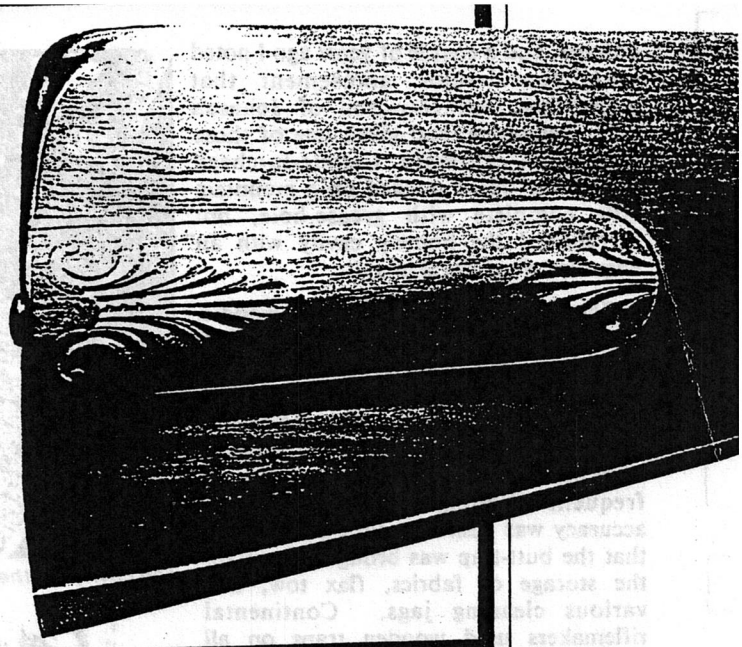
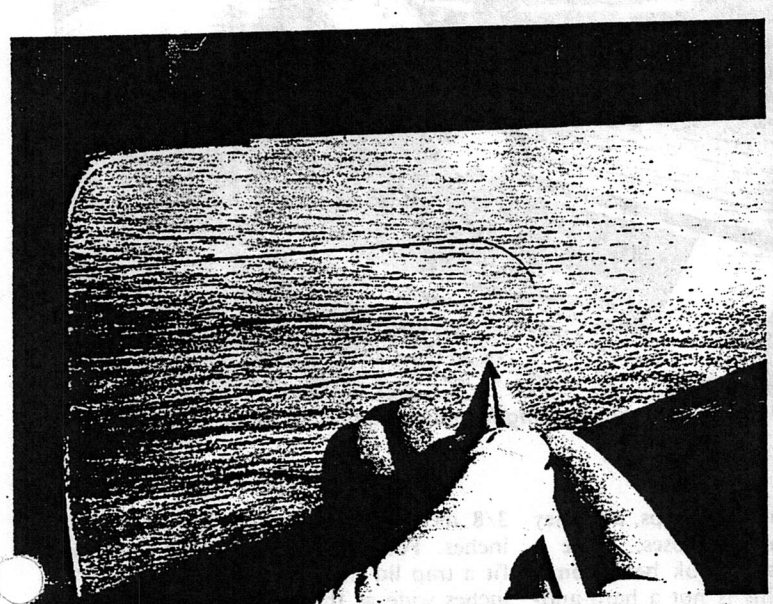
Making a Wooden Butt-Trap

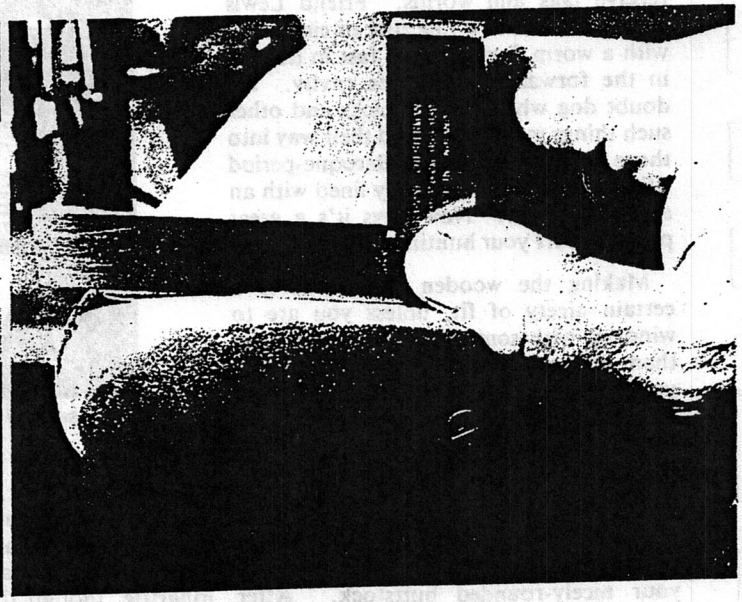


By JOHN BIVINS

A NUMBER OF recent inquiries have prompted a piece on the so-called "wooden patchbox," a device which I've noted in the past really has little to do with the storage of patches, largely due to the inconvenience of using the thing. Hence the awkward appellation "butt-trap." The fact of the matter is that hinged metal patchboxes are far more useful appendages on muzzleloading rifles, since they open quickly, the lids usually don't jam in humid weather, they don't warp, and they don't fall off the rifle and get stepped on. Hinged boxes are useful for patching and lubricants; wooden traps aren't, and for that reason I personally try to steer customers away from wooden traps if they plan to use a longrifle seriously. . .which hopefully they all do. I was never much on making wall-hangers of any sort.

All cursing aside, however, there are times when a wooden butt-trap is appropriate, and nothing else will do. I must admit that I really prefer their restrained appearance over a gaudy yard of sheet-brass plating the stock, but then I am on the conservative side. Wooden butt-traps were used on American rifles from the earliest period to the very end of the flintlock era, though they are more common on the earlier rifles due to heavy cultural influence from Europe. Despite opinions I've heard, I doubt that they were much, if at all, cheaper than a two-piece hinged brass patchbox simply due to the fact that a wooden trap takes as much or *more* time to make than a metal one, if it's done well. Sure, brass was expensive in the early days, but so was time. Riflemen who really wanted to save money on their rifles either had no box of any sort in the butt, or, in the case of Southern Appalachian rifles, had a grease-hole drilled in the side of the stock. This simple expedient was a useful though less than attractive means of greasing





Author marks off the centerline and profile of the trap lid. The "bed" must be rasped down flat. . . checking periodically for trueness. The flat must be level in all directions.

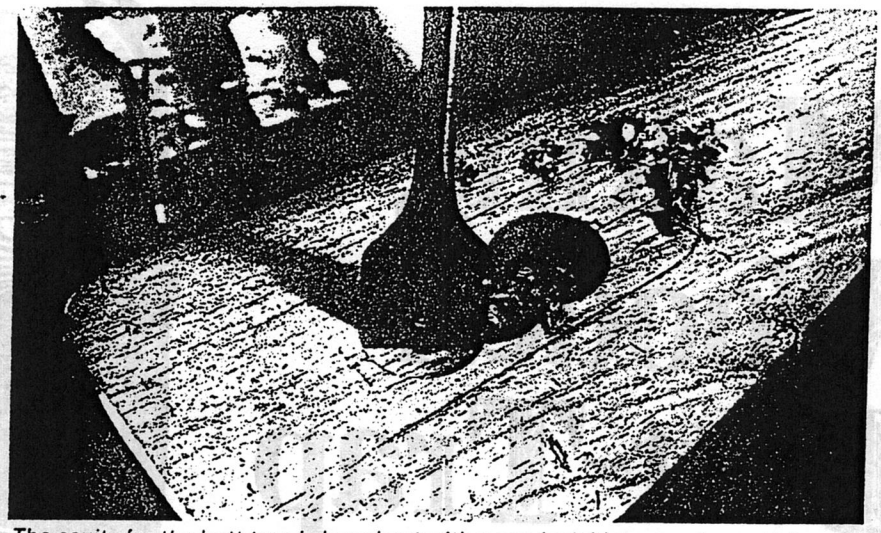
patches, and a couple of years ago I noted with considerable amusement that gunstocker Don Davidson of Johnson City, Tennessee, had given one of those things an ultimate tongue-in-cheek treatment. He'd stocked up a mountain rifle complete with grease-hole, but surrounded the homely cavity with an engraved silver floral inlay!

The chronological origin of the wooden butt-trap is uncertain, though it certainly appears to have been associated with the development of the rifle, and I have little doubt that it was in use before the middle of the Sixteenth Century. Riflemen have ever been cursed with the necessity of frequent cleaning if any degree of accuracy was desired, and it seems likely that the butt-trap was brought about for the storage of fabrics, flax tow, and various cleaning jags. Continental riflemakers used wooden traps on all manner of rifles right up to the advent of the breechloading systems, and two years ago I even saw a custom *kipplaufbuchse,* or single-shot, in .243, made by a skilled Munich smith and fitted with a wooden butt-trap veneered in *hirsch* antler.

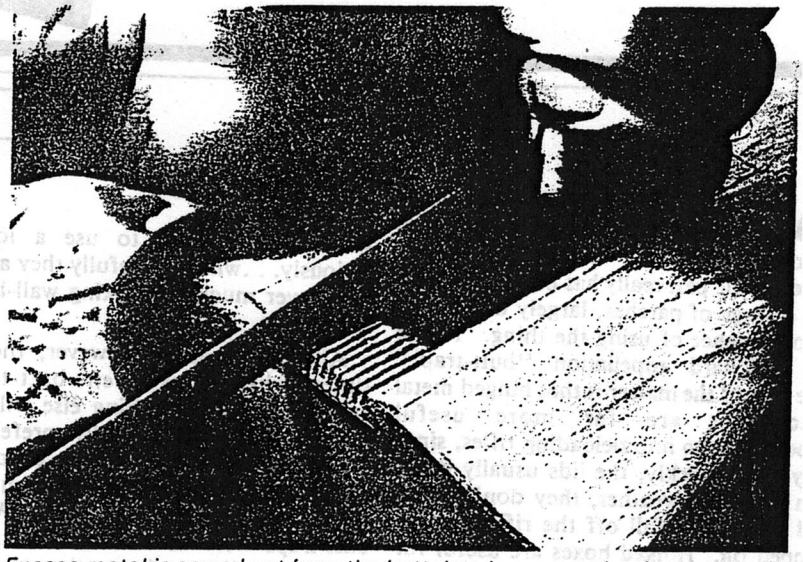
Though the French were all-pervasive in terms of firearms decoration, it was of course the Germans who were looked to for things appropriate to rifles. Accordingly, one may encounter mid-18th Century English rifles in the high London manner sporting wooden butt-traps. The classic use of that storage unit, though, remains firmly on Germanic wheelocks of both cheek-stock and buttstock configurations, and of course flintlock and percussion "jager" rifles, generally called *stutzens* by Germans. That these traps were in fact intended for storage of "wiping" appartus is borne out by the fact that original rifles are encountered with holes bored in the trap cavity to receive jags and worms. Friend Lewis Sanchez even has a fine rifle of circa 1730 with a worm firmly rusted fast in its hole in the forward wall of the cavity. No doubt dog whistles, vent picks and other such things may have found their way into those boxes. I even saw a Baroque-period rifle recently that was nicely lined with an early wallpaper. Nowadays it's a great place to stuff your hunting license.

Making the wooden trap involves a certain nicety of fit, unless you are to wind up with something that is no more than an immovable wooden goiter on your buttstock. If that's what you're after, then just glue a chunk of wood on the stock and shape it down; if you don't sell the rifle, no one will know the difference.

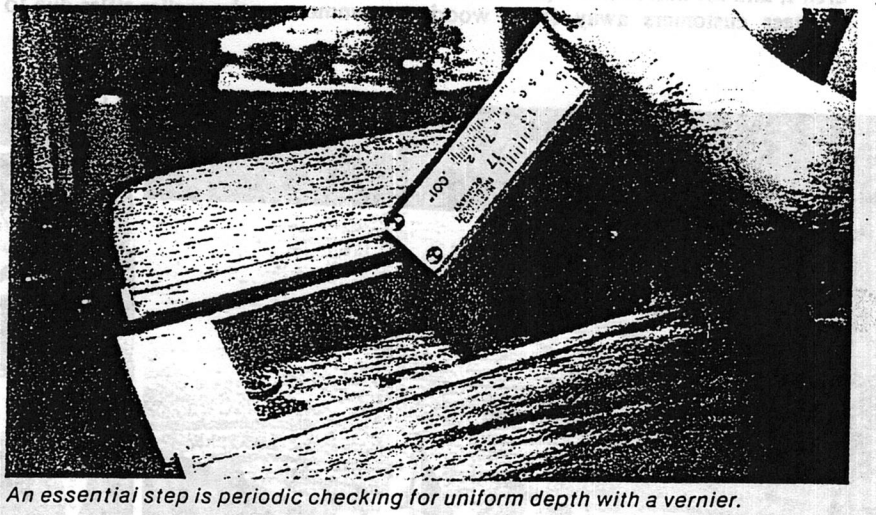
The first grisly thing you must do is to create a sizeable flat spot on the side of your nicely-rounded buttstock. After deciding the size and shape of the trap lid-to-be, a centerline and lid outline is marked off on the butt. *Stutzen* traps are often fatter than longrifle traps, and they tend to have rounded noses, while a pointed nose tends to look better on a longrifle, though this is not a hard-and-fast rule. The trap lid should taper in either case; the lid illustrated here was 1 5/8 inches wide at the butt, tapering to 1 3/8 inch, with a total length of 5 1/4 inches. For a longrifle, it's a bit easier to fit a trap lid that is no more than 1 1/2 inches wide at the butt, though you can make the overall length greater, even as much as 6 inches, providing that you don't run into the wrist balustration. The



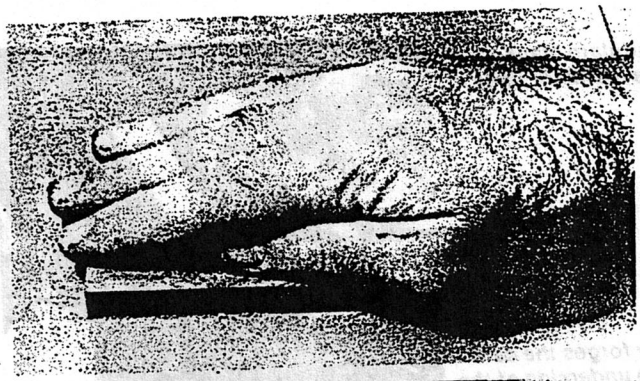
The cavity for the butt-trap is bored out with a one-inch high speed wood bit.



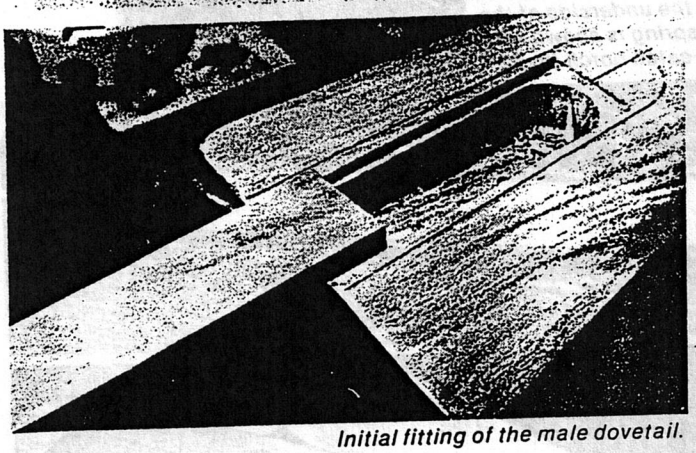
Excess metal is sawed out from the buttplate in preparation for cutting the female dovetail to correct depth.



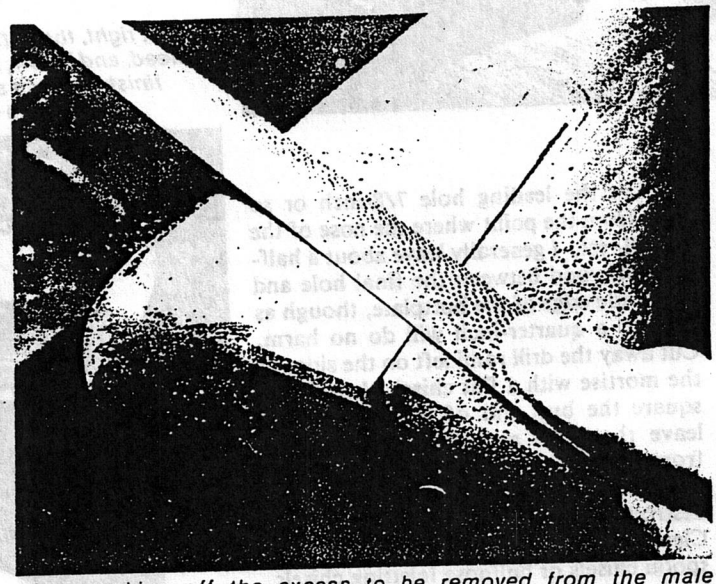
An essential step is periodic checking for uniform depth with a vernier.



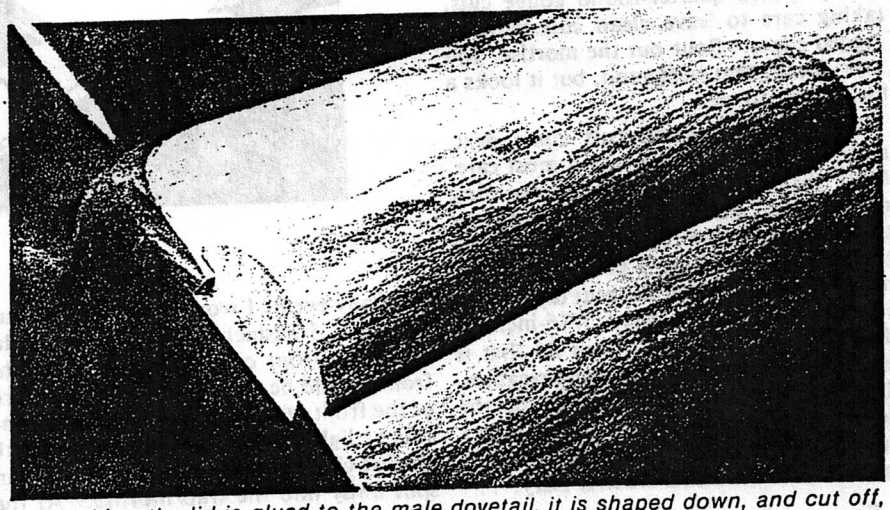
At left, author levels the back of the male dovetail blank on a sheet of garnet paper.



Initial fitting of the male dovetail.



After marking off the excess to be removed from the male dovetail, it is rasped down to the stock surface. The stock flat must not be disturbed during this process.



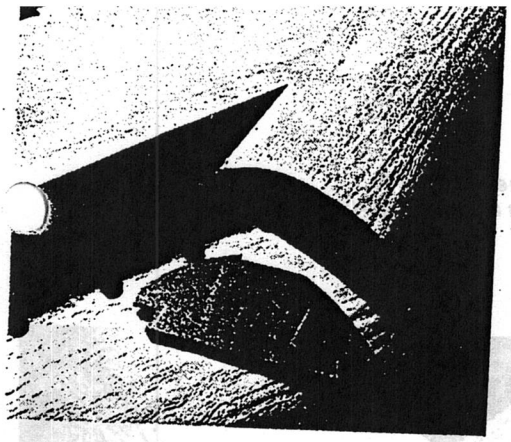
After the lid is glued to the male dovetail, it is shaped down, and cut off, allowing for the thickness of the endplate.

centerline of the trap layout doesn't usually follow up the centerline of the wrist, but rather follows a line that will intersect with or drop just below the underside of the stock below the lock. German rifles of the Baroque period often have the centerline of the trap well below the middle of the buttplate, especially on the "French" style buttstocks with rounded toe. Later longrifles tend to have the rear of the trap more nearly centered or even above the middle of the buttplate.

After you've mapped the thing out, take a rasp and cut down the stock inside your pencilled outlines. This flattening includes the edge of the buttplate at that point. This flat must be absolutely flat, with no dips, or you'll wind up with a trap that either sticks or shows hideous gaps under the lid, or both. Constantly check the flat in both width and length planes, and keep rasping until you can see no light under the beam of the square, no matter where you place the square. After the flat is level, sand it down to your final finish grit with the paper wrapped around a sizeable hardwood block. After sanding and rechecking with the square, *don't* mess with the flat again. You'll likely find that you've filed away your pencilled outlines in places, perhaps filing as much as a quarter-inch past the outline at the sides. Re-establish the centerline and full profile, and rasp the stock back into a round right up to the trap outline.

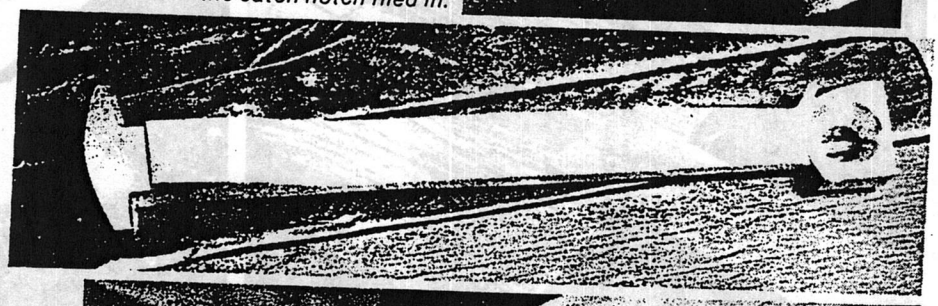
Now comes the mortise. Some German traps were drilled from the rear with a single pass of a pod auger, and I suspect that in order to do this a piece of board had to be clamped on the outside of the stock to keep the bit from running out. The open hole at the back next to the buttplate was then fitted with a wooden filler, though some were left open. In any event, this seems a chancy method to me, and I take the more usual route of drilling vertically. I prefer to use a modern flat "speed-bore" wood bit, though I greatly reduce the size of the pilot for better appearance in the bottom of the mortise. Patchbox and trap mortises were often drilled with center bits, and the tool-marks left by the modern flat bit resemble the center-bit if the pilot is ground down to an eighth-inch width at its maximum diameter. You can do this easily on a bench-grinder, but take care not to shift the centerline of the pilot or change the cutting angles, or your holes will be egg-shaped.

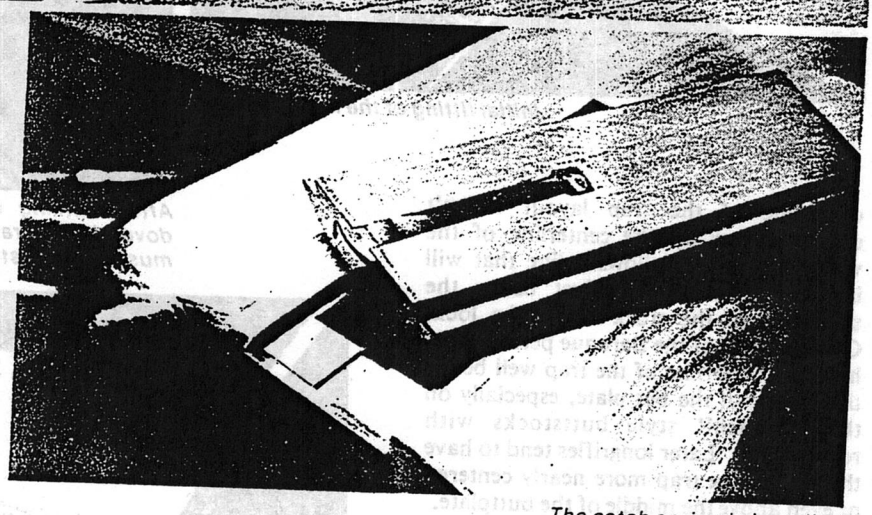
A one-inch bit is about maximum for a trap that is 1 5/8 inches wide at the butt; a three-quarter inch bit is better for skinnier American cousins. Lap-drill a series of holes 7/8 to 1-inch deep, with the outside



At left, note that the endplate blank allows plenty of excess metal for final shaping to the lid.

At right, the author forges the catch head, and below, the underside of the finished catch spring is shown with the catch notch filed in.





The catch spring is installed with flathead screw.

edge of the leading hole 7/8-inch or so back from the point where the nose of the lid will rest. I generally leave about a half-inch of wood between the final hole and the inside edge of the buttplate, though as little as a quarter-inch will do no harm. Cut away the drill radii left on the sides of the mortise with a flat chisel. I prefer to square the butt end of the mortise and leave the front as-drilled, though both front and rear of the mortise can be squared, particularly if you enjoy destroying your chisels on end-grain. Clean up the bottom of the mortise with spoon chisels or bullnose inletting chisels, leaving no tool marks but the pilot holes. I like to finish the sides of the mortise with evenly-spaced quarter-round gouge cuts, taking care to leave clean cuts with no ragged edges. Rout out the mortise, you say? Yeah, that works too, but it looks a little sterile to me.

The female dovetail cuts come next, and they must be done with utmost care. Not difficult, but time-consuming nonetheless. For a trap lid of the size of the one shown here (again, 1 5/8 tapering to 1 3/8 inches), I use a primary dovetail mortise 1 3/16 wide at the butt tapering to 1 1/8. Allowing a mere 1/16-inch of dovetail taper provides a trap lid that is less likely to get jammed in damp weather, though if you use more taper than this the lid will tend to fall out after sliding only a little to the rear, and they will also want to rattle a bit in the winter when it's dry.

For good function, the dovetail need be no more than 5/32-inch deep, though many old traps were a full quarter-inch and even more. I might remark here that the depth of the dovetail might well be determined by how much bearing flat you have on the buttplate at that point. If only an eighth-inch of buttplate is bearing against its inlet at that point, you will expose a great cavernous hole. . .the soft underbelly of the buttplate, so to speak . . .when you cut the dovetail to depth. The idea is to plan ahead and use a butt-plate with wide bearing in the middle; if you don't, you'll have to solder on a metal fillet on the inside of the buttplate. That isn't difficult, though.

In any event, I wouldn't use a dovetail less than 5/32-inch deep. Lay out the sides and front of the primary cuts; the front should be even with or just forward of the front of the trap mortise. Begin the cuts by lightly pushing straight down with the flat chisel. . .not too hard, or you can split away into the trap mortise. At the butt end, scribe off the full depth of the primary dovetail mortise on the buttplate and hacksaw the bulk of the plate away, cold-chiselling out the "fins" and finishing up with a pillar file. Gradually bring the forward part of the dovetail mortise down with flat chisels, and when reaching final depth continually check for depth uniformity on both sides with a vernier. If you leave high spots, the lid will stick for sure, so get it right the first time; you don't want to have to adjust that depth later.

Now you must undercut the primary dovetail mortise to form the actual female dovetail. Trap dovetails, unlike modern cabinetry, don't have a 45-degree angle, but are in fact much steeper. I actually use what is more like a 70-degree dovetail, and wouldn't go much flatter than 65-degree. The idea here is to avoid having thin, delicate bottom edges of the dovetail project past the edges of the trap lid.

I establish these angles on the buttplate first, and after relieving a little wood inside, cut to that line in the metal on both sides. You might find it convenient to take a large three-square file and regrind it to the angle you want; this will leave a "safe" edge on the bottom. Unless you are damned ingenious with grinding, you will have to grind a second file to cut the other side of the dovetail. As for me, I just eyeball it in with a stock three-square.

When the dovetail cut in the buttplate is finished, you are left with a visual gage to cut the rest of the dovetail in the wood. I simply pare away the dovetail mortise at

(Continued on page 40)

Making A Wooden Butt-Trap

(Continued from page 25)

an angle from above, checking frequently from the rear for regularity of angle. If you like, you could cut out a small sheet-steel combination angle-gage/scraper to speed finishing out that part of the chore. This part really goes rather quickly, though it seems a hoary task before you start.

If you'd prefer to save yourself from turning the air blue in the shop from trying to fit a one-piece trap lid to your stock dovetail, then do as I do and fabricate a two-piece lid. This allows you to make a perfect fit with the male dovetail without having to fuss over careful layout and keeping the underside of the trap lid down tight on the stock. . . eliminates a whole basketful of variables and working planes, which is desirable. I once thought it a dastardly thing to make a two-piece lid. Seemed like cheating. Then, about twelve years ago, poor George Shumway had a disastrous fire in his publishing office, and a tiny portion of his loss was my gain. A fine Austrain rifle by Zellner was well toasted on its lock side, and the trap lid peeled away like a banana from the heat. . .leaving the male dovetail still in the stock! 'Twas glued on with hide glue, 'sblood, and since that time I've seen numerous other wooden lids so made, one or two even screwed from inside as well. Of course, the *majority* of trap lids were made one piece, but I am one that prefers to think that early stockers using two-piece lids were the real sharpies of the trade. Bless 'em.

To proceed, one merely takes a flat chunk of wood (a scrap of the stock trimmings, or any close-grained piece of hardwood if you don't mind a color differential) and lay out the bottom width of the dovetail, allowing for the taper, of course, and leaving perhaps 1/32-inch extra width on the sides. Now, one vastly important thing. The wooden components of a trap should be of *quarter-sawn ("edge-grain") pieces.* The reason is that if there is any tendency for warpage, a quarter-sawn piece will warp longitudinally, while a slab-sawn piece will warp tangentially. That means that it will dish, and brother, that looks rotten. So, for your actual lid, take care that you cut it off the stock blank where the grain is correct. If the stock blank is slab-sawn, cut the lid off the bottom or top edge of the blank; if the stock blank is quarter-sawn, you obviously cut the trap lid off the side somewhere. Needless to say, consider that little point before you throw away all the trimmings of your stock blank.

For the male dovetail, I start with a piece that is a quarter-inch thicker or so than the depth of the dovetail. I plane one side dead flat and finish it off by scrubbing that surface on sheets of garnet paper laid flat on the workbench. Take this side down to your final sanding grit, and plan on *leaving it alone* after that. The other side of the piece can be left rough. The dovetail blank, incidentally, should be left long in the event that you wind up with some looseness in final fitting. Should that occur, the dovetail can then be trimmed off at the front and the piece slid forward for a tight fit, which is another advantage of using a slightly tapered dovetail.

Now clamp the piece in the bench vise and file the angles of your female dovetail on it. Use your combination gage/scraper, if you made one, to establish the angles, or a protractor, or just eyeball it. Start fitting the male piece into the female dovetail a tiny bit at a time, gradually working back by filing. This isn't a quick job, and don't try to make it one. The edges of the dovetail in the buttplate will leave scrape marks on the male dovetail, and bearing points on the wood inside will leave burnish marks where the fit is too tight. File these down with a cabinet rasp, taking light cuts, adjusting the angle if necessary as you go. I tap the male dovetail in with a mallet very lightly each time. . .not too heavy, or you will bow it.

If you get impatient while working the dratted thing in, stop for a while and go watch "As the Stomach Churns" on the Tube. Don't drink a beer; that'll make you confident, and you need to be *scared* to get a good fit. Finally, the thing will bottom out against the front of the trap mortise; leave it a bit on the tight side for now; it can be loosened up later by a little judicious scraping.

With a pencil, mark along the sides of the male dovetail, with the pencil riding along the surface of the buttstock, to indicate excess dovetail to be cut away. I bandsaw off most of the excess by holding the dovetail tight against a scrap piece of board that has been squared on one edge. Slip the dovetail back in the mortise, and rasp down as close to the stock as you dare. I finish leveling the dovetail with a wide flat chisel to avoid any possibility of hitting the stock with tools and messing up the flat surrounding the mortise. You must resort again to the square to insure that you have the dovetail flush and level, for if you don't the trap lid won't lie flat on the stock when it's installed. This final leveling must be done with the dovetail in the stock to avoid having its upper surface sinking below the stock surface; if this happens, the finished lid will bind.

Now go drink a beer. The rest is easy. Lay out your lid, with the outline exactly matching the flat on the stock. Use a centerline on the lid blank; you need this on both sides. The bottom of the blank must be dead flat, and you should finish it off just as you did the bottom of the male dovetail. I like the lid to taper a bit in thickness, and the one shown here is 7/16-inch at the butt tapering to 3/8-inch at the nose.

Mark the center of the male dovetail on each end of the dovetail, and mark a line across the bottom of the lid where you want to have the front of the dovetail stop, 7/8 to 1-inch back from the lid nose. All you have to do now is to glue the lid to the dovetail. You can use hot animal glue as the old boys did, if you wish; it has the advantage of being reversible. . .it will dissolve by soaking in alcohol, should you ever need to take the lid apart. I prefer to use a good 24-hour A-B epoxy. Avoid the five-minute stuff since it has little shear strength. In either case, smear a thin layer of adhesive on both lid and dovetail, line up the dovetail with the centerline on the bottom, and clamp the two pieces together with at least three C-clamps, taking care that the dovetail doesn't slip off the lid centerline as the clamps are tightened. Set it aside after wiping out *all* excess glue.

For ease of working, the entire lid assembly should be left an inch or more too long; this provides an area where the lid can be C-clamped down without interfering too much with the surface you want to shape. I place a board in the bench vise and clamp the butt end of the lid down hard, and then dome the lid over with a patternmaker's rasp. I prefer to leave a 1/16-inch edge around the lid rather than doming all the way down to the corner; this leaves a little strength where it might be needed if the lid is dropped. . .and it certainly will be at some point. After rough shaping, you may saw off the excess at the back and try the lid for fit in the stock mortise. You will probably find that the lid fits the stock dovetail so tightly that you will have to do a bit of scraping and sanding here and there to get it to slide home without undue effort. At this point, I usually relieve under the lid nose a little to prevent the lid from rubbing the stock. You don't want the lid scraping your stock finish later.

The rear of the lid must now be rasped away to the thickness of the end-plate, and take care not to splinter the edges of the lid while doing this. After the amount needed is cut away, you can relieve the inside of the area a bit, staying an eighth-inch away from the edges and using a quarter-round gouge. This will lessen the bearing area you have to fit the end plate to.

Good quality horn is acceptable for an end plate, and is the easiest to do, but I

prefer metal. I use 1/16 sheet for either brass or steel-mounted rifles. Lay the end of the lid on the sheet and scribe around it. Saw out the plate blank 1/16-inch *oversize* all the way around. This must be done so that the edges of the plate can be filed later to the same angles as the lid and dovetail surfaces.

The plate may either be attached with countersunk nails, as many early ones were, or screwed on. I prefer the latter method, though it is more tedious due to the need to get the screw pilots and countersinks at right angles to a plate which slopes in two directions. The plate, incidentally, should be mounted so that it follows the "working" surface of the buttplate, rather than sloping forward a great deal. Since buttplates are usually domed over, the plate will slope forward naturally as an extension of the buttplate surface.

To attach the end plate with screws without winding up with a hernia of the brain and too much time lost, I simply attach the plate to the lid with Devcon five-minute epoxy, after I have ascertained that I have a perfect joint all around the lid edges. No gaps allowed. Now the lid may be simply clamped down, and two 1/2 x 4 countersunk wood screws installed with the centers 7/16-inch or so in from the sides, more or less centered vertically. Pilot drill, countersink, and install one screw at a time. Take care not to drill through the bottom of the lid with the pilot, since you're drilling at quite an angle, and finish out the countersinks so that the screw slots are both perpendicular. Pull the screws, lightly heat the plate with a torch, and knock it off. Scrape off the nasty epoxy, re-install the plate, and file it down flush with the lid all the way around. Take care with this, particularly around the rear of the dovetail, since you want a good metal-to-metal fit. If you should file too much off the upper slopes of the dovetail in fitting, the lid catch spring will force the lid up, leaving a gap underneath the end plate.

When the end plate is fitted to your satisfaction into the buttplate dovetail, grab a file and dress down the entire plate to the point that it is flush with the buttplate surface.

The catch spring can now be made, and it's not a particularly difficult item. Most old lid catches are rather long, 2 1/2 to 3 inches, and were made thin and pointed on the front end so that they could be driven into the wood. Others are a little shorter, two inches or so, and are attached at the front with a wood screw. I prefer the latter method since there is no tendency for the spring to pull out, and it is easier to set up. I use a 1/2 x 4 screw, and you must take care not to use a screw that is too long unless you want a little

steel blooper showing on top of the trap lid.

Some early catches engage at the rear of the trap mortise, while others catch the edge of the buttplate, which is the way I like to do it. I make the catch out of a piece of 01 steel 1/8-inch thick and about 1 3/4 inches long. I trim the spring blank to a quarter-inch width, but leaving a "T" head on one end roughly 5/16-inch wide by 3/16-inch high; this extra metal is needed for forging the head. With the blank held at the "T" end, draw out the blank lengthwise with the hammer, forging at bright red heat, and working from a half-inch in front of the "T" forward. You want to thin the spring the full length to about 1/16-inch thickness; this will widen the spring and lengthen it at the same time. Now dress the edges of the spring down on both sides so that the width of the spring isn't much more than 3/16-inch, but leaving a 5/16-inch square at the end of the spring to provide enough area for the screw head.

Now clamp the blank tightly in the vise with the "T" head up, and with an acetylene or Mapp gas torch, keep the head bright red and forge it out with the hammer, working more on the far side of the blank than near you so that the forging will spread more toward one side than the other. You're after a rough-forged head that is perhaps a half-inch wide by 5/16-inch high. The head must be angled, often in two directions, to match the slope of the lid end plate. When you have reached the size of forging you want, check the catch against the lid and forge the head forward until it appears to have the correct angles.

You should now have a rough forged catch with a lumpy head resembling somewhat a lopsided wrought nail. File the head to the shape that you want. It need be no larger than 7/16-inch wide, 1/4 high, and 3/32 thick. It should be thicker at the bottom than the top, and the bottom edge should be left on the sharp side so that it is easy to get "aholt" of.

The blank is still 1/8-inch thick from the head to a distance of about 1/2-inch up the spring, and then the spring thins to 1/16-inch. Finish up the spring with files, filing a smooth, curving drop-off from the thick part of the spring to the thin; this must be done so that the spring can ride up easily over the buttplate. Clearance drill and countersink for the woodscrew, but make sure you put that countersink on the right side of the spring!

Inlet the spring into the back of the lid, dropping it just below the surface of the wood, and slot the end plate to clear. The head must be able to move up 1/16-inch in the slot, but don't slot so deep that the catch head doesn't completely cover the slot at all times.

Install the spring, lightly coat the bottom with layout dye or a suitable spotting agent, and shove the lid home. While pulling up on the catch, take the lid out, and note where the scrape marks from the inside buttplate edge stop. Remove the spring and file away under the head about 1/32-inch deep, almost up to the line of the buttplate edge. You'll have to file and try the spring a number of times until you can get the spring notch to drop over the buttplate. It should do so with a resounding "snap."

I often find that there is no need to heat-treat the spring after it is fitted, since forging the part left it harder, and the spring has very little travel. You don't want the spring too stiff, or it will be painful to use. I usually put a bit of filed decoration on the spring, however, but that doesn't make it work any better. Just makes me feel good.

Wooden lids usually have carved decoration on them, if only simple moldings around the edges. Some were totally and elaborately molded full-length with architectural elements such as ogees, quarter-rounds, coves and the like. Others have carved leafage and scrollwork, such as the finished lid shown here. . .this one is on a *stutzen* made for poet-doctor-elkhunter Harry November of California. Note that this lid has no thumb-notch; a fair number of European lids had none, though most American trap lids do. In any event, the lid is fair game for considerable decoration if desired, including ivory and silver wire inlay. Gunmaker Ted Buckland of Nordland, Washington recently sent me photos of a very interesting lid he'd laminated up from a piece of walnut sandwiched between two pieces of curly maple, with the entire lid sculptured quite beautifully.

One final note; when applying finish to the trap lid and stock, use two good coats of sealer on the back of the lid and in all the dovetail cuts, but be certain to wipe out all excess sealer that doesn't penetrate. Even so, the sealer will swell the wood slightly, and when the piece is finished you'll have to take a sharp knife and scrape all the dovetail cuts lightly so that the lid will slide. Rub a bit of Johnson's paste wax into the joint, and that will help. Even so, when the miasmal vapors of summer roll in, you may wish you had a rubber mallet to beat the cursed thing open, for a wooden butt trap makes one of the finest hygrometers in the world. You can measure the humidity by the number of polysyllabic epithets expended in getting the thing open.

John Binns