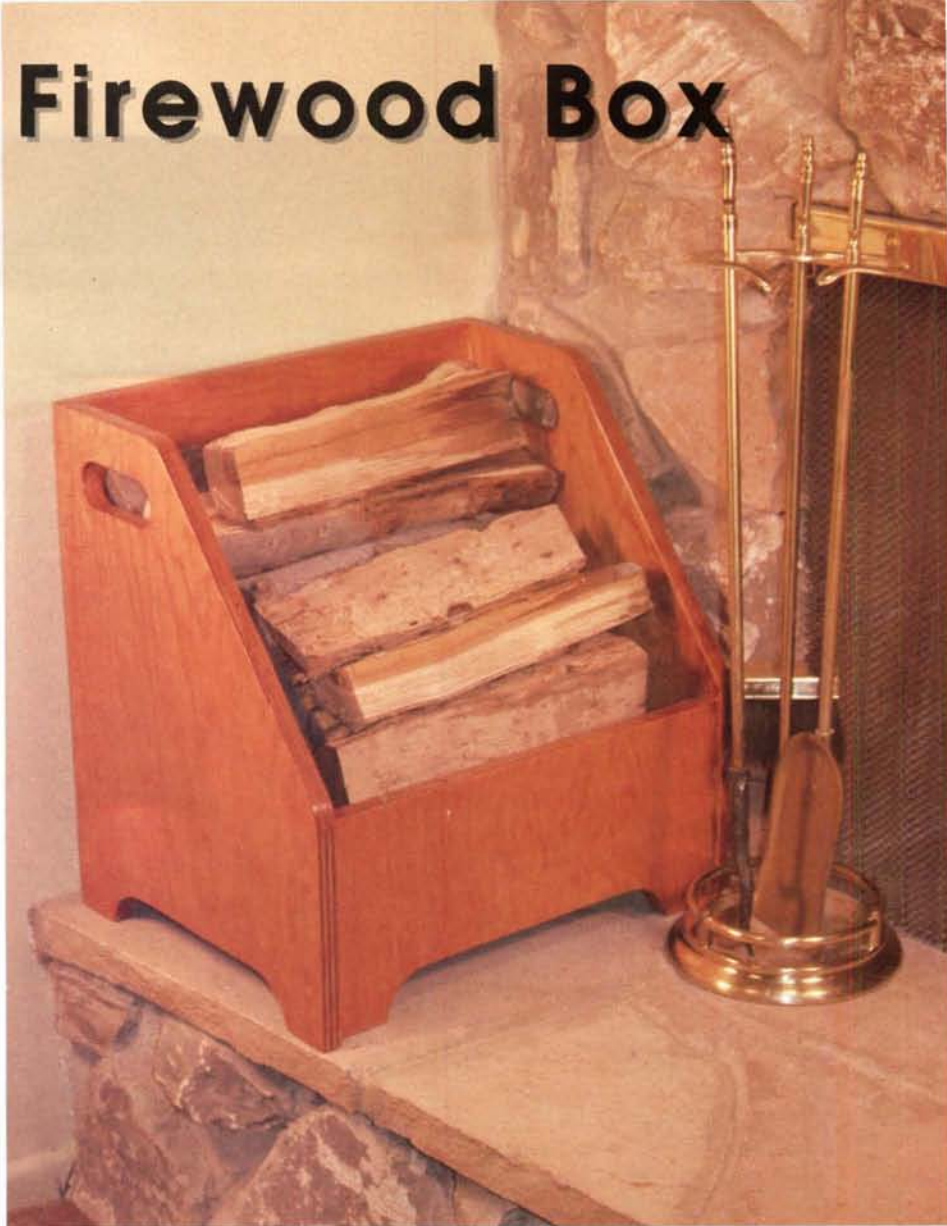


Figure 1. Cutting Diagram

photos on the next page. Shape the feet at the base of the panels by drawing and cutting arcs with a 1-1/2" radius. The sides will be secured to the front (B) and back (C) with glue and 1-1/2" screws, so locate and drill 3/16" pilot holes, five in each side, as shown in Figure 2. Note that the front panel is set in 1/2" from the front edges of the side panels, so be careful when drilling (and when placing the cleats described in the next step). Countersink for all the screw heads *before* starting assembly. You can also drill the holes in one step, after gluing and clamping the panels together, with a combination countersink drill bit available in any hardware store.

If you were to simply drive screws through the sides and into the bottom, the plywood wouldn't have the shear strength to endure the stress of having heavy chunks of wood being dropped on it re-

peatedly. I chose to support the bottom with cleats (D and E). Attach them with glue and 1-1/4" #10 screws flush with the baseline of the side, back and front panels, as shown in Figure 2 and on the Pull-Out™ Plans.

When assembling the box, work on a flat, even surface so that the feet of each panel will contact it squarely. After applying glue to the ends of the front panel, hold it and a side panel in position and finish drilling the screw holes with a 1/8" bit. Complete the drilling and screwing, one screw at a time, until the front and side panels are joined. Small finishing nails may prove useful in holding parts together here.

Now install the back panel with glue and six 1-1/2" screws. To secure the bottom panel (F) permanently, drive and set two 8d nails about 8" apart through each of the back and side panels so they enter the edges of the bottom.

Fill all screw and nail head depressions, and any flaws in the plywood, with a "natural" colored plastic wood. Sand the raw edges of the plywood to the degree of smoothness you wish, and round off the two side panel shoulders. If the plywood edge with its multiple layers showing does not please you, cover them with edge banding veneer tape available at many lumber yards.

Whether you finish the box with a clear finish or paint, use a sealer coat first, especially if you are going to use stain under a clear finish. An effective sealer



photos by the author

Use a 1-1/2" spade bit to cut the arcs, and a sabre saw to waste out the center portion of the handle holes.

can be made from one part lacquer or varnish and five parts thinner. I applied a preservative-type sealer which slightly

darkened the wood, and finished my portable firewood box with two coats of satin-finish clear lacquer. **PW**

Portable Firewood Box					
Cutting List					
Qty	Part	Finished Size			Piece
		T	W	L	
2	A	3/4"	14"	18"	sides
1	B	3/4"	16"	7 1/2"	front
1	C	3/4"	16"	18"	back
2	D	3/4"	3/4"	12"	short cleats
2	E	3/4"	3/4"	14 1/2"	long cleats
1	F	3/4"	16"	12"	bottom
Supplies					
10	#10 X 1 1/2" flat head wood screws				
12	#10 X 1 1/4" flat head wood screws				
6	8 d finishing nails				

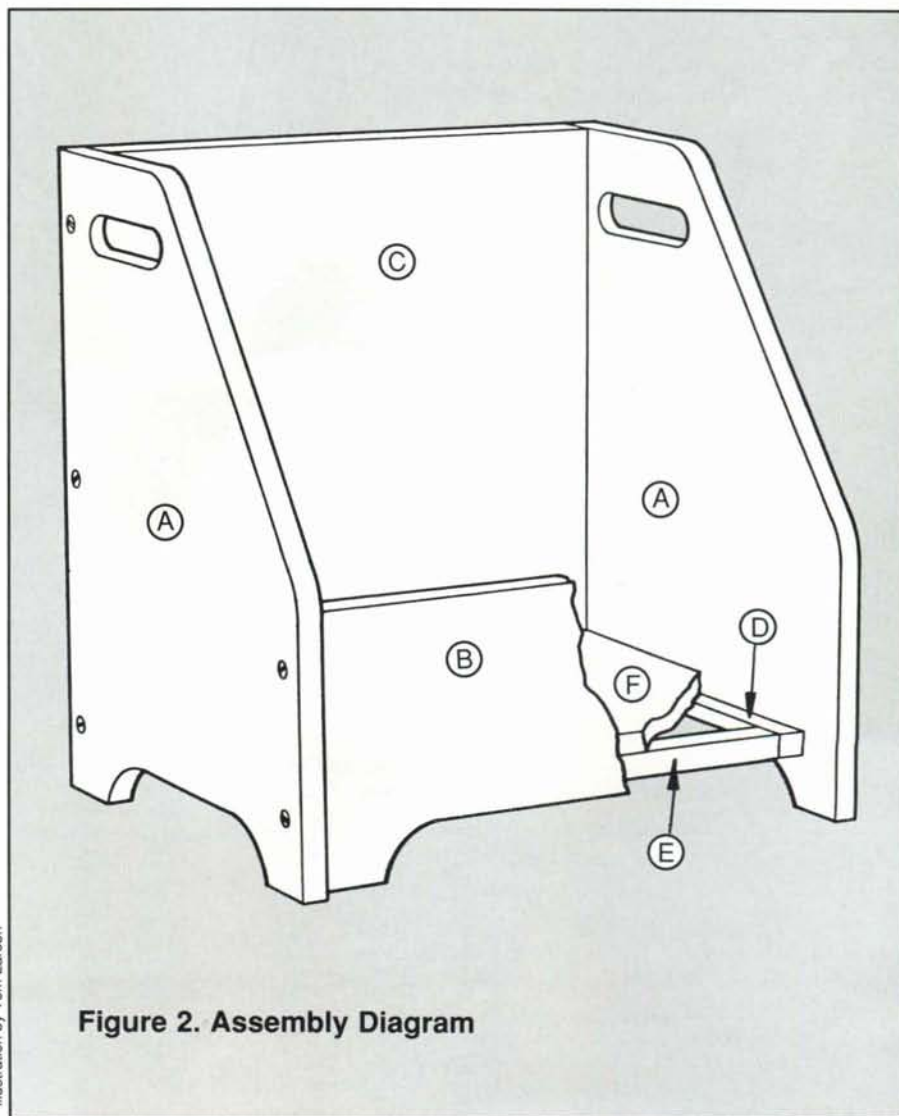


Figure 2. Assembly Diagram

Illustration by Tom Larson

Ladle

by John A. Nelson

While in Tulsa, Oklahoma a few years ago, I saw this scoop and thought it would make a decorative and functional woodturning project. It's made of two fairly simple turnings and riveted together. The handle is shaped from a blank 1" square and about 12" long, and the cup from a 2-1/2" square blank about 4" long.

Mount the handle on the lathe and turn it down to a 3/4" diameter. Then mark the locations of the different diameters shown in the illustration, complete the turning, and sand the handle all over. Mark the locations of the six grooves and burn them in with a thin wire—hold the wire up against the spinning handle until it burns into the wood. Apply a coat or two of satin finish varnish.

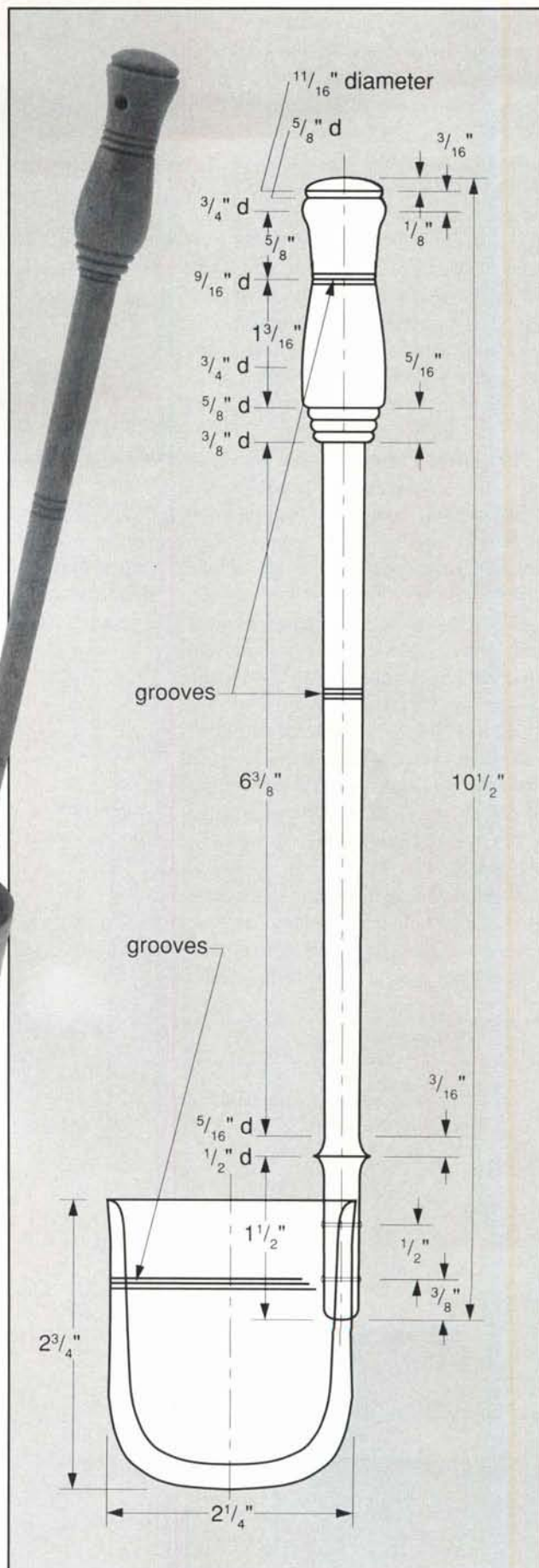
Glue the cup blank to a 3" diameter piece of scrap wood with a piece of paper between them. Screw the scrap piece to a faceplate and mount it on the lathe. Turn the entire length of the blank to the 2-1/4" outside diameter for now. Using a 1" diameter Forstner bit, drill a hole in the end about 2-1/4" deep. Cut in from the walls of this hole to shape the inside of the cup. Finish up the inside with sandpaper.

Turn the outside surface as shown and sand it all over. Try to taper the top edge of the cup to a fairly narrow lip with a slight radius at the rim. Burn in the three grooves using the wire held against the cup as you did with the handle. Finish up with a coat or two of satin finish varnish. If the scoop will be used for food, you'll want to use a salad bowl finish on the inside surface. Cut off the cup using a parting tool, sand the end smooth, and complete the finish.

Use the illustration to determine the approximate shape and location of the handle on the cup. Cut a notch in the end of the handle with precisely the same shape as the profile of the cup. You want a tight fit here, so cut the notch slowly and keep fitting it against the cup so you don't remove too much. When you have a snug fit, glue the handle to the cup and let it dry for 24 hours.

After the glue has set, carefully locate and drill two 3/32" diameter holes about 1/2" apart as shown. Fasten the handle to the cup permanently with two small brass rivets. Insert them so their heads are inside the cup. If you cannot find small rivets, use two small brass nails with heads and cut them so they extend out past the handle about 1/16". Carefully peen over the brass, taking care not to split the handle or the cup. Drill a hole in the handle so you can hang it on the wall—where it can be both used and admired. **PW**

John A. Nelson is a woodworker and drafting instructor from Peterborough, New Hampshire, and the author of 26 books on various subjects, including *Woodworker's Jackpot* (TAB Books, Monterey Lane, Blue Ridge Summit, PA 17214).



A Cedar-Lined Pine Chest

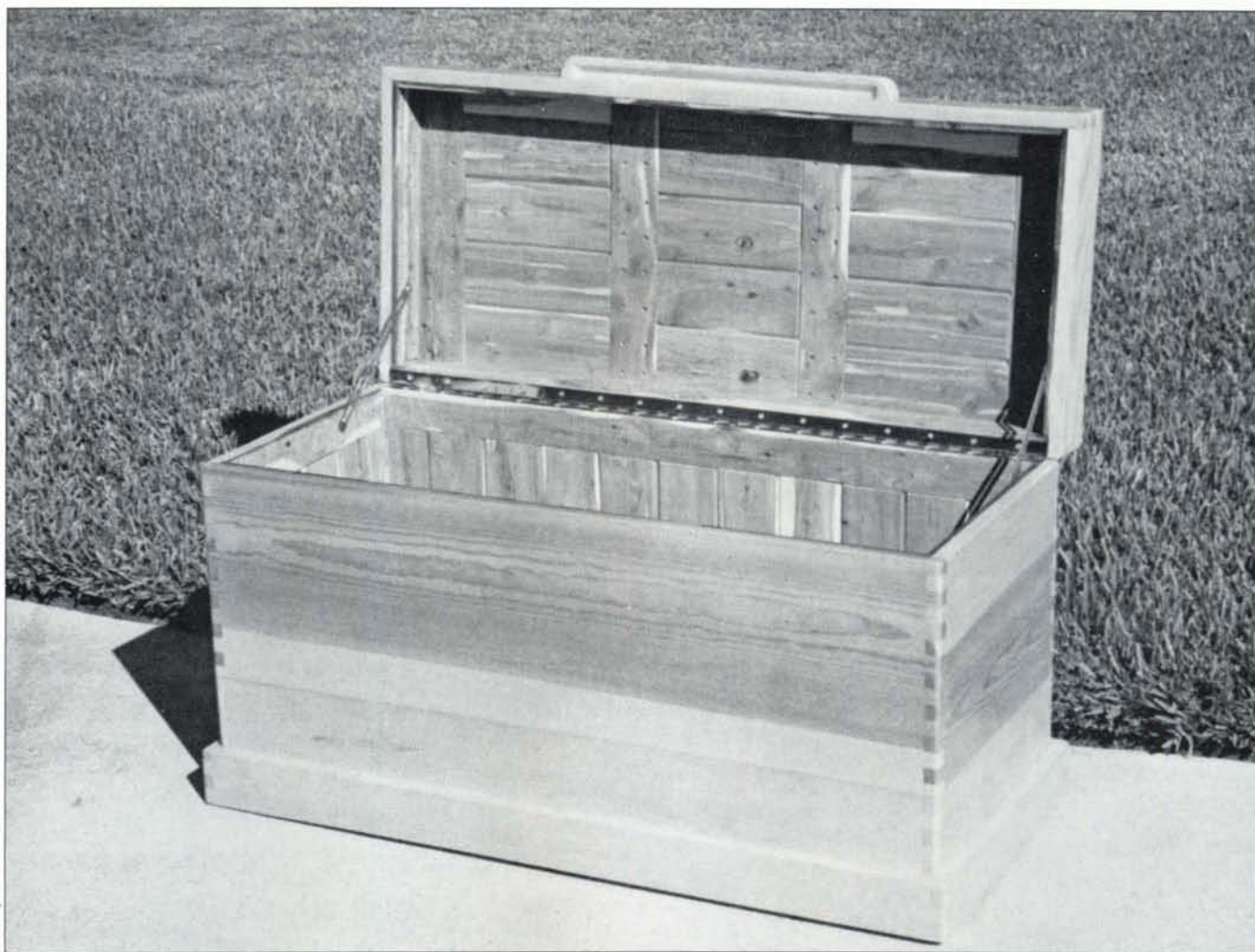


photo by W. D. Kim

by Thomas L. Dunn

There are few smells more appealing than that of cedar, and few woods more handsome than clear pine when properly finished. Add to that some intricate joinery in the form of finger joints (sometimes called box joints) and you have a chest that will enhance any room. Because the materials used to construct this chest are relatively inexpensive, "bigger is better!" This chest is a huge 42" long, 18" wide and 24" high.

Since pine is milled as dimensional S4S lumber in standard sizes, I let these sizes determine the widths of my pieces. The panels for the sides (A) and ends (B) of the chest are 18-1/2" wide because I

illustrations by Tom Larson

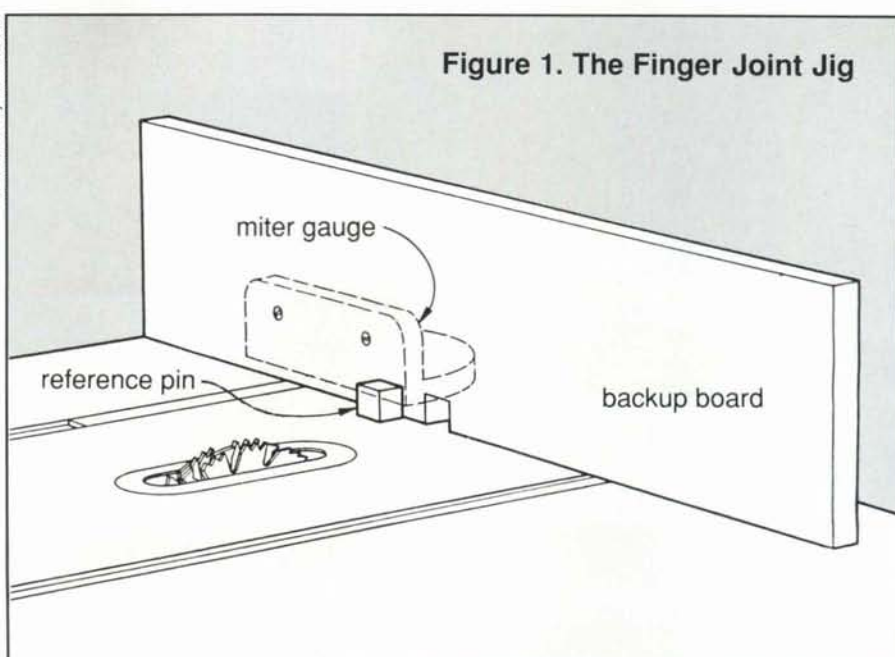


Figure 1. The Finger Joint Jig

Thomas L. Dunn is a retired engineering officer and avid do-it-yourselfer who has written several training manuals and how-to articles. He lives in Waco, Texas.

A Pine Chest					
Cutting List					
Qty	Part	Finished Size			Piece
		T	W	L	
2	A	3/4"	18 1/2"	42 1/4"	sides
2	B	3/4"	18 1/2"	18 1/4"	ends
1	C	3/4"	17 1/4"	41 1/4"	top panel
2	D	3/4"	3"	43 1/4"	base sides
2	E	3/4"	3"	19 1/4"	base ends
2	F	3/4"	3 1/2"	42 1/4"	lid sides
2	G	3/4"	3 1/2"	18 1/4"	lid ends
1	H	3/4"	17 1/4"	41 1/4"	bottom
1	I	1 1/2"	1 1/2"	20"	handle
Supplies					
2	packages (15.65 sq. ft.) cedar closet lining				
1	1 1/2" X 40" piano hinge w. screws				
2	10" lid supports				
3	10/32 RH mach. screws w. washers & nuts				

edge-joined a 1 X 12 (3/4" X 11-1/4") to a 1 X 8 (3/4" X 7-1/4"). Since the wider boards are more expensive per board foot than the narrower ones, you can save money by edge-joining several narrower boards, say, five 1 X 4 (3/4" X 3-1/2") for a chest that is 1" shorter, or four 1 X 6 (3/4" X 5-1/2") for one that is 3-1/2" taller. The plans are really quite flexible.

You can obtain the cedar planking at your local do-it-yourself home improvement center. They come in packages marketed as closet lining kits, each containing enough 3/8" X 3-1/2" tongue-and-groove cedar planks to cover an area of 15.65 square feet. Since the interior area of this chest contains approximately 23 square feet, you will need two packages.

Start by gluing up the panels for the sides (A), ends (B), and top panel (C). I like to use 3/8" dowels on 6" centers when edge-joining, and I drill the holes an extra 1/2" deep to allow for excess glue. I locate these dowels a good 2" away from the ends of the panels.

Cutting Finger Joints

For nice looking finger joints, it's best to cut the fingers slightly long so you can belt sand them flush to the panels after assembly. The lengths given in the cutting list for the sides and ends—as well as the base and lid members (D, E, F and G)—allow for fingers that are 7/8" long.

Set up the dado head on your table saw to make a 3/4" wide X 7/8" deep cut. Use it to cut a notch in a wide backup board that will be screwed to your miter gauge for cutting the finger joints. Fit a piece of 3/4" scrap into this notch to act as a reference pin. Attach the backup board to the miter gauge so that there's 3/4" between the reference pin and the edge of the dado blade (see Figure 1). [Editor's note: For more on cutting finger joints, see PW #40, December/January 1988.]

Cut the fingers in the sides first. Butt the top edge of the panel against the reference pin and cut a notch. Then fit this notch over the reference pin and cut the next notch, and proceed in this manner across the width of the panel. When you

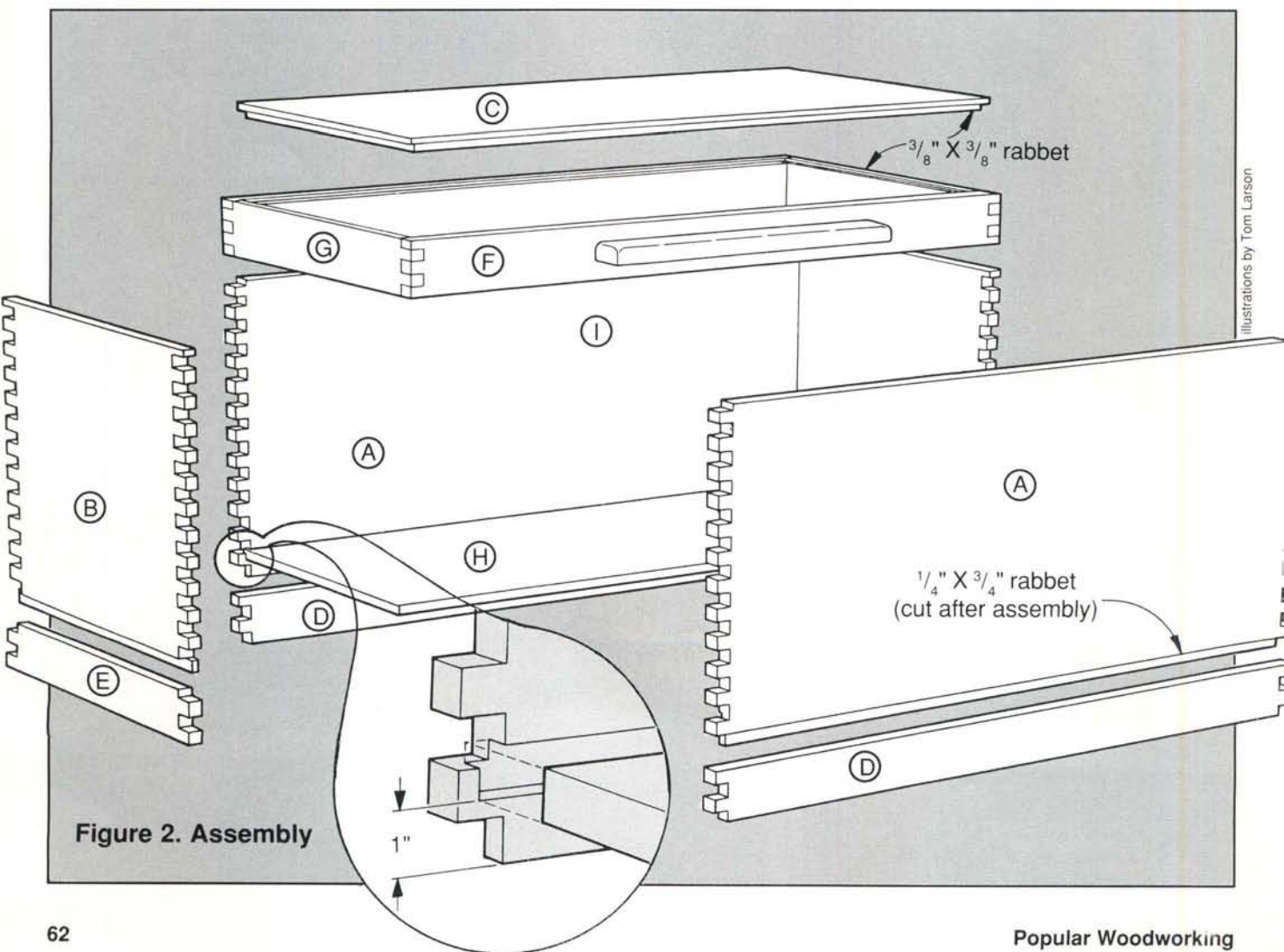


Figure 2. Assembly

cut the fingers in the other end of the panel, be sure you start referencing from that same (top) edge.

To cut the fingers on the end panels, line up the top edge with the dado head itself, so that it cuts a notch where there is a corresponding finger in the side pieces. Then proceed as you did with the sides, referencing the previous cut on the pin for each subsequent cut.

While you're set up to cut finger joints, make these same cuts in the base sides (D) and ends (E) and the lid sides (F) and ends (G).

Once the finger joints are cut, rout a 3/4" wide, 3/8" deep groove at 1" from the bottom edge of the chest sides and ends to accept the bottom (H). This groove should stop 3/8" from the ends of the panels so it won't be seen on the outside of the box. Square the ends of the groove with a chisel. I just used 3/4" plywood for the bottom since it gets covered with the cedar later. Check the fit before assembly.

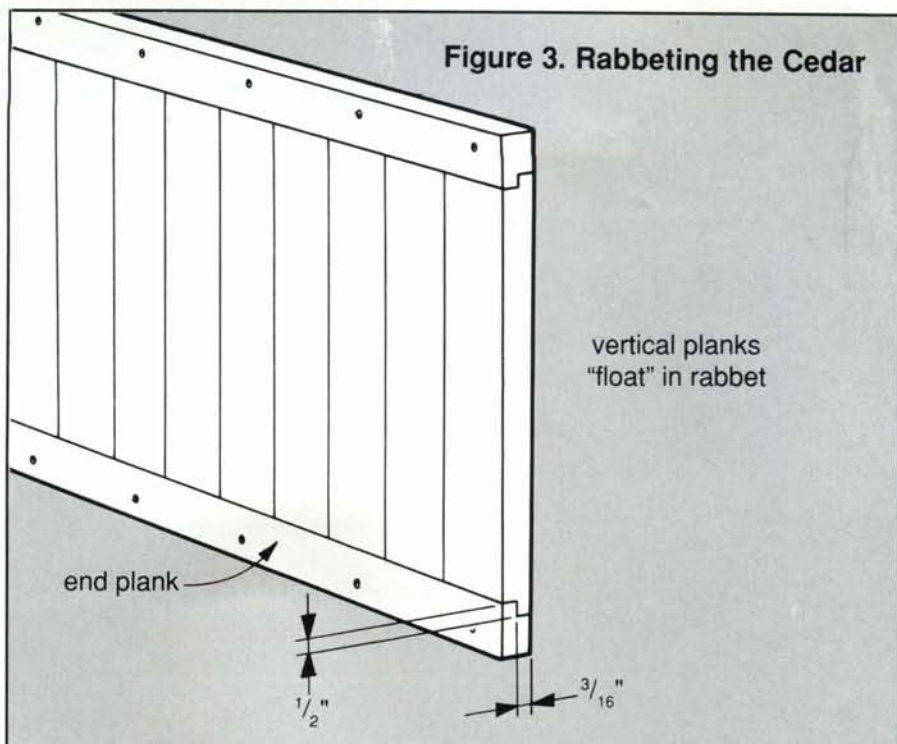
After a dry run, glue and clamp the chest together with the bottom in place. Assemble the base members and the lid frame, too, making sure all of these assemblies are square. I like to clamp a 12" X 12" piece of scrap plywood that I know is square to one inside corner before tightening the bar clamps; just be sure no glue gets on it, or put some wax paper between it and the glued pieces.

After the glue is dry, use a belt sander to bring the fingers down flush at the corners of the chest (don't sand the base or lid fingers just yet). Be sure to sand with the belt direction running in from the corners so you don't chip the end grain.

Next cut a 1/4" deep, 3/4" wide rabbet all around the bottom edge of the chest so it can fit down inside the base assembly (see Figure 2). If you have taken care constructing the body and the base, these two components should fit together snugly. Assemble them with glue; then belt sand the fingers when the assembly is dry.

Route a 3/8" X 3/8" rabbet around the inside top edge of the lid frame and a matching rabbet around the underside of the top panel as shown in Figure 2. Glue the panel into the frame, and sand the fingers flush when dry.

The last step before installing the cedar planking is to cut and shape the lid handle (I). Mill the finger recess with a 3/4" core box router bit, and shape the handle



with a wood rasp and sandpaper. Drill and counterbore the holes in both the handle (1/2" deep) and the inside of the lid frame (1/4" deep). Attach the handle using glue and three 10/32 round head machine screws 1-3/4" long with washers under both the head and nut. Place the nuts on the inside. Plug the three holes in the handle with plugs cut from a similar piece of pine, being careful to line up the grain of the plugs with that of the handle before gluing them in place. Finish up by sanding the handle and plugs smooth. Don't be concerned with the counterbored holes for the nuts since the cedar planks will cover them.

To install the cedar, I first cut horizontal pieces (or "end planks") to fit around the perimeter inside the box at the top and bottom. I cut a 1/2" wide rabbet along one edge of this material at a depth of one-half its thickness (see Figure 3). I also cut matching rabbets across the ends of the vertical pieces. This way I need only to glue and screw the end planks in place, allowing the vertical planks to "float," thus accommodating wood movement. I used a similar arrangement inside the lid.

Now, to complete the assembly, rabbet the back edge of the lid and the chest for the brass piano hinge using a chisel. Be careful not to chisel deeper than the thickness of the hinge material. This done, attach the hinge to the lid and body with 3/4" X #6 brass flat head wood screws (the

size may vary depending on the size of screw holes in the hinge). Install the lid supports.

The last step prior to finishing is the step that adds character to your chest. Using 2" wide strips of sandpaper (starting with medium and progressing to fine and extra fine), sand a radius on the corners formed by the junction of the finger joints. For best results cut the sandpaper strips 4" wide and fold to strengthen the strips. Don't try to speed up the process here by using the belt sander or a wood rasp, as these will only chip the end grain or wear away the wood unevenly. You will be surprised how fast this operation goes. Since you are concentrating only on the edges the wood wears away quite rapidly. Be careful when sanding the radius near the base so as not to expose the inside corner of the base itself. Once all finger joint edges are radiused, round the edges on the lid and outside of the base with a sanding block, being careful to follow the grain of the wood.

For a smooth and even appearance, use a fast-drying satin finish such as Deft Satin Clear Wood Finish. Don't use any on the cedar. Sand all surfaces prior to and between each coat with extra fine sandpaper (allow an extra half-hour of drying time over and above the manufacturer's recommendations). Three or four coats will produce a superb finish that should last for many generations to come. **PW**

Sculptural Coffee Table

**as told to S. Reed Poverny
by Jon Seeman**

Jon Seeman's playful table of ash, koa, and Indian rosewood appeared in these pages once before in a "Wood Types" article I wrote about ash (*PW* #46, December/January 1989). It stands roughly 17" high; the top measures 26" wide on the broad end, 16" wide on the

S. Reed Poverny is a wood researcher, woodworker and writer in Los Angeles, California.

Jon Seeman is a professional furniture-maker and the owner of Jon Seeman Designs in Wood in Laguna Beach, California.

narrow end, and is 58" long. In response to reader inquiries, Jon shared with me the steps for making it.

When he designed the table, Jon wanted it to be an uninhibited sculptural form. The patterns and dimensions given here will help you create a table that is similar in form, but much of the final shaping of the legs, base and top cannot really be specified and must be left up to your own interpretation. Indeed, once you understand the process of making the table, you should feel free to design your own shapes for the various parts.

The top and base are made from 1-1/2"

thick stock, while the legs are built up from material that is 1-3/4" thick. For the sake of discussion, we'll refer to the wood by the species Jon used; substitute whatever is available in your area that will provide the proper contrast. Don't feel compelled to use exotics just because they're mentioned here.

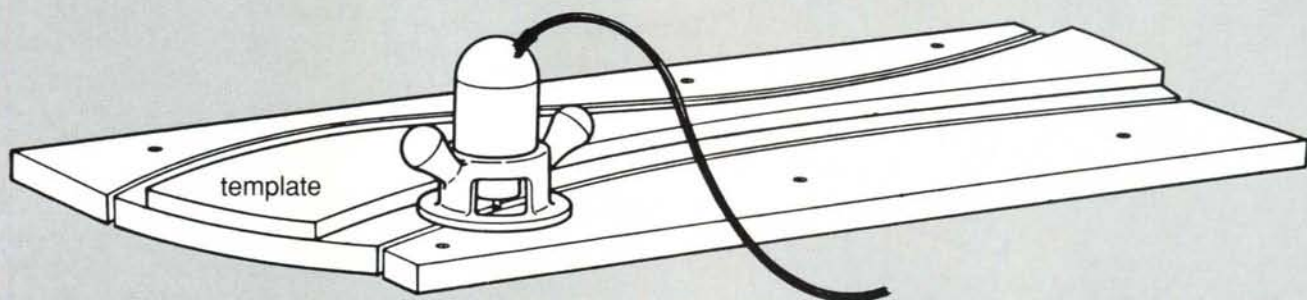
Making the Top

Start by gluing up two or three planks of ash that are about 63" long for the 20" wide center section of the top. The two koa borders are also about that long and 6" to 8" wide.

On a large sheet of butcher paper,



Figure 1. Routing the Mating Pieces



illustrations by Tom Larson



Jon Seeman

draw a grid of 1" squares, and scale up the patterns for these parts from the PullOut™ Plans section in the center of the magazine, or create your own free-flowing shape. Transfer this pattern onto your wood, and cut out these three parts slightly wide of the marks. Leave the outside edge of each koa piece uncut at this point, to provide a straight clamping surface.

Now, using your pattern for the center section, make a template for your router to do the final trimming as shown in Figure 1. Jon uses 1/2" maple plywood for his template. Determine the diameter of your router base, and draw the template edge at half of that dimension away from the edge of the center section pattern (the PullOut™ Plan template is for 6" diameter router bases). Cut out the template on the bandsaw, and carefully sand the edges removing any irregularities.

Working on a surface of 3/4" plywood, Jon fastens the koa border pieces with drywall screws in the waste area. Leave about a 1/8" gap between the ash and the koa. Secure the ash center section and the router template to the plywood work surface with clamps.

With a 1/4" straight bit chucked in the router, trim the mating surfaces using several very light passes. By adjusting the depth of cut gradually through a series of passes, you will have the control necessary to keep the router from pulling away from the template.

Jon laminated strips of rosewood between the koa and ash of his top. With a

sharp 60-tooth carbide blade, it is possible to rip 1/8" strips from 1-5/8" thick material that will be smooth enough to provide a good glue surface. Another option is to rip them at about 3/16" and run them through a drum sander. Use two strips per joint to make a 1/4" stripe matching the 1/4" splines that you'll use in the base.

Scrub the rosewood well with acetone to remove surface oil, then apply aliphatic resin glue and clamp the strips between the three main pieces of the top. When dry, use a belt sander to bring the rosewood down flush to the surface.

Now bandsaw the outside shape of the table. Jon uses a drawknife to roughly undercut the edge of the top at an angle, then refines the shape with a spokeshave. On the end grain he uses a portable disk grinder for this operation, starting with a 16-grit disk, then graduating to 80, and then 120.

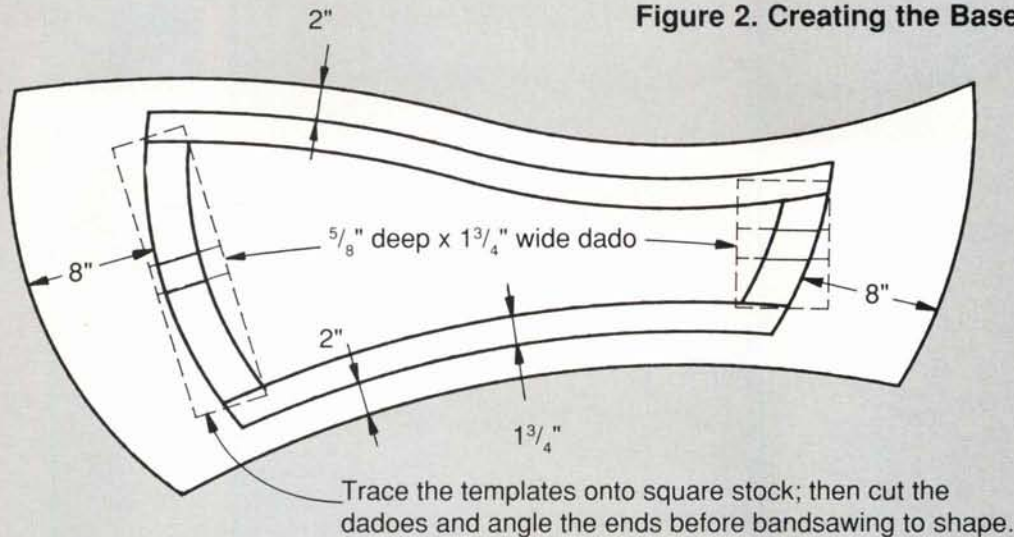
Making the Base

The first step in making the base is to make a template that is the final shape you want on a piece of 1/4" masonite. Jon used the finished shape of his top to establish the footprint for the base by drawing a shape 2" in from the sides and 8" in from the ends as shown in Figure 2.

Cut out this template as a single piece; then refine it until it's precisely the way you want the base to appear. When it's right, cut it apart at the four points where the joints will be, making four individual templates.

The 1-1/2" stock you use for the base

Figure 2. Creating the Base Template



will need to be 5" to 7" wide; you'll need two pieces that are approximately 48" long, another about 20" long, and one about 8" long. Using the templates, draw the patterns onto each of these boards but cut out only the two long pieces at this point.

While the two short members are still square, cut a 1-3/4" wide X 5/8" deep dado near their centers to accept the leg up-rights (see Figures 2 and 3). The width of this dado should match the thickness of the stock you plan to use for the legs, so if your stock is not exactly 1-3/4" thick, adjust the dado accordingly. Next, cut the angles on the ends of these pieces by first placing the stock of a sliding T-bevel along the edge of the material and lining up the tongue with the angle that is drawn on the piece from the template. Each end will

have a different angle. Jon uses the table saw carriage detailed in "Jig Journal" on the next page to cut these angles; other means are possible. Some fitting and trimming may be required to ensure that the four joints are absolutely tight. Now bandsaw the curves and refine the edges.

Use a 1/4" X 1/2" slotting router bit to slot the ends of the two short base members and the first few inches at each end of the long base members as shown in Figure 3. These latter slots should stop at a point 1/2" beyond the point where the short members butt against the long members (see Figure 4). Square the bottoms of these stopped slots with a 1/4" chisel; then assemble the base with contrasting splines. When the base is dry, trim the projecting portion of the splines flush to

the inside corners.

Making the Legs

You'll need six pieces of wood that are 1-3/4" X 5" X 18" for the two legs of this table. The side view in Figure 3 shows an approximate layout for these pieces. The center piece of each assembly needs to be 5/8" longer than the two that will be laminated on each side of it, so that it can fit down into the dado in the base. Jon sets up his mitering carriage to cut the ends at precisely 60°. With the stock still square he cuts one end, then slides it to the other side of the cleat to make the other cut. The idea is to make the distance between these two parallel cuts 14-5/8" for the two center sections of the legs, and 14" for the four outside pieces.

Once you've established these paral-

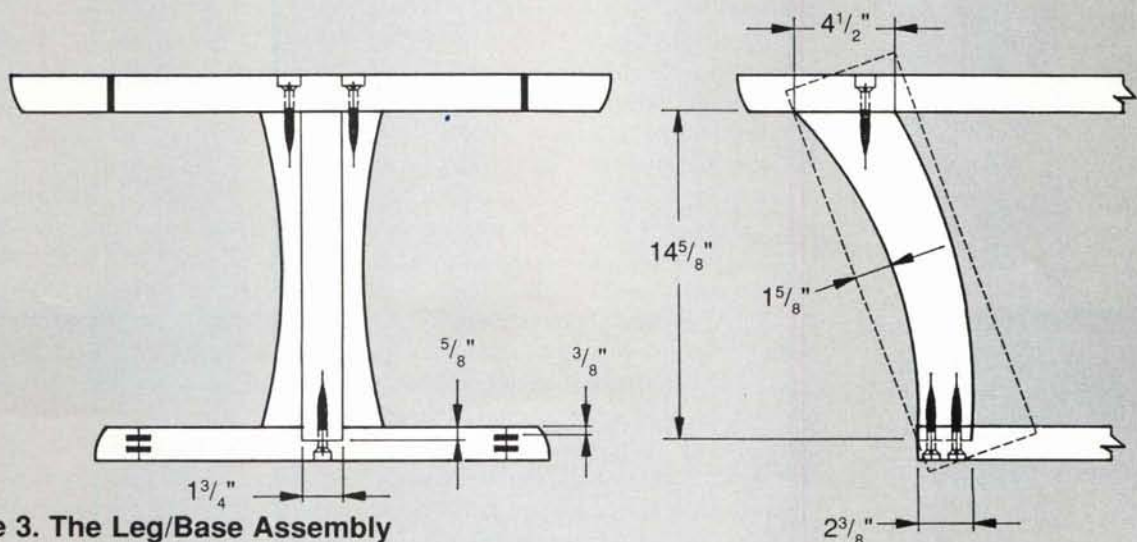


Figure 3. The Leg/Base Assembly

lel surfaces, you can bandsaw the curves. Make a template from 1/8" masonite based on the layout in Figure 3. The dimension at the bottom end of the legs (shown here as 2-3/8") should be slightly larger than the width of the base material at the point they will be joined. Flare the top of the legs to provide the largest possible surface for supporting the top.

Assembly and Finishing

Since you can't clamp this curved leg into the base, use 3-1/2" X #14 flat head wood screws to draw it tight into the dado. Drill the pilot holes and counterbore before applying any glue, and make the shaft holes in the base slightly oversize to ensure that the leg gets pulled in tight. Once the center pieces are glued and screwed in place, glue on the side pieces.

Jon shapes the legs using a drawknife,

illustrations by Tom Larson

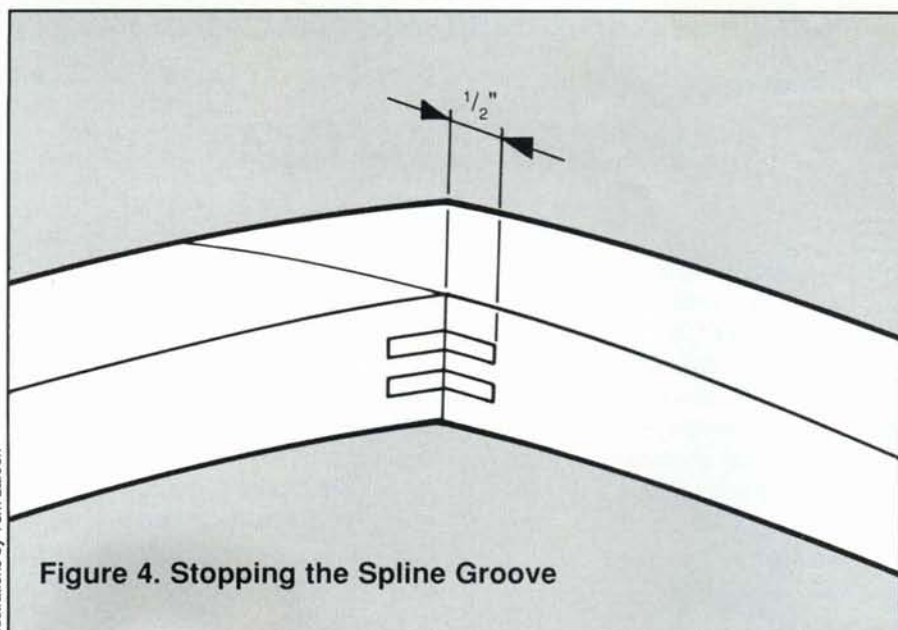
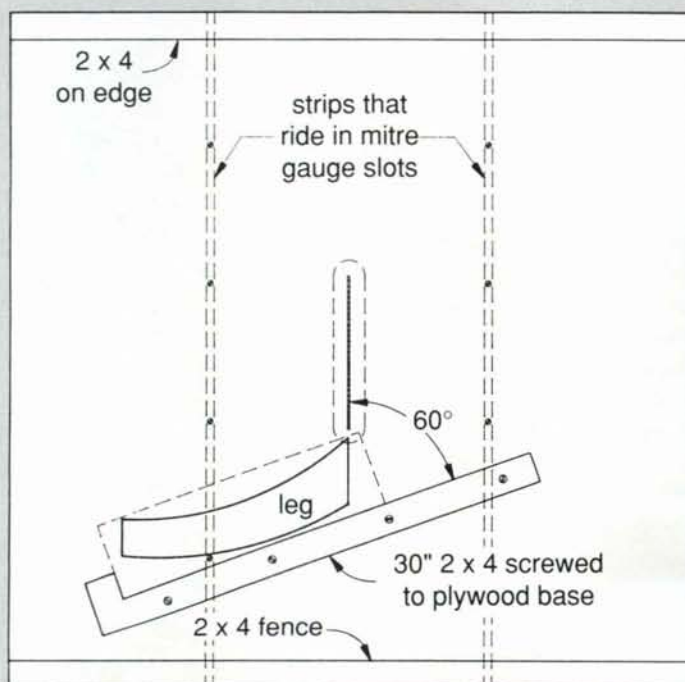


Figure 4. Stopping the Spline Groove

Jig Journal

Mitering Carriage



by S. Reed Poverny

This carriage is just a simple variation on a standard sliding cross cut jig. By screwing a cleat to the plywood base you can make cuts at angles that a miter gauge won't allow.

Jon uses a 30" length of 2 X 4 notched as shown for his cleat. In order to cut all the way through the material, the blade has to cut into the cleat; if you can avoid cutting all the way through you should be able to reuse the cleat several times for different angles before having to replace it.

spokeshave, and body grinder. While grinding away, he shields the base from damage using thin metal sheets cut from old gallon cans of Watco®. "If I were doing it today," he says, "I would chainsaw out that bulk by raking back and forth like a power file." Once the legs are sculpted to shape, he sands the whole base with a disc grinder followed by an orbital sander.

Attach the top to the uprights with glue and counterbored flat head wood screws. Jon plugs these holes with square rosewood pegs he cuts on the table saw. To create the square hole, he first drills with a 3/8" bit, then establishes the perimeter with a mortise chisel.

To enhance the contrast between the woods, Jon whitens the ash with a two-step bleach kit. First, sand to 120-grit; then apply the bleach very carefully around the rosewood using an artist's brush. If you get some on the rosewood you can remove it by dabbing with water before it starts to have an effect. Bleach the wood a second time to make it even whiter; then wipe the table down with a wet rag to remove the chemical residues. You can also tint any visible glue lines in the rosewood with a tincture of iodine to make them purplish.

Jon finish sands the bleached surface with 150-grit paper on an orbital sander. He follows this by hand sanding with worn 150-grit, then 180-grit to remove any squiggles left by the sander. Don't sand too much, though, because the bleached surface is very thin. Jon finishes with four coats of Deft semi-gloss lacquer. **PW**

Pole Lamp

by Don Stutzman

Here's a functional and pleasingly different floor-to-ceiling lamp. Three lights mount in maple forks on an extendable column. What's unusual is the use of hardwood in a design intended for metal. Locate it behind an easy chair, and the light will shine over your shoulder to illuminate lower shelves, a writing surface, or your reading.

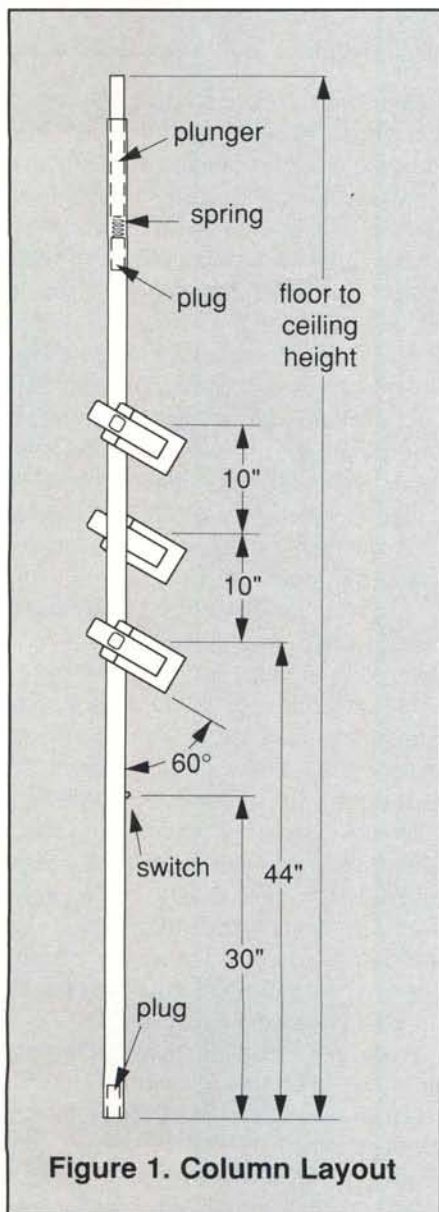


Figure 1. Column Layout

Don Stutzman is a long-time woodworker from Houston, Texas.

Column

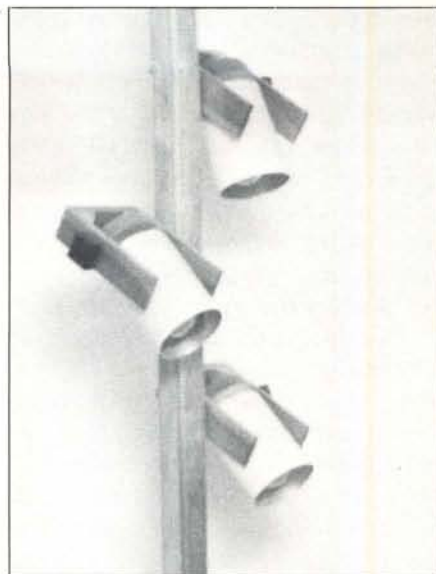
Use two long sticks and a C-clamp to measure the floor-to-ceiling height. The C-clamp will secure the lapped-over sticks or story pole for reference at the workbench. Rip four $\frac{3}{8}$ " thick strips of maple to form the column, two $1\frac{1}{4}$ " wide (A) and two 2" wide (B), all to the length of the story pole. A lap-jointed assembly of these strips provides a $1\frac{1}{4}$ " square hollow—plenty of space for fishing 16 gauge insulated lamp cord and installing a four-position rotary switch. Locate the switch—mine's about 30" from the floor—and check to see that it projects through the column wall. If it doesn't, countersink on the inside surface to reduce the wall thickness.

Decide where on the column you want the lights. Mine are 10" apart, with the lowest 44" from the floor. The upper and lower lights are on one side of the column, while the center lamp mounts on the opposite side. Drill $\frac{3}{8}$ " holes for wiring—at the point where each lamp swivels—and glue and clamp the column pieces together.

After the glue has set, sand the column on all four sides. I ran a bearing-guided beading bit, set shallow in the router, down all edges, an operation that remarkably reduced the obvious lap-joint appearance of the completed column. Saw through the column cleanly at both ends to a finished length that is about 3" or 4" shorter than your story pole—enough to allow for movement in the spring-loaded top plunger coming up next. Finish the wood now, or wait until the lamp bases and forks are ready.

Plugs and Plunger

Carefully dress a 20" length of maple to fit snugly but easily into the $1\frac{1}{4}$ " hollow of the column. This piece is enough to make both the top plug (C) and the bottom plug (D), as well as the spring-loaded plunger (E). While it's still long enough to handle safely, cut a 3" slot, $\frac{3}{8}$ " wide and $\frac{3}{8}$ " deep, into one side and at the end of the stock. Cut off the 3" slotted section and you have the bottom plug ready for wire entry, as shown in the photo at the top of



Pole Lamp

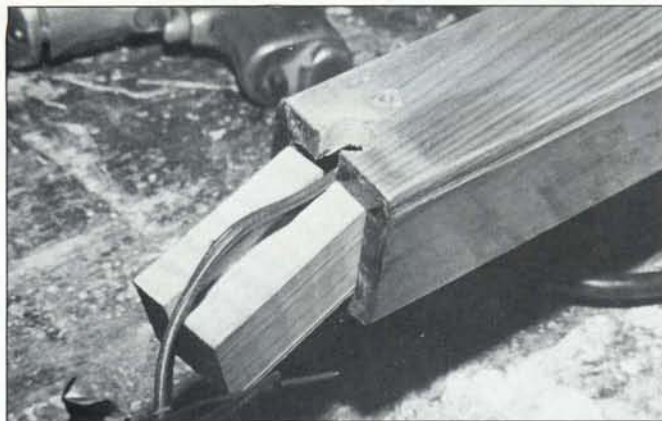
Cutting List

Qty	Part	Finished Size			Piece
		T	W	L	
2	A	$\frac{3}{8}$ "	$1\frac{1}{4}$ "	*	narrow sides
2	B	$\frac{3}{8}$ "	2"	*	wide sides
1	C	$1\frac{1}{4}$ "	$1\frac{1}{4}$ "	4"	top plug
1	D	$1\frac{1}{4}$ "	$1\frac{1}{4}$ "	3"	bottom plug
1	E	$1\frac{1}{4}$ "	$1\frac{1}{4}$ "	13"	plunger
3	F	$1\frac{7}{8}$ "	$3\frac{3}{4}$ " diameter		base blanks
6	G	$\frac{3}{8}$ "	$1\frac{7}{8}$ "	$7\frac{1}{2}$ "	fork sides
3	H	$\frac{3}{4}$ "	$1\frac{7}{8}$ "	$4\frac{1}{4}$ "	fork ends
6	I	$1\frac{7}{8}$ "	$1\frac{5}{16}$ "	$1\frac{5}{16}$ "	triangular braces
3	J	$\frac{3}{4}$ "	$1\frac{1}{2}$ "	$1\frac{1}{2}$ "	tilt knobs

*length depends on floor-to-ceiling height

Supplies

1	light-duty compression spring
1	4-position rotary switch
3	fixture lampholders (with brackets)
3	$\frac{3}{8}$ " X $1\frac{1}{2}$ " all-thread nipples (lamp pipe)
6	locknuts (lamp pipe nuts)
3	$\frac{1}{4}$ " X 2" hanger bolts
6	$\frac{1}{8}$ " aluminum rivets
	$\frac{1}{16}$ " perforated aluminum soffit material
	16-gauge insulated lamp cord
	flat head and round head wood screws
	nails and brads



photos by the author

In the photos on the left, the cord enters the column through the slotted bottom plug. When the plug is inserted in the column, the wire exits through a hole drilled in the side. On the right, the author turns the lamp base, rounds its upper edge and cuts the indentation for the aluminum shade. Once the central vent hole has been drilled, a table-mounted router rounds its upper edge.

this page. Cut off a 4" length and you have the top plug. The remaining 13" should be positioned in a lathe and the end turned (or hand-carved) to accept a compression spring. I used a spring from the locking bar of a garage door, but a light-duty compression spring from the hardware store will hold everything in place.

While the column is still bare, lay it next to the story pole on the workbench. Butt both against a stop block and make their ends even so you can determine where the top plug should be secured inside. Place the spring-loaded plunger where it will apply enough pressure to hold the lamp firmly between the floor and ceiling. A single screw through the column and into the top plug will suffice. The screw can

then be countersunk and plugged, or button-capped, or—if chrome or brass—simply left exposed.

Lamp Bases

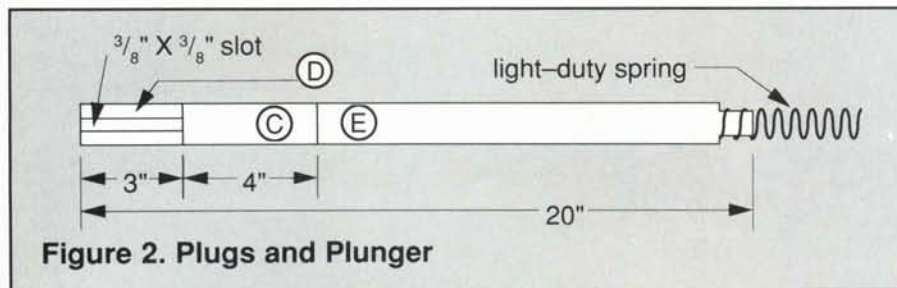
The three maple spools comprising the lamp bases are the simplest kind of turnings. Use one-piece or glued-up stock (F), mark the circles with a compass, and rough-cut. Turn them to size (3-3/4" diameter X 1-7/8" thickness) on the lathe, and cut the 1/16" X 3/8" indent so the shade will install flush with the base. If your shade material is thicker than 1/16" (see the section on shades coming up), adjust the depth of the indent. Drill a 1-1/4" vent hole through the center of each base, round all edges, and sand smooth. Drill swivel holes opposite each other in the

base sides, one through to the vent hole to wire the fixture, and one just deep enough for the 1/4" X 2" hanger bolt which secures the tilt knob.

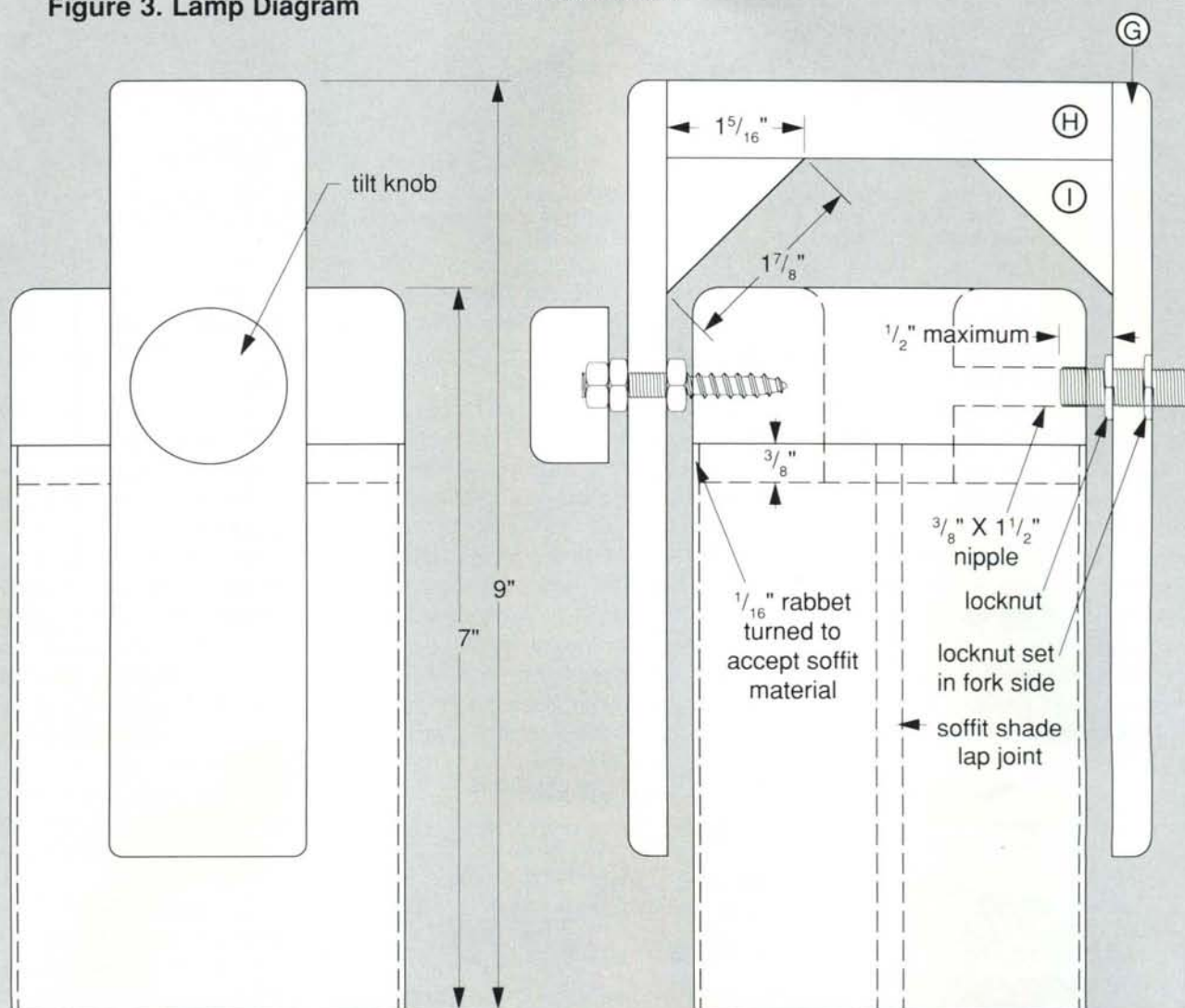
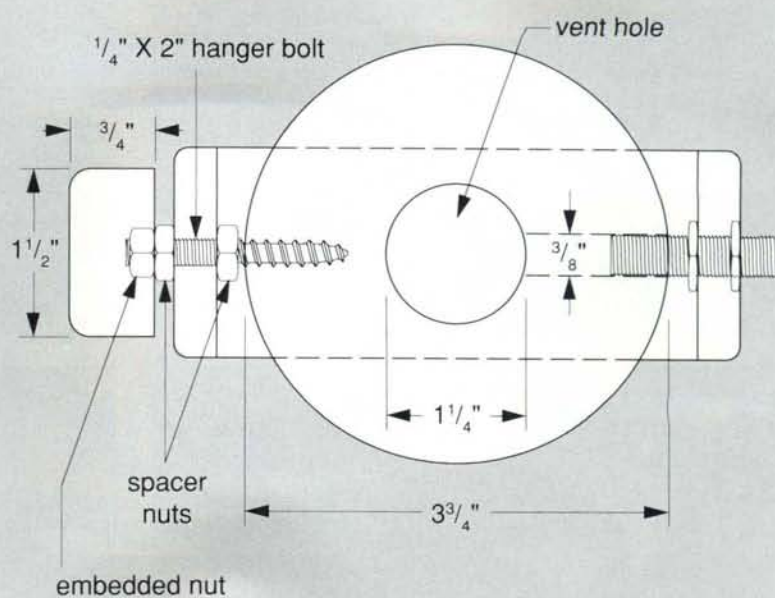
Ready the fixture lampholders for installation. These are nothing more than plastic or ceramic light sockets with a detachable mounting bar, and are available at most hardware stores. Remove the bars from their sockets and fasten one in each vent hole with a round-head wood screw. Proceed with care so the light bulb is centered and as far up and into the vent hole as possible. The bar must be installed now, before the shade is wrapped around the base and the vent hole becomes almost inaccessible. The sockets themselves will be installed and wired later. If you plan to finish the wood lamp bases, do it at this point—before installing the metal shades.

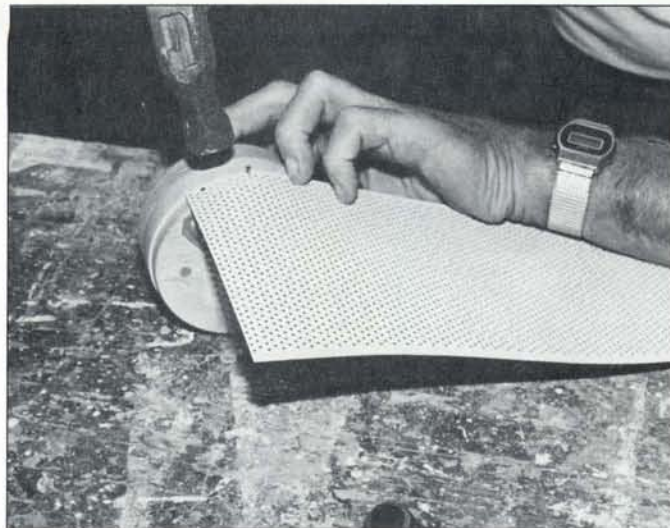
Soffit Shades

The perforated, pre-painted aluminum used to make the shades was cut from a section of ordinary soffit material, available from a lumberyard or building materials supplier. The perforations, which allow moist air to vent through the eaves of



Illustrations by Phil Fischer





photos by the author

Here, the perforated, pre-painted aluminum soffit material is nailed around the lamp base in the indent. On the right, two 1/8" aluminum rivets complete the shade. The lap joint should be positioned on the underside of the lamp.

your house, here allow heat to radiate away from the light bulb and lamp assemblies. The light bulbs in mine are 40, 60 and 100 watt, and I haven't had a heat build-up problem in the four years my column lamps have been in use.

Soffit material comes in sheets of various sizes. The perforated area of the sheet I used was 5-1/2" wide, which was just enough. The length, or roll-around distance, is 12", including the lap joint. Pop rivet it with 1/8" aluminum rivets after securing it to the turned bases with 1/2" nails at 1" intervals. A large hose clamp will help here. Locate the lap joint on the bottom, 90° from the swivel holes.

Forks and Knobs

The lamp assembly is attached to the column through a maple fork. Cut five pieces for each—two sides (G), an end (H) and two triangular glue blocks (I). Lay out and cut the glue blocks from a piece of maple so that the grain parallels the long side. The measurements in Figure 3 describe a triangle 90° X 45° X 45° but you can alter it—only the right angle need be maintained.

Drill a 1/4" hole in the outer fork side and a 3/8" hole in the other. These swivel holes align with each other and the holes drilled earlier in the bases. One is for the 3/8" lamp pipe nipple that routes the wiring from the base through the fork into the column. Countersink around it in the outer surface of the fork just enough to recess a thin locknut. In the same fork side, countersink holes for two #6 X 3/4" flat head wood screws to hold the lamp/fork assemblies to the column.

Assemble the forks with 7/8" brads and glue at every joint; then sand them smooth and round all edges slightly. A stationary belt sander helps. If you plan to finish the wood, now's the time.

Insert a 3/8" threaded nipple, 1-1/2" long, through its hole in the fork side so just under 1/2" projects inside—if more, you won't be able to fit the lamp base between the forks. Screw a locknut up against the inner side of the fork. Add another on the other side, tightening it in the countersink until it's recessed flush with the fork surface. About 3/8" of the nipple will project, ready for wiring in the column.

Each lamp will need a knob (J) on the side away from the column so it can be tilted. I used 3/4" black walnut, cut a 1-1/2" square, rounded the outside edges, and countersunk to receive a 1/4" X 20 nut. I brazed the nut to a washer and fit them both in the hole, but a nut set in epoxy should do just as well.

Forks and Lamps

Follow the instructions included with the four-way rotary switch. 16-gauge lamp cord fishes well, though you may need to start with something finer, like thermostat wire. Push it up the column, and out the three nipples. Give yourself enough cord to handle—and then some.

Keeping in mind that the forks themselves do not move, determine the angle you want to fix them at. I like 36° down from horizontal, about where the lights inside will be set at. Maintain simplicity and clean lines by keeping the forks parallel. Mark on the column through the holes in the fork sides for the #6 X 3/4" flat head screws,

and attach the fork assemblies.

You're ready to install the lights. Feed a wire through the swivel hole in the side of the base into the vent hole. Wire the lampholder fixture and attach it to the mounting bracket you installed earlier. Next, slide the lamp between the forks, snug up against the inside surface of the outer fork, and fit the nipple end into its swivel hole. If it doesn't project more than 1/2", and if the base diameter is no more than 3-3/4", the lamp should just fit, allowing the pipe to slide in. If it doesn't, remove the fork from the column, loosen the lock nuts, and screw the nipple a bit further into the column.

With the nipple in the swivel hole, you can attach a tilt knob through the outer fork. Tighten the bolt end of a 1/4" X 2" hanger bolt into the nut you epoxied in the knob and add another, slightly larger nut—or other fitting—to serve as a spacer. Insert the screw end of the hanger bolt through the hole in the outer fork, through another spacer, and screw it into the base. The hanger bolt, knob and spacers keep the light centered and easy to adjust.

Once secure, cords should be pushed well up the column hollow. One emerges through the slotted plug. The screw used to secure it must be left exposed because access may one day be important. Install your pole lamp exactly vertical—check that it's plumb. Screw in the bulbs, plug in the cord, turn the switch and play around with the knobs. After all that, you'll need a break, so pull up an easy chair and bask in the light of your new pole lamp. **PW**

Two-Point Perspective for Relief Carving

by William H. McMaster

One of the most interesting forms of relief carving is that which depicts a scene telling a story or illustrating some event. In a carving this is more difficult to accomplish than in a painting since most carvings of this type are mono-chromatic and thus must depend upon shadows rather than colors to show the different entities. I

William H. McMaster is Chief of the Education Division of the California Carvers' Guild. His "Focus on Carving" is a regular feature in PW.

feel that this is the most difficult form of carving since the carver must rely on optical illusions to portray the fullness of the subject matter. It is the purpose of this article to give you some guidelines for creating these illusions.

In doing a relief carving of a scene, the most important techniques to master are those of foreshortening and perspective. This article will discuss the basic principles of developing a pattern in two-point perspective; in the next issue we'll cover

foreshortening.

Establishing the Field of View

Figure 1 schematically shows the carver viewing a scene which he wants to carve in relief. The location of the carver's eye is known as the **station point (SP)**. If he is working from a photograph, this would be the camera location. In this figure we have shown both a plan view and a side view of the terrain. Since the earth is curved, the carver sees a horizon at his eye level. The point on this horizon that is

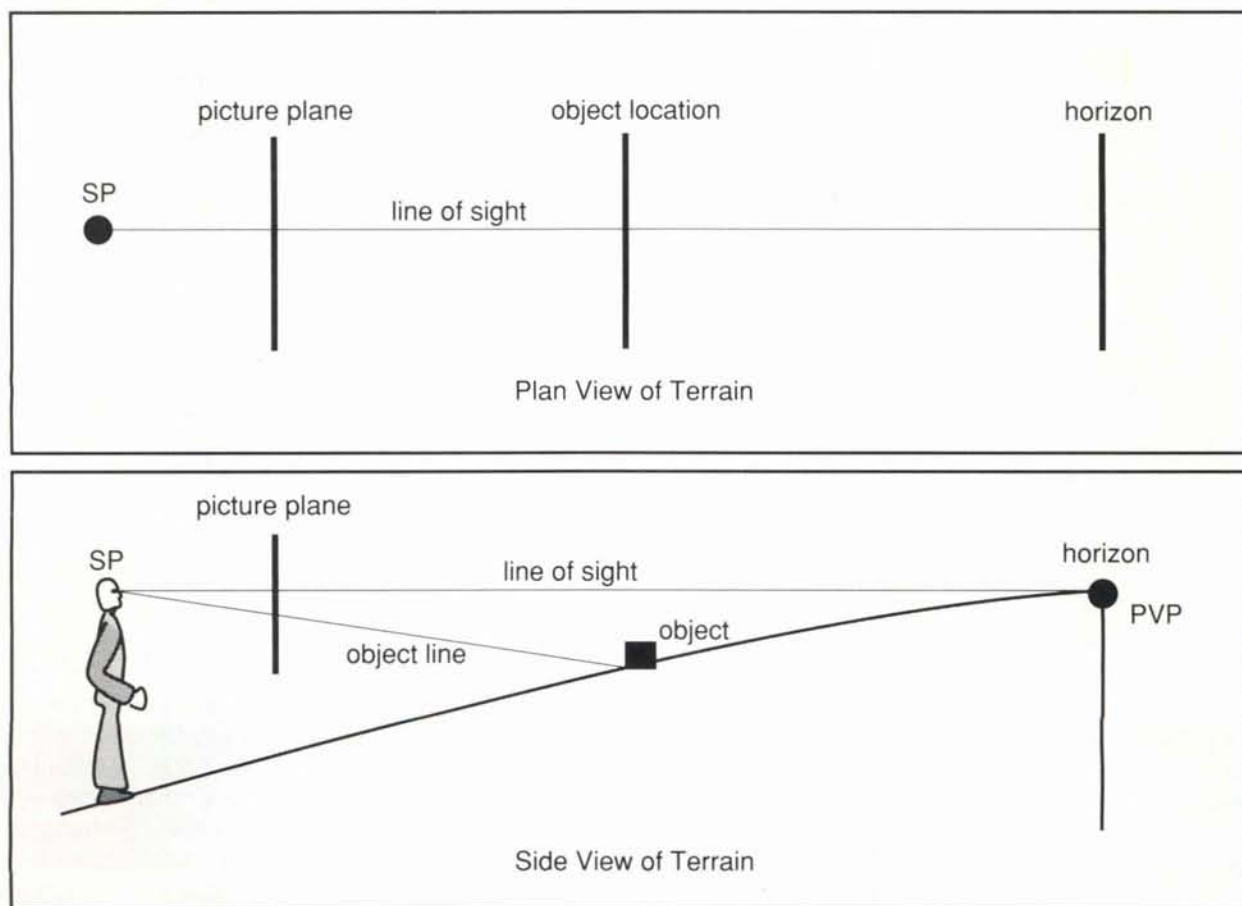


Figure 1. Determining the View

directly in his line of sight is called the **principle vanishing point (PVP)**. Any lines that are parallel to his line of sight will converge to this point in the picture. For purposes of explanation we shall use the simple form of a rectangular box as our **object**. The relationship of the carving plaque to this scene is identified as the **picture plane**. This picture plane is always perpendicular to the line of sight and is located a short distance in front of the station point. Thus, in the carving, the location of the object in relation to the horizon is determined by where the line of sight to the horizon and the object line intersect the picture plane. There are many possible views that you can choose, so the first thing to determine is the location of the horizon on your carving wood that gives the compositional viewpoint you want to use. Then you should decide on the location of the observer. Figure 2 illustrates two different choices for this station point. The second location is higher, so in the picture plane the object is further away from the horizon. In this view you would see more of the top side of the object.

In order to draw your pattern for the scene in two-point perspective, you must next determine the vanishing points on the horizon for the object you wish to carve. The method for doing this is presented in Figure 3. The sketch on the bottom gives the plan view of the object and its chosen relationship to the horizon. The sketch on the top shows the carving plaque on which the object will be carved.

First place the horizon and object location lines on your drawing of the scene. Next orient the object in the plan view at your object location line and draw lines from the sides of the box to determine their intersections with the horizon line at points 1 and 2. Since we are depicting a rectangular box, these two lines are perpendicular to one another in the plan view. Where these two lines intersect the horizon line may or may not fall within the boundary of the picture. For our example here, we will place both vanishing points within the picture. As shown in the figure, we then project these intersection points vertically up to the horizon on our pattern. This will then locate the two vanishing points VP1 and VP2 for establishing the perspective of the carving. Next, locate the other corners that are visible from the front, and draw the box as shown in the upper portion of Figure 3, using the vanishing points

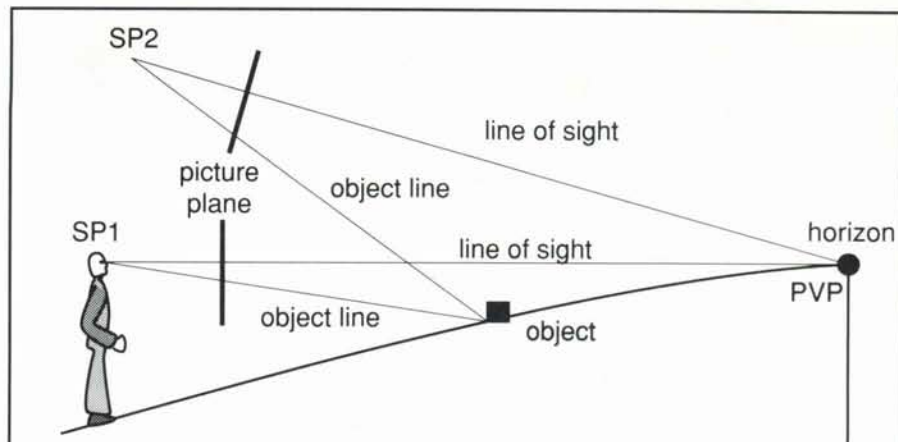


Figure 2. Effect of Changing the Station Point

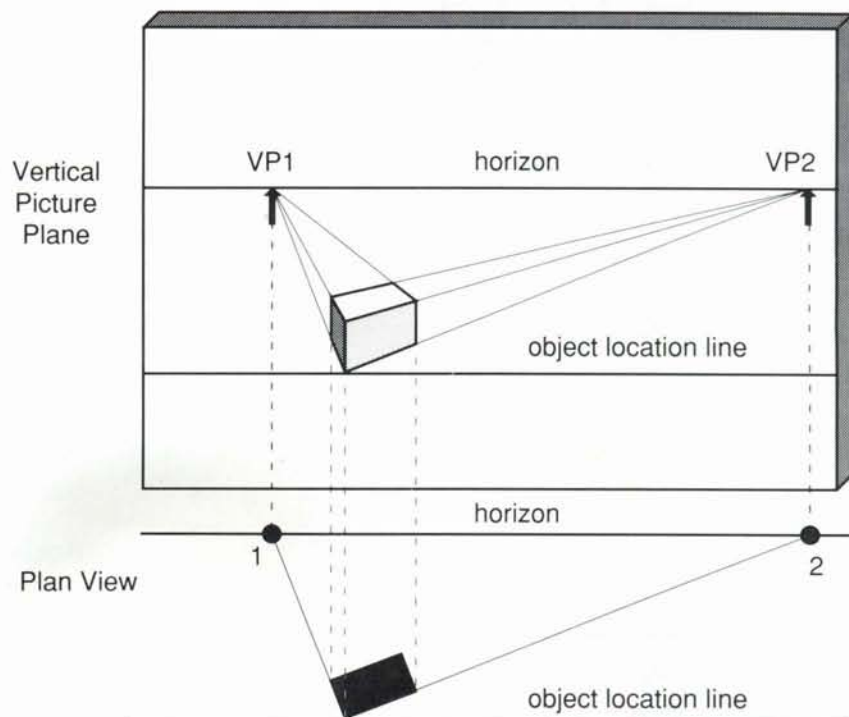


Figure 3. Vanishing Points for Two-Point Perspective

to determine its shape. This then gives us the linear perspective of the scene using two vanishing points.

California Fishing Boat

So far, we've given a simple prescription for developing a pattern with two-point perspective. To take this one step further, let's say you want to carve a coastal scene with a fishing boat; for the purpose of illustration we'll develop a pattern for just the boat. The California fishing boat shown in Figure 4 is a combination boat typical of the northern California and Oregon coasts. These boats are

often rigged as seiners, but are easily adapted to other techniques of fishing.

Figure 5 shows the vertical heights at seven critical locations along the length of the boat. I've shown their values relative to the length of the boat so that we can scale them in the development of our pattern. Figure 6 shows the first step, which is to approximately locate the boat and its orientation relative to the horizon within the picture frame. This fixes the station point and gives us the location of the two vanishing points, VP1 and VP2, on the horizon. In this case the two vanishing points

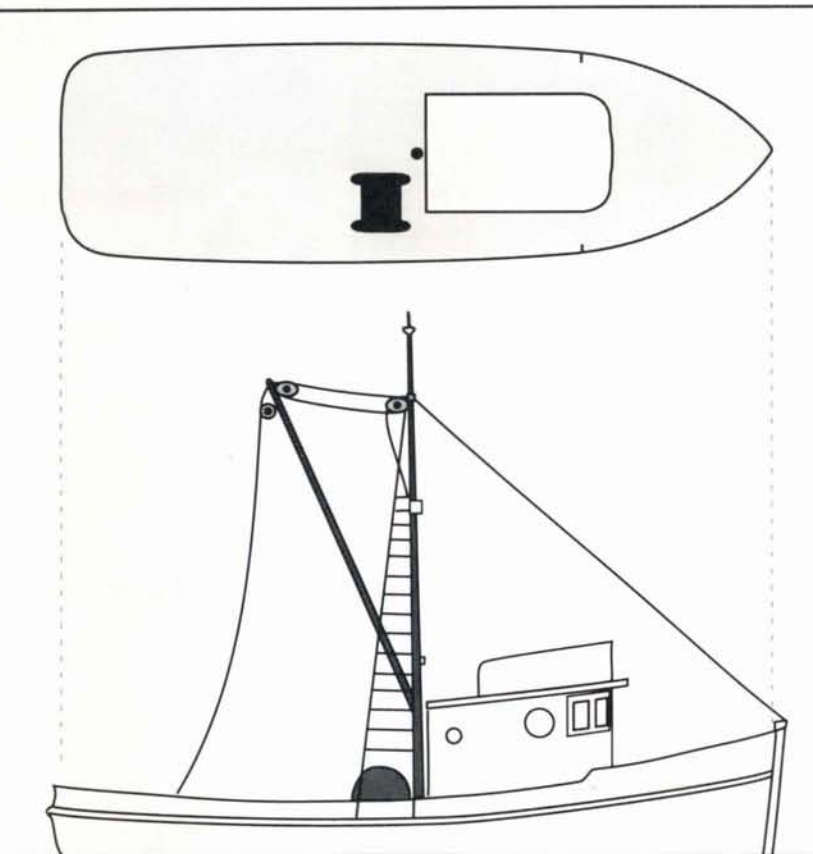
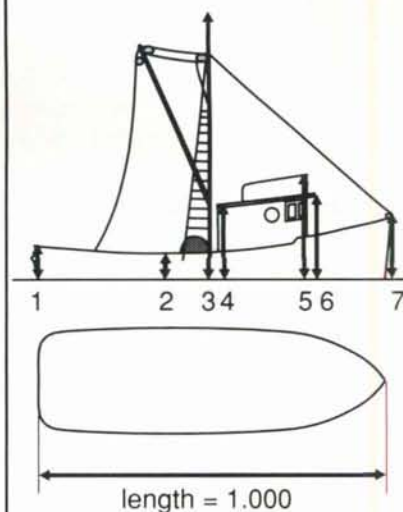


Figure 4. California Fishing Boat



Measurement	Value
1	0.100
2	0.075
3	0.775
4	0.225
5	0.308
6	0.250
7	0.192

Figure 5. Height Measurements

illustrations by the author

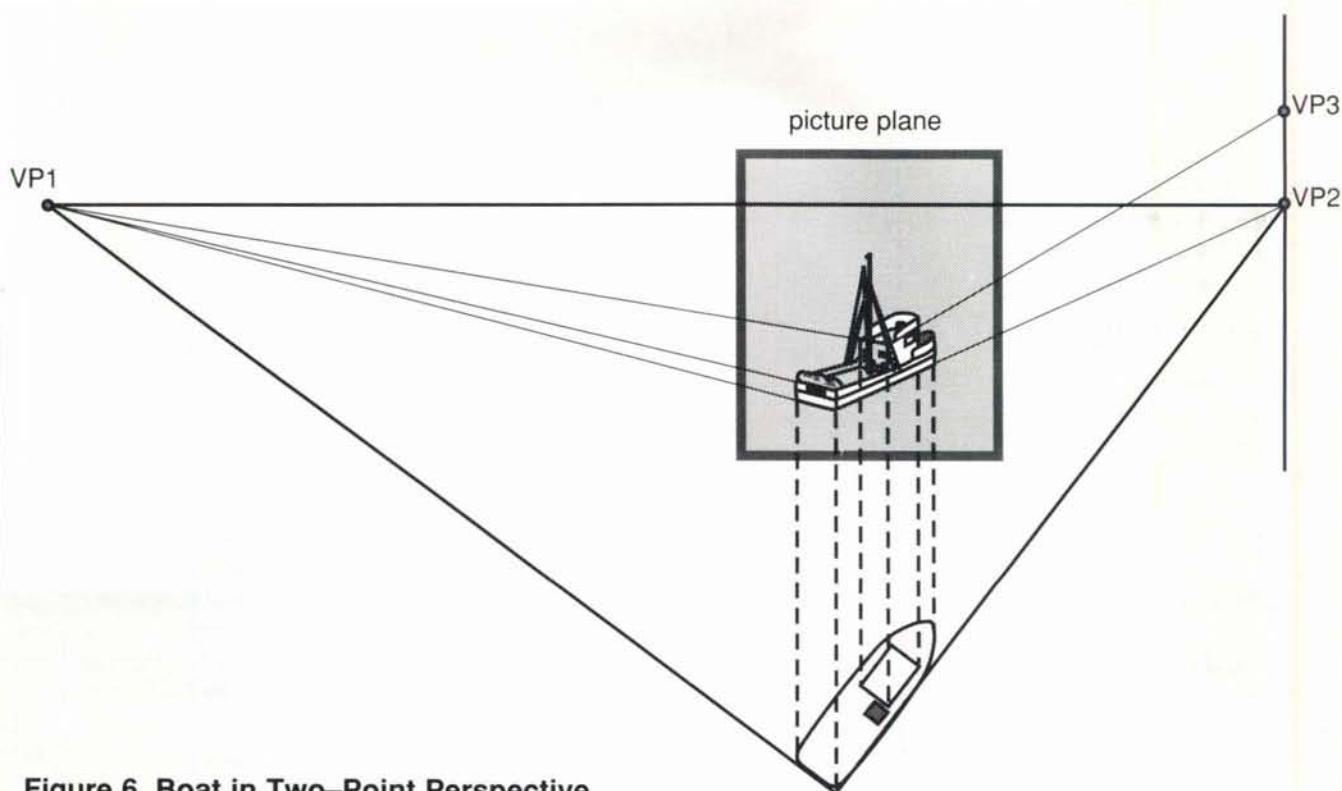


Figure 6. Boat in Two-Point Perspective

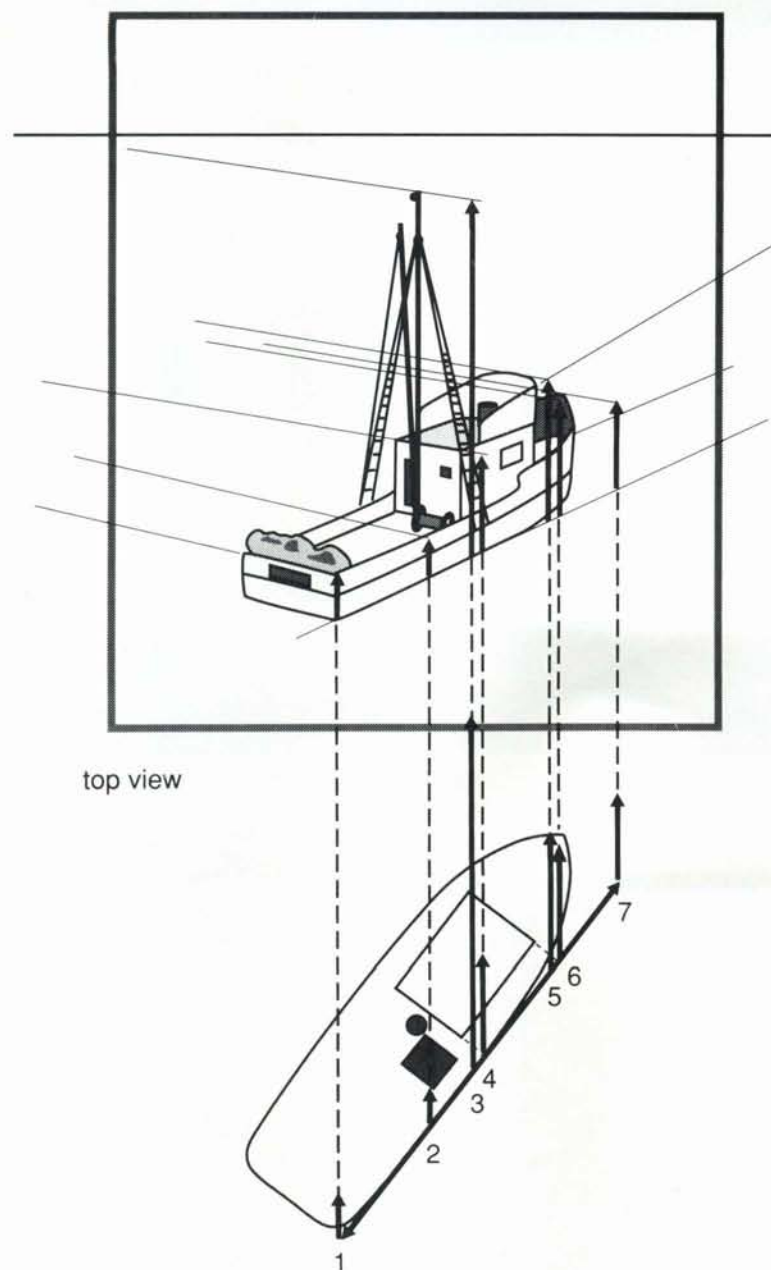


Figure 7. Developing the Pattern

fall outside the area of the picture plane that will be used in the boat portion of the scene. Using these two-points, we locate the right angle which goes through them and has its corner directly below the corner of the boat's stern. This is easy to do using a plastic triangle available at any office supply or art store. We can then draw the boat's plan view at this corner, in the scale we have chosen, and project its prominent landmarks up to the picture plane. Since the roof of the cabin is not parallel to the water line (as shown in Figure 4), its vanishing point, VP3, will be

directly above that of the side of the boat because it is in approximately the same plane.

With these references, we can then construct the pattern as shown in Figure 7. Step one in this process is to lay out the height measurements along the edge of the plan view of the boat. These measurements are scaled from the ratios given in Figure 5 to match the plan view of the pattern.

The second step is to transfer these vertical measurements to the perspective drawing of the boat. It would be easiest to

work from the center line of the boat; but for clarity in the drawing, I have chosen to put the arrows along the side of the boat. Draw perspective lines from the top of each of these measurement arrows to VP1. These lines then give the heights for the prominent features of the boat, and you can now draw the boat in its two-point perspective.

As an example of how this location of features works, consider the simplified drawing in Figure 8 where we demonstrate finding the height of the mast. The water line of the hull is shown as the shaded region. The mast is located along the center line at distance A from the stern. The height measurement arrow B is located on the side of the boat at this distance as determined by perspective line 1. From the tip of the measurement arrow we draw line 2 to VP1. The vertical line drawn between the two perspective lines from the center line determines the height of the mast. The other features are located in a similar manner to finish the drawing. You can see that if you place your height ar-

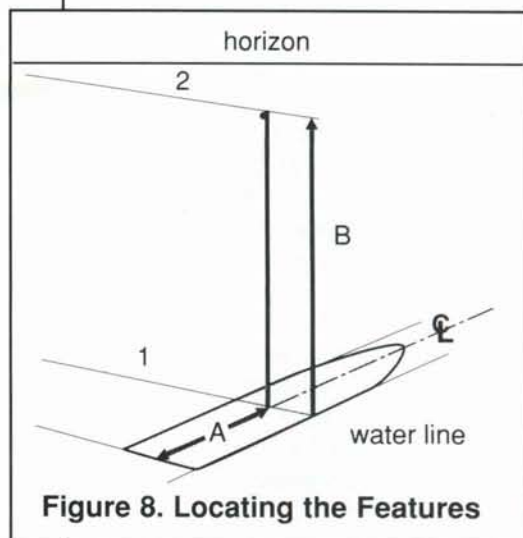


Figure 8. Locating the Features

rows on the center line, you eliminate an extra step.

We have now developed our pattern for the California fishing boat in two-point perspective. This pattern represents a two-dimensional view of what we want to carve. However, it still remains to develop a plan for the third dimension, in order to start carving. The third dimension is what distinguishes a relief from a painting or a photograph. In the next issue, we shall discuss the techniques of foreshortening and three-dimensional perspective we would use to incorporate this boat into a carving. **PW**

Forstner Bit Cube

by John A. Nelson

This is an interesting project that can be used as a paperweight or simply a conversation piece. If you have a 1" and 2" diameter Forstner bit, and a 1/2" diameter drill, it's very simple. And it's a project that no one can leave alone. Put it on your desk and watch how everyone picks it up—they'll wonder how you made it.

Start with a solid 2-1/2" cube. I glued up some scrap pieces of ash I had around. If you have a solid piece of wood large enough, use it. If not, glue up scraps slightly larger than the 2-1/2" needed. You might want to make two or three blocks in case you set a drill depth incorrectly later on.

Very carefully, cut an exact 2-1/2" cube. This is the only tricky part of the project—your block must be exactly 2-1/2" in size on all sides, and it must be square. If not, then the rest of the steps will not come out correctly. [Editor's note: If you rip to thickness and width with a 3/4" auxiliary fence, you can then remove the auxiliary fence and use a 3/4" stop block to safely cut to length without changing the fence setting.] Sand all six surfaces using a sanding block, keeping all edges sharp.

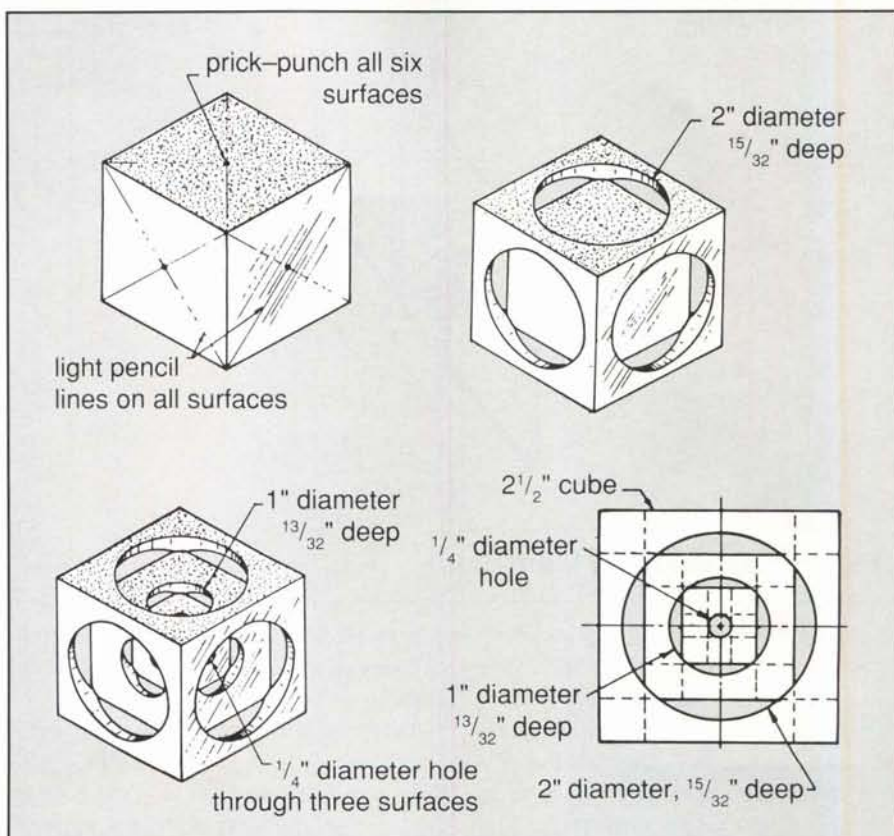
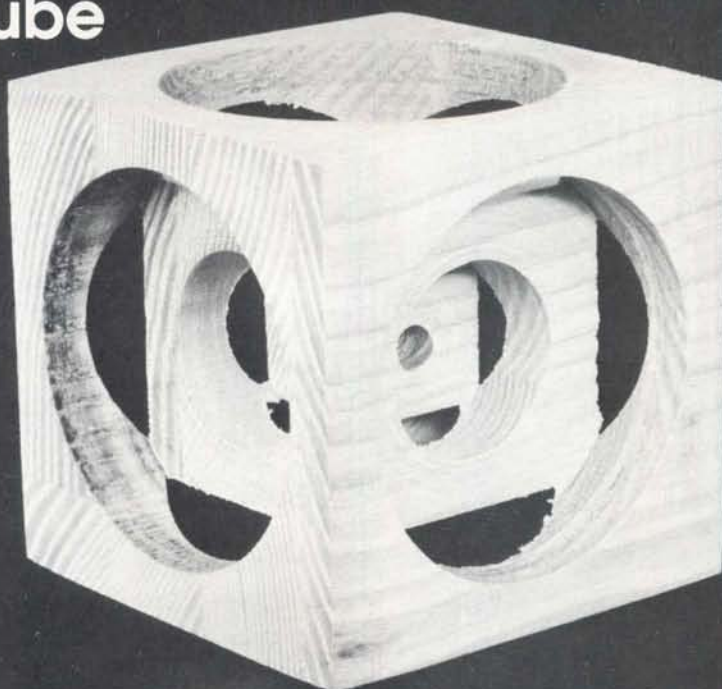
Using a sharp pencil, draw light diagonal lines from corner to corner, as shown in the illustration to the right, to locate the exact center of each surface. Using a pointed punch, prick-punch the exact center of each surface.

The drilling must be done on a drill press with an adjustable depth stop. With a 2" diameter Forstner bit, drill a 15/32" deep hole in the center of all six surfaces. If your work has been precise, you should end up with a new block inside the outer block—hanging on by its corners—as shown in the drawings.

Using the indent left by the tip of the 2" diameter bit, drill a 1" diameter hole with a Forstner bit *exactly* 13/16" deep, centered inside each of the six 2" diameter holes. The depth must be exact. You will find that you have created another block inside the two outer blocks. Finish up by drilling a 1/4" diameter hole in the indent left

John A. Nelson is a woodworker and drafting instructor from Peterborough, New Hampshire.

photo and illustrations by the author



by the tip of the 1" diameter bit.

If the wood grain is interesting, leave the cube unfinished. If you like color, interesting patterns can be achieved by painting the blocks or their side surfaces different colors.

Now leave it on your desk or any place where people are—watch how they can't resist picking it up. Most will think you carved out the inner blocks, and will never realize how easy it really was to make—unless you tell them. **PW**

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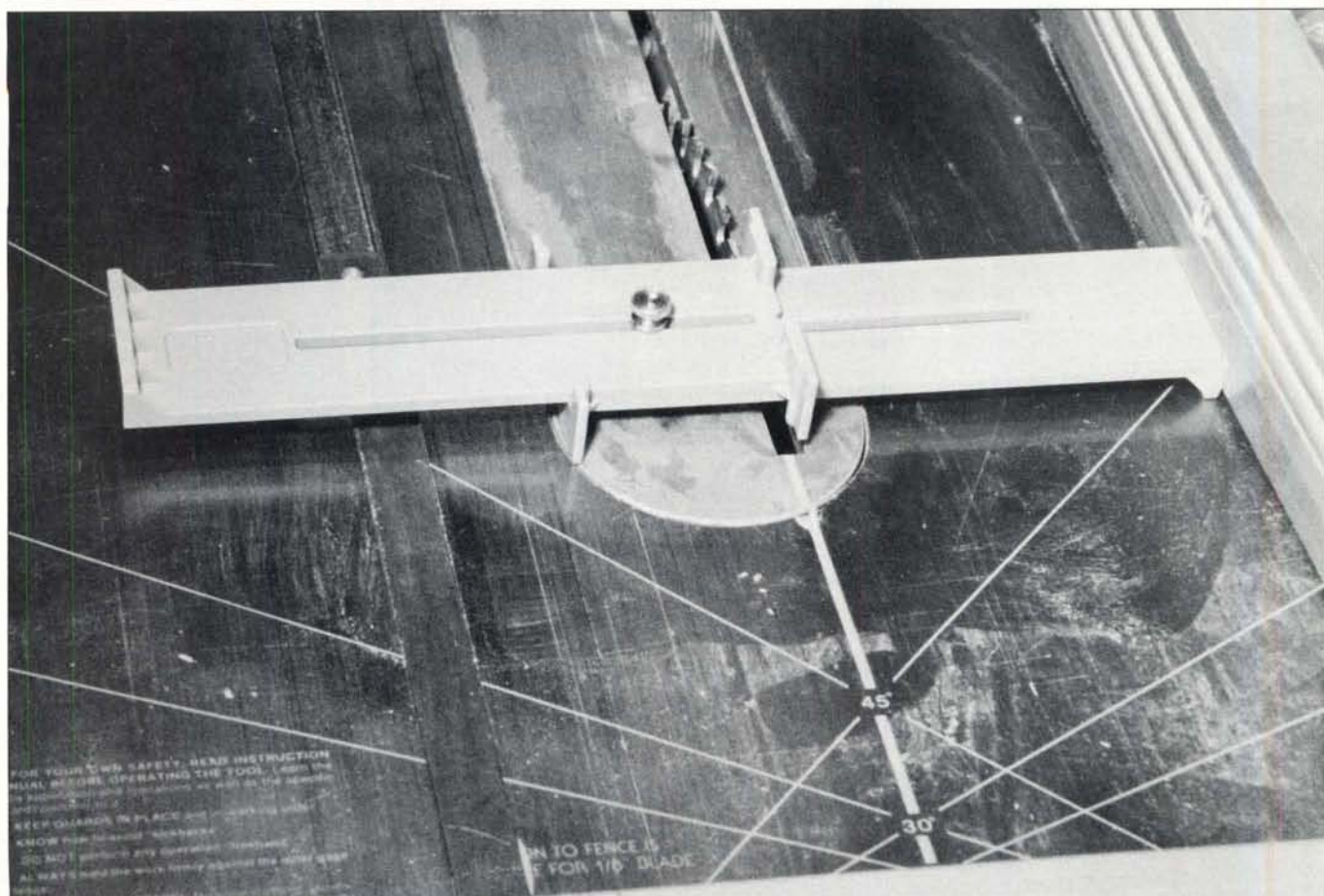
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The Incra Gauge

The Incra Gauge is a simple multipurpose measuring tool designed to help achieve great accuracy when laying out joints; when setting the depth of cut on table saws, routers, and the like; when aligning fences on these tools, and when finding stock's center—to name but a few applications. The gauge's double rack system—a simplified version borrowed from the Incra-Jig—provides easy-to-read, precise, lockable, permanent 1/32" scales cast into the acrylic resin body; a notch in each end helps guide a pencil or scratch awl for layout work. Since the two pieces of the body are precision-cast, accuracy is generally within 1/250" (about the thickness of this page). The tool extends up to 7" for measuring or marking from an edge, and up to 3-1/2" for use as depth of

Hugh Foster is a part-time furniture designer/builder in Manitowoc, Wisconsin and the author of *The Biscuit Joiner Handbook* (Sterling Publishing Co., 387 Park Avenue South, New York, NY 10016).

cut gauge. On small pieces, the gauge can serve quite reliably as a straight edge and square.

Even the most expensive engraved rules and adjustable squares rely on *visual* alignment with a hard-to-read graduation mark. No matter how accurate the tools are, it is up to the user to transfer the accuracy to the work. Incra Gauge eliminates this by using the Incra sawtooth positioning racks to positively lock both a reference surface and a measuring surface rigidly in place. The reference surface butts up against the point you want to measure from (say, a fence), while the measuring surface positively locates the point you want to measure to (a saw blade), thus eliminating any errors.

One of the best uses for the Incra Gauge is as a marking gauge: marking reference lines on work. Once the reference lines are set on the gauge, you can use either end for marking—great if your work is frequently interrupted by phone

calls or the like. Since you can use this gauge any time you would have used a ruler, an adjustable square, or a wooden marking gauge, the worst thing about it may well be that you'll forget to use it. The old habit of reaching for a ruler or try square whenever you have a layout or measurement task may be hard to break, but once you get in the habit of using the Incra Gauge, you may well find it indispensable.

One of my photos shows the layout for a tenon. Now, I've laid out lots of tenons, but never have I marked them out this quickly (the elapsed time was literally but a few seconds), this easily, or this accurately.

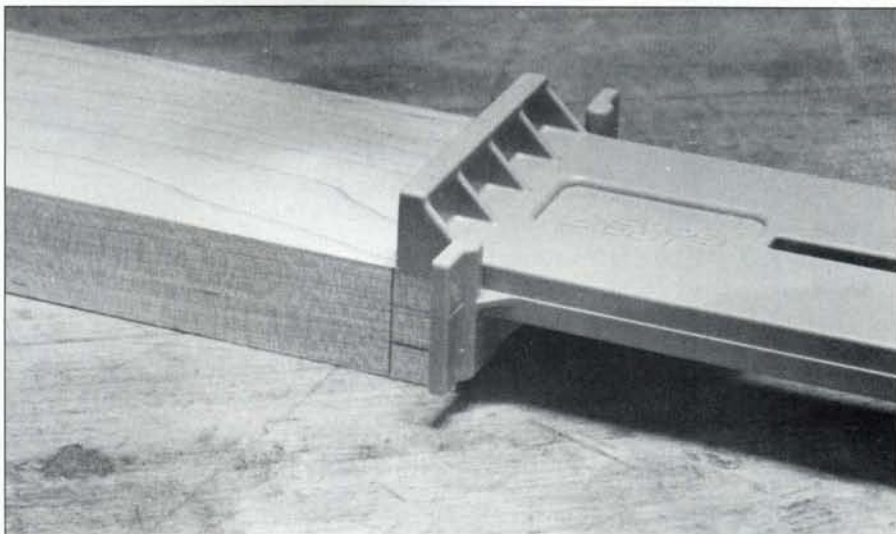
Since the Incra Gauge is freestanding, both your hands are free for adjusting the height of your blade or bit when you use as it as a depth-of-cut gauge.

The Incra Gauge can be used as an accurate center finder in material up to two inches thick. The groove which holds the

marking tool is exactly centered between the two indexing tabs. Be sure to use a sharp pencil or scribe awl to get all the accuracy the gauge permits.

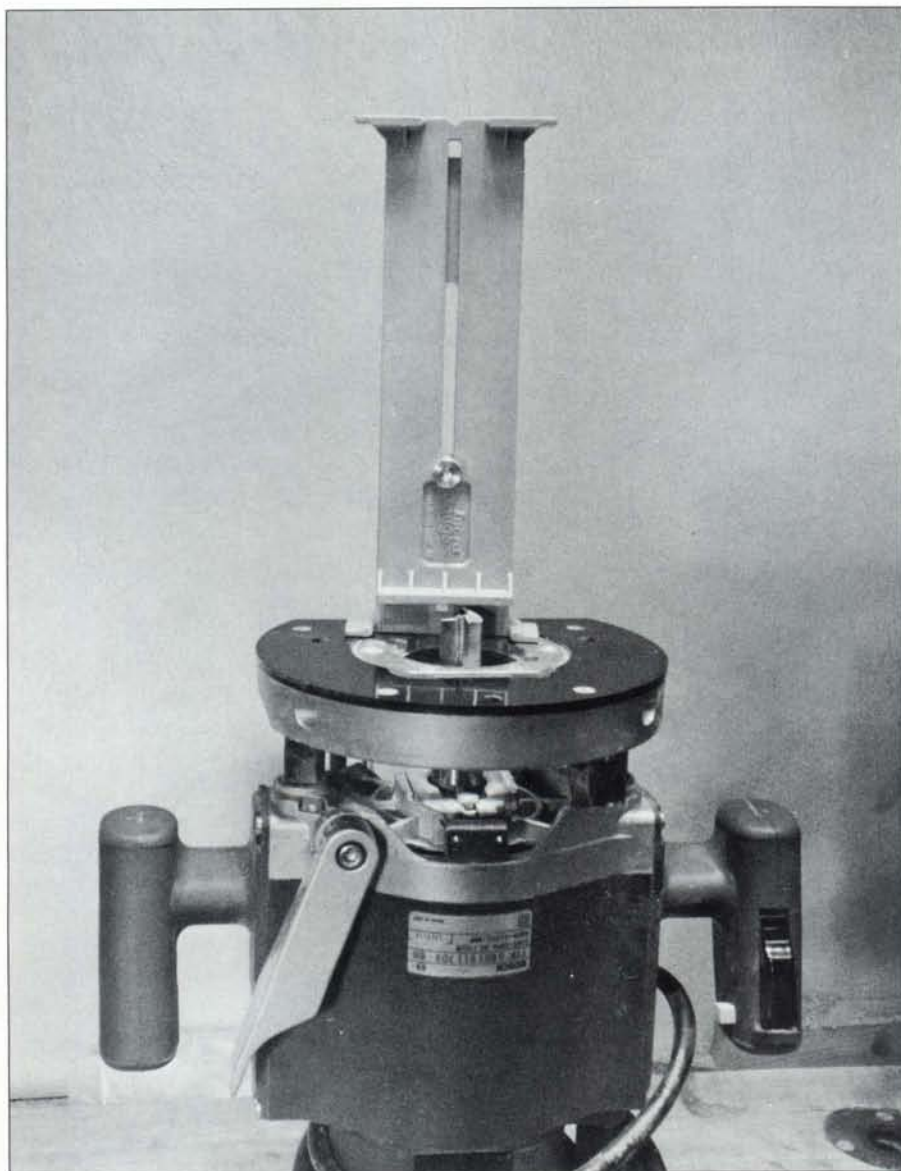
As you use the tool in your own shop, you're sure to find a multitude of other uses for it besides those listed here. I won't be setting up fence alignments on my table saw or router with any other scale. I'm not sure we need repeatability within 1/250" or better in the woodshop—after all, wood moves!—but this gauge, coupled with a bit of patience will enable the knowledgeable woodworker to make some things he might have thought impossible. Repeatability is the best feature of this tool, the chance to go back and cut

photos by the author



In the photo above, marking the shoulders of a tenon is quick and easy with the Incra Gauge.

To the left, the gauge is used to set the depth of the router bit.



the one piece that had been forgotten in a production run, without worrying about how you'll ever get it to match (or fit) the others. I don't think \$15.99 is too much to spend on a tool that will help us to make our own "luck."

The Incra-Gauge is available from your local tool vendor or Taylor Design Group, Inc., 3615 Courtdale, Dallas, TX 75234.

The Bosch DVS 1273 Belt Sander and Accessories

When this belt sander entered the market last year, it struck me as the finest 4" X 24" belt sander available. It offered a big footprint for accurate sanding, and its variable speed switch permitted the higher speeds for fast stock reduction, and lower speeds (with finer grits) for finer sanding—as of veneers. Its lower speeds also contribute to quieter operation, sure to win favor in my shop. Now, a year after its introduction, the sander has been enhanced by a couple of accessories: the sanding frame, the bench stand, a unique angle guide and the AirSweep™ dust collection system.

We may well be at a watershed in belt sander design. Now that the sanding frame is as readily available as it is easy to use, it seems almost foolish not to want one. Since the sanding frame multiplies

the effective footprint of the machine by five or six fold, it guarantees the flattest finish. Bosch's "brush" sanding frame provides a 9" X 16-1/4" flat surface and will adjust to remove as little as a couple of thousandths of an inch of material at a time. With this frame, it is virtually impossible to "take a divot" as one can easily do with a standard belt sander. Amazingly, the sanding frame is so simple that most users will be able to attach the thing to their sanders in just a very few minutes, perhaps without having to refer to the instructions.

There has never been a reason to buy a belt sander without a dust bag—even so, you should wear a particle mask. Even better than the dust bag is Bosch's AirSweep™ dust collection system. It's a vacuum hose that connects directly to the machine and has an adaptor for a 2-1/2" shop vac. The metal portion of this vacuum attachment unit seems malleable enough that it would probably fit onto a variety of machines besides the Bosch models for which it is intended. Tape the AirSweep™ hose to the power cord at about two-foot intervals, and the machine would practically be ready for sanding in the living room, much less the shop. That's my idea of cleanliness.

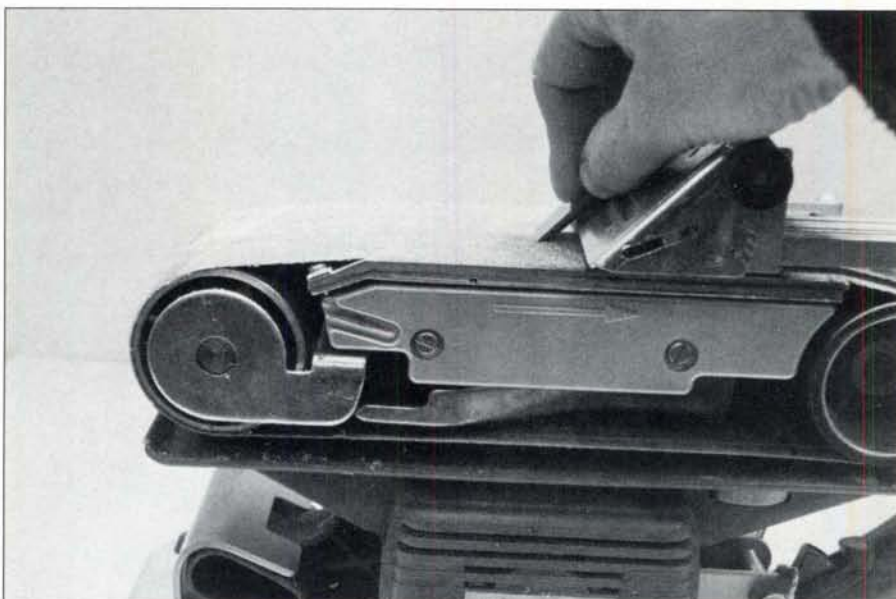
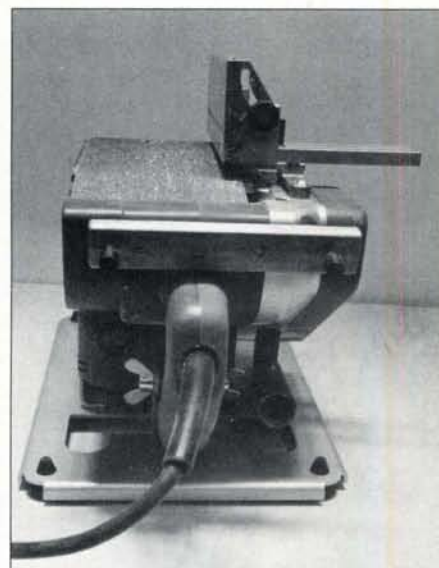
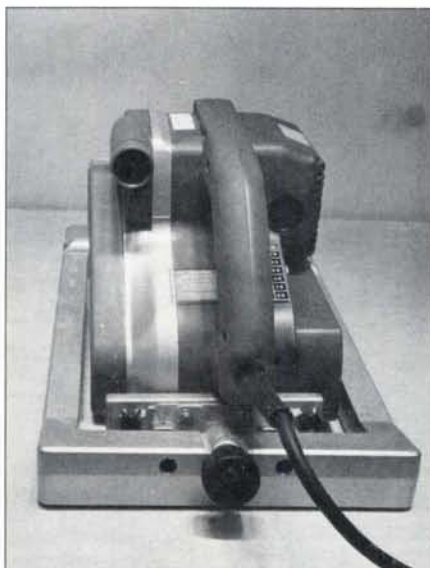
Stationary belt sanders are likely to be another victim of the revolution in sander design. Another accessory for this portable belt sander is the bench mounting plate that allows you to set the sander upside down and use it like a stationary tool. The fence pivots 90° to 45° to the belt and can be adjusted to run with the belt or across it.

Combining the sanding frame, bench mounting kit, and AirSweep™ dust collection system, with quiet, continuously variable speed, this American-made product will be really hard to beat. If the DVS 1273 wasn't the best 4" X 24" belt sander on its own merit, these accessories certainly make it so. **PW**

In the top photo the Bosch belt sander is turned upside-down to reveal the underside of the sanding frame.

The bottom photo shows the sander mounted upside-down on its accessory base, functioning as a sanding table. Note here and in the center right photo the adjustable accessory fence.

photos by the author



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Alaska

Date: January 6-February 25

Event: International Turned Objects Show

Location: Anchorage Museum, Anchorage.

This juried selection of notable lathe-turned works from around the world premiered in 1988 at the Port of History Museum in Philadelphia, and is now touring North America through January 1991.

For information, contact: Sarah Tanguy or Jonathon Glus at the International Sculpture Center, 1050 Potomac Street, N. W., Washington, D. C. 20007. Tel. (202) 965-6066.

California

Date: Every Saturday

Event: Traditional Japanese Woodworking Class

Location: Hida Tool Co., 1333 San Pablo Ave., Berkeley.

Shoji screen, joinery, saw horse and hand sharpening conducted by Jay Van Arsdale.

For information, contact: Hida Tool Co., 1333 San Pablo Ave., Berkeley, CA 94702. Tel. (415)

524-3700.

Date: January 12-February 16

Event: California Woodworking 1990

Location: Brea Civic & Cultural Center Gallery, Brea, CA.

This exhibition of work by California artists, juried by Sam Malool, will bring together 90 to 100 works representing latest designs, techniques & aesthetic concerns in handmade woodwork. Presented by Orange County Woodworkers Association.

For information, contact: Bill Docking, 3501 Teton Dr., Fullerton, CA 92635. Tel. (714) 526-7100.

Date: January 20

Event: Saturday Morning Tool Clinic/Boatbuilding Class

Location: National Maritime Museum Assoc., Bldg. 275, Crissy Field, San Francisco, CA 94129.

Students bring their own woodworking tools and learn how to sharpen, adjust and use them.

For information, contact: National Maritime Museum Assoc. at the above address. Tel. (415) 929-0202.

Date: January 27-28, February 3-4 & 10-11

Event: Building the *Sea Urchin*, A Traditional Nova Scotian Rowing Skiff

Location: National Maritime Museum Assoc., Bldg. 275, Crissy Field, San Francisco, CA

94129.

For information, contact: National Maritime Museum Assoc. at the above address. Tel. (415) 929-0202.

Colorado

Date: Registration begins January 1

Event: summer workshops in craft furniture, art furniture & product design

Location: Anderson Ranch Arts Center, Snowmass Village, CO

One and two-week workshops with leading woodworkers.

For information, contact: Anderson Ranch Arts Center, P. O. Box 5598, Snowmass Village, CO 81615. Tel. (303)-923-3181.

Connecticut

Date: December 1-3 & 8-10

Event: Christmas Crafts Expo I & II

Location: Hartford Civic Center, Hartford, CT

All shows are juried, with 200 to 250 exhibitors and 15,000 to 25,000 public attendance per show. Indoor booths available for \$280 and up. Submit five product slides and one booth display.

For information, contact: Arts & Crafts Festivals, P. O. Box 412, Canton, CT 06019. Tel. (203) 693-6335.

Florida

Date: January 8-10

Event: Buyers Market of American Crafts

Location: Coconut Grove Exhibition Center

More than 500 exhibitors will display their works. A jewelry preview will take place on January 7.

For information, contact: Buyers Market of American Crafts, 3000 Chestnut Avenue, suite 300, Baltimore, MD 21211. Tel. (301) 889-2933.

Kansas

Date: Entry deadline December 15

Event: Topeka Competition 14

Location: Topeka, KS

For information, contact: Gallery of Fine Arts, Topeka Public Library, 1515 W. 10th, Topeka, KS 66604. Tel. 913-233-2040.

Maryland

Date: December 7-9

Event: Sugarloaf's 13th Annual Winter Crafts Festival

Location: Montgomery County Fairgrounds, Gaithersburg, MD.

Featuring 250 professional artists and craftspeople. Space fees \$190-\$315, no commissions. Juried: submit color slides.

For information, contact: Deann Verdier, Director, Sugarloaf Mountain Works, Inc., 20251 Century Blvd., Germantown, MD 20874 (send 75c in loose stamps). Tel. (301) 540-0900.

Massachusetts

Date: Entry deadline February 14, 1990

Event: 20th Annual May Craft Fair

Location: Worcester Craft Center, 25 Sagamore Rd., Worcester, MA.

Juried admission; send for application packet.

For information, contact: Ann Rogol, Worcester Craft Center, 25 Sagamore Rd., Worcester, MA 01605. Tel. (508) 753-8183.

Michigan

Date: February 2-4

Event: Woodworking World

Location: Stadium Arena, Grand Rapids, MI.

For information, contact: Woodworking Association of North America, Box 706, Plymouth, NH 03264. Tel. 1-800-521-7623.

New Jersey

Date: December 1-3

Event: Delaware Valley Woodworking Show

Location: Garden State Park, Route 70 & Haddonfield Road, Cherry Hill, NJ.

Machinery, tools, supplies, demonstrations and workshops for beginning, advanced and professional woodworkers, turners, carvers, homebuilders and remodelers.

For information, contact: Helen Fillman, 1516 South Pontius Avenue, Los Angeles, CA 90025. Tel. (213) 477-8521 or 1-800-826-8257.

New York

Date: January 19-21

Event: Woodworking World

Location: Hofstra University, Hempstead, NY.

For information, contact: Woodworking Association of North America, Box 706, Plymouth, NH 03264. Tel. 1-800-521-7623.

North Carolina

Date: October 7-December 3

Event: International Turned Objects Show

Location: Folk Art Center: South Highland Handicraft Guild, Asheville.

This juried selection of notable lathe-turned works from around the world premiered in 1988 at the Port of History Museum in Philadelphia, and is now touring North America through January 1991.

For information, contact: Sarah Tanguy or Jonathon Glus at the International Sculpture Center, 1050 Potomac Street, N. W., Washington, D. C. 20007. Tel. (202) 965-6066.

Date: January 15-19

Event: Country Workshops tutorial in ladder-back chairmaking

Location: Country Workshops, 90 Mill Creek Rd., Marshall, NC 28753.

A five-day class with Drew Langsner. Students will make a 2-slat chair frame with bent back posts. Tuition is \$500 & includes materials, meals & lodging. Enrollment limited to two students.

For information, contact: Drew Langsner, Country Workshops, 90 Mill Creek Rd., Marshall, NC 28753. Tel. (704) 656-2280.

Date: January 29-February 2 & February 12-16

Event: Country Workshops tutorial in Windsor chairmaking

Location: Country Workshops, 90 Mill Creek Rd., Marshall, NC 28753.

A five-day class with Drew Langsner. Students will make bow back Windsor side chairs. Tuition is \$500 & includes materials, meals & lodging. Enrollment limited to two students.

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ADVANCED DRAWER CONSTRUCTION — (VW 103) When do you cut a locking drawer joint on the table saw? Here, you'll see how to develop a drawing for complex drawer joinery, use French dovetails, tongue/dado joints, and locking drawer corner joints. Step by step. Assuring your success. Approx. one hour — **\$29.95**

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For information, contact: Drew Langsner, Country Workshops, 90 Mill Creek Rd., Marshall, NC 28753. Tel. (704) 656-2280.

Date: February 26-March 2

Event: Country Workshops tutorial in advanced Windsor chairmaking

Location: Country Workshops, 90 Mill Creek Rd., Marshall, NC 28753.

A five-day class with Drew Langsner. Students will make a sack back or a continuous arm Windsor. Tuition is \$500 & includes materials, meals & lodging. Enrollment limited to two students.

For information, contact: Drew Langsner, Country Workshops, 90 Mill Creek Rd.,

Marshall, NC 28753. Tel. (704) 656-2280.

Ohio

Date: January 12-14

Event: Woodworking World

Location: Veteran's Memorial Hall, Columbus, OH

For information, contact: Woodworking Association of North America, Box 706, Plymouth, NH 03264. Tel. 1-800-521-7623.

Pennsylvania

Date: February 11-13

Event: Buyers Market of American Crafts

Location: Valley Forge Convention & Exhibit

Tennessee

Date: December 30

Event: Entry deadline for the national open media competition, "From Here to There: Vehicles for New Forms/New Functions."

Location: Arrowmont School of Arts and Crafts, P. O. Box 567, Gatlinburg, TN 37738.

Artists may submit up to three pieces in any medium. The focus of the exhibition is to explore "the infinite variety of conveyances artists use to transport us into new realms of seeing." Exhibit dates are February 24-May 19, 1990.

For information, contact: Arrowmont School of Arts and Crafts, P. O. Box 567, Gatlinburg, TN 37738. Tel. (615) 436-5860.

Virginia

Date: January 5-7

Event: Woodworking World

Location: The Norfolk Scope, Norfolk, VA.

For information, contact: Woodworking Association of North America, Box 706, Plymouth, NH 03264. Tel. 1-800-521-7623.

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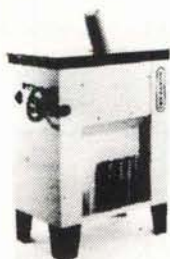
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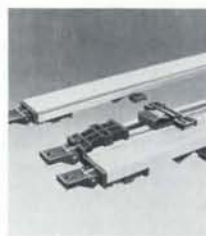


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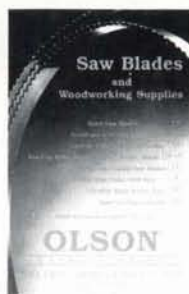
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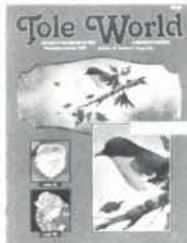
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- | | |
|--------------------------|----------------------------|
| a. Extension Cord Reel | e. Ladle |
| b. Folding Candelabra | f. Cedar-Lined Pine Chest |
| c. Butterfly Figures | g. Sculptural Coffee Table |
| d. Portable Firewood Box | h. Pole Lamp |

II. My second favorite project in this issue is the:

- | | |
|--------------------------|----------------------------|
| a. Extension Cord Reel | e. Ladle |
| b. Folding Candelabra | f. Cedar-Lined Pine Chest |
| c. Butterfly Figures | g. Sculptural Coffee Table |
| d. Portable Firewood Box | h. Pole Lamp |

III. My least favorite project in this issue is the:

- | | |
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| c. Butterfly Figures | g. Sculptural Coffee Table |
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IV. Of the other articles, the one I liked the most was:

- | | |
|---------------------------|-----------------------------|
| a. Finishing with Shellac | d. Olde Tyme Santa Carvings |
| b. Smooth-Sliding Drawers | e. Focus on Carving |
| c. Wood Types: Poplar | f. Tried and True |

V. What is your age?

- a. Under 24 b. 25-35 c. 36-45 d. 46-60 e. Over 60

VI. About how much do you spend on woodworking per month?

- a. Under \$100 b. \$100-\$200 c. \$200-\$500 d. Over \$500

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Laney's Law #12

Murphy has his law, and I've got mine—lots of them. My number twelve is that nobody who loves wood can just walk through a woodworking shop. Not very catchy or profound, but then that's why it's not number one or even number six.

Our woodshop shares basement space with the laundry and the garden tools. Warm evenings drawing to a close always present the same problem—"did I shut the overhead door?" No matter what the head says, the gut feeling is that long after we are in bed, neighborhood cats will invade the shop and make a shambles of our projects in progress, or that field mice will venture in to nest in a leather tool apron. So I abandon the guesswork and decide to check on the basement door.

"I'll be right back," I tell my husband, who is absorbed in reading about how to make a yard full of furniture from a single sheet of plywood.

On the way down the basement stairs I notice a rough spot on the wooden hand rail. "Well, all that needs is a little sanding (won't take but a minute)." I make the mistake of detouring into the shop instead of going directly to the open door.

The sandpaper is fairly orderly, and where it's supposed to be, but I spend a few minutes anyway, fiddling with the various bits and sheets. "What we really need is a folder to hold the small loose pieces." It's a snap to make (because the shop is orderly) from cardboard, X-Acto knife (here I linger over the set of tiny tools, fascinated by the miniature saw blades and myriad knife blade shapes), and tape.

With that job done, I pick a piece of sandpaper. Suddenly my eye falls on an odd-shaped cut-off in the wood scrap box. "Say! that looks remarkably like a duck... I could really do something with that!" My imagination runs wild as I rummage through the box of small pieces, and I salvage a dozen or so for future craft

Elaine E. Laney is, among other things, the wife of a woodworker in Hendersonville, North Carolina.



projects. Stacked temporarily on the drill press, they remind me that I had planned to repair a birdhouse ravaged by a deranged squirrel. Sawing, drilling a bird-size opening, sanding and replacing the piece gnawed by the furry varmint takes some time, but it's a job that needs to be done, and one too small to bother my husband with (especially when he's planning that yard full of plywood furniture).

I decide that after sanding the railing, I'll put some finishing wax on it—mostly because I love the smell of the stuff. Maybe I could clean the whole thing with Murphy's Oil Soap, too (not the same Murphy who makes laws—it might have been, but things were going so badly for him that nothing he invented ever lasted, except his law). "Now where's that wax?"

The old cabinet where we store the stains and finishes is in need of its own TLC, and now's as good a time as any. "Well, I'll be darned!" Hanging on a nail in the back of the cabinet is a putty knife that's been in my family since I was a kid! My Dad wasn't inclined toward "handymanism," but Mom and I have used that knife for years to scrape paint, remove wallpaper, spread spackle, glaze windows, dig dandelions and scratch mosquito bites. That was before I married a man who taught me to use the right tool for the right job.

Armed with wax and sandpaper, I discover that the table saw is covered with sawdust. "I'll just sweep this up now so whoever uses the shop next can start with a clean work area." The smell and texture of the sawdust are intriguing, and I even find some pungent router chips to add to the sweepings.

Putting away the broom, I stop at the cabinet of homemade hand tools. Lured irresistibly, like a sailor by the sea, I pick up each one, caressing the warm, wooden handles, marvelling at the ingenuity of my husband in creating these beautiful objects, and in using them to create more beautiful objects.

As I linger, feeling the perfection of a large block plane, mosquitoes buzz around my ears and break the magic spell... I don't want to put it back in the cabinet, but the garage door is open and winged wonders are everywhere in the shop. They're biting now—I feel them only after they've done their dirty work. "It's a good thing I found that old putty knife."

I pull the door down quickly, trapping mosquitoes inside for the night. In jig time the sanding of the rail is completed, and the clean, sharp smell of wax fills my nostrils. I check the shop a final time and finally go back upstairs.

My favorite woodworker is in his pajamas, brushing his teeth, ready for bed!

"Where've you been?" he blurbles through the toothpaste. "You've been gone almost two hours."

He knows that Laney's Law #12 works for him; he's just never noticed that it works for me, too.

"I just went down to close the door," I reply, leaning around him to peer into the medicine cabinet. "Got anything in there for mosquito bites?" **PW**

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\$99⁹⁵

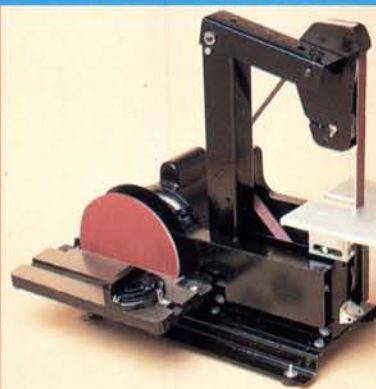
22 PC. BRAD POINT SET



Brad point set has 11 bits from 1/8" to 1", and 11 Adjustable locking collars let you drill to an exact depth. Brad point feature prevents walking or slip-page. 1/8"- 1/2" have 1/4" shanks. 5/8"-1" have 3/8" shank. **YY22**

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