

Chapter 19

THE BIG BUILD-UP

*There Are Techniques And Short-Cuts
For Building The Ultimate Shooting Machine!*

As the first step in putting together a custom rifle, the author gives the stock a quick inspection and makes some minor configuration changes in keeping with what he has in mind for fitting it to an Interarms Mark X action.



SOME YEARS ago, I participated in tests of a rifle stock of revolutionary new design. At that time, Carl Peterson, the late genius of the stock pantograph machine, was careful to point out that his new brainchild was probably the newest and most advanced innovation in gunstocks in centuries.

When I first eyeballed the unorthodox but beautifully finished piece of wood Peterson pulled from a rifle case, I shuddered. It was fitted, as I recall, with a Model 70 Winchester barreled action chambered for the .300 Winchester magnum cartridge. I tend to be a bit old-fashioned when it comes to sporting rifles and this is especially true where the design of the stock is concerned. However, the chunk of wood that Peterson presented as a rifle stock that day looked more like a crutch for some being from outer space!

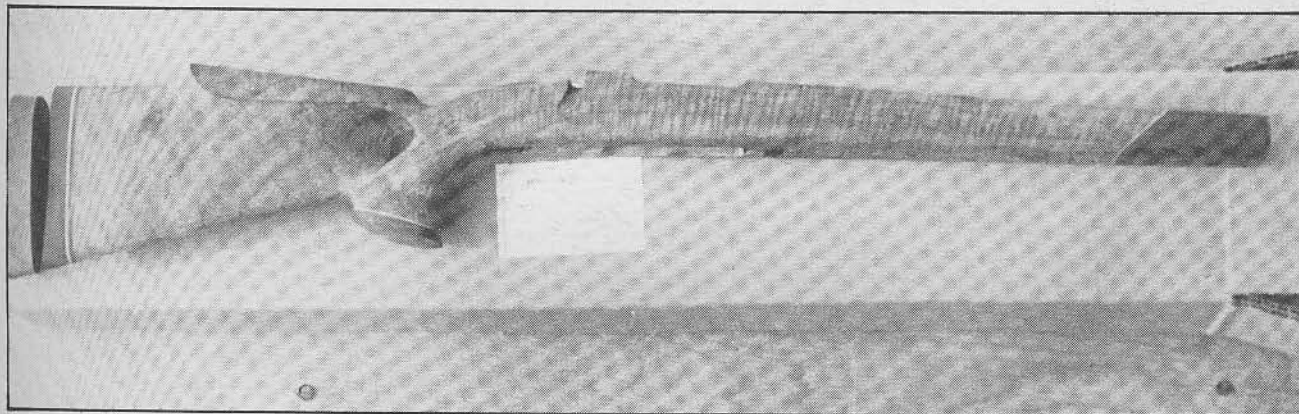
Out of respect for Carl, who we all admired for his artistry in wood carving, we tried to hide the looks of disbelief

that must have been apparent on our faces. Here was a so-called rifle stock unlike any other we had ever seen. It had little or no drop at the heel, the stock proper was wedge-shaped and the center of the pistol grip looked as though it had been used for target practice with a 20-millimeter cannon!

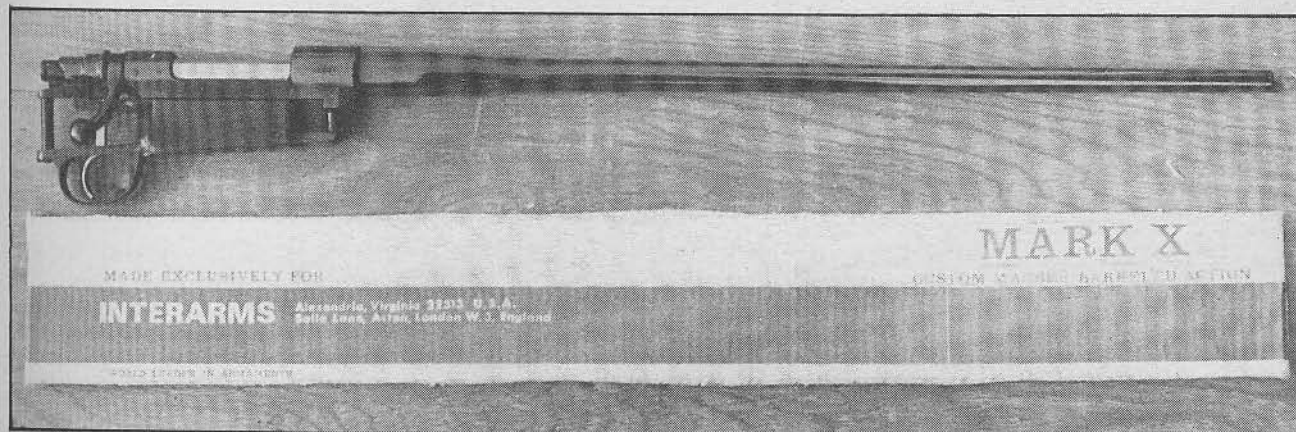
I thought it was the worst excuse for a stock I had ever hoped to see. The beautiful flowing lines of the classic stock were nonexistent, though, as stated, the wood was finished beautifully. So new was this creature that I had to be instructed in its use. It seemed that the large hole in the pistol grip area was for the insertion of the thumb, thus providing what was supposed to be a more-natural hold on the stock. This was fine. I agreed this was an acceptable feature. But the rifle raised to the shoulder, I would have bet anything, had the potential of kicking like a mule.

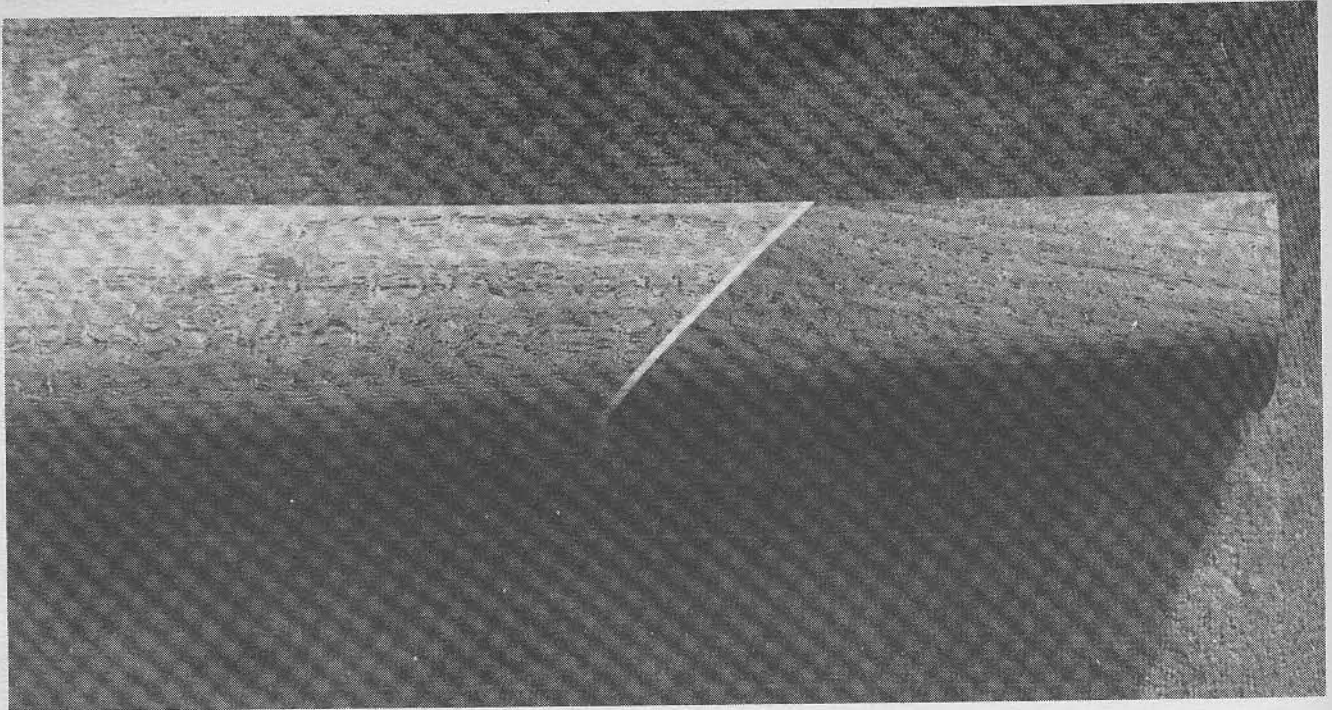
Here I was in for a major surprise. After firing several rounds, I found that recoil was all but nonexistent. The

Several stockmaking firms furnish thumbhole versions, including Fajen. Bish ordered one in semi-finished condition. He also favored the Pachmayr Presentation recoil pad, but found that stock had to be cut to attain proper length.

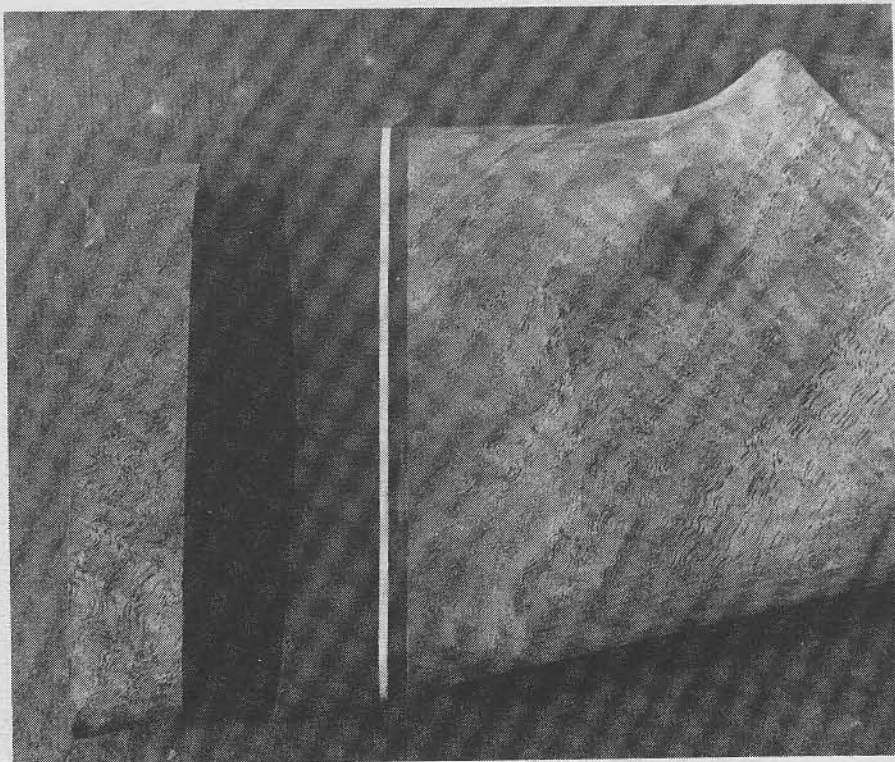


The Mark X Mauser action has the features required for a commercial sporter. It comes with an FN-type bolt sleeve.





As received, the forend of the thumbhole stock was cut square. During sanding, it was shaped to style wanted.



Before shaping and sanding the wood, the recoil pad is installed following contour of the stock. The thumbhole design requires that one-half inch in extra length be included in stock's overall dimension for a proper fit.

same was true with the second rifle tested in this unveiling, a 7mm Remington magnum. The testing of this new rifle ended with firing any number of rounds through both rifles, holding them at arm's length as though they were pistols. Carl Peterson seemed to have licked the problem of recoil in the big magnums.

Now, two decades later, the thumbhole rifle stock developed originally by Carl Peterson, has gained popularity the world over as the wood from which the recoil has been removed. Too, the overall appearance of this stock has been greatly improved over that of the original version. It currently is available with the graceful lines of the classic or may be had with a Monte Carlo-type stock having a full roll-over cheekpiece. But this is getting ahead of the purpose of this story.

In recent years, I have limited rifle building almost com-

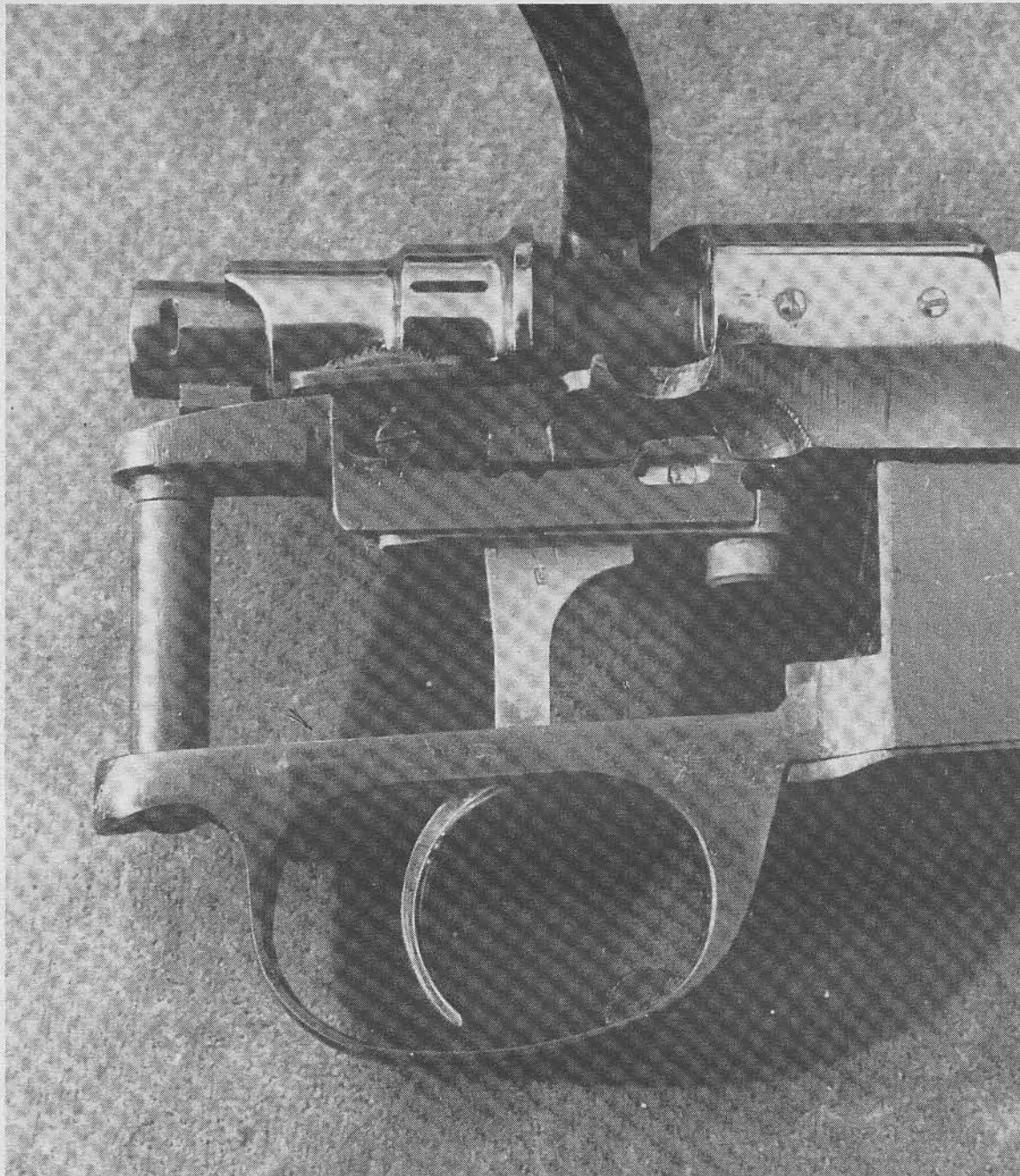
pletely to those for my own use, plus a few built for friends for big game in Africa and Asia. I had never built a rifle with a thumbhole stock, stubbornly hanging onto my ideas of sane stock design. This would be my chance to build just such a rifle utilizing the somewhat still controversial Peterson thumbhole stock.

Several months went by as I assembled some of the necessities for such a rifle. One of the new Mark X Mauser barreled actions had arrived from Interarms of Alexandria, Virginia. I had suggested that the 7mm Remington magnum caliber be utilized, but the importers of this action sent one in .270 Winchester, which was rapidly available.

This action was manufactured in that era by Zastava of Yugoslavia for Interarms and was a typical Model 98 Mauser of commercial design. As available today, it boasts

The barrel was full-floated in the stock before the job of glass-bedding was begun. Bish checks to be certain that there is the proper clearance in the inletted sections before applying type of bedding compound that he favors.





Though adequate, the standard Mark X trigger could not be adjusted. Bish used Timney trigger.

an FN-type bolt sleeve and a thumb safety located on the right side of the rear tang. The entire barrel and action are blued to a high luster and the bolt is factory honed for smoothness. The magazine is equipped with a hinged floor plate with push-button release and the receiver is drilled and tapped to accept most popular American-made scope mounts.

I decided to use a Timney trigger with a thumb safety in lieu of the one furnished on the Mark X action as standard

equipment. While this Mark X trigger and safety are adequate, I don't feel it has the vital adjustments and sensitivity of the Timney. Conetrol scope mounts were selected for installation on this rifle. The Peterson designed stock would be fitted with such accessories as a Pachmayr Presentation recoil pad, flush mount sling swivels also by Pachmayr and would be finished with Lyman's newly produced stock finishing kit.

Among the last needed accessories to arrive was the

Micro-Fit Dual Grip thumbhole stock turned by Peterson Machine Carving of Sun Valley, California. The wood used was of the finest exhibition grade — the best in both configuration and color — and was turned with such precision that only minor inletting was necessary.

However, as I prefer to thoroughly glass bed any rifles I build, additional clearance had to be rasped from the barrel channel. This clearance requires a fill space of at least one-sixteenth-inch for the glass bedding compound. Also, I prefer to bed not only the entire barrel and recoil lug sections, but the receiver and rear tang as well. Complete glass

bedding such as this requires many additional hours of curing time and should be done in three separate operations.

As of this writing, thumbhole stocks are available from Reinhart Fajen, Inc., of Warsaw, Missouri, in grades of walnut varying from supreme to semi-fancy. The supreme grade is the top of the line as far as beautiful configuration of grain is concerned. These thumbhole stocks are available in the Mannlicher-type stocked to muzzle as well as the conventional forearm design.

First, the barrel is bedded back to and including the recoil lug, then the action is removed from the stock, the



Assembled for installation were flush-mount sling swivels, the Pachmayr recoil pad and Conetrol scope mounts for a 6X Leupold.

metal recoated with releasing agent and the complete receiver section glassed. When cured, the action once more is removed from the stock, recoated with releasing agent, then the entire rear tang section is solidly seated in glass. Properly done, a rifle finished in this manner is less apt to change its point of zero due to stock warpage, a condition especially prevalent in damp weather.

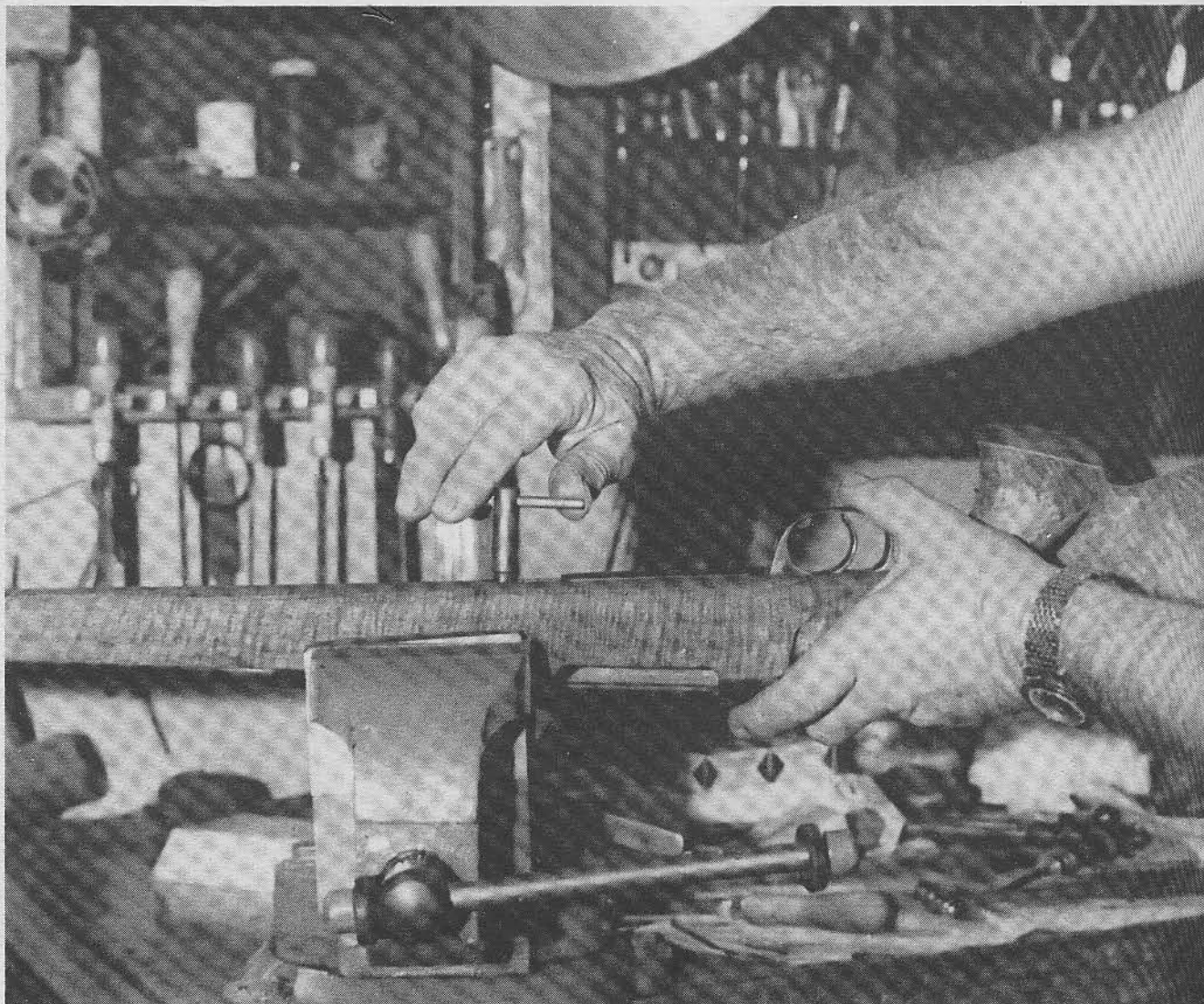
Once the barreled action is inletted and glassed, one must file and sand the stock to its final configuration. As received, the thumbhole stock requires that a recoil pad be installed, the forend shaped and the stock and pistol grip section be custom fitted to the individual who will use this rifle.

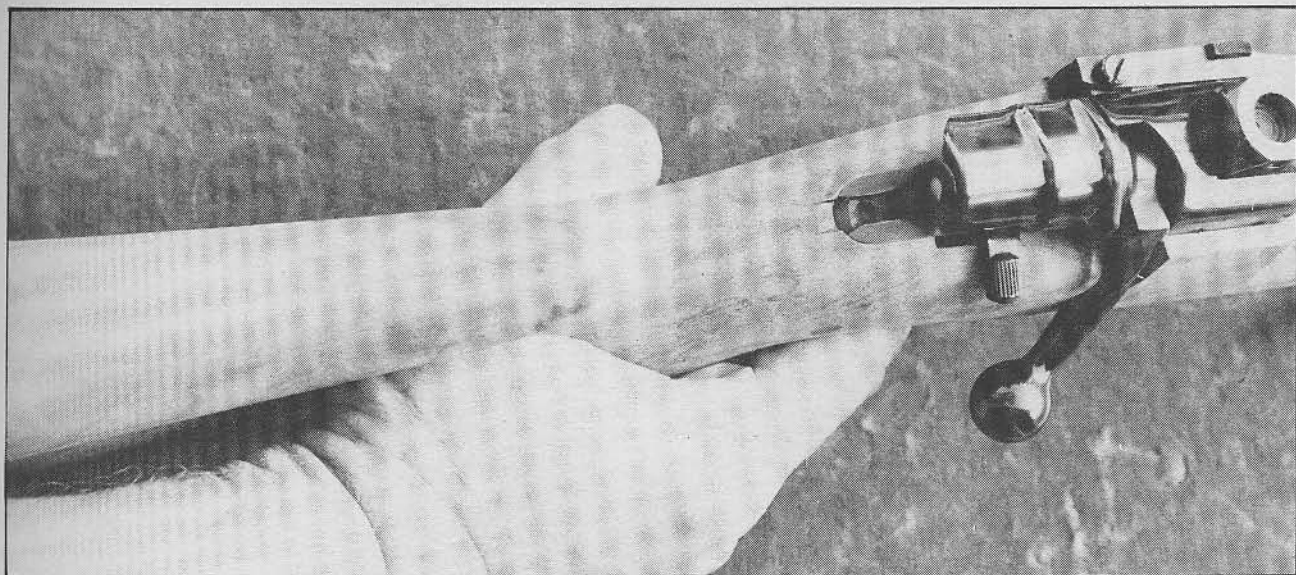
While the stock proper and pistol grip section is pre-

shaped, it still should be precisely fitted for comfort to the individual. This is accomplished first by placing the rifle to the shoulder in the conventional manner with both eyes closed. With the head in a normal, upright position, open the right eye and sight the length of the rifle.

Chances are that it will be noted that the head is too far to the left for the line of sight to be straight down the top of the barrel. This means simply that the cheek rest is too thick. Plane or rasp the rest until the eye sights directly down the top of the barrel with no neck craning. During this phase the length of the stock is noted. As a rule, the length of pull of a thumbhole stock should be approximately one-half-inch longer than a conventional stock. This includes the thickness of the recoil pad.

With the glass-bedding compound applied, the action then is tightened into the stock, using stockmaker's screws. The rifle then should be set aside for twenty-four hours to allow the compound to harden, cure and form to action.



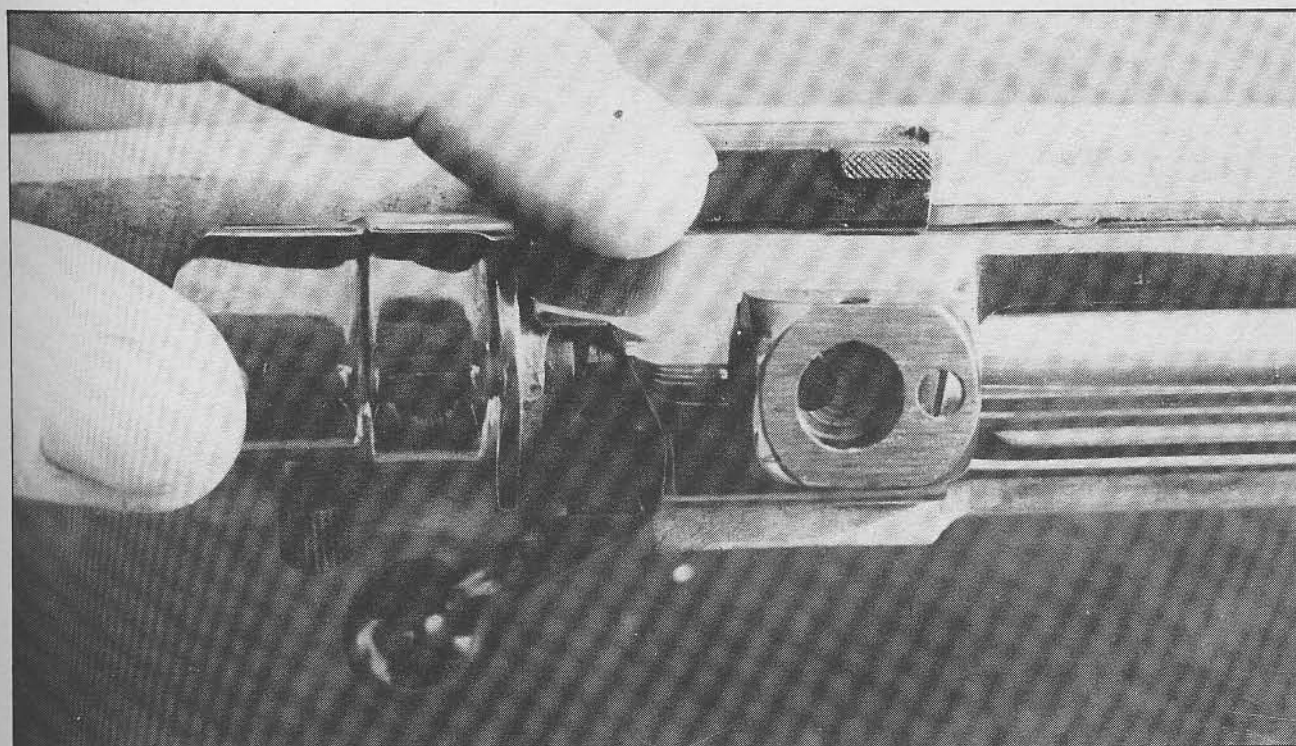


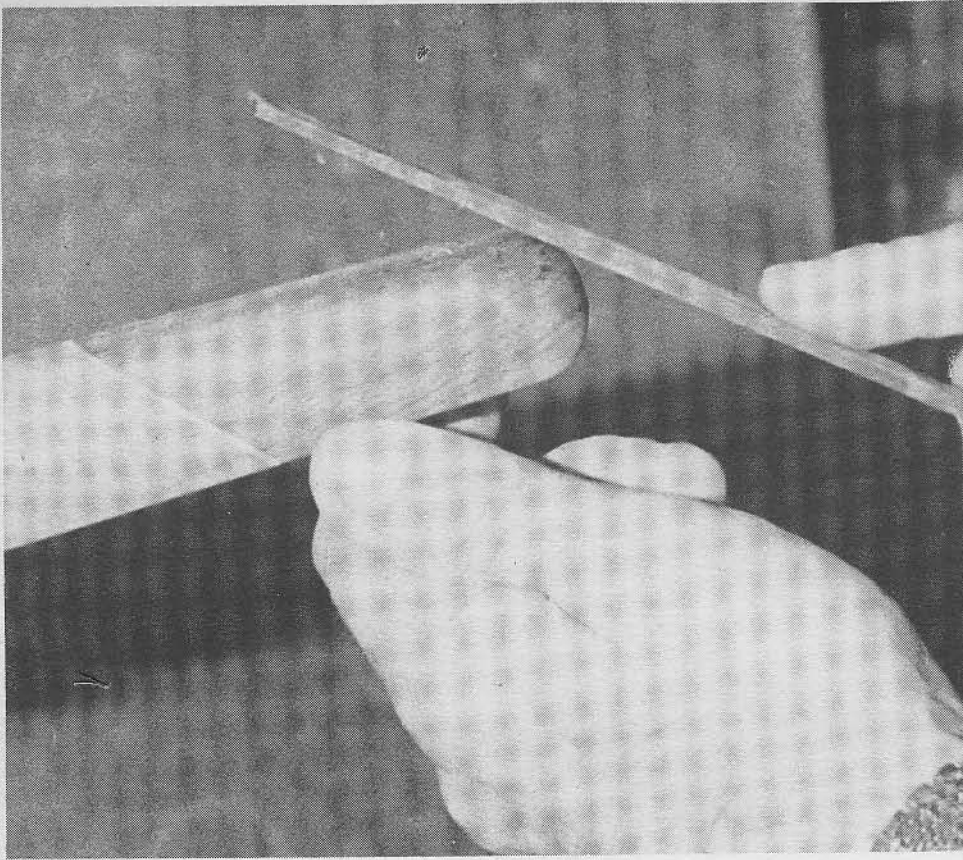
With the action in the stock, Bish checks out thumbhole to determine whether it meets the contours of his hand. In some cases, adjustments must be made in the size and contour of the thumbhole, but this must be done carefully.

There are innumerable little things that may be done to both a commercial barreled action and stock to turn them into something special. Let's take, for instance, the bolt release lever, that little gadget located on the left side of the Model 98 receiver. In the majority of cases — especially on commercial actions — this one feature often is taken for granted by most rifle builders, whether amateur or professional. The

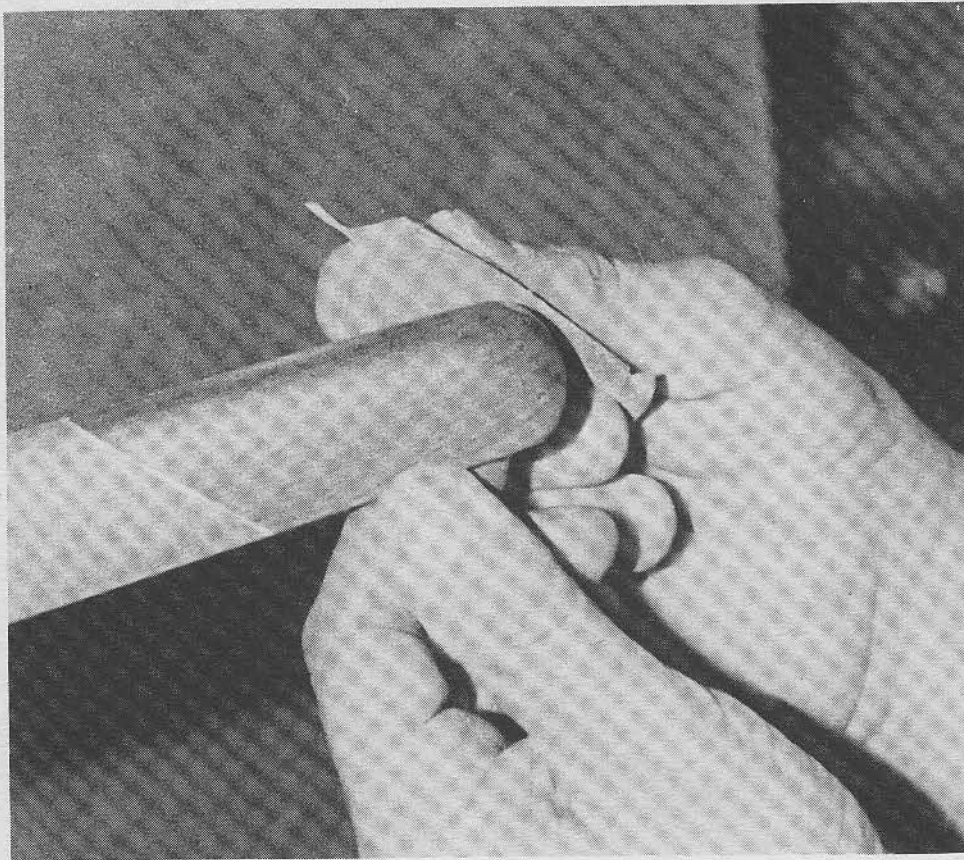
wood of the stock is cut, shaped and sanded around it with no thought as to what might improve its function even the slightest bit. I have found that checkering the top portion of this thumb-operated lever can improve its function. Too, it is a matter of only a few minutes to relieve the wood around the contour of this lever sufficiently to allow a one-sixteenth-inch fiberglass spacer to be epoxied in place. Not

The raised finger lever of the bolt release may be checkered with metal checkering files. This, the author feels, will add to the appearance of the finished rifle, as well as aid in the practical use of the component in the field.

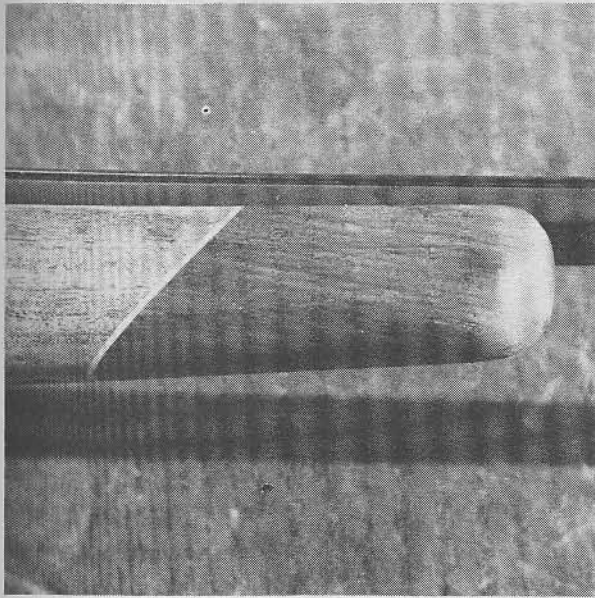




Perfect roundness of the forend is achieved with files; work the surface to be shaped with a rocking motion of the file.



Forend is rough-shaped with disc sander or files, then is finish shaped with sandpaper.

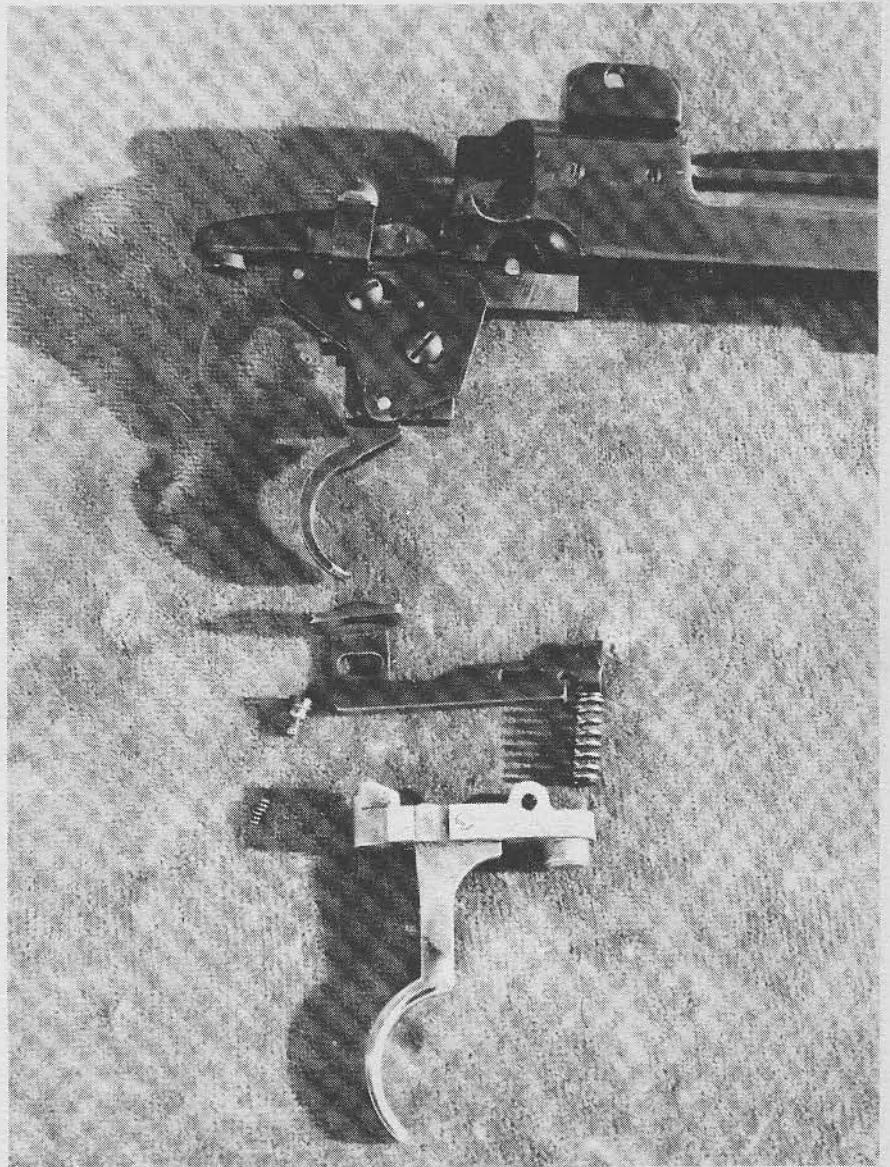


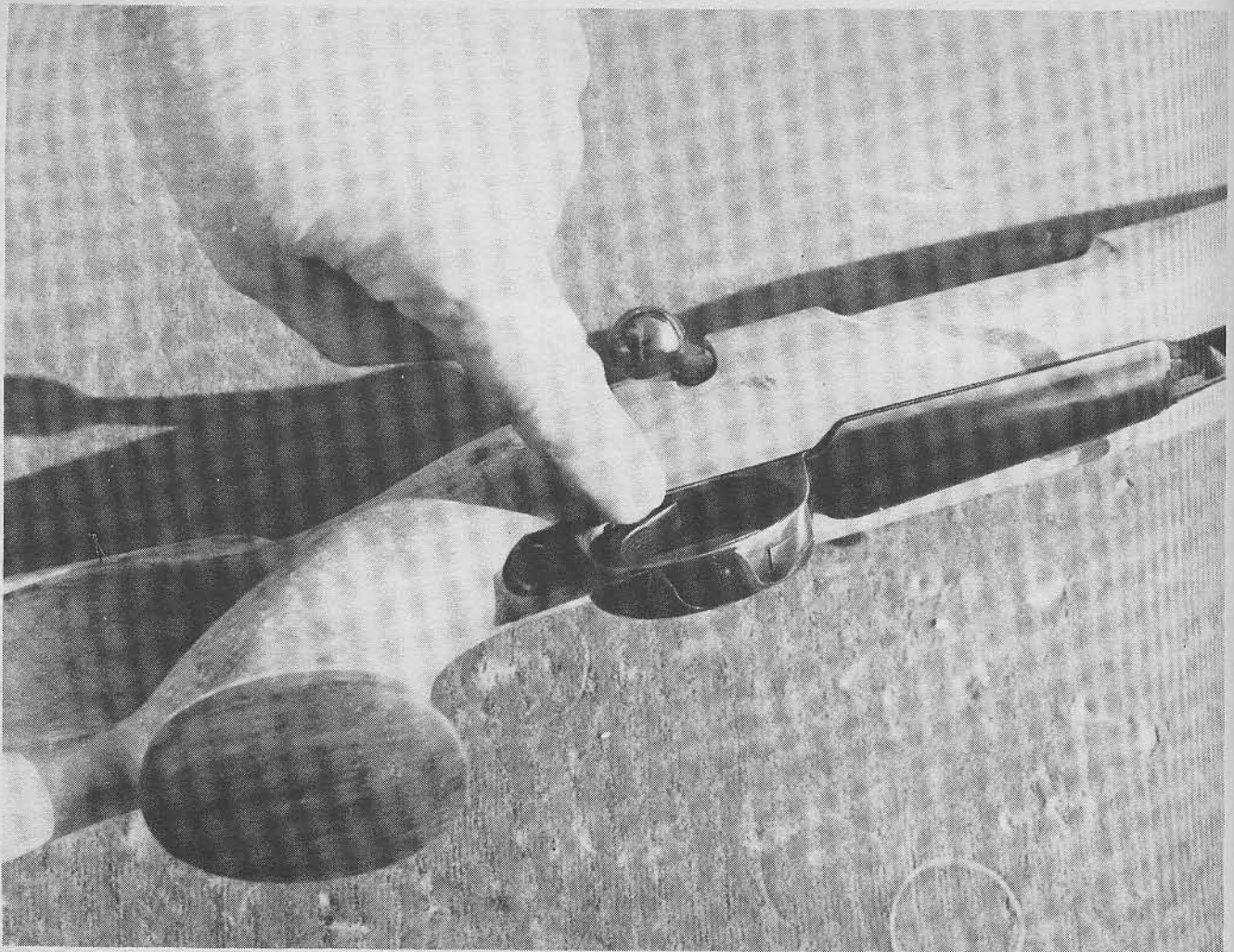
only does this seemingly simple bit of customizing improve the appearance of the finished rifle, but it smooths the operation of this component.

This thumbhole stock requires that the tip of the forend be shaped in accordance with the builder's tastes. This section may be rounded, swept back, semi-rounded with flat sides or finished in any other combination of shapes. However, in doing this portion of the stock, it is best to stick to sane and proven designs. I never have approved of swept-back or undercut forend caps, because they are nothing more than glorified brush hooks.

As mentioned, I had decided to replace the standard Mark X thumb-safe trigger with the Timney Target Master. This particular trigger is furnished with a serrated trigger measuring three-eighths-inch in width that required the trigger slot in the Mark X trigger guard be enlarged. The original trigger of the Mark X measures approximately $7/32$ -inch in width against the full three-eighths-inch of the Timney. This means that the trigger slot has to be widened by about $5/32$ or about $3/32$ on each side to accommodate the wider trigger in a frictionless fit.

Although a forend may be developed in numerous shapes, round contour was used on this rifle to avoid the brush hook style. The forend shown is in the early stages of finish. (Right) Timney Target Master trigger with thumb safety has been installed in the action. Beneath is standard trigger, safety from the gun action.





The Timney Targetmaster trigger measures three-eighths-inch in width, requiring that the slot in the trigger guard housing be made wider so that the trigger would fit and function properly. This takes careful work.

The sear slot in the rear tang had to be elongated slightly to accept the sear of the Timney. This is accomplished, should it be necessary, with small needle files. The sear of the trigger must have full freedom to move within this slot for positive functioning of the action.

Once the trigger assembly is installed, should one care to replace the standard Mark X versions with a more refined unit, the full forward Mark X safety with a more thumb lever is marked onto the tang of the rifle with a silver lead pencil. These marks will act as guidelines by which the stock might be inletted to accept the lever in a precise fit.

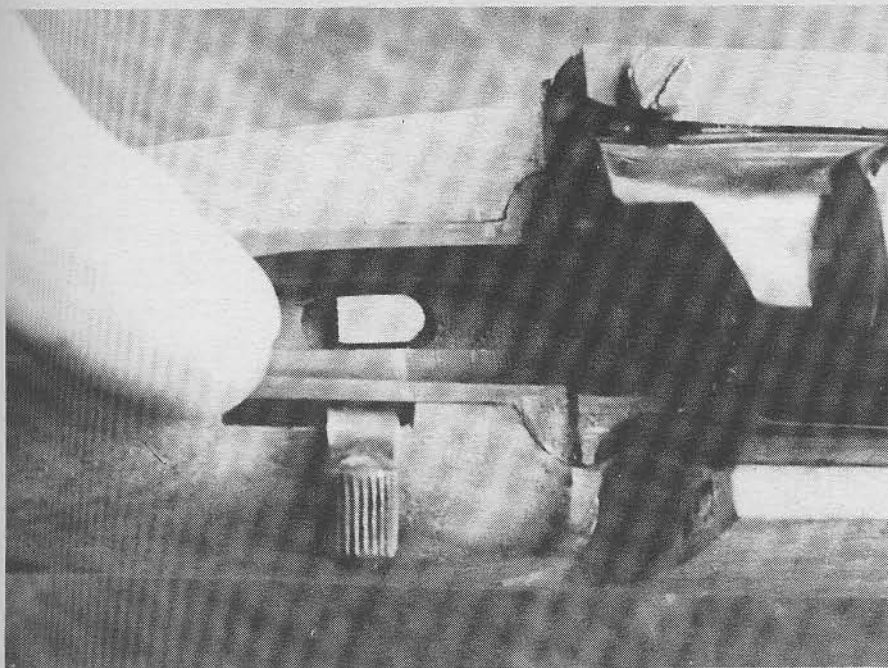
Yet another innovation that spells "special" to any rifle stock, though a minor operation in itself, is to cut a tapered mortise in the stock directly below the loading port of the receiver. The entire conformation of this mortise may be a variety of shapes and sizes, according to the individual's own tastes, but it is best to keep it simple. During the final

sanding, the edges of the mortise may be sharpened, giving this one feature a distinctive appearance.

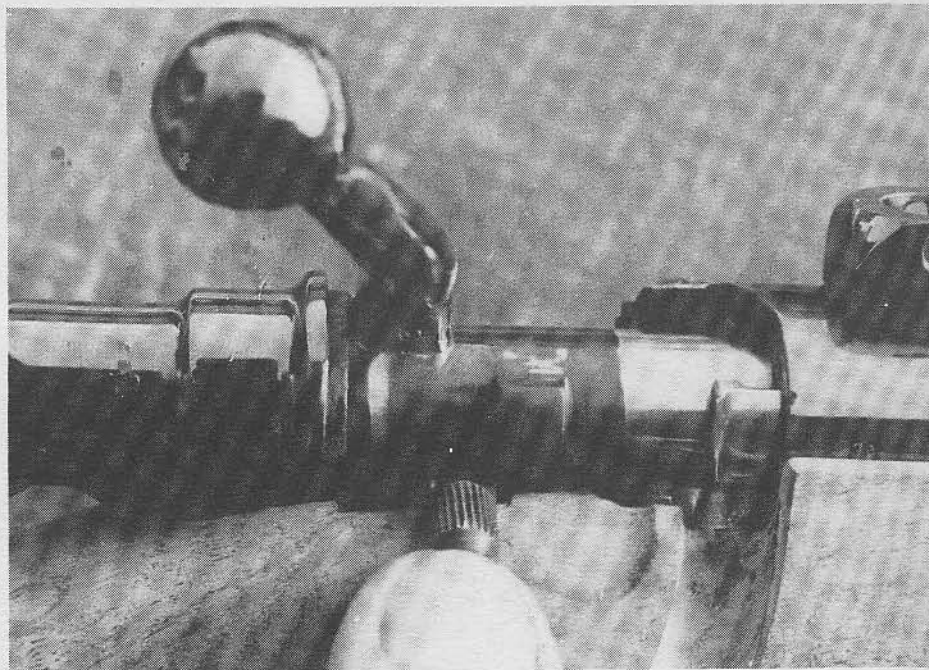
Otherwise good rifle stocks are all but ruined during the final sanding and shaping. It is best to take your time. Cover the recoil pad with masking tape to keep it from being shaped poorly or soiled during sanding or application of a liquid-type stock finish.

The thumbhole area of the stock should receive more than special attention to assure proper fit of the hand. However, don't remove too much wood unnecessarily. It could weaken the stock. Finally, when the stock has received its final sanding and is glassy smooth, ready for application of the liquid stock finish, the sling swivels are installed, at least temporarily.

While there are many types of swivels available today, those produced by the Pachmayr Gun Works of Los Angeles, California, were selected for installation on this rifle. (Mounting procedures for these sling swivels are covered



Sear slot in the Mark X action, though standard, had to be made longer with files to accommodate the new Timney trigger assembly.



The thumb piece of safety lever should be bent to conform to the stock contour with 1/16" clearance.

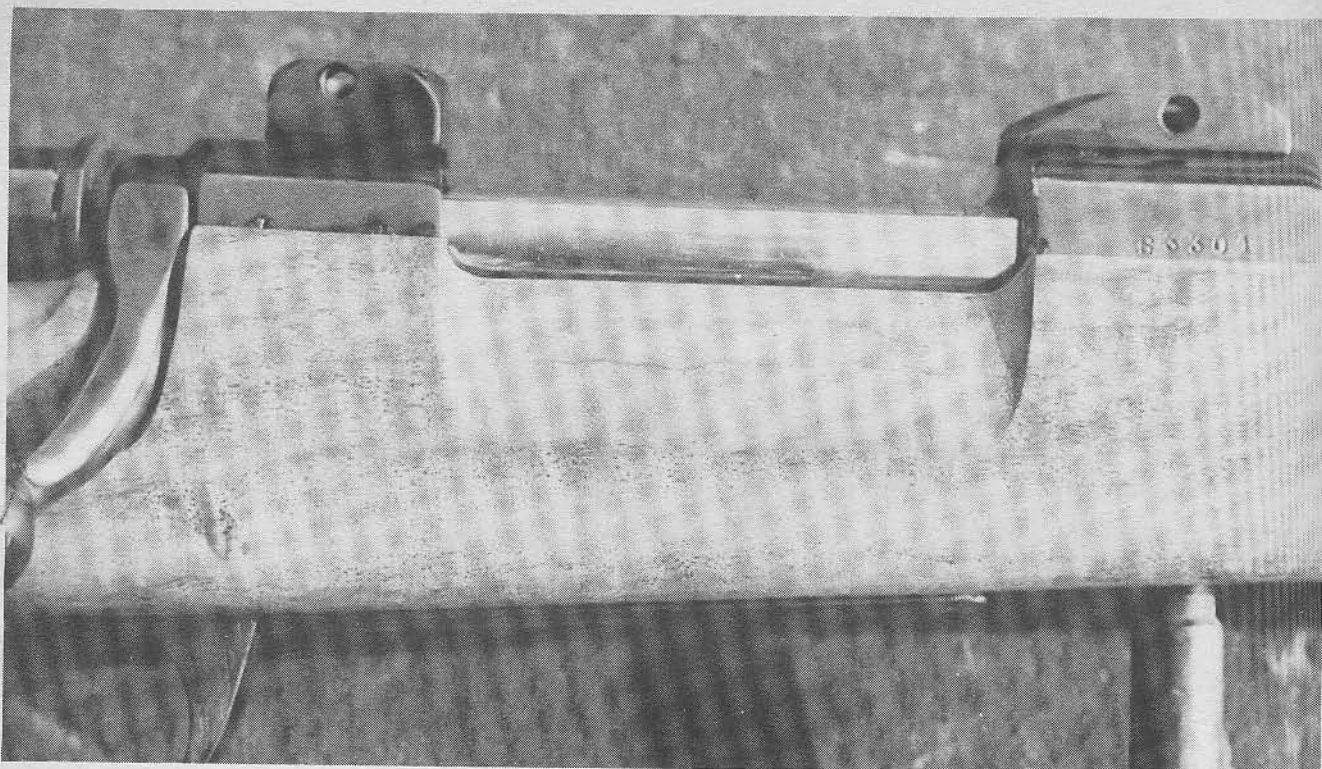
in detail elsewhere in this book.) Once installed, the bases are flush with the wood. The swivels themselves are fully detachable by pressing the swivel slightly then turning counterclockwise. They are installed by reversing this procedure.

The swivel bases, after installation, are removed from the stock for application of the initial coatings of stock finish. Earlier, we glass-bedded the barreled action into the wood of the stock in a snug, almost press fit. To assure that this glassed area receives none of the liquid finish, it is best to mask off all areas covered by the glassing compound. At the same time, make certain that no portion of the masking tape overlaps any portion of the stock that is to be highly

finished. A razorblade can be utilized to trim off excess masking tape.

Available today are preparations with highly refined oils compounded in their makeup, such as George Brothers' Lin-Speed oil, Casey's Tru-Oil and several others. There also are those preparations having a glass base such as Brownell's Acraglas and Bichwood-Casey's polyurethane stock finish. I have used literally gallons of each to produce some pretty good results in my time. However, one of gun-dom's oldest firms, the Lyman Gun Sight Company, has a kit known simply as the Lyman Stock Finish kit. I decided to give it a try.

This kit includes everything necessary for producing a



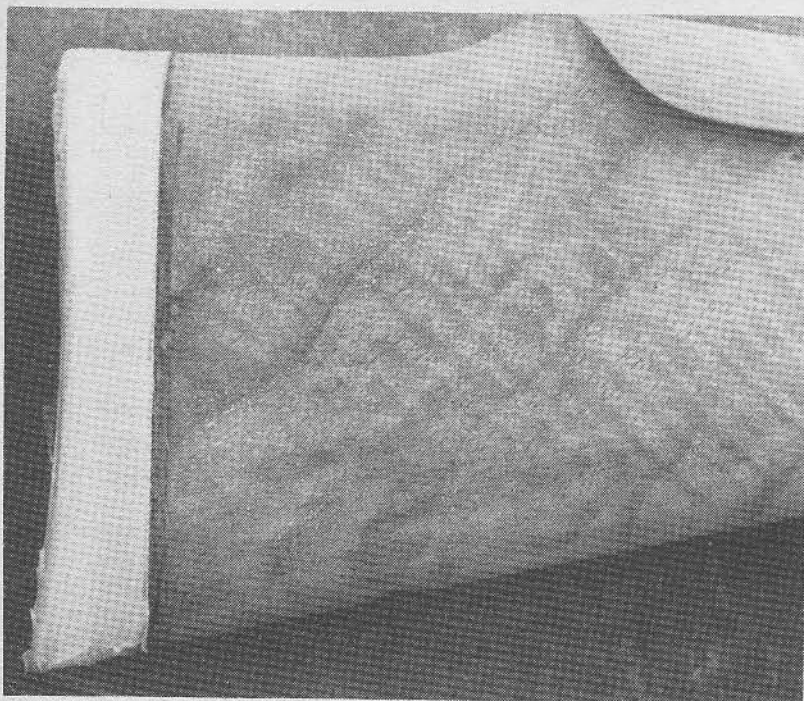
Loading area of the stock can be mortised to provide a custom appearance to the finished stock. This mortise, according to the author's thoughts, can vary in size or shape to conform to the desires of the firearm's owner.

high, mirror-like finish to any gun stock. Included is one bottle of gun stock filler, one bottle of finish, a can of liquid for removing the finish from old stocks, sandpaper, steel wool, a rubbing pad and full directions.

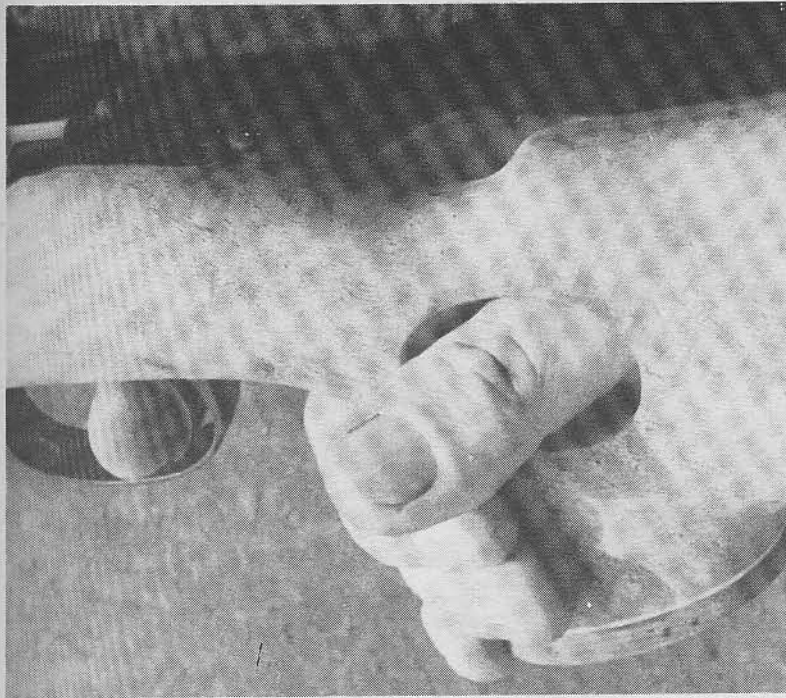
It must be mentioned that unless the wood is sanded thoroughly, removing every minute scratch, then sanded

with wet-or-dry paper in extra fine grit until glassy smooth, the final finish will look like hell, no matter the amount of liquid finish applied! The major effort in stock finishing is expended in the sanding.

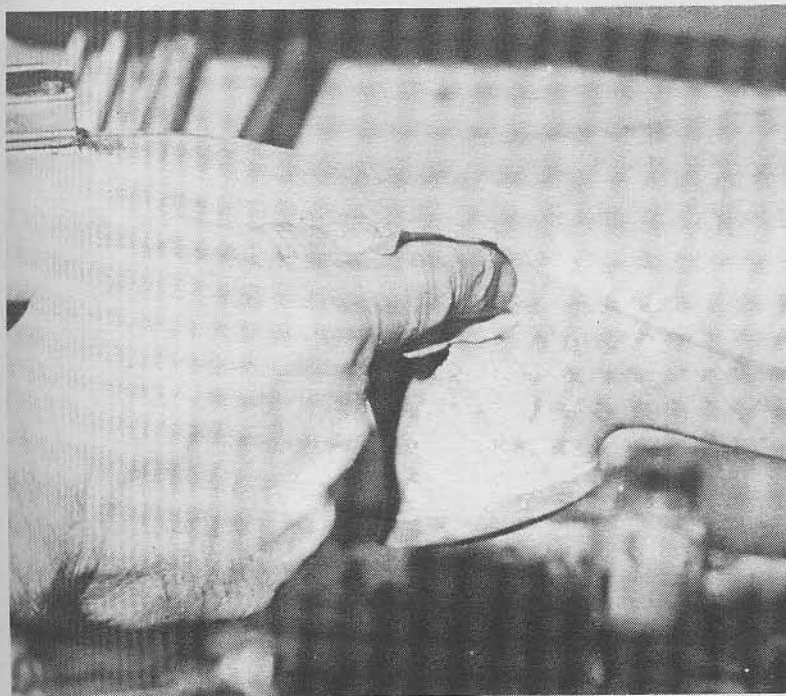
The various grades of gun stock walnut appear to have surfaces filled with minute holes or pores. Regardless of



Once installed, the Pachmayr Presentation recoil pad is covered with masking tape to protect it until rest of stock is finished.



The hand grip section of the thumbhole stock must be sanded and shaped to fit the hand of the user. This is especially true of the area where thumb protrudes.



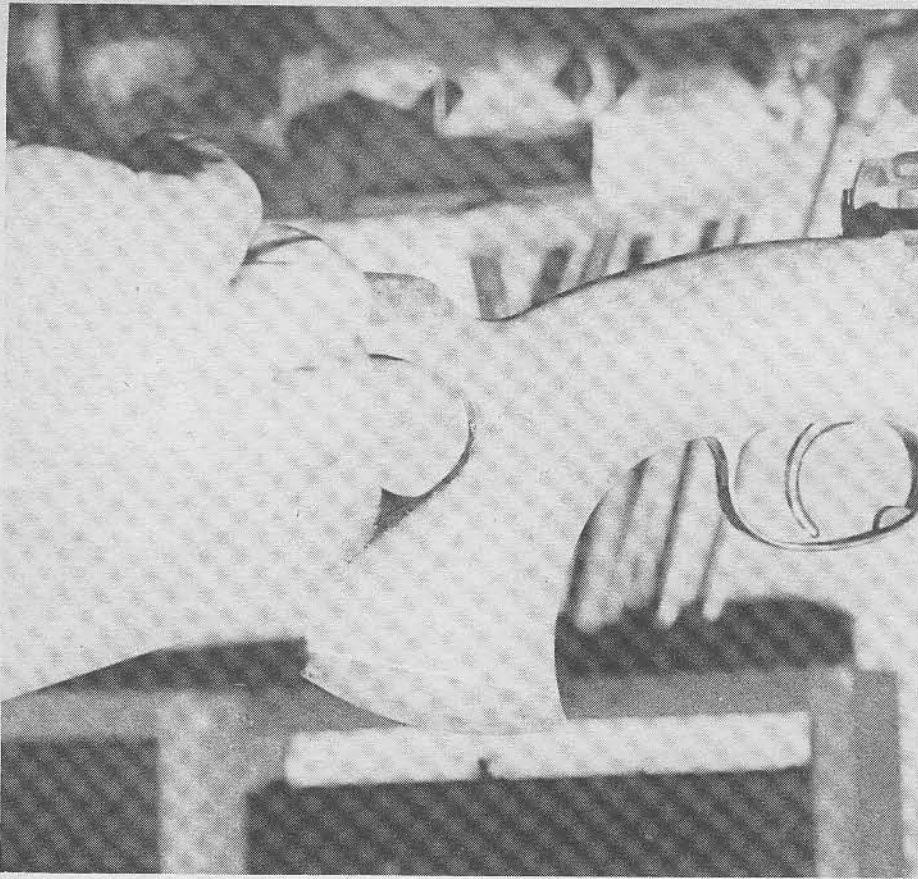
The best method of sanding the thumbhole is to wrap garnet paper around a finger, using digit as sanding block as shown.

the amount of sanding, these pores will be prevalent over the entire surface. They must be filled completely to produce a stock that is glassy smooth. Using Lyman's gun stock filler, follow the directions on the bottle to the letter in applying and allow sufficient drying time. If correctly applied, it will be noticed that the holes or pores in the wood are filled completely to the surface of the wood. It is now time to begin the application of the final finish.

The application of the liquid finish is a simple matter, if a small spray unit is available to the builder. However, lacking this piece of equipment, one may apply the finish with

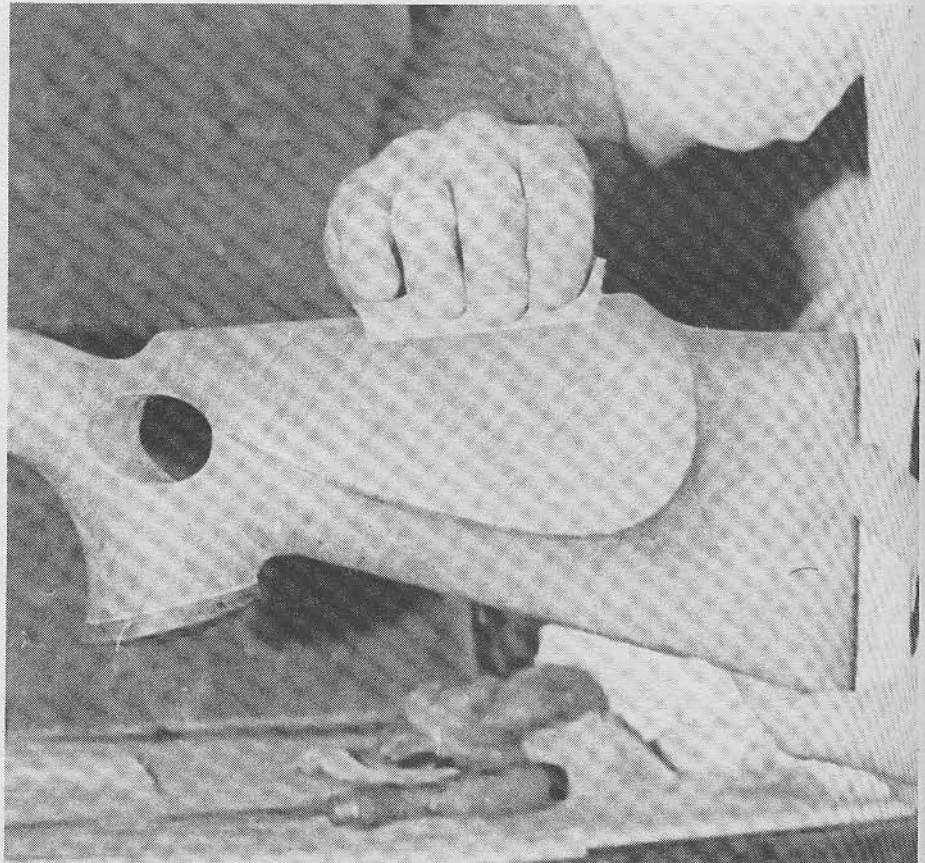
his fingers or a small, soft-bristled brush. Take care to apply the finish evenly and over the entire surface. Avoid lap marks if possible and do not go over portions already coated with the finish while still tacky.

Allow the first coat to dry thoroughly for at least twenty-four hours, then sand lightly to remove any irregularities in the surface. Dust well with a tack rag, apply the second coat, allow it to dry, then apply the third coat. As a rule, with the use of the filler, three coats will be sufficient to produce a glass-like finish to the wood. Allow this to dry for twenty-four hours or longer, if possible. The final phase in



The large hand mortise on right side of stock should be sanded to a satin finish. To accomplish this, Bish favors a medium grade, then fine grade garnet sandpaper.

Final sanding is most important step in stock building. Keep the corners, edges reasonably sharp and remove all minute scratches from surface before oil finish.





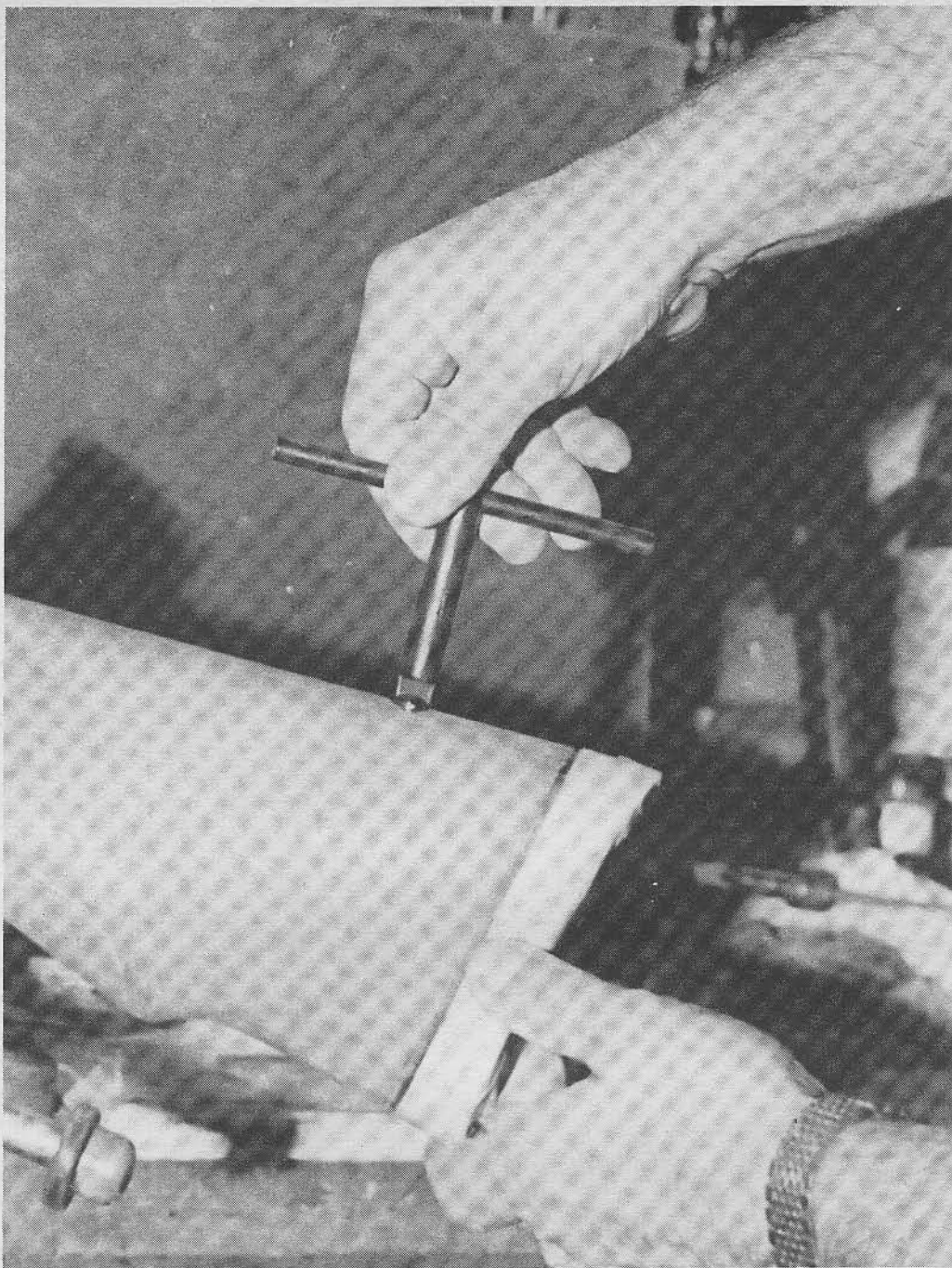
After stock has been sanded completely, the flush mount swivels are installed. Bish used a special jig for this.

finishing a gun stock is to rub it down with a good stock rubbing compound. I have found that Brownell's stock rubbing compound does the job best for me. This compound is supplied by Brownell's of Montezuma, Iowa, in either a four-ounce can priced at \$1.44 or a pint can for \$3.33.

The four-ounce can is sufficient to do several stocks and produces a satiny smooth finish to the surface. Once again, great care should be exercised in using this compound. To literally scrub the surface with it could remove the built-up finish to the surface of the wood itself, so avoid this. Merely

rub the surface with a dampened cloth pad saturated with the rubbing compound. Rub first across the grain, then finish up with strokes the length of the stock. When the desired surface has been achieved, give the entire stock a thorough coating of a good paste wax, then hand buff it to a luster with a soft, clean cloth.

The stock finished, its surface glassy smooth and well waxed, we turn our attention to the metal work on the barrel and action. It is probable that all metal work may have received a light coating of wood dust from the sanding



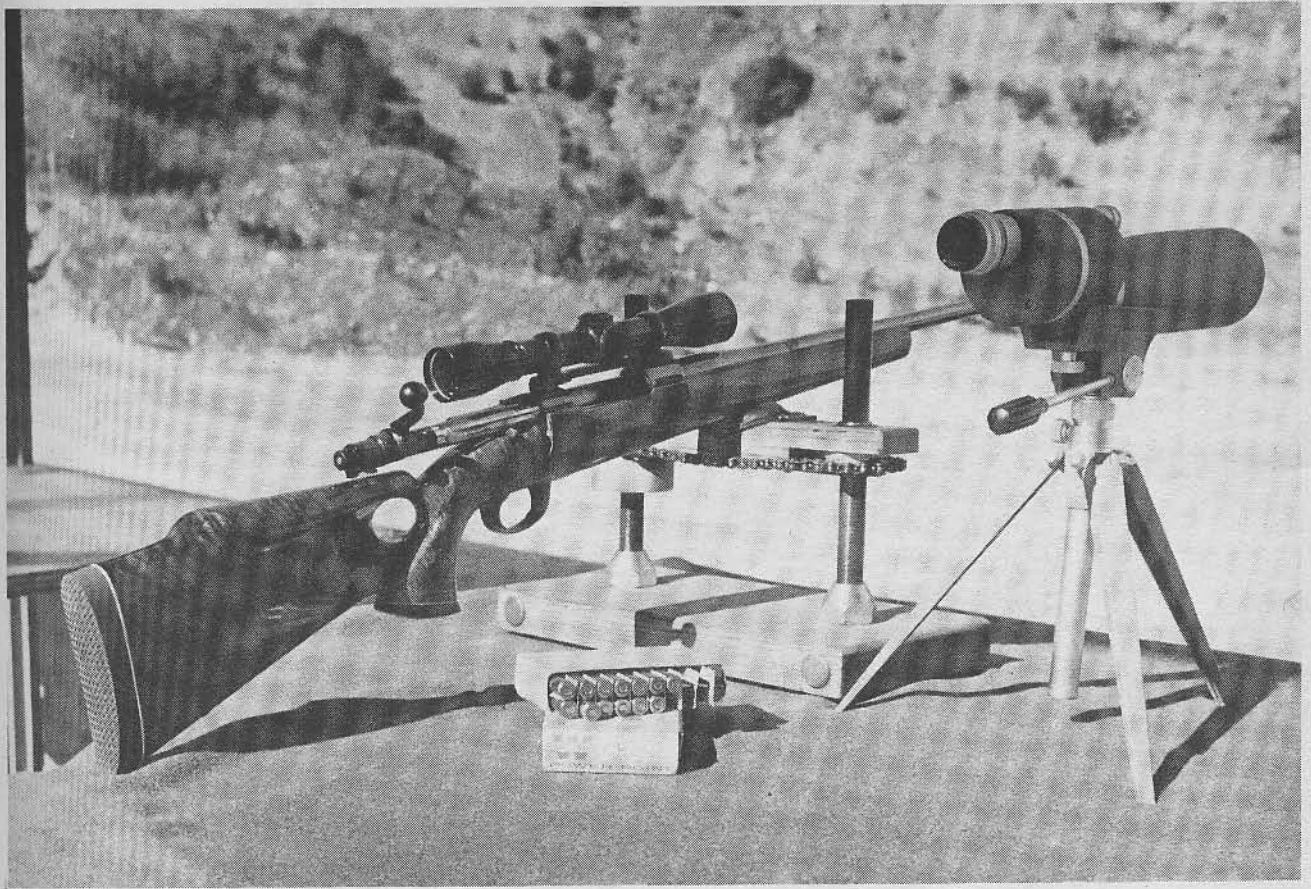
The swivel bases are installed temporarily into finish-sanded stock with the T-wrench that is designed specifically for the purpose. The bases must be removed during application of oil finish.

operations on the stock. Wash the complete unit, barrel and receiver, bolt, trigger guard housing and both receiver screws in solvent, allow them to dry thoroughly, then coat sparingly with a light gun oil.

Should a scope be desired, now is the time to install it. Used on this rifle was a Conetrol scope base and rings in Custom-grade. The Conetrol was topped with a Leupold six-power M8 scope with a duplex reticle. It was then ready for its first trip afield.

The moment of truth in building any sporting rifle, whether a surplus military or commercial action, is arrived at only when the stock has received its final coating of finish and the barreled action is installed and tightened into its mortises, then equipped with the desired scope or open iron sights. The rifle then is ready for its first trip afield for performance testing.

The quality of the workmanship, plus the knowledge exercised by the builder during those long hours at the



Once the Mark X custom rifle is finished and assembled, the problem still remains as to whether it will shoot with the desired degree of accuracy; that means a trip to the local shooting range to find out. (Below, right) Added to the rifle is the Cobra sling by Bianchi Gunleather, which incorporates in its design a cartridge pouch with a snap closure. The pouch will hold four additional rounds in most calibers. Bish feels it is excellent for carrying afield.

workbench should determine just how reliable and accurate the finished rifle might be.

Classed as exhibition grade walnut, the stock of the completed rifle carried its beautiful configuration and colors from the rearmost sections of the butt all the way to the tip of the forend cap joint. No photograph, either black-and-white or in full color, could possibly capture the full beauty of this piece of wood. In my gun rack, it most certainly would be for show purposes rather than for hard use in the tall timber. I would judge that a piece of wood such as this comes along at a ratio of about one in a thousand.

As stated earlier, the moment of truth in any newly built custom rifle is when it is taken afield for the first time for test firing and accuracy. This rifle was no exception. Regardless of the quality of materials used, there is always that possibility that something could be faulty, either in the bedding of the stock or the action itself.

Just prior to taking the rifle to the range, the Conetrol scope mount was removed from its temporary setting on the rifle's receiver, then securely remounted, using minute amounts of epoxy cement thinly applied to the base of the scope mount contacting the rifle's receiver, Loc-Tite cement was used on each of the four base retaining screws.

The base securely in place, the 6X Leupold scope then was placed in the rings in a snug but not tight fit on the base. This allowed for final placement of the scope for proper





With the moment of truth upon him, the author contemplates the target at Los Angeles County's Fish Canyon Range.

eye relief. This was quickly determined by holding the rifle to my shoulder in a normal manner, sliding the scope back and forth until the proper eye relief was determined. The rings then were tightened with the Allen wrench furnished with each Conetrol scope mount, making certain that the crosshairs of the scope were in perfect alignment with the rifle's bore. Finally, with the use of a Sweazy collimator and a final visual bore sighting, the scope was brought to a hundred-yard zero.

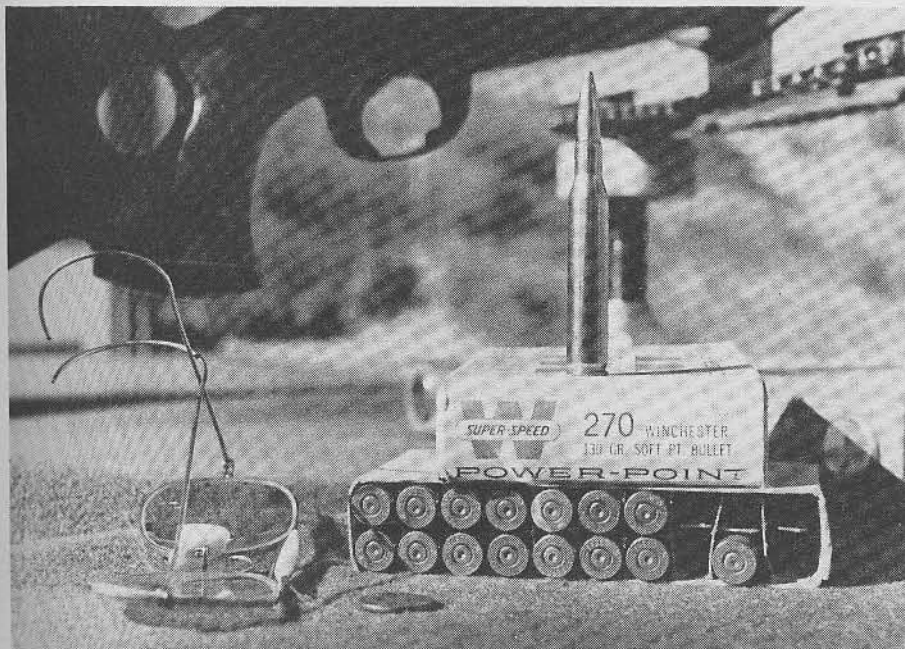
The preliminaries to checking any new rifle prior to firing on the range or in the field are known to knowledgeable riflemen. The most important item of such an examination should be the bore and chamber. In the case of a new, factory-built rifle the bore must be inspected closely and

cleaned of any preservative grease that might be present. The same is true with any rifle built by the home craftsman. There is bound to be a certain amount of wood dust, shavings and even grit from sandpaper that has worked its way into the more remote and inaccessible crannies of the chamber and interior of the bolt. Such a rifle should be washed thoroughly in cleaning solvent, then checked and rechecked for any remaining foreign substances. When thoroughly cleaned, all working parts should be given a thin coating of a good gun oil and the bore swabbed dry prior to actual firing.

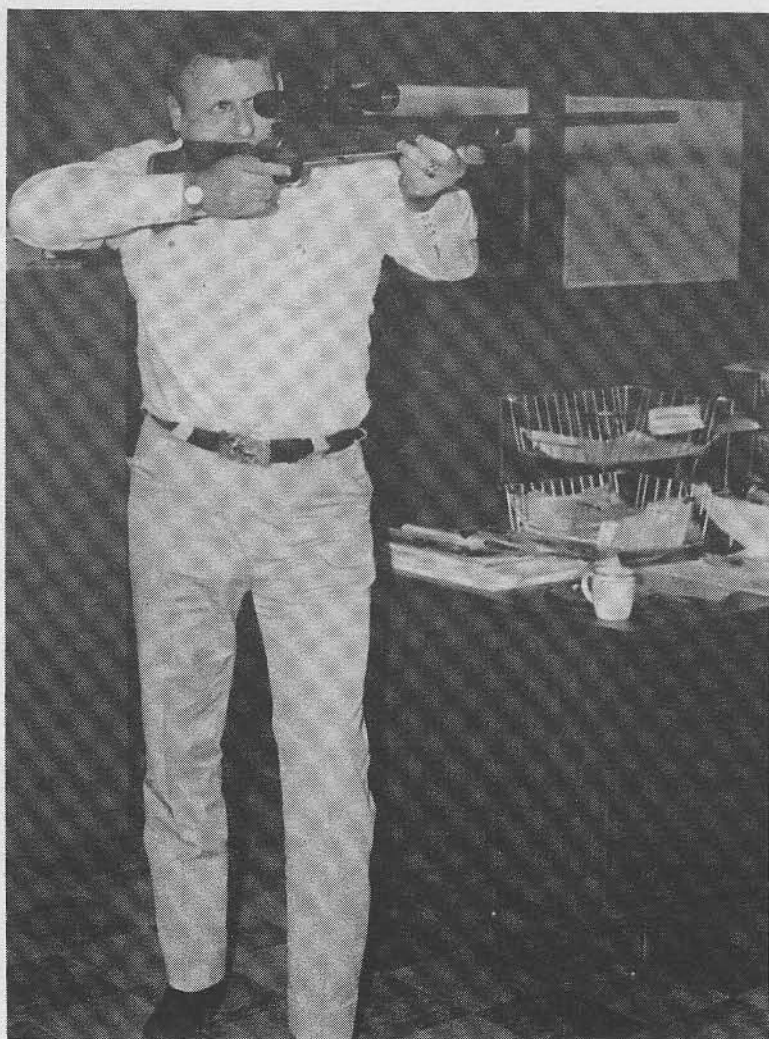
While this may sound elementary, many fine rifles are ruined, simply because they weren't checked in such a manner before being fired.



All of the test rounds were fired from a benchrest of special design. Recoil experienced with the thumbhole stock was found to be negligible, which is one claim that has been made for this stock design from its introduction.



Ammo used in test was 130-grain Winchester Power-Point in .270. The first shot was out of black, but when the scope was adjusted, all rounds were in an inch group.



The six-power Leupold scope, held in place with Conetrol mounts, was fully stable and required little effort to bring to zero. (Left) Jack Lewis, for whom the custom rifle was built, checks it in his office.



The author is satisfied with the results of his efforts after he checks out the first test target.

I won't go into any long-winded narrative about concoctions of homebrewed ammunition fired nor will I claim any credit for its performance as a damned good rifle! All I did was put the thing together, with a degree of loving care, then hope for the best. Despite the fact that I have been a devoted reloader for more years than I will admit, I chose factory-loaded .270 Winchester 130-grain Power Points for the testing.

With the supply of test ammo, a Weatherby spotting scope, a portable benchrest — and high hopes — I headed for the rifle range, located at the base of the rugged San Gabriel Mountains. It was an ideal day, the weather was perfect and not the slightest wind was blowing.

As I removed the new rifle from its protective case, a number of shooters from nearby stations wandered over to take a look. Their first comments concerning the rifle were, "Where in the world did you ever get a piece of wood like that?" Then there were ohs and ahs from other shooters who wandered down to my shooting bench.

After satisfying the curiosity of neighboring shooters, I prepared the rifle for its maiden voyage into the realm of burning gunpowder. Five rounds were loaded into the magazine and the bolt closed. The duplex reticle of the Leupold scope was brought to bear on the dead center of the hundred-yard target and the trigger touched off.

A quick check through the spotting scope showed that this first shot had struck, punching a clean-cut hole about

three inches out of dead center at six o'clock. A slight adjustment to the top turret of the scope brought the perforations in the target up into the black, but still about one inch to the right of the X ring. Additional minor adjustments of windage and elevation knobs produced groups resembling clusters of salmon eggs, all holes hung together, each overlapping the other and about one inch high from dead center of the X ring; ideal for hunting purposes.

As a result of the favorable weather conditions, plus the rifle performing as it did with all but that first shot out of the black, I left the range a pretty happy guy. This is one of the finest rifles, performance-wise, that I have ever built. Despite my earlier contempt for the lines of the thumbhole stock designed by Carl Peterson those many years ago, I now can say that this new version is one of the most comfortable and best shooting stocks I ever have had to my shoulder. It is still the wood from which the recoil has been removed!

I always have made it a practice, when possible, to apply a final finish, then allow several weeks before this finish is rubbed down to a final, flawlessly smooth surface. All range testing is done during this curing period and prior to giving the stock its last hand-rubbed and waxed finish. I have found that the longer the finish on the stock is allowed to cure, the prettier it will be when finally rubbed out and waxed.