

Chapter 2

TALK AND TIPS FOR GUNSMITHS

*Knowing Gun Grammar And How To Use A Wide Array
Of Tools Separates The Pro From The Amateur*



Churchill One-of-One Thousand is an example of rifle that is outfitted with half-stock. (Below) Ruger Model 77 bolt-action International features a Mannlicher-type stock.



OVER THE years, I have heard some pretty odd descriptions of certain portions of a gun's anatomy. In most cases, the individuals using these non-applicable terms were trying to converse with knowledgeable, even professional gun men. It only takes about five minutes of such conversation for a professional to read the novice like a book!

Perhaps one of the greatest abuses by tyros in the gun field is calling an automatic pistol a revolver. A revolver is a firearm having a round cylinder that revolves each time the hammer is drawn back. While it perhaps is correct to refer to a revolver as a pistol, it is dead wrong to call an automatic pistol a revolver.

There are various phrases in the world of firearms that must be mastered if one is to converse with the brotherhood of knowledgeable gunsmiths in an acceptable man-

ner, but there are neophytes in the firearms field who don't know a Schnabel from a swivel, nor the heel from the toe of a stock. While this can hardly be a complete glossary of firearms terms, descriptions and phrases, we all attempt to cover at least a few of the most abused terms.

First, consider the common rifle or shotgun stock; let's break them down to the proper definitions that apply to each part of this piece of wood. The gunstock proper is that portion of the wood found to the immediate rear of the trigger guard. It is composed of four basic sections: the small of the stock or pistol grip section, the comb, the heel and the toe. Should the comb of the stock have a raised section along its upper surface and a raised cheekpiece, this type of stock is known as a Monte Carlo. Should it not have this raised section, it is a classic-type stock.

The forend of the stock is that section forward of the



Front sight pusher eliminates necessity of pounding sight into the dovetail slot. The tool pushes the sight into position with screw pressure.

trigger guard. On a bolt-action sporting rifle, it can be either a half-stock sporter or a full-stocked Mannlicher type, which means that the wood of the forend extends to, or almost to the muzzle of the barrel. The half-stock forend ends about midway down the barrel.

This is elementary to the knowing gun fancier or professional gunsmith, but such simple knowledge can be invaluable to the novice in the field of gun lore. Learning correct firearms nomenclature can make a world of difference when one attempts to converse intelligently.

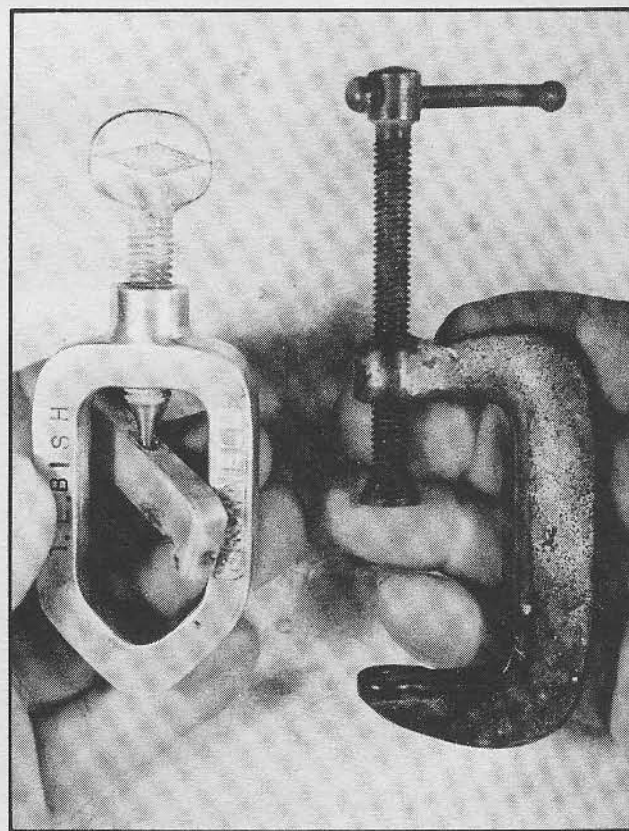
Then there is the trigger hassle. There are those who don't know the difference between a single-set and a double-set trigger. The single-set trigger is just that: a single trigger. This trigger is attached to an intricate mechanism that allows it to be adjusted to extremely light pressure, thus eliminating the heavier pull required to activate a standard trigger mechanism. The double-set trigger consists of two triggers attached to an adjusting mechanism. The rear trigger, when pulled to the rear, automatically sets the front trigger for the actual firing of the rifle. Both types of triggers are incorporated into some highly sophisticated target pistols such as the Hammerlis and Walthers.

There is a difference between an ejector and an extractor. While both are utilized to rid the gun's mechanism of the fired shell, their functions are decidedly different. The ejector consists of an automatic lever or device that causes the spent or fired shell or cartridge case to be thrown clear of the gun's mechanism. The extractor performs the function of actually withdrawing the fired case or shell from the chamber of the firearm. The ejector, working automatically, then forces the shell or case from the mechanism. I have heard people discuss the ejector when they often were referring to the extractor of a specific firearm.

Another pet peeve is individuals who refer to the ham-

mer of a rifle or pistol as a "cocking piece." The only cocking piece I know of is that part of a bolt-action rifle that extends out from the striker on the rear end of the bolt on bolt-action sporting rifles and it usually is locked in place by the bolt sleeve.

One of the most often used metals in gun ornamentation is so-called German silver or nickel silver. Both are identical in that neither contains any actual silver. German or nickel silver is composed of twenty parts nickel, twenty parts zinc and sixty parts copper. One may hear someone call this alloy "genuine nickel silver," when there is no



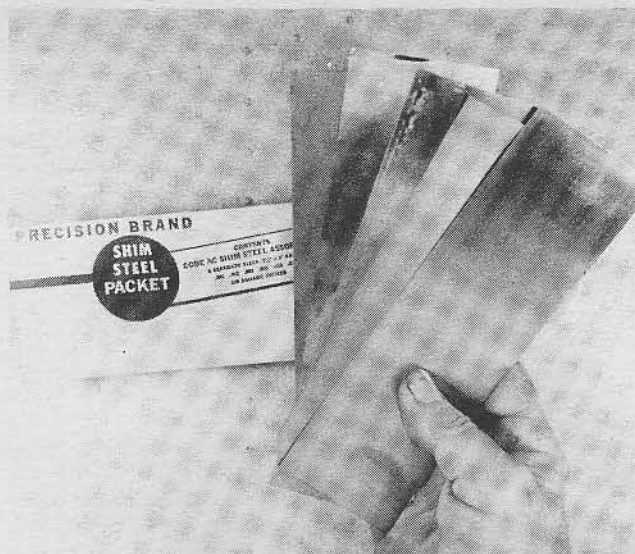
These devices illustrate the old and new ways of holding a ramp for soldering to a rifle barrel. Ramp soldering jig assures positive installation. The use of a C-clamp was uncertain, ramp slipping as solder became molten.

silver content whatsoever. The fact that the word silver is involved, leads some to believe they are dealing with a precious metal. It is not so.

On numerous occasions, I have had novices stare at me in question when I mentioned that a shotgun rib or sight ramp is sweated to the barrel. The term, sweating, does not refer to the moisture one is continually wiping from his brow while slaving over a hot gunsmithing bench! Instead, the term refers to a method of either soft or hard soldering used to install sight ramps, shotgun ribs, sling swivels and other gun components. This requires application of a thin layer of molten solder to the underside of the item to be soldered, then this piece is clamped to the other component and sufficient heat is applied until the solder fuses in a tight bond to join the two pieces of metal. It's a simple but grossly misunderstood operation.

In various sections of this book will be mentioned the term, "anneal." This simply means that the steel gun part must be softened before it can be worked with files or a hacksaw. This is accomplished by heating the steel, be it a part or spring stock, to a dull red color, then allowing it to cool slowly. The more slowly it cools, the softer will be the steel. Following this annealing process and whatever filing or cutting is needed, the part once again may be returned to its original state of hardness by heat treating. This requires heating the metal to a cherry-red shade, then quenching the steel in oil. The degree of hardness will depend upon the method used in heating and quenching. The word anneal means to render soft. Annealing of non-ferrous metals, such as brass or copper, is accomplished in a different fashion.

There are various specialized instruments and tools designed specifically for work on various firearms. Common tools such as hammers, hacksaws and certain types of files are more or less understood by even the novice. How-



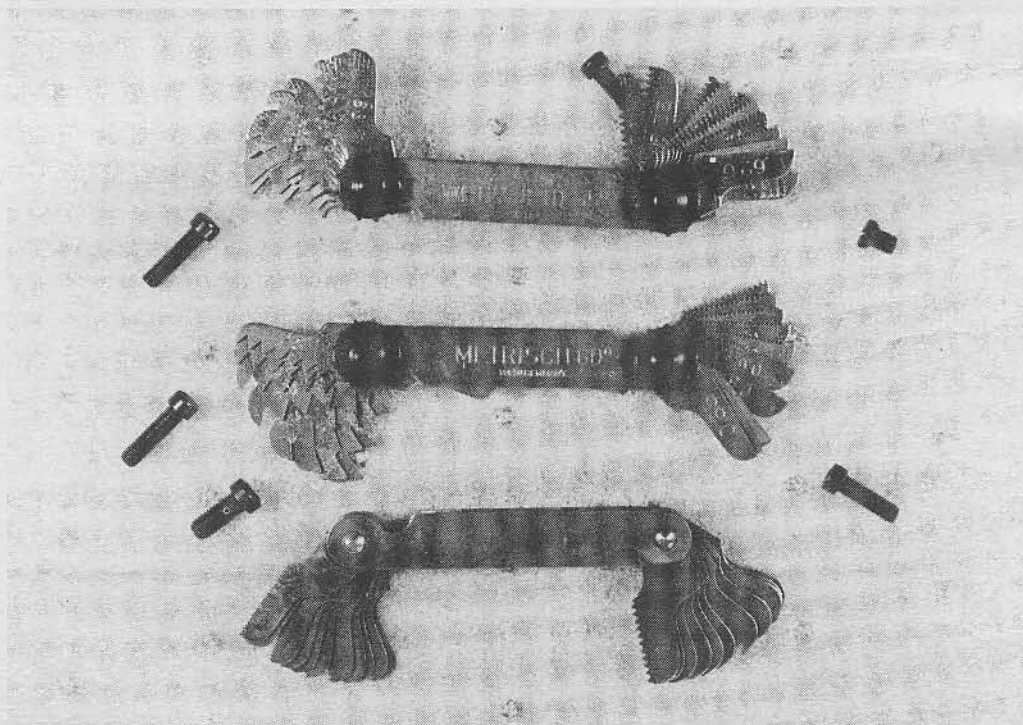
Steel shim stock in varying thicknesses is available to gun workers in kit form. This material is essential for proper mounting of scopes and some sight work. It can be cut to the required size with just simple tin snips.

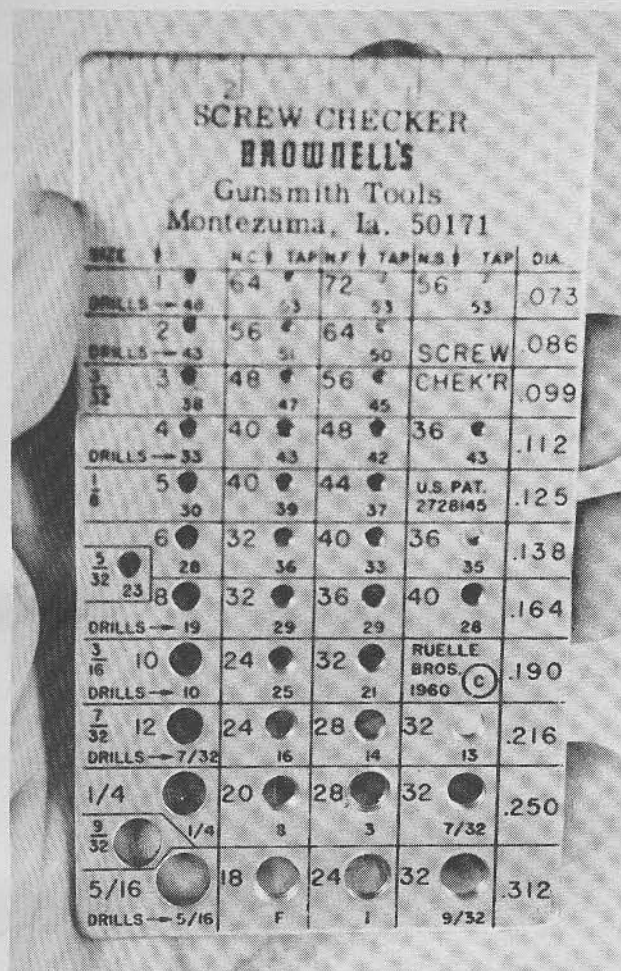
ever, when more technical tools and instruments are mentioned, the amateur often is at a loss.

The front sight pusher, one of the most used tools in any gun shop of any size, is just that: an instrument for pushing a gun sight from or into the slotted barrel or ramp of any rifle or pistol that is equipped with dovetail sights. This tool is screw activated and designed to install or remove dovetail sights without damage to either the sights or the firearm.

Before this tool was designed, gunsmiths found it necessary to remove or install such sights by the hammer and

Screw pitch gauges in the English screw pitch, metric pitch and the BSW (British Standard Whitworth) are an absolute necessity in the tool kit of gun craftsman.





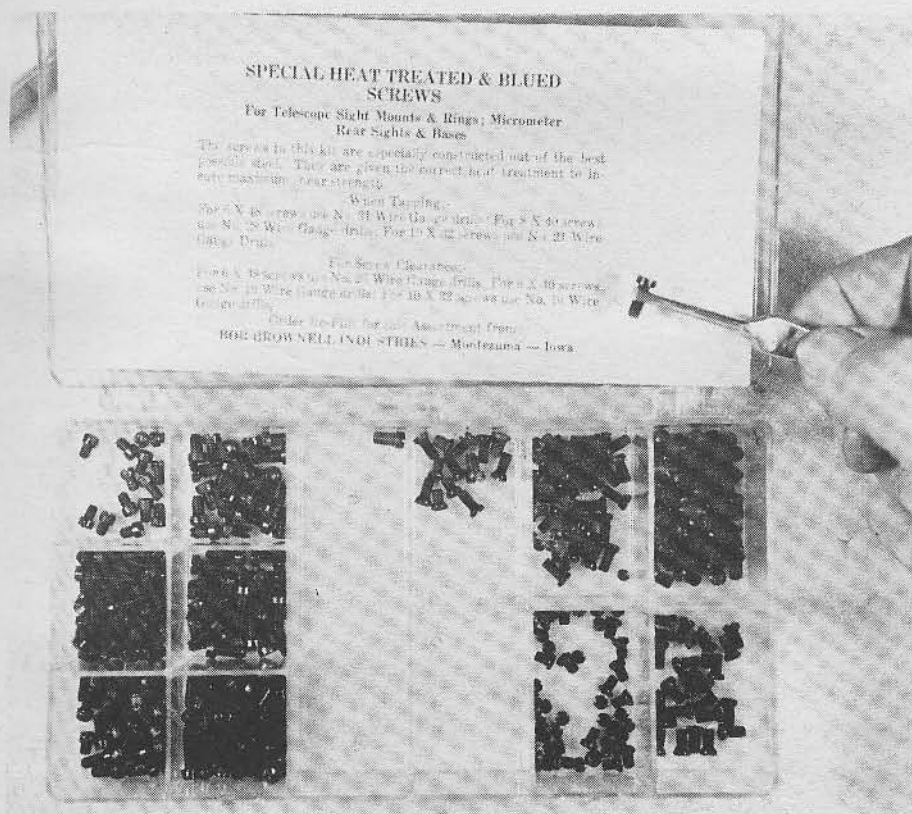
Thread gauge or screw checker plate quickly identifies exact size, number of threads per inch of most screws used in gun repair. Gauges vary from 5/16-inch down to #48 and includes most variations in screw thread sizes.

copper rod method. In this practice, the sight was held in place, the copper rod was placed against the sight edge, then the sight was driven into the slot by tapping the copper rod with a hammer until centered exactly on the barrel or ramp. The sight pusher eliminates such pounding. Instead, the sight is literally pushed into the dovetail by screw pressure.

Another superlative tool is known as the ramp soldering jig. This tool eliminates the touchy chore of sweat soldering a ramp front sight to either a rifle or pistol barrel. Most often, in soldering a ramp to the barrel, the ramp has a nasty habit of sliding out of plumb to the barrel when the solder is heated and becomes molten. Using the ramp soldering jig, the ramp is held firmly in place on the barrel and a perfect no-fuss, no-muss job can be accomplished in a fraction of the time it once took.

Prior to the development of the ramp soldering jig, C-clamps were used by most gunsmiths to secure the ramp in place for soldering, but even this method had its drawbacks; unless the C-clamp was specially ground to conform to the shape of both the ramp on one side and the contour of the barrel on the other, it still had a tendency to slip.

The ramp soldering jig is designed so virtually no heat is dissipated from either the ramp or the barrel section when heat from a torch is applied. Once the solder has become molten, the torch is immediately removed and the new



A wide assortment of screws for installation of scopes, mounts, rings is a must. The Brownell's kit will supply most requirements.

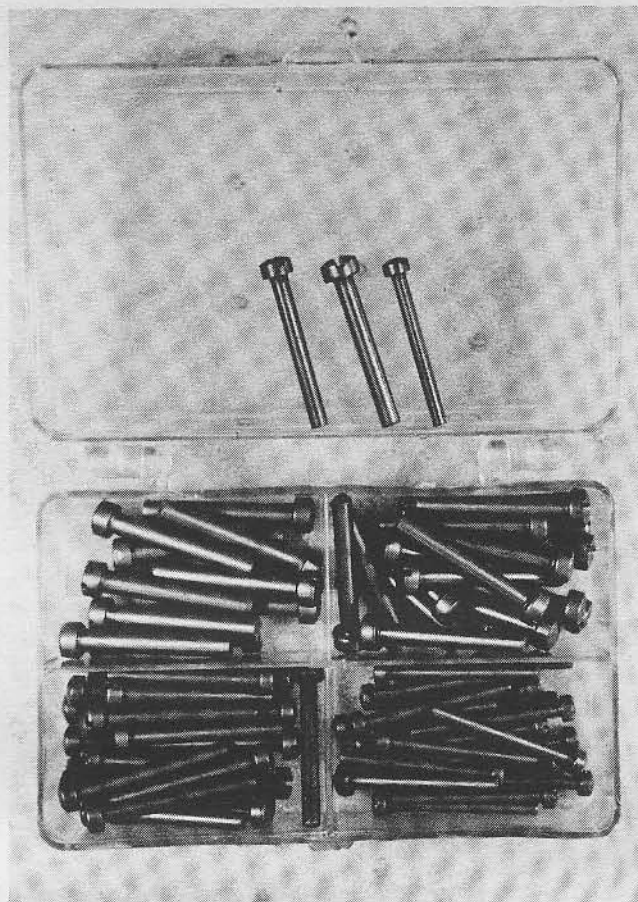
assembly is allowed to air cool, thus forming the union between the new ramp and barrel surface.

Yet another abused gunsmithing trick is the use of shims for leveling up a newly installed scope mount. When installing a new scope mount base, the contours of the rifle receiver and those of scope mount are not always exactly compatible and do not ensure a perfectly aligned scope.

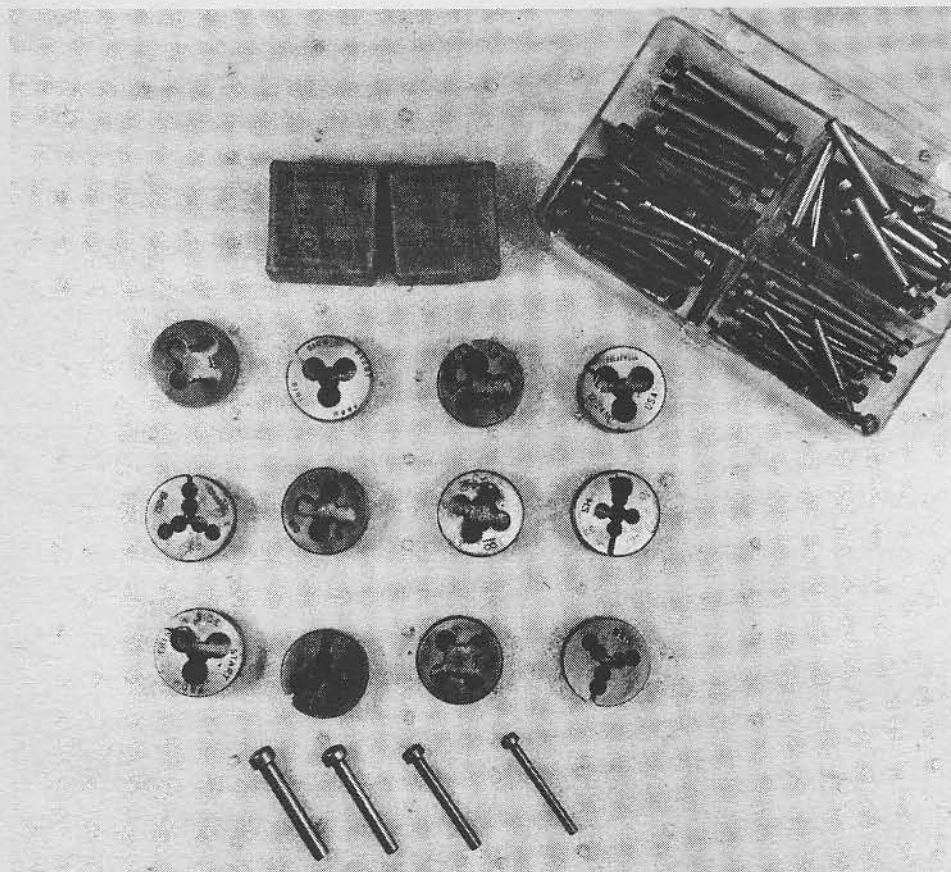
This means that some sort of shimming is necessary between the scope mount base and the contour of the rifle's receiver. Even today, there are still professional gunsmiths who persist in using thin strips of cardboard — even a section of business card — to shim a scope mount. Common sense should tell them that this cardboard will compress after the base screws have been cinched up tight. In time, this will result in a scope base that becomes loose. Poor accuracy results from the scope shifting its point of aim with each shot fired.

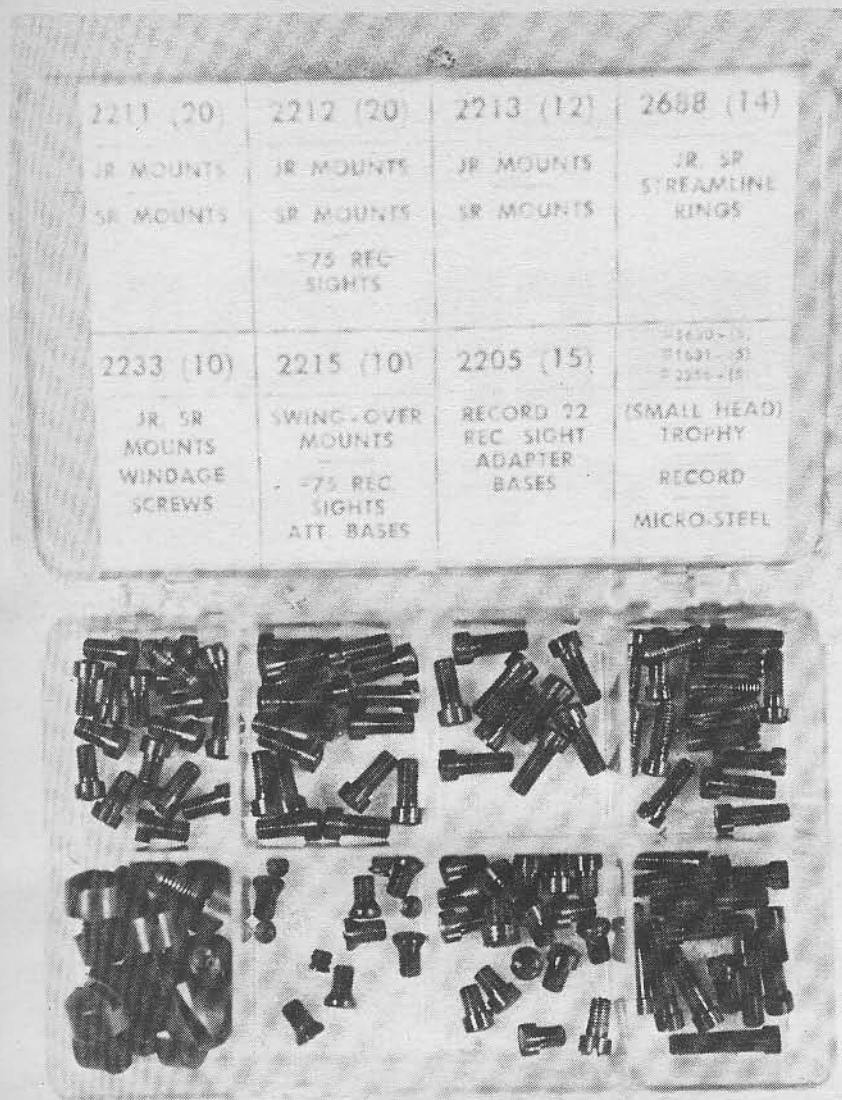
The only solution is to use nothing but steel shim stock available from most gunsmith supply houses. In either pre-cut or in sheet form, this steel stock is available in kit form with thicknesses of .001-, .002-, .003-, .005-, .010- and .015-inch and in sheets measuring 2½x8 inches. The cost of such a shim kit is less than three dollars and can be used to do countless shim jobs.

The majority of experienced gunsmiths know that one of the broadest phases of gun butchery is the use of screws that do not fit the threads in the gun's receiver, scope mounts or rings, sights or any other component where screws are used. I long ago lost count of the so-called bastard screws I have found stripped into the threads of the



Above: Unthreaded assortment of screw blanks is valuable to a gunsmith. Screws can be made that are not available through other sources. (Below) Threading dies in popular gun sizes are needed if one has to thread screw blanks.





Screws to fit all Redfield scopes, mounts and most receiver sights are included in this kit. The screws also will fit several other makers' scopes, mounts and receiver sights.

above-mentioned gun components. This often results in stripped threads that require hours of work, if the problem can be corrected at all! It takes only a few minutes to strip the wrong screw into the receiver of an otherwise fine firearm. If one is lucky, the receiver of the arm may be of tougher steel than the screw, which results in only the screw being stripped. But should the receiver of the gun be on the soft side and the screw of hardened steel, the end result can be a screw hole that is stripped out beyond repair — and possibly a ruined firearm.

Found in the tool kits of any knowledgeable gunsmith will be a complete set of screw pitch gauges and screw checker plates. These tools are utilized to determine the exact size of the screw, the exact pitch of the threads and the number of threads per inch. They are available in English screw pitch, metric screw pitch and British standard Whitworth (BSW). These tools are essential for one doing any amount of gun work, whether as a hobby or on a professional basis. They can save a lot of headaches, to say nothing of preventing the possible ruin of good guns.

The gunsmith or gun hobblist is often stuck with the problem of not having the correct screws on hand for a par-

ticular job. Should this lack involve scopes or scope mounting, the problem is easily solved with the sightbase screw kit available from Brownell's. These kits will provide about ninety-nine percent of the screws needed for scope or iron sight installation.

The correct screws for such military rifles as the Mausers, Springfields and even Japanese Nambus are available from some gunsmith supply houses. For such domestic firearms as Colt, Smith & Wesson, Winchester, Remington, Marlin, Ruger and Savage, these screws must be obtained from the specific manufacturers. In most cases, screws for such arms are specially made and cannot be bought at the local hardware store.

Available from Brownell's is a blank screw kit which consists of a variety of the screw sizes most used in gun work. All that is necessary to use the blanks in this kit is to have a varied supply of threading dies in gun screw sizes. With such a setup, one is able to make hundreds of variations in most thread sizes, head shapes and lengths. The main drawback is availability of the correct die sizes with which to thread these screws; these also are available from Brownell's, but are quite expensive per set.