

THE ZH 29
by
Roger Marsh

This is the Czech autoloading rifle, a massive-appearing weapon weighing just about ten pounds. It looks as big as the BAR when you first examine it, but it weighs scarcely more than the M1 Rifle. Its barrel length (23") and overall length (45") compare very favorably with those of the M1. Yet--difficult as was the M1 to manufacture--the ZH 29 tops it in this respect; it must have required about three times as many manufacturing processes and steps!

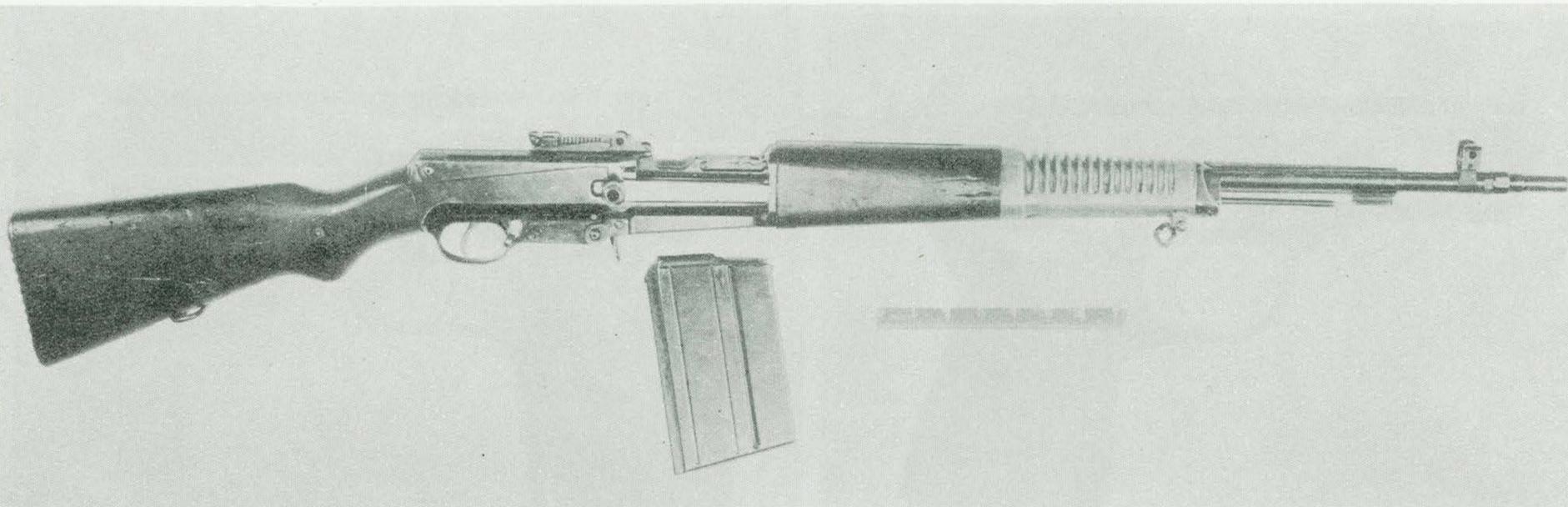
The ZH 29 is a gas-operated rifle of radical design. Chambered for the 7.92mm service cartridge, it was intended as a service rifle for some country--just what country is an interesting question. The ZH 29 was tested in this country against the M1 and the Johnson, according to reports, and the Czech demonstrators wouldn't let anyone come near it! Johnson and

Haven (in Automatic Weapons of the World) indicate that the ZH 29 was used by the Italians in Ethiopia and later in Europe. Remembering some of the ungodly machines which the Italians dreamed up as light machine guns, one hardly finds it surprising that they greeted this remarkable mechanism with open arms.

The Czechs--who now rival the Danes in the field of exporting arms designs--also seem to have sent the ZH 29 to the Far East, for examples have turned up in Tokyo. It is not certainly known whether this gun was sent to the Japanese for testing or whether it was sent to the Chinese and captured later by the Japs.

The Germans, of course, did not ignore the ZH 29. The extractor of the Kar 43 is very similar to that of the ZH 29, and the firing mechanism (sear, hammer, etc.) of the STU 44 is a very close copy of the Czech weapon's. It is probable that the entire rifle was considered as a service weapon by the Germans and--equally probable

Czech ZB 29 Automatic Rifle



Czech ZB 29. This is a semi- and full-auto rifle with selective switch. Magazine is withdrawn. Beechblock shown in full rear position. This rifle was used in Germany, Abyssinia and in the Far East in limited quantities. caliber 7.92-mm German.

--that it was set aside by them as being too complicated and difficult to manufacture. The Germans did not recognize the "imperative necessity" of making a service rifle as complicated and as hard as possible to manufacture, and they made it a point to lay aside a proven design, for which manufacturing facilities were already available, only when a newer, superior and more easily manufactured design was ready and in production. Nor did they even then wholly discontinue the older design. The MP 40 supplanted the earlier MP 38 (which, in turn, has superseded such earlier weapons as the Erma, the Steyr-Solothurn and the various Bergmanns); yet these earlier guns, instead of being given the title "limited standard" and then being junked as soon as possible, were kept in general issue, especially among the Ordnungspolizei. Similarly, the Mausers of '98 pattern (variously modified) were kept in service even after Kar 43's and G 41's were issued in quantity. (one com-

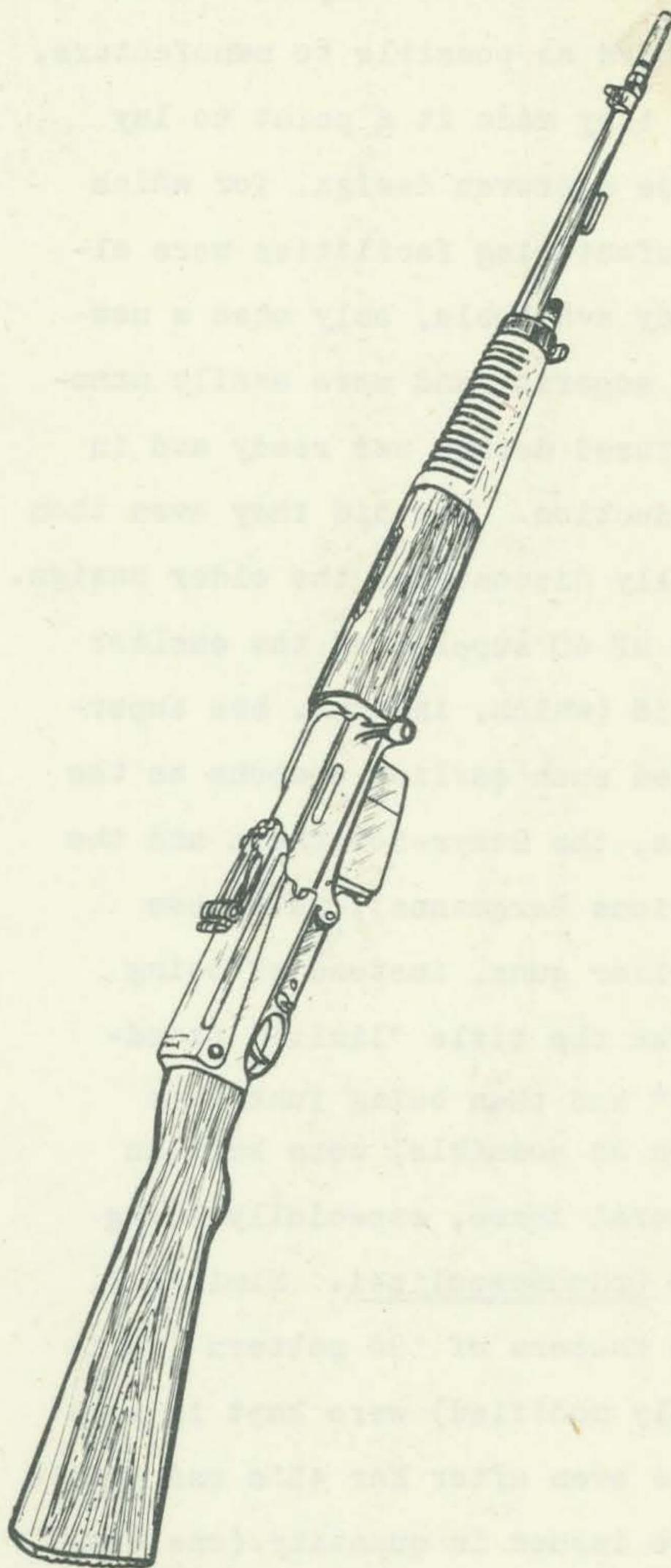
pany alone supplied almost 90,000 G 41's and nearly 130,000 Kar 43's). So, since the ZH 29 was neither more manufacturable nor in production, it was out.

The ZH 29 is particularly interesting for several reasons. In the first place, the barrel is set at a slight angle to the receiver--sideways! The barrel is enclosed in three separate jackets, the rear one of wood, the middle one of cast aluminum. The front jacket of steel, including the bayonet lug, front sight and gas cylinder, is held on by a threaded ring; it, in turn, holds on the other jackets. Interestingly, the barrel runs at an angle through these jackets, which are aligned with the receiver. The Czechs, in designing this rifle, seemed determined to make it as ingenious and original as possible. In addition to the features already mentioned, they also designed the hammer so that it would hold back the bolt when the magazine was emptied, thus eliminating various bolt catches. They designed

the entire rifle so that it could be field-stripped by removing only two spring-locked pins. They furnished ten- and twenty-round magazines with the gun, and the owner of the specimen I have examined (Mr. Albert Kutner, 20 Mattoon St., Springfield, Mass.) states that he has seen magazines of even greater capacity.

For all their ingenuity, however, the Czech designers were unsuccessful in having this rifle widely used. The trend in arms design was running against beautifully made--and this rifle is a beautiful piece of machinery and of the gunmaker's art--weapons, arms whose design involves extensive and slow machining. The drift was toward arms employing a maximum of pressed metal parts, and there were only three of these in the ZH 29: the magazine, magazine floor plate, and the buttplate. The entire rifle was designed to be a superb piece of machinery, which it is. It was not contrived to be a mass-production war weapon--and it certainly isn't. So

it had to go. It's interesting to note that the Czechs themselves apparently felt the same way, since they continued to use the "Brno Mauser".



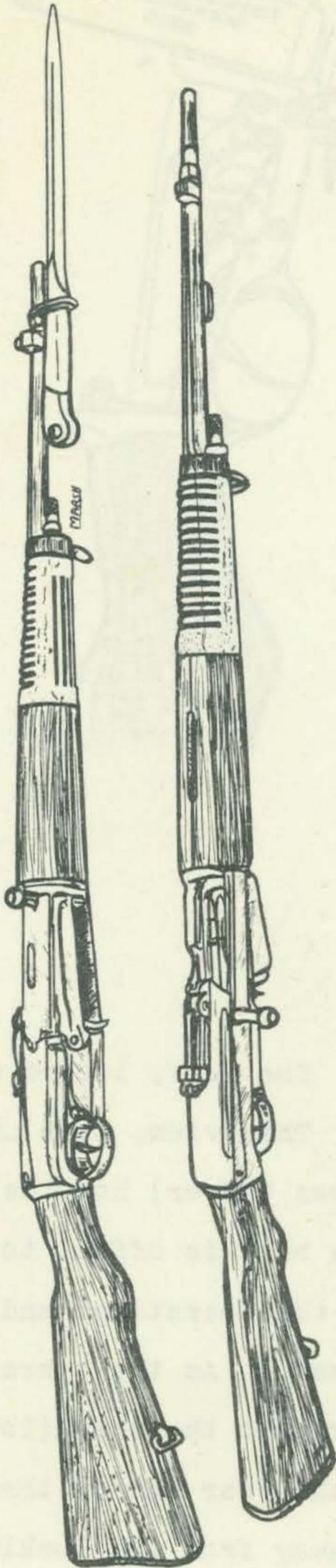


FIGURE 1: The ZH 29. Note that the operating slide covers the right side and the top of the bolt. The receiver (see FIG. 4) is entirely open on the right side. Also note the various barrel jackets, especially the offset gas cylinder in the muzzle jacket. The magazine latch is of the type used in the Kar 43 and the Tokarev, also in the ZB and Bren. It has, however, one notable feature: the front end of the magazine is normally supported by a fixed ledge, but in the ZH 29 both front and rear of the magazine are held by spring-loaded latches. To remove the magazine, only the rear latch need be released. This makes it unnecessary to insert the magazines with the front end tipped up (as in the Kar 43 and Tokarev) since the magazine may be pushed straight in, when both latches will engage it. In the lowest sketch the bolt has been fully retracted.

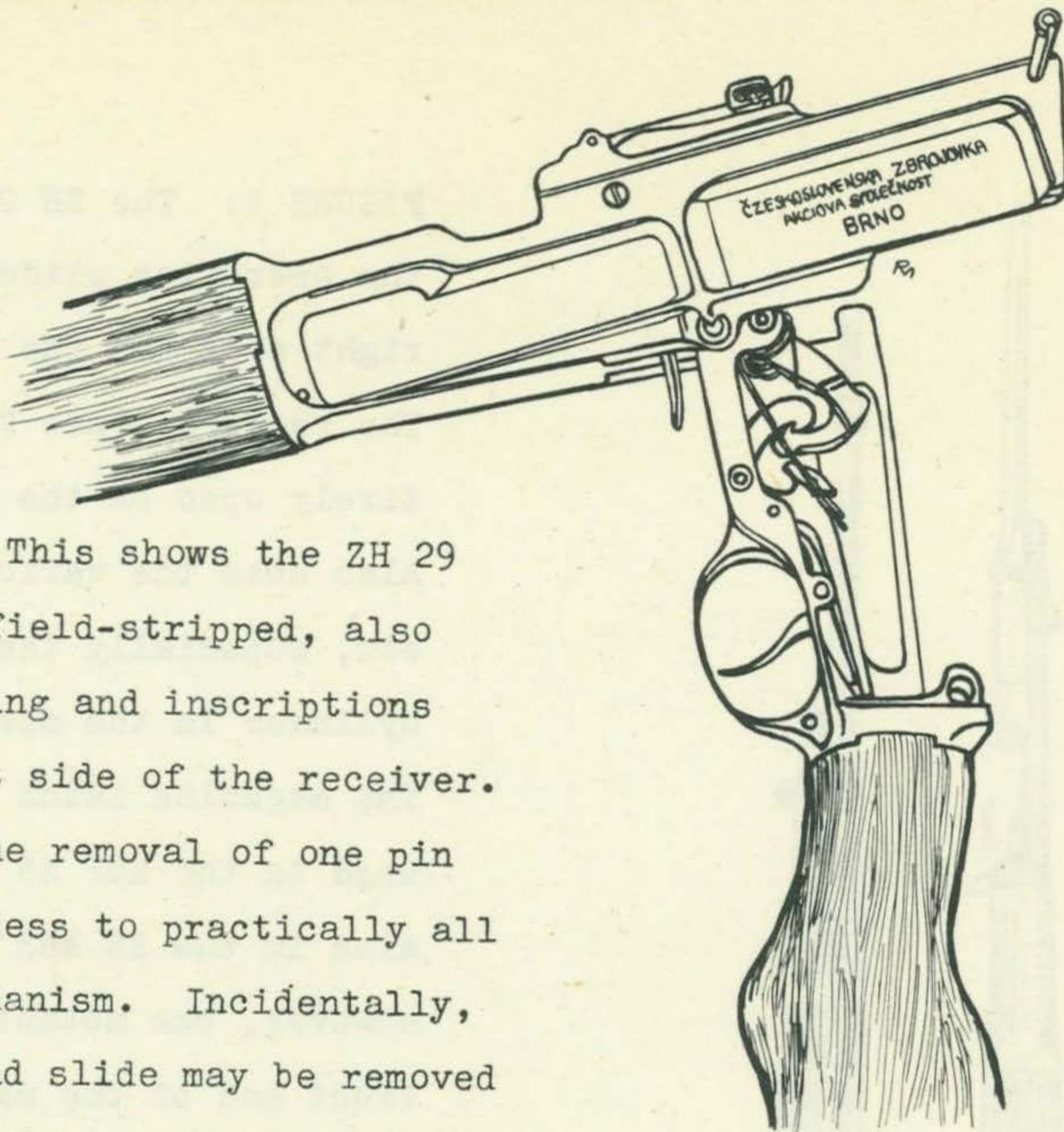


FIGURE 2: This shows the ZH 29 partially field-stripped, also the machining and inscriptions on the left side of the receiver. Note how the removal of one pin permits access to practically all of the mechanism. Incidentally, the bolt and slide may be removed when the parts are in this position. The screw (head visible), just below the axis pin of the rear sight, holds a replaceable locking shoulder or key. (See FIG. 4)

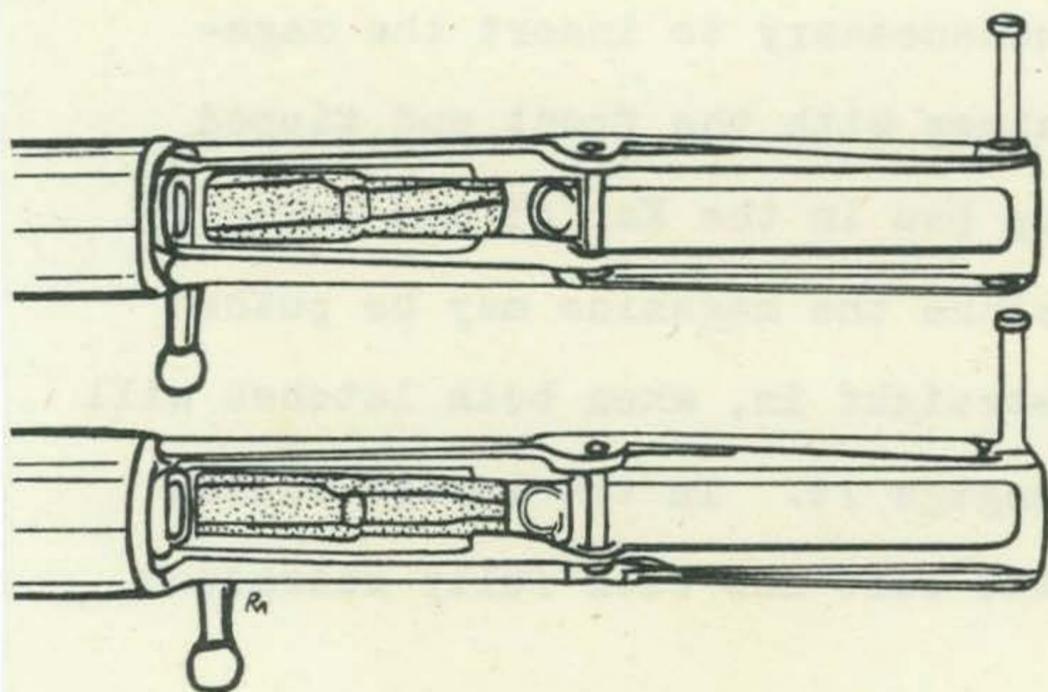


FIGURE 3: The bolt, locked and unlocked. This view, from underneath, shows (upper) how the rear end of the bolt is offset to the left when the operating handle is fully forward. As the operating handle moves to the rear (lower), it moves the rear end of the bolt out away from its locking key. (See FIG. 4.)

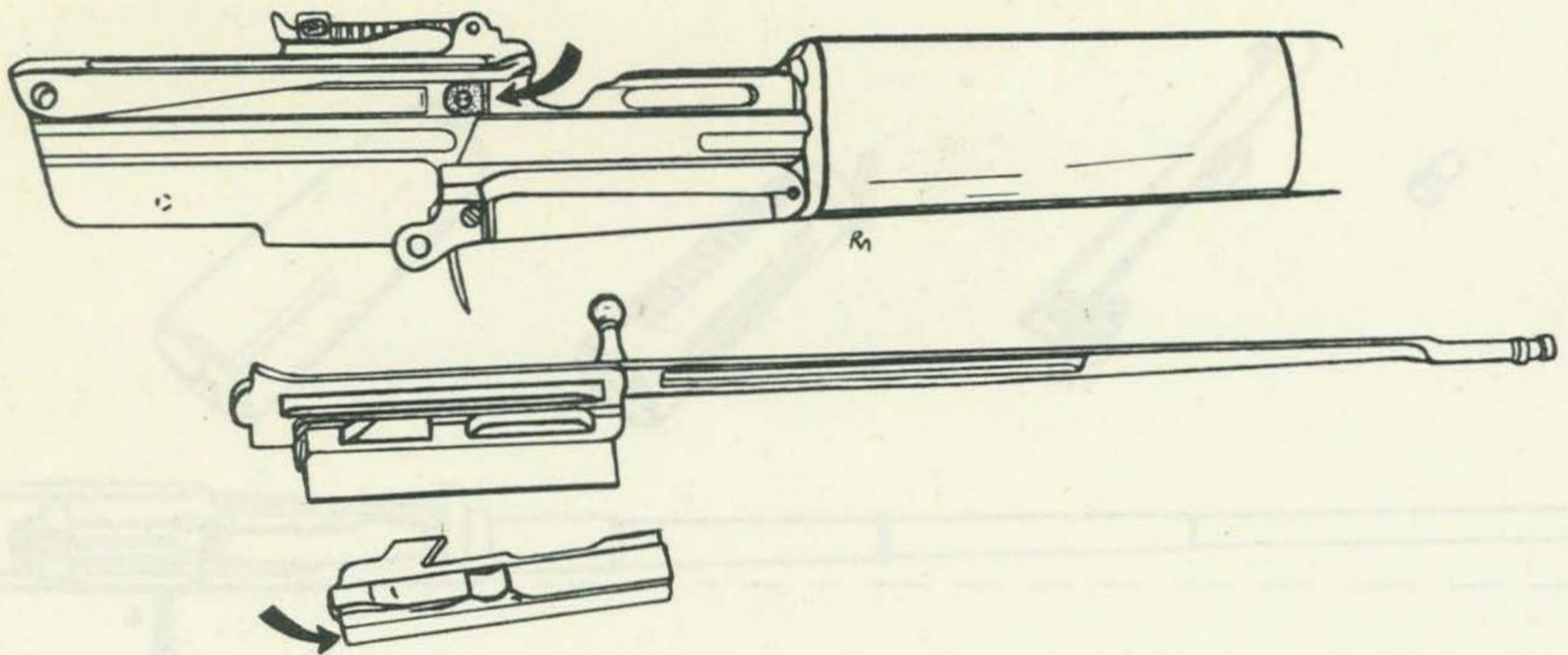


FIGURE 4: The works. In this view, the lock housing has been removed from the receiver, and the slide and bolt have been laid out. Note, in the receiver, the locking key (arrow, shaded) and note, too, the fact that removal of the lock housing leaves open all of the right side of the receiver. The bolt and slide have been turned over better to illustrate the locking system. The locking shoul-

der on the left side of the bolt which abuts the locking key is indicated by an arrow. Opposite it may be seen the locking cam, a lug which fits into a corresponding cam slot in the slide. The slide is extensively milled out to reduce weight, as are the receiver and lock housing (see FIGS. 6 & 7). Note the top plate of the slide which extends over the top of the bolt and closes the bolt opening in the receiver.

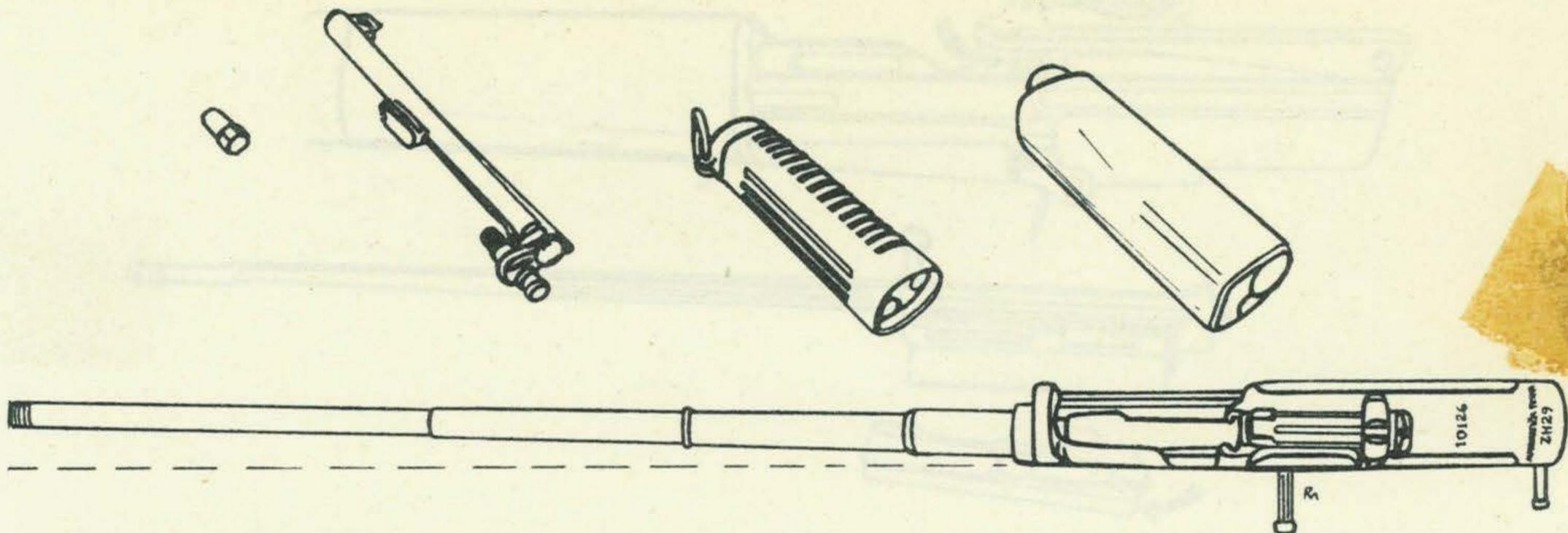


FIGURE 5: It's bent! See how the barrel, stripped of its various jackets, is set in the receiver just a little off the beam. The gun was designed this way, apparently to simplify the matter of lining up the slide, gas cylinder and receiver. This is an original idea, but its virtues, if any, are well hidden. Above the barrel and receiver are (left to right) the jacket cap, the front jacket with bayonet lug and gas cylinder, the cast aluminum jacket with cooling fins and front sling swivel, and the rear jacket, made of wood fitted around a thin

metal tube. Only the front jacket lines up with the barrel; the middle and rear jackets line up with the receiver. The front sight, which is also part of the front jacket, is offset to the right. Note that, to conform to the angle of the barrel and to the location of the front sight, the rear sight is set parallel to the barrel--therefore somewhat askew on the receiver. Incidentally, the combination tool which accompanies the gun makes removal of the cap a simple matter; in fact, the entire gun may be disassembled--and reassembled--using only this tool. No, not the barrel!

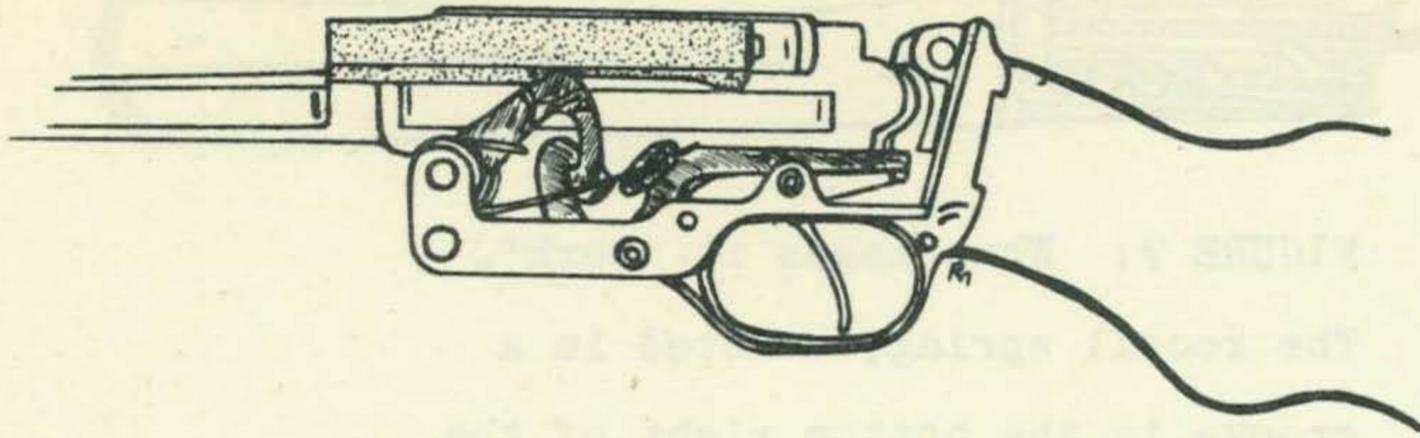


FIGURE 6: How the "bolt-catch" works. The Czechs, by making the hammer do the work of a catch have eliminated several parts from the gun. When the hammer is held by the front sear hook, the trigger entirely released, the nose of the hammer rises high enough to engage a semi-circular cut in the bottom of the bolt (shaded), holding it to the rear. Therefore, when you have fired the last shot, the magazine follower rises and blocks the bolt, and you naturally release the trigger to change magazines, thereby allowing the hammer to catch the bolt. After inserting a new magazine, you simply pull

the trigger and the bolt slams shut. Pulling the trigger causes its rear arm to rotate upward, lifting the tail of the sear. This rocks the front arm of the sear forward and down, which pulls the hammer down just enough to free the bolt and then releases it. As the bolt moves forward, a nub on the rear end of the feed rib pushes the hammer down until it's caught by the sear dog (corresponds to the rear sear hook). Note how one mousetrap spring serves as hammer spring, sear spring, sear dog spring and trigger spring. Bless my soul! The safety, incidentally, is a rotary bolt which blocks the front arm of the trigger when "on".

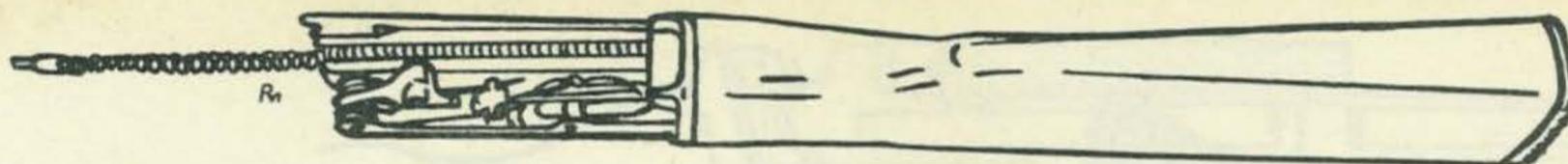


FIGURE 7: What makes it "perk".

The recoil spring, mounted in a groove in the bottom right of the lock housing, extends down into a tube in the stock. The spring plunger is normally prevented from flying out by the hammer pin. A nose on the bottom of the rear end of the slide (see FIG. 4) contacts the plunger, compressing the recoil spring during recoil.

FIGURE 8: The bolt. From top to bottom: bottom view of the bolt, the firing pin, top right view of the bolt, the extractor spring and extractor, a close-up of the business end of the firing pin. This firing pin is a peculiar gadget, being shaped rather like a chisel with a rounded end. The smaller dimension of the nose is roughly equal to normal firing pin diameter, but the larger dimension is twice normal. An interesting idea--hanged if I can figure out

