



FEB 2012

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

022

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

THE RUGER LC9

HUNTING LICENSE SALES • KIDS IN THE SHOP: A GUNSMITH'S LEGACY, PART TWO • WORKING THE WALTHER P38 • IMP...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 098

DIGITAL ARCHIVE EDITION

Preserved for the bench.

This edition presents the original American Gunsmith editorial work in a modern, searchable layout while preserving its issue, author, and source-page history.

ABOUT THIS EDITION

The article text comes from the original issue and has been reflowed for legibility. Obsolete subscription, ordering, association-service, and house-advertising pages are not reproduced.

Original article images appear only where permission has been confirmed. All other image positions remain visibly reserved so approved art can be restored without rebuilding the issue.

Report corrections or rights information to editor@gunsmithmag.com.



AMERICAN GUNSMITH

DIGITAL ARCHIVE EDITION • FEBRUARY 2012

ISSUE RECORD

ORIGINAL DATE	February 2012
VOLUME	Archive volume not stated
ISSUE NUMBER	02
SOURCE ID	ag-594e29da4a875675eb0e1721

DIGITAL EDITION

PUBLICATION	American Gunsmith
EDITION	Digital Archive Edition
ARCHIVE STEWARD	Innovation Network LLC
CONTACT	editor@gunsmithmag.com

Editorial fidelity. Article titles, author attribution, issue relationships, source-page references, and article text remain bound to the archive corpus. Layout, covers, navigation, and conversion notes are newly produced for this edition. Historical statements remain part of the original editorial record.

IN THIS ISSUE

Contents

A complete guide to the searchable editorial work preserved from February 2012.

-
- 2** **Hunting License Sales**
AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 2

-
- 3** **The Ruger LC9**
CHICK BLOOD • ORIGINAL PAGES 3-8

-
- 9** **Kids In The Shop: A Gunsmith's Legacy, Part Two**
WENDELL DEANER • ORIGINAL PAGES 9-13

-
- 14** **Working The Walther P38**
ROBERT K. CAMPBELL • ORIGINAL PAGES 14-18

-
- 19** **Improved Muzzleloader Ignition Module**
NORMAN E. JOHNSON • ORIGINAL PAGES 19-20

-
- 21** **Scope Mounting An Airgun Dovetail Receiver**
NORMAN E. JOHNSON • ORIGINAL PAGES 21-22

-
- 23** **Reader Forum**
AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 23-24

FROM THE ARCHIVE

Hunting License Sales

BY AMERICAN GUNSMITH EDITORS FEBRUARY 2012

ORIGINAL PP. 2

Families Afield is a joint program launched in 2004 by the National Shooting Sports Foundation, US Sportsmen's Alliance and National Wild Turkey Federation to reduce regulatory barriers to youth hunting. Now established in 29 states that have passed legislation intended to increase youth hunting, the program has realized increases in new hunters. Families Afield has reported that in their first five years nearly 400,000 apprentice hunting licenses have been sold.

An increase of 100,000 apprentice hunting licenses occurred in 2009 alone. Chris Dolnack, senior vice president of NSSF, reported, "A lot of research went into making sure Families Afield was planned properly before its launch, and now because of that preparation Families Afield is really starting to pay dividends for youth hunters and for hunting in general." States with the most apprentice hunting license sales are Pennsylvania with 102,663, Michigan with 59,929 and Ohio at 51,416.

Families Afield is based on the simple premises that parents, not politicians, should decide at what age a child is mature enough to try hunting and that when introducing a youngster to hunting, earlier is better. The need for this program became apparent when a study revealed that hunting regulations in many states did not allow youth to hunt with an adult mentor until sometimes 12 years old or later.

The age restriction plus stringent coursework and certification requirements were deterrents to getting started, making it much easier for children to channel their enthusiasms into video games and organized youth

sports. These barriers were reducing the number of youngsters participating in hunting. Researchers found that for every 100 hunters lost, only 69 were taking their place.

If this "hunter replacement ratio" was not improved hunting itself could be compromised, along with its critical ties to wildlife conservation and America's economy. Families Afield's answer was to allow licensed adult mentors to introduce youngsters to hunting at younger ages, instilling the passion for hunting in children early and safely, thereby bonding families together and increasing attendance in hunter education classes.

According to an NSSF-funded study carried out by Southwick Associates, the pool of hunters in America is much larger than previously thought. The study estimated that 21.8 million people purchased a hunting license at least once in the last five years. Hunters are the backbone of conservation funding in America, contributing more than \$1 billion each year through the purchase of licenses, tags, permits and stamps and through excise taxes paid on firearms and ammunition.

According to a 12-state hunting license sales index, NSSF anticipates a national increase in paid hunting license holders based on an already-realized 3.5 percent increase in license sales. Families Afield is predicted to have along-term, positive effect on hunting by creating millions of new hunters. While the program's numbers are impressive it is still in the early stages. To learn more about Families Afield and about your state's hunting regulations, visit familiesafield.org.

PEOPLE & COMPANIES

The Ruger LC9

2011 was the fourth year in a row Sturm-Ruger walked off with either the rifle or handgun of the year award. What will they do for an encore?

BY CHICK BLOOD FEBRUARY 2012

ORIGINAL PP. 3-8

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P03-F01. Know the rights holder? Please ask them to contact us.
AG-75EB0E1721-A1604-P03-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P03-F02. Know the rights holder? Please ask them to contact us.
AG-75EB0E1721-A1604-P03-F02

'm I beginning to lose count as I have already covered the LCR and LCP in previous issues. This particular CCW special is the latest winner. The "LC" stands for light carry, an updated, re-engineered version of the much larger and heavier Ruger P-Series. As the factory press release lingo says, the LC9 is a compact, lightweight, DAO, magazine-fed, recoil operated personal defense autoloader chambered in 9mm. Shunning link-locking systems, the LC9 utilizes a camming design.

Before firing, the barrel and slide are securely locked together. Upon firing, they remain together while traveling a short distance to the rear. After this initial movement, the barrel is cammed downward, clearing the way for full recoil of the slide to achieve extraction and ejection. The barrel stays out of the way, permitting the slide to begin a return to its forward position. During this trip, the recoil spring cams the barrel upward to resume lock-up with the slide.

Although 9mm +P ammunition can be fired in the LC9, a steady diet of the hot stuff could pound the pistol into a shorter service life. As for 9mm+P+, never use it. It's not due to the LCP being somewhat a weak sister. Far from it. The unvarnished truth is there are no SAAMI or CIP pressure limits established for +P+ ammunition. Any use of it can result in serious injuries. You have been alerted.

Please pass the warning along to any and all LC9 owners, especially those who might tend strongly toward loading their own. Field Stripping I sometimes feel as though I'm required by some gun law to state what follows. The pistol is pointing in a safe direction, meaning at absolutely nothing it could harm. The magazine has been removed, meaning you can now see and confirm that it contains no cartridges.

The chamber has been checked by drawing the slide to the rear with nothing remaining in the barrel breech and the slide has been locked back. You're wearing eye pro-

tection, meaning you really should be if you value your eye sight. No, I do not repeat the preceding to be a bore or due to fear of penalty of fine and/ or imprisonment by omitting it, but because it's the best advice any gunsmith can offer to anyone who works on or with firearms.

Use a finger, or a soft tool such as a wooden or nylon rod, to depress the take-down plate (24). This exposes the take-down pin (41). Insert the internal lock key that comes with the pistol into the slot on the right side of the frame and push the pin out to the left. Lacking the factory-supplied key a proper diameter punch will do. Move the slide assembly forward and off the grip frame. Invert the slide assembly.

Compress the recoil spring assembly, disengage it from the barrel lug, remove it, move the barrel slightly forward, lift, then lower it, and take it out to the rear. The LC9 is ready for a clean-up. And something tells me I could have quit after spelling out slide/frame separation. A

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P04-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1604-P04-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P04-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1604-P04-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P04-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1604-P04-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P04-F04. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1604-P04-F04

Detailed Disassembly Certain college English Composition Professors call it “narrative flow.” I call it “continuity.” In its interest, I’m going to depart slightly from the format followed in most of my disassembly/reassembly articles. In those I added a wrap-up section headed “Reassembly Tips.” With the LC9, the engineer providing the disassembly information jumped right into reassembly tips. After transcribing his instructions, the proverbial light went on in my thick brain house.

If making the swift transition was quicker and easier for him why wouldn’t it be the same for you readers? The slide. There’s quite a bit hidden under the rear sight (38). To get at it, loosen—do not remove—the 8-32 x 24 screw (39). Using a nylon drift, start the sight moving from right to left in its dovetail cut. Beneath the sight are the firing pin blocker (32), the pawl, hammer dog and crane latch plunger (36), and the blocker spring (37). Keep a finger over the right edge of the sight as you move it left.

Otherwise, that spring will launch that plunger on a non-stop trip to “The Land Of The Lost Parts.” Once the threat has been avoided by your fingertip and the It adds an exclamation point by rising well above the slide to show off its bright, red-enameled sides if around remains chambered. Recommendations about its removal and re-installation are made in the text. sight is out of its dovetail you can pick out or use a small magnet to remove the blocker, plunger and spring from their slide recess.

Also, before you get around to removing the firing pin retainer (34) a little later, a digit or short length of cloth tape covering the back end of the slide, which has no firing pin stop plate, will prevent the pin (28) and possibly its spring (40) from making independent exits on their way to joining the crane latch plunger. Now you’re faced with the loaded chamber indicator retaining pin (35). This a roll pin.

The indicator (30) is under some tension from its spring (33) and is easily seen or felt protruding from atop the ejection port when

a cartridge in chambered. By now, you’re likely to be aware of how I recommend roll pins should be approached. Point one, always use a roll pin punch to Careful with the spring! A remove or reinstall them. Point two, a flat-nose punch could peen over the ends of roll pins and should never be applied. Point three, whenever possible avoid drifting out a roll pin completely.

Move it only far enough to free the parts it’s retaining. By allowing a bit of the pin to remain installed you’ll greatly lessen possible damage getting it started back in where it was while assuring pin alignment within a given firearm. Have you taped over the rear of the slide? In that case, reach in on the right side where the roll pin used to be. A dental pick makes the perfect tool. Work the pick in under the top of the firing pin retainer (34) then carefully lever the retainer upward.

When the retainer and its contact with the milled flat in the firing pin part company the firing pin spring will react A

THE RUGER LC9 CONTINUED

ORIGINAL PAGE 5

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P05-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1604-P05-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P05-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1604-P05-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P05-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1604-P05-F03

to propel the pin backward. If you have your hand over the tape on the slide you'll feel a definite bump from a no-longer-restrained firing pin. Remove the tape and examine the pin. In reassembly, you must be certain the aforementioned flat is positioned to engage the retainer. It might take a few tries the first couple of times but you'll know for sure you've made contact when you can't withdraw the pin and spring after installing them. This brings me to the extractor (29).

It also brings back the dental pick and brings out a paper clip with one leg straightened out. (I keep a box of the loopy little things on my bench and use one of them frequently. Handy? You bet they are.) For example, the extractor plunger (27) of an LC9 has a little hole in it. You'll see it after placing your dental pick behind the curved back end of the extractor and pushing it forward. That little hole aligns with an identical little hole in the slide.

Line those two holes up and insert the straight end of the paper clip to maintain alignment. Remove the extractor, then touch a magnet to the plunger and its spring (26) to remove them from their slideway. Return the dental pick to your stash of tooling and

the paper clip to the box of its still-crooked partners for future use. Oh yeah, and hang up your magnet. What's left is the front sight.

I understood it was retained in its dovetail by an angularly placed pin that ran through the sight body and seated in the slide. The pin isn't shown on the A They both must be in place prior to reinstallation of the frame insert. schematic and, though I must have spent half an hour trying to locate that pin, I could not find any trace of it in the sight blade, or body, or the slide— not even under strong magnification. Well, no one is perfect. Least of all me.

Combine that truth with this truth: Sturm Ruger Factory Service technicians take in more butchered slides from which their owners have tried to drift out the front sight than they do any other LC9 repair. My bottom line on the front sight? If an LC9 owner comes in with a beat up front sight because the pistol has been dropped, run over by an ATV or bitten by a Grizzly inform the complainant it has to go back to Ruger. Slide Reassembly Tips Preassemble the firing pin and spring.

Install them in the slide with the flat in the pin positioned to allow passage of the firing pin retainer. Insert the retainer small end first. Place the loaded chamber indicator spring on top of the retainer, top it with the indicator, press down, then push the Inset shows a close up view. indicator pin back through the slide from left to right capturing the assembly. Press in and release the firing pin and indicator several times checking for sluggishness or hang-ups.

In with the extractor spring, in with its plunger. The dental pick helps push them to the rear and align their holes. Reach for the straightened paper clip and insert in the holes. Install the extractor, pull the clip and check for free movement. Unless what neurons are left in my brain cave have failed me, I believe I previously cautioned you not to completely remove the rear sight screw when removing the sight from the slide. You may have been wondering why.

In the following order, install the firing pin blocker, blocker spring and crane latch plunger in their slide recess. Start the sight into its dovetail from the left. Before reaching the plunger, depress it with the dental pick. Continue moving the slide in

THE RUGER LC9 CONTINUED

ORIGINAL PAGE 6

just far enough to prevent the plunger from popping out. Withdraw the dental tool and drift the sight way to the right until both sides of the sight dovetail align perfectly with both sides of the dovetail cut. When they are, tighten the sight screw. Reinstall the barrel, the recoil assembly and set the slide aside. Frame And Insert If the slide didn't test your ingenuity the frame and insert might and they don't wait long to cast down the gauntlet.

With the magazine out and the entire assembly upside down, back end facing away from you, a peek into the extreme rear of the magazine base plate (44) should reveal the hammer spring (8) still attached to its spring seat (54) via its anchor pin (53). The spring is quite strong. Unless your finger strength equals that of an industrial robot, the spring seat will at least have to be started on its way by having leverage applied. There were complications associated with the idea. The frame is polymer.

So is the insert (1) housing all the steel parts of the pistol's firing system and the spring seat. Still, there had to be a method of getting that seat to let go of the base plate if I was to dismantle the insert. Perhaps I could strengthen the thin polymer walls of the magazine well.

This would have been most simple if I had the time to fabricate a hardwood filler but this article was facing a deadline which could not be extended and no ready-made hard wood magazine well filler block for an LC9 existed at any local retail outlets or was even being considered by my usual out-of-town sources. I considered cutting into a slab of high density plastic and forming a permanent one but the deadline reared its impatient head once again. I began to rethink the entire problem. Shazam!

In three minutes I gutted the magazine body (43) and inserted it in the well as reinforcement. The time being expired and the re-enforcement bucking up the well I chose my weapon, a lightweight screwdriver with a blade that would fit through the slot in the spring seat, reach

all the way to its back end and have a slim shank long enough for me to rest it on the upper edge of the mag body which extended slightly above the polymer well walls.

Instead of prying I was able to place the driver in position and merely give it a twist. It worked like a bandit. The seat rose up to give me much better access to the hammer anchor pin (53) and hammer spring (8) to which the pin hooks. I removed the magazine body then reached for the trusty dental pick knowing the seat would never completely leave the frame as long as the anchor pin remain attached to it and the spring was holding on to the pin.

I reached in with the pick, moved the spring out of its pin groove and applied a little upward pressure. The spring released its hold on the pin, the pin came out of the seat and the seat popped into the air. With a sigh of extreme relief I caught it on the way down and broke a mild tranquilizer in two before chasing it with a large gulp of ice water. In retrospect, I believe what I did to lessen the pressure exerted by the spring played no small role in my success.

First, the hammer had to be in its fully cocked position. After a quick check to see if it could be further depressed with a finger, I inverted the frame and pressed it down on the bench. There was a slight relaxation of the spring. At any rate, with the seat and anchor pin accounted for the insert, still seated in the frame, is ready to remove and dissect. Now for the frame insert. Lay the frame on its side. Drift out both frame insert pins (45) in either direction.

Firmly grasp the insert (1), thumb on one side and index finger laid up against the opposite. Push up on the trigger (3) and slowly lift out the insert. The take-down plate (24) may escape. Make its freedom temporary. Until further notice, your work piece will be the insert. Examine the manual safety assembly. Overall, it's a decent size to deal with. What lurks behind it are

either small or tiny, namely, the manual safety puck (19), its spring (22) and spring guide (18).

Before moving the safety off its frame stud and out of the insert place the eraser end of a common lead pencil on the puck to retain it once the safety lever is lifted. Congratulations, you have just taken control over an assortment of tiny parts. I like to use an old gunsmith's trick for not losing small or tiny things. It involves stapling a length of wide masking or packing tape, sticky side up, to a flat piece of wood. Hold the pencil eraser/frame combination very close to the sticky surface.

Back off with the eraser. Any parts that drop from their insert slot will land on the sticky surface. Those that don't can be tweezed out and deposited on it. No small or tiny parts lost. Brilliant! Among other things on the insert's right side is the trigger bar (5). The front of the bar unites with a stud on the trigger pivot (2). The back end rides on the hammer pivot (10). For the present, the back end undergoes no change but the front end is under pressure being exerted upward by the trigger spring (14).

Press the spring downward with the dental pick to disengage it from the bar. Lift the leading end of the bar off the trigger pivot stud and remove the bar from the insert. On the left insert side remove the slide hold open (4) and slide stop spring (23). Now focus on the trigger (3) and trigger pin (13) area. The pin can be pushed upward via the hole under the trigger. When it's been pushed up far enough you can remove the trigger pivot to the right and free the trigger.

The latter will either fall or plucked from the insert. At the lower front end of the insert in a dovetail-type slot is the magazine disconnect (11). Slide it to the rear but watch out for its spring (12). This little guy has a home hole located under the disconnect in the insert. You may want to do any sliding just above your sticky small parts trap. What happens next can be testy. Consider bringing a clear plastic bag

THE RUGER LC9 CONTINUED

ORIGINAL PAGE 7

to work in your act. Approach the hammer pivot from the left. As you push it to the right it passes through the ejector housing (15), hammer and blocker lever (9). The bottom end of the lever is seated within an insert slot. The top rear of the lever is involved with its spring (21) which also has an insert seat. Locate and reserve both seats for future reference. The dental pick will be pressed back into service in order to compress the lever spring.

Detach it and allow the lever to be lifted out once the hammer pivot has cleared the way. I believe it's appropriate to digress and return to the ejector housing for a moment. Have you noticed the safety detent plunger (16) and spring (17) hiding within it? Anytime you're drifting pivot pins or doing anything else in the vicinity of the housing do not overlook the use of the plastic bag or custom-made, genuinely ingenious, small parts trap. Back to the frame briefly.

You might have thought it had been totally stripped. I know I did at first. Then I noticed the hammer catch (50), hammer catch spring (51) and their retaining pin (46). All are black in color. So is the frame. Unless your bench has a good overhead light it's easy to miss those parts sitting way back in the frame just in front of the magazine well. The pin is the standard variety, meaning it's not a roll pin, but look closely at it on the schematic. There's a recess in it.

The hammer catch spring rides in the pin recess. The pin drifts out left to right and is reinstalled right to left. Speaking of pins, before getting into reassembly tips take time to make two slave pins. One would substitute for the hammer pivot, sans ovoid end. Another might be needed for the trigger pin, sans tab. Traditionally, I've drawn on my supply of drill rod as the base stock for turning down and finishing off slave pins. Examine the manual safety lever and what lurks behind it.

The body of the lever is a decent size. The manual safety puck (19), its detent spring (22) and spring guide (18) sit in their in-

sert slot just aft of the body. They are all tiny. Before moving the safety lever off its stud, place a finger over those tiny parts. Use your sticky part trapper and hold the insert close over the tape. Remove the lever from the insert and your finger from the small parts. If tiny parts drop out, tiny parts stick to the tape, tiny parts no get lost.

Among other things on the right side of the insert is the trigger bar (5). See the trigger spring (14) on the same side? Make notes of how it's installed and where. When it comes to reinstallation, and your failure to do as recommended here, that spring will deliver great pain to a finger.

From where it sits as you look at it in the assembled insert, you have to get the spring out from under the trigger bar then swing it up, away from and over the bar, easing it forward to where lack of tension dictates it would rather come to rest. Right. Back to the dental pick. When you move to the left side of the insert the trigger bar might fall from the right side. No harm done. All that was retaining it was a small insert stud and a minimal portion of the hammer pivot.

Staying on the left side, remove the slide hold open (4) and slide stop spring (23). Change your point of focus to the area of the trigger (3) and trigger pin (13). The trigger pin can be pushed upward via the hole under the trigger. When the pin has been elevated far enough the trigger pivot (2) can be withdrawn to the right. This leaves the trigger free to either fall or be picked out. At the lower front end of the insert is a metal plate that seats in sort of a dovetail in the frame.

It's the magazine disconnect (11). To remove it, slide it to the rear but watch out for its spring (12). You may want to do any sliding called for just above the sticky tape. Frame And Insert Reassembly First things first. Have a jar of Vaseline or small supply of white lithium grease handy. Use a toothpick to apply either substance to the parts and their recess within the housing. It will do much to hold them inside when

you're doing such things as working the hammer pivot back in and adding parts to it as you go.

The dental pick becomes your best friend when reinstalling the trigger bar. After you lay the bar into its insert recess the bar's rear opening should frame the hammer pivot, the front of the bar should be engaged by the trigger pivot stud and the long leg of the trigger spring should be pointing away from the front of the bar. That spring can deliver a highly painful crack on the finger if not handled right.

You see, it has to be moved from where it's sitting with its long leg forward to its working position in the small, narrow groove indenting the bottom edge of the trigger bar. A fingertip or fingernail can start the maneuver by raising the spring to an approximate 90 degree angle. At that point, avoid pain. Let the dental pick take over to press the spring back further, then under the bar, and guide it into that shallow, narrow groove. Reinstallation of the hammer catch and its spring requires special tooling.

You have to make it from auto ignition pliers. Standard long noses are too bulky to fit within the working space available. The tool is pictured here. Grind the lower jaw to match that shown in the close-up photo. Prep the catch (50) by laying it on a flat surface. It has a large and small hole in it. Insert the bent leg of the spring (51) in the small hole. The straight leg extends along the lower jaw of the pliers. Tool with catch and spring in hand, approach the rear of the frame from about a 90 degree angle.

With the lower jaw facing the mag well push the tool/catch down to align with the catch pin hole on the left side of the frame. Before reinstalling in the catch pin (46), look closely at it. See the indented area? The coil of the catch spring must ride inside that area after the pin has been pushed through the catch. What should happen when you let go of the catch and spring? The spring will snap back

THE RUGER LC9 CONTINUED

ORIGINAL PAGE 8

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1604-P08-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1604-P08-F01

against the front face of the mag well to apply tension to the catch. Check tension on the catch by lifting and releasing it a couple of times. The hammer catch, spring and their shared pin have to be in the frame and the slide stop spring reunited with the insert before the latter can be reinstalled in the frame. But before frame and insert are re-engaged, locate the small hole on the rear right hand side of the frame above the hammer catch pin. Pick up the straightened paper clip.

Swing the catch forward and insert the clip to hold it there. The moment Ruger LC9 (Specifications subject to change without notice) has arrived, finally. Press the insert down into the frame until it seats. Install the front and rear insert retaining pins. Pull out the paper clip and listen with no small amount of accomplishment as the catch snaps back under spring tension. You have to flip the frame upside down to reattach the hammer seat and spring.

Snap the seat spring pin back into the seat and the seat back into its original position in the mag well. You'll probably have to pull the hammer to the rear so the spring

tension is relaxed some again to do this. One more time, reach in with Schematic Notes ** Considered a serial numbered component and, therefore, a firearm by Federal Law.

Not sold as a component. * Requires Factory Fitting 1 Frame Insert** 2 Trigger Pivot 3 Trigger 4 Slide Hold Open 5 Trigger Bar 6 Hammer 7 Hammer Roll Pin 8 Hammer Spring 9 Blocker Lever 10 Hammer Pivot Pin 11 Magazine Disconnect 12 Magazine Disconnect Spring 13 Trigger Pin 14 Trigger Spring 15 Ejector Housing 16 Manual Safety Detent Plunger 17 Hammer Pivot Detent Spring 18 Manual Safety Spring Guide 19 Manual Safety Puck 20 Manual Safety 21 Firing Pin Blocker Lifter Spring 22 Manual Safety Detent Spring 23 Slide Stop Spring 24 Take Down Plate 25 Slide* 26 Extractor Spring 27 Extractor Plunger 28 Firing Pin 29 Extractor the dental pick, hold on tightly, hook the hammer spring, pull it up and over the pin and release it.

Assuming you kept track of the order in which each part was removed from the pistol and, unless otherwise instructed, re-

placed them in order. A function check will confirm that you have. Place your finger or a folded up business card over the hammer face to protect the insert. Pull the trigger three or four times. If no problems arise, join the slide assembly to the frame and congratulate yourself. You have just become well acquainted with the Pistol Of The Year.

AG 30 Loaded Chamber Indicator 31 Front Sight 32 Firing Pin Blocker 33 Loaded Chamber Indicator Spring 34 Firing Pin Retainer 35 Loaded Chamber Indicator Pin 36 Pawl, Hammer Dog & Crane Latch Spring Plunger 37 Firing Pin Blocker Spring 38 Rear Sight 39 8-32 NC Rear Sight Screw 40 Firing Pin Spring 41 Takedown Pin 42 Barrel* 43 Magazine-Complete, 7-rnd 44 Magazine Floor Plate – Extended 45 Frame Insert Pin (2) 46 Hammer Catch Pin 47 Guide Rod 48 Recoil Spring, Outer 49 Recoil Spring, Inner 50 Hammer Catch 51 Hammer Catch Spring 52 Grip Frame 53 Hammer Anchor Pin 54 Hammer Spring Seat 55 Magazine Latch 56 Magazine Latch Spring

MEASUREMENT & INSPECTION

Kids In The Shop: A Gunsmith's Legacy, Part Two

This final article in the series concludes with tips and pointers on helping a student on the way to beginning a career in gunsmithing.

BY WENDELL DEANER FEBRUARY 2012

ORIGINAL PP. 9-13

We began with a tool usage overview and will continue there. How to use a dial caliper, a micrometer and their different types needs to be addressed. Hopefully our public schools have blessed our young minds with the knowledge of how to distinguish 0.004 inch from 0.04 and 0.4 inch. If not, it's up to us. The use of chemicals is very important to a lot of gun work. Finishing oils and other substances, especially the spray-on type, can be inhaled.

Others, such as acetone and caustic strippers, that can damage the skin should be introduced and safety must be emphasized by insisting on protective glasses, gloves, and a good shop apron when working with toxic products. Many bluing preparations need special consideration, especially when working inside. Also, describe which chemicals must be used outside. I use flammable materials inside my shop and don't allow smoking. Make sure to store and dispose of all potentially harmful substances properly.

Insist your student reads labels and takes the warnings seriously. Such basics as the difference between groove and bore diameter of a gun barrel should be discussed and explained. Why are bullets measuring .223, .224, .228 inch in diameter all described as .22 calibers? What is a chamber? What is leade? How is barrel length measured? Is the chamber included in that measurement? How does barrel twist affect the stability of different bullets? Is it bullet length or weight that determines optimum twist?

How many guys that you meet at the local gunstore can give a credible answer? Why is it safer to drop a 1911 series 80 Colt on its hammer than on its muzzle? Such concepts that are basic to us are beyond your average gun shop lay about. I can't exactly remember that old joke about cock-on-opening. What does a young person know of such things without expert instruction? It takes years and a good plan to instill as much of your valuable knowledge as possible.

Finally, beware lest your student doesn't understand that he does not know everything and still has a lot to learn, just like the rest of us. Do not be judgmental, especially of your customers. I have been tripped up more than a time or two by amateurs. Teach the student to listen more than talk and you will have a gunsmith. If you can cultivate in a young mind the thirst for knowledge and the ability to learn on one's own you'll have done a good job. Should you pay your student for his or her work? Depends.

If you just have your grandson helping around the shop it's different from having a full-time apprentice actually working on customer's guns. Many states and the Federal Government have very specific child-labor and specific apprentice laws. It's best not to run afoul of such things. Check the laws where you are and make sure you understand what you're getting into when taking on a student.

That being said, I would want to show my appreciation of a good student by perhaps offering tickets to a local ballgame or car

race once in awhile. Remembering your student's birthday with a card and small check is a nice thing. I try to continue the legacy by giving copies of my favorite movies such as *The Shootist* and *The Man Who Shot Liberty Valance* to my students. They may know Justin Bieber but mention *The Duke* and it's, "John who?" as hard as it is for us oldsters to believe.

I'm still trying to get over the fact of Lady Gaga's existence myself. Just as with general practitioners in medicine, we old gunsmiths are falling by the wayside. More and more of us are becoming specialized due to the complexity of our profession. I admit to being a "Fuddite", and take that for what you will and kiss my patootie, but I'm not going to let that stop me from learning. I plan on buying an AR, studying how it works and getting more expert instruction on the subject. I ain't dead yet!

Youngsters love these "black" guns. The only problem I have with them is the "spray and pray" mentality I have seen some AR owners exhibit at the range. The fine rifles coming from many manufacturers now days deserve better than this since they are accurate as can be. A lot of us will remember Clint Eastwood intoning, "A man's got to know his limitations." A student should feel challenged every day.

If I can send that student out into the gunsmith's world with knowledge of files and stones, all the basics I can cram into his or her head during our time together, and the all-important skill of how to look it up with a

KIDS IN THE SHOP: A GUNSMITH'S LEGACY, PART TWO CONTINUED

ORIGINAL PAGE 10

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1605-P10-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1605-P10-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1605-P10-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1605-P10-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1605-P10-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1605-P10-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1605-P10-F04. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1605-P10-F04

Safety when handling such materials is mandatory. healthy dose of common sense when it comes to problem solving, I think that will benefit my student and not reflect badly on me. If you are not well-versed in one area do you have a buddy who is? Can you share your apprentice? Are you well-off financially since you have made money from the profession and perhaps a retail facility? If so, think about furthering your student's education with a grant and aid to one of our fine gunsmith schools.

Here is where the student will hone and fine-tune his or her talent and add to the skills you've helped him or her develop, becoming

something more than the sum of two parts. This is when you can lean back with pride and know they will continue the legacy. Expect nothing in return, for giving these gifts are their own reward. Two anecdotes that will illustrate my point. I went into the bathroom and the water was running in the commode. How long I wasn't sure.

I confronted the culprit whom I had told numerous times before not to allow the toilet to overrun. After confirming he wouldn't let it happen again, he asked earnestly, "Pap, what makes it do that?" I then realized that he had no idea how a toilet operated! I've had my

head stuck down one of This is one job I don't mind passing on to my apprentice. My arm gets tired.

Many "gunsmithing" problems are related to poor reloading practices. those cantankerous contraptions ever since I've owned a home and those four little words from my wife—"This thing isn't working!"—brought consternation to my heart. Over the years I came to believe that the inner workings of a throne had been innately instilled into the DNA in every male. But, he hadn't spent as much time as I had fixing flaps and floats and sometimes saying bad words like I did while repairing

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1605-P11-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1605-P11-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1605-P11-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1605-P11-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1605-P11-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1605-P11-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1605-P11-F04. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1605-P11-F04

Here, the student is using a Vernier caliper to measure a revolver's cylinder. How to use this machine is easy to learn, but to master it experience is needed. Allow your student to experiment under rigid safety guidelines. my own plumbing. I gave him a short lesson on the secrets of this most necessary home appliance and, so far, we haven't had anymore runovers. The point being you can't assume what a student knows and doesn't know. You must make sure the basics and even the most arcane items are covered.

The next incident was a few years ago and really doesn't have anything to do with mechanical things, but I believe it illustrates the point I'm trying to make about being a teacher. My eight year old grandson and I

were taking a summertime bike ride along the C&O Canal. We started in a parking lot paved with fist-sized pieces of stone and it was a little difficult to transverse with the bikes.

The canal had been repaired in spots and I cautioned him to watch out for gravel which would twist his handlebars and possibly cause him to wreck. To make along story short, he hit a patch of gravel full speed and went over the front of the handlebars. I was pissed. "Why in the heck didn't you slow down when you saw that gravel?", I asked.

He looked up at me with tears in his eyes and asked through the blood trickling from his nose, "What's gravel, Pap?" It's a good idea for the student to realize how these kinds of

operations used to be and still are accomplished using other methods such as the loading press itself and hand-held tools, but I believe in starting with the most modern equipment and working backwards from there. If these mundane operations are not done properly a gun could fail to go bang when it has to or accuracy could be compromised.

There is no substitute for the "hands-on" approach to these potential problems. Today, the student must have computer skills. This usually isn't a problem for teens that seem to live for video games but some of our favorite websites such as Brownells and Numrich Arms should be pointed out. Also, most manufacturers and

KIDS IN THE SHOP: A GUNSMITH'S LEGACY, PART TWO CONTINUED

ORIGINAL PAGE 12

tool makers and suppliers have their own websites. Being able to find apart or tool quickly can now be termed an essential service for the modern gunsmith. Business skills are equally important as the use of a chisel or files. Without business acumen there is no shop. All of us have some skills to pass on from the smallest shop owner to the largest retailer. Even the least among us must have the savvy to be able to charge and receive what is due us and to keep our profit margins in the black.

I talked about computer skills. Many businesses can not run properly without a good computer program. Billing and receiving, inventory control and payroll are just a few of the functions and small shops have to keep records just as large ones do. The government is a hard taskmaster. Mess up with the essential records of trafficking in firearms and they will come down like a hammer. We have income that must be reported and taxes to pay, just like any other business.

The student may be the best gunsmith ever but without business skills working for someone else is all they can hope to achieve. Me, I like my independence. For others, an hourly wage may be best as long as they enjoy what they do. All serious gunsmiths should have a brochure that explains what services they offer and realistic prices for each job. When to bill by the hour and when to bill by the job should be discussed. The difference between man and machine hours should be addressed as well.

Some jobs such as cutting and crowning a rifle barrel can have a set price. Others, such as draw filing apiece or custom-made firing pins should have a "from" dollar amount attached. These brochures can serve as good advertising. Speaking of which, advertising should be part of the study, of course, but how much is sometimes related to how large an operation we control. Word of mouth can often make or break your shop. Some of the most profitable business is with your local police.

Cops always seem to need this or that, even if it isn't a firearm. A lot of items are limited to police sales. The men and women in blue are your friends. Try and help them as much as you can. Discounts are all right, but don't discount yourself out of a profit. Who else do you see every-day? Our friends from Big Brown of course. When they bring in the daily orders, talk and listen. They are busy and move fast, but can be a source of revenue for their friends. Sometimes these people have a lot of firearm needs, too.

This brings us to customer service. I took a course in sales during my high school days—not a bad thing for a gunsmith's student to consider. Since I thought I knew everything at that age 16, when the teacher related the case of the hard-to-please customer I just imagined myself telling him to take a hike and the heck with the sale. I found out later that in the real world things are not that black and white. Is the customer always right? No, but he always knows what he wants and expects you to give it to him.

Your student must understand that, if nothing else, your customer deserves respect. The customer may not be knowledgeable about a firearm, that's why he has sought out a gunsmith. The customer may demand something that can't be done or that would cost more than the firearm is worth. Let him down gently. Try to find something you can do to please him. The worst thing that can happen is he stomps out and loudly proclaims to anyone who will listen that you are incompetent.

Another customer, the one I call "our best buddy", is the type that wants to hang around the shop all day jawin'. He may even join in when you're explaining to one of your customers how a job must be done with some opinions of his own. At the very least he will distract you and slow the process of getting your work done. Heck, he may even want some free lessons. The best gunsmith's shops that I've visited

have the customer area blocked off from the shop itself with glass cases or such and no chairs.

Don't let this pest get comfortable or he'll be there forever. One thing about business is that the little things will hurt you if you don't keep on top. A young gunsmith right out of college bought out an older one who'd been at the same location for many years and had been successful. All well and good. This was many years ago and I took him a Savage heavy-barreled 112V in .220 Swift for a trigger job.

This kid admonished me sternly, a paying customer, that it didn't matter what the trigger pull weight was as long as it was safe. Yeah, I guess that is true, but I wanted a two-pound pull. After all, this was a varmint rifle and that isn't too light. He did a credible job. The trigger was crisper without creep but the pull ended up a lot heavier than two pounds.

When I last visited his shop he had bought about a couple thousand dollars worth of Barnes bullets, long before anybody but the most knowledgeable hunters and professionals had even heard of the company. He loaded his almost otherwise empty shelves with all the calibers available. A hand-made sign proclaimed "They're expensive, but they're good!" Those bullets cost at least twice as much as the regular bullets most of us shot at the range and these premium projectiles would only be used for hunting big game.

He might have sold a box or two before he closed his doors, six months after starting. The older gunsmith had run this shop for twenty years and sold out when he was ready. You might know everything right out of school and you might not. It's not easy, but try to instill in your student some humility no matter how good he is. Inventory can be a killer for your shop. If merchandise sits around gathering dust put it on sale and say bye to a bad problem.

If a tool is not available, can something be made from scratch? Can we fabricate our own less expensively than buying a ready-made one? All of us have these little gems lying around that we've put together for special jobs. Share these and encourage the student to not give up and think about what to do when it seems as though they've hit a dead end. This is a good skill for anyone to have. Last, but not least, is helping the student develop the ability to solve problems on their own.

The introduction of our reference books and videos is the key to this most important skill we have to impart. Perhaps one could begin by using several reloading manuals to pick a starting load for the student's own rifle. What powder seems to give the best velocity and accuracy with what bullet? What should the maximum load be? What are some of the high pressure signs to be on the alert for? Can the manuals be Complete your American Gunsmith collection. Or read up on a special subject!

A LIMITED NUMBER OF THE FOLLOWING

ORIGINAL SOURCE PAGE

13

PEOPLE & COMPANIES

Working The Walther P38

Modern pistols can trace their roots to this landmark handgun.

BY ROBERT K. CAMPBELL FEBRUARY 2012

ORIGINAL PP. 14-18

The Walther P38 is among the most influential handguns of all time, having introduced the double action first shot and combination safety/decocker innovations to service pistols and spawning a number of imitators. It is arguable that the present service pistol, the Beretta 92, is simply a highly developed Walther P38 with a high capacity magazine. The Smith and Wesson Model 39 has been called the Americanized P38. The P38 was a result of Germany's modernization move during the 1930s.

The Luger pistol was expensive to manufacture and maintain and the aging design was sensitive to ammunition types as well as debris. The Walther design was intended to be more effective and reliable, yet cheaper to manufacture. There were quite a few contenders, including some of Walther's own enlarged PP type pistols chambered in 9mm Luger. Influence from J P Sauer, Mauser and Luger is seen in many of these handguns but Walther is produced a working example of the most modern service pistol of the 1930s.

The Walther design was adopted as the P38 in 1938 and became the standard issue handgun for German forces. Although Germans used many handgun types, including those captured from their enemies, the Walther was the official German service pistol. The P38 was among the first military handguns to use stampings for some parts, rather than forgings, and made extensive use of coil springs instead of flat springs. Stampings are cheaper and coil springs are easier to manufacture and more compact.

While the P38 pistols are consistent as far as design and parts interchangeability, it must be noted that a great contrast exists in the quality of fit and finish of P38 pis-

tols. Early model Walther military P38s are very well made, as good as anyone's service pistol. Fitting is flawless, the steel is among the best of any pistol in that era and the Bakelite grips are uniformly well made. As the war progressed and both labor and material was more scarce, the finish of the pistols degraded.

Late model pistols produced during 1944 and 1945 were often made with inferior materials and poor finishing. While I have never seen an example that seemed overly loose or rattled when shook, in some cases the pistols may be unsafe to fire. It is an even bet that reports of the pistol firing when the decocker is actuated to lower the hammer on a loaded chamber or reports of the slide cracking may most often be traced to these inferior handguns produced late in the war.

While a modernized service pistol compared to the Luger, the Walther P38 requires comparatively more machine work and hand fitting than practically any modern double action pistol produced since and is an interesting pistol to work with. Generations In the later part of World War Two the original Walther plant was destroyed. Walther moved their plant to Elm and resume manufacture of the P38. There were several slight design changes, such as making the slide easier to manufacture and less likely to crack.

In the 1950s, when submitting the P38 for German military trials Walther used aluminum alloy for the receiver instead of the steel frame of the older pistols. The German Bundeswehr adopted the pistol in 1957 as a standard issue, designating the new aluminum alloy receiver version the P1. The subsequent P1 pistol was used by the military and select police departments well into the 1980s.

It is interesting to note that the P1 features very subtle changes in slide geometry compared to the P38 which, to the best of my knowledge, intended to prevent slide cracking. Another feature of the P1 to enhance strength is the addition of a pin in the aluminum receiver. It should be noted that the P1 is a thoroughly modern police service pistol equal to or superior to that produced by any nation. As a rule, feed reliability with wide mouth hollow points or function with +P or +P+ ammunition is never a problem.

Wear and abuse, however, are another matter. Over the years I have worked many P38s. During my time in police training a number of the old hands kept one as an example of what a good automatic pistol should be. Unfortunately the pistol was also a favorite of the more dangerous type of outlaw. As a result of this popularity many were seen in action and were confiscated by police. While a fine pistol, long, hard use takes its toll.

The many thousands of P1 pistols imported are often in excellent shape and well maintained, but the quality of fit and finish is not of the usual Walther commercial grade. Good WWII-era P38s we are likely to see in the shop have often been shot to death. As an example, it was once common to see an enthusiastic hand loader bring a P38 into the shop with the top slide cover blown off! Without sounding reactionary I would advise shooters not to trust the decocker of any original P38.

Wear and a less-than-practiced reassembly figures into this equation. Any shooter grade P1 or P38 should have the original springs replaced with WC Wolff units. Magazines are often worn and it is the springs or

WORKING THE WALTHER P38 CONTINUED

ORIGINAL PAGE 15

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P15-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P15-F01

These surplus handguns have been offered for as little as \$300. Some are much rougher than the example illustrated. magazine that are often the culprit with feeding issues. You have to decide if the issue is cycle related and replace the springs, or feed related and replace the magazine. Spare magazines are available from Triple K, a good resource for good quality magazines for older pistols.

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P15-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P15-F02

When the P38 or P1 comes into the shop, usually the fix is springs, sometimes a worn locking wedge and other times Anyone familiar with the Beretta will be at home with the P1 and P38. the pistol should be scrapped. We will look at disassembly and other replacement procedures. Disassembly We begin the procedure the same as with any self loading pistol. Remove the magazine and clear the chamber. Set the magazine aside. Push the safety on. Lock the slide to the rear using the slide stop.

THE BARREL

WORKING THE WALTHER P38 CONTINUED

ORIGINAL PAGE 16

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P16-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P16-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P16-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P16-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P16-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P16-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P16-F04. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P16-F04

In this illustration the lever is in the disassemble position. The locking wedge appears original and is stamped with the small star that denotes production after the French took over the Walther plant in 1945. The rest of the pistol is well worn but the locking wedge is in fine condition. retaining latch, borrowed from the Luger, is rotated forward. Carefully release the slide and run it forward and off of the frame.

Turn the slide upside down to expose the locking block or oscillating wedge, a design borrowed from the Mauser C96. There is a pin in the locking block that is pressed to move the block and separate the slide and barrel. Pay careful attention to the locking block. These have been known to crack. I have seen the service life of the locking block

quoted at 3,500 rounds, although this may be a bit low, and I have seen the Beretta 92 outperform this standard by a considerable margin.

Still, they should be inspected on a regular basis. It is not unusual to see anew locking block in surplus P1 pistols. The edges should be sharp and not show eccentric wear. If the locking block is worn it will function but eccentric wear indicates the locking block should be replaced. Moving to the slide, there is both a firing pin and a loaded chamber indicator. The loaded chamber indicator is often referred to in period literature as the indicator pin.

Loaded chamber indicators area typical part in European handgun design of the period. Beretta dispensed with this feature in their

Model 92 and instead use the extractor as a loaded chamber indicator. Working off of the breechface, use a screwdriver to press the indi- The slide has cracked and been repaired toward the front. Another crack is appearing just below the open top of the slide.

The cover is pressed forward and up. cator pin inside the slide and insert the tip of the blade of the screwdriver just under the long flat part of the slide cover. This part, which also holds the rear sight, is the slide cover. Be careful that the rear sight does not fall as you check and disassemble the slide. The trick is to press the cover upwards slightly at the same time that you press forward, freeing the slide cover. Very few handguns feature a detachable slide cover of this type. I have seen

WORKING THE WALTHER P38 CONTINUED

ORIGINAL PAGE 17

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P17-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P17-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P17-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P17-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P17-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P17-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P17-F04. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P17-F04

Take care in handling this part. more that one of these blown off of the slide, as far as I can tell most by a very hot hand load. Interestingly, the rare P6 was among the last Walther pistols of this design and does not have a slide cover. As for the last pistol I examined with a blown slide cover, the pistol was undamaged and worked just fine after re-assembly. I did use a brass bunch to peen the part but only slightly, and then replaced the slide cover with no other modification.

To completely strip the slide you may remove the firing pin spring, firing pin retainer and indicator pin and spring by prying them out

with the smallest screwdriver in your kit. To remove the firing pin, the safety lever must be moved to the fire position. This is a good time to memorize the relationship of these small parts. Next, you may remove the safety lever. This isn't tricky but there is only one way to remove the lever.

The safety lever is positioned mid way between the on safe and off safe position for removal. A last bit of advice here. Often as not there is an accumulation of varnished oil and grease in the slide. The parts may seem stuck but a thorough cleaning solves a lot of problems. Next, we will move to the frame.

Remove the grips first. To relieve tension on the hammer, begin by The grips and attached spring keep the drawbar in place. depressing the magazine catch.

The easiest way is to exert pressure against the work bench. When the pivot pin on the catch is in position for removal, which it is due to the removal of the grips, remove the magazine catch and the hammer spring. You are now field stripped and ready for spring replacement. The P38 and P1 pistols each use dual recoil springs. Beretta went to a simpler design, with a single spring

WORKING THE WALTHER P38 CONTINUED

ORIGINAL PAGE 18

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P18-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P18-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P18-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P18-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P18-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P18-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1606-P18-F04. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1606-P18-F04

One of the locking wedges has been replaced. You would do well to memorize the position of all small parts if you are planning on working with the action. In the conventional manner, but in many ways the dual springs allow for a very compact pistol. To remove the recoil springs, insert a small screwdriver about eight coils from the front of the spring guide. Compress the recoil spring as much as possible, then slip the spring guide out of the frame.

The recoil spring is then carefully allowed to release tension and is lifted out. Replace the springs of the pistol and restore it to normal operating condition. This is as far as I usually go in disassembling the Walther pistol for replacing springs. The common problem areas

such as the wedge and spring replacement are easily handled at this point. If you wish to disassemble the piece further, you may remove the trigger bar or drawbar.

The drawbar may be pulled from the frame once the spring behind the drawback is loosened, which maintains pressure against the drawbar, keeping it in place. The trigger is pinned into the frame and there is no real reason to remove it. If you do remove it is simply a pinned-in affair similar to the High Power or Beretta 92. Make certain you memorize or record the position of the trigger return spring. I have never seen a bent drawbar but the part isn't very substantial for the work it does.

Common Problems I mentioned the slide cover being blown off. This part is quite thin and This is the hammer spring assembly. ham-handed or ten-thumbed owners often ruin this piece, usually by trying to beat it back on. There is a certain finesse needed in the sliding motion to the rear and down that replaces this part. While it may be peened and reshaped it will probably need replacement. The other problem is a locking wedge with eccentric wear.

Finally, some of the aluminum frames of the P1 seem a little softer than others. I have seen several with bad dents. Simple spring replacement will cure most function problems. AG

RIFLES

Improved Muzzleloader Ignition Module

In some styles of muzzleloading rifles the breech plug ignition system can vastly be improved. A new, properly-designed screw-in breech plug can prevent blow back smoke, improve ignition quality and ease of loading.

BY NORMAN E. JOHNSON FEBRUARY 2012

ORIGINAL PP. 19-20

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1607-P19-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1607-P19-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1607-P19-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1607-P19-F02

I have found a need for a new style of screw-in breech plugs on muzzle loading rifles. In this treatise the Knight model KP1 break open muzzleloader was chosen for installation of a totally new design of breech plug. This rifle, as purchased, already has two breech plug styles. One accepts bare 209 shotgun primers placed into the mouth of the breech plug which are quite loose and are held in place magnetically.

The other style incorporates a full plastic jacket which holds and shrouds a 209 shotgun primer at one end and is inserted into a screw-in breech plug at the other end. This full plastic jacket requires preloading of the shotgun primers to be used in the field. Fired primers are easily extracted after firing with either method. While ignition is very adequate with each of these 209 primer systems, blow-by smoke is considerable and really fouls up the action.

This was a leading cause for making an improved module utilizing cut down .222 Remington cases with small rifle magnum primers. As the pictures will illustrate, making the new style breech plug for the Knight KP1

muzzleloader rifle falls right in as precision gunsmithing work. Tolerances are close, fully equal to the fitting, chambering and headspacing of a rifle barrel. To begin, I noticed there was ample room. The two breech plugs shown on the right come from the Knight factory.

On far right is Knight's full plastic jacket breech plug fitted with a 209 shotgun primer and to its left is the factory breech plug that accepts bare 209 primers. Continuing left is the replacement breech plug incorporating a special cut-down .222 Remington rifle case which is a totally smoke-free ignition module. For a full 3/4-inch hexagonal shaft to fit into the rifle receiver opening, including a short, thin wall socket head wrench.

Thus, a length of 3/4 inch stainless hexagonal stock was chosen to make the breech plug. The over-length hexagonal stock part was centered in a three-jaw lathe chuck with two inches extending beyond the jaws. A center drill was used to establish live tail-stock center while turning and threading the piece. The exposed hexagon shaft was turned to 11/16 inch (0.6875") major

IMPROVED MUZZLELOADER IGNITION MODULE CONTINUED

ORIGINAL PAGE 20

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1607-P20-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1607-P20-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1607-P20-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1607-P20-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1607-P20-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1607-P20-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1607-P20-F04. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1607-P20-F04

042 inch hole. thread diameter and threaded for a length of 0.785 inch with 20 threads per inch. A length of 0.125 inch of the module was free of threads at the tip end where the gas seal is formed. The tip end was then recessed with an 82-degree counter sink to a depth of 0.185 inch and the part was removed from the lathe chuck. The newly-threaded breech plug was screwed into the rifle and carefully marked for length for a flush-fit at the receiver/barrel juncture.

Following this, it was cut and faced to exact length and again tested for fit. For easy access and extraction an annular recess was then formed at the base of the breech plug to a

depth of 0.050 inch. The recess was cut to within 0.250 inch of the breech plug border. Drilling The Flash Hole Prior to drilling the smaller flash hole, a larger hole was drilled with a number 2 drill bit from the breech end of the module to within 0.150 inch of the beveled hole.

The remainder of the flash hole was drilled with a 0.042 inch number 58 bit. Final Chambering As previously mentioned, a cut down .222 Remington case was used in the ignition module cut to a total length of 0.750 inch. A special square-faced, end-fluted reamer was used to cut and form the chamber. Care was taken to finish the chamber as

headspace is established at A sample ignition module is chambered here formed from a .222 Remington case. the juncture where case mouth and chamber shoulder meet.

Cases were cut to exact length and the ignition module formed a perfect gas seal. Conclusions Where major improvements can be made in shooting it is normally worth the gunsmith's time and effort to make the modification. This ignition module conversion was a total success, completely eliminating blow-by smoke as it performs outstanding ignition. Accuracy is excellent as well. AG

RIFLES

Scope Mounting An Airgun Dovetail Receiver

Were all gunsmithing jobs without challenge perhaps there would be little need for our services. This wasn't the case while scope mounting one of the modern precision airguns requiring mounting modification.

BY NORMAN E. JOHNSON FEBRUARY 2012

ORIGINAL PP. 21-22

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1608-P21-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1608-P21-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1608-P21-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1608-P21-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1608-P21-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1608-P21-F03

The airgun brought to me was a modern, high-velocity .177 caliber model with a fully rifled eighteen inch barrel. The rifle featured an under-barrel cocking lever. While the gun bore no name, it showed excellent workmanship. One little problem arose, however, as I tried a standard 3/8-inch dovetail on the slotted receiver. It wasn't even close to a fit. I then tried a few bases and finally chose to use a pair of rings with integral bases made in Australia.

The split half of the base clamp was part of the dovetail base and did not allow for enough spreading to fit the receiver slots without the possibility of breaking the wing from the base. So, as a measure to assure flat contact of the base wings in the receiver slots, I did not attempt to spread the narrow base wings to fit wider receiver slots. Instead, I chose to mill the fixed side of the dovetail base which was also the more precision way to go.

I then cut the scope base slot wider using one of Brownells dovetail cutters in the milling machine. This milled the fixed side of the dovetail openings from an existing 0.405-inch to 0.435-inch. I was then able to slide the base in place where the side screws could tighten them securely. The scope was mounted 1 5/8 inches above the bore with three inch ring centers leaving ample viewing above the existing open

SCOPE MOUNTING AN AIRGUN DOVETAIL RECEIVER CONTINUED

ORIGINAL PAGE 22

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1608-P22-F01. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1608-P22-F01

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1608-P22-F02. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1608-P22-F02

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1608-P22-F03. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1608-P22-F03

ARCHIVE IMAGE WITHHELD

The original image is not displayed while permission is being confirmed. If you are the author, photographer, or rights holder, contact editor@gunsmithmag.com and reference AG-75EB0E1721-A1608-P22-F04. Know the rights holder? Please ask them to contact us.

AG-75EB0E1721-A1608-P22-F04

With an absence of recoil, a shorter eye relief is usually desirable on an airgun. sights. Eye relief was perfect with the Tasco four power scope as the rifle was shouldered. As a bonus, the scope really enhanced the overall appearance of the rifle. Testing The Scoped Airgun The newly scoped airgun resulted in a well-balanced gun that is easy to shoot. Loading the gun required about 30-foot pounds of the under lever to cock and load.

With the cocking lever at a right angle to the action the breech opens about three inches, leaving room for the thumb and forefinger to load a single pellet. This model does not have

an automatic safety. The manual safety lever is positioned within the trigger guard, which is pulled rearward to a safe position. Trigger pull is about three pounds with nominal creep but let off was crisp. The gun balanced perfectly when shot over sandbags or off hand.

Accuracy at 25 yards was about an inch for five shots using a sandbag rest. Conclusions Mounting a scope on an airgun makes it an excellent choice for shooting targets and small game like rabbits, 177 caliber pellet into the breech of the cocked airgun. There is ample room for loading with the scope object

lens well back of the loading port. Target shooting is a pure pleasure compared to open sights, particularly with aging eyes. squirrels and small varmints.

Before attempting to mount a set of scope rings on a grooved dovetail receiver be sure the receiver slots and dovetail base blades are compatible. Milling to correct size is the best way to go. Not all airguns pose the ring mounting difficulty encountered with this one but it was worth doing, leaving me a very pleased customer. AG

MEASUREMENT & INSPECTION

Reader Forum

BY AMERICAN GUNSMITH EDITORS FEBRUARY 2012

ORIGINAL PP. 23-24

J. C. Higgins Shotgun I've got a J. C. Higgins Model 66 12 gauge made by Sears and Roebuck, serial number 583XXX. My problem is that this shotgun double fires. I disassembled and cleaned the shogun for a thorough inspection. During my inspection I noticed some of the gas ports are stopped up. I unstopped the gas ports, reassembled and used some light oil to lubricate the moving parts. Despite this effort the shotgun still double fired when tested. I'm at a loss about the cause of this.

Perhaps the firing pin spring is weak? A puzzlement. "J. C. Higgins" is unknown to me as ever being a manufacturer, yet, the Gun Parts Cross Reference listing for this shotgun indicates a Model 66 made by J. C. Higgins. As you may already know, Sears never made the guns they retailed. High Standard, Marlin and Mossberg, among others, were contracted to produce the merchandise and imprint whatever name Sears wanted on it, such as J. C. Higgins.

As for the doubling, it is quite possible the gas ports were enlarged in the "unstopping" and allow more propellant gas into the action. This can cause short cycling of the bolt, usually resulting in a serious battering of the receiver, bolt over-ride, feeding malfunctions and other annoyances of greater or lesser degree. In your case, however, I don't believe this problem is resulting from a full blown short cycling situation.

Orifice diameters are critical in any gas operated gun, particularly one as old as the Model 66 which predates by many years the design and inclusion of gas-valve systems that allow firing of magnum and non-magnum shot shells interchangeably. Any digression from these diameters, either by enlargement or reduction, directly affects the function of the shotgun, from short cycling to no cycling at all. As to your suspicion of a weak firing pin spring, I don't think such is the case.

If weak, the spring would be more likely to cause misfires than doubling. In your tinkering with the gun, I suspect you may have created a rare malfunction of the action. The bolt disengages and starts its travel rearward, the carrier presents the next shot shell, but before the bolt has completed its trip it is released to travel forward, chamber the offered round and, because sear engagement is not sufficient, the firing pin is struck by the hammer to impact the primer of the just-chambered shot shell.

Parts to accomplish what is suggested here will require an in-depth search of the after market. Once in hand, an experienced gunsmith may well be needed to rebuild the firing system of the Model 66. It is within that system, I believe, that the problem lurks. Old guns do wear out. At times, getting them back to "good as new" runs the cost of doing so considerably more than that of anew gun.

Dana Thomas Frierson, LA M1 Carbine
Where may I obtain information on removing the rear sight assembly from the receiver of an M1 Carbine without damage or modification to the carbine and so that the sight might be reinstalled if desired?

As to the specific identification markings of this particular model, the top of the barrel behind the front sight is marked "Underwood 9-43"; the top of the receiver, "US CARBINE CAL 30 ml"; recoil plate, "SG"; magazine catch thumb rest, "MA3"; left side of front band, "SI"; right side of the rear sight assembly, "I. R. CO"; right side of trigger assembly, "rock-ola"; rear of receiver lettering (obscured by rear sight assembly), "1968637". Al Fraser Al's Frivolity Work Shop Underwood, I. R. CO. and Rockola?

Sounds as though you have a real mongrel there! Too bad it's not all Rockola. The carbines turned out by the former Jukebox maker are the most prized by collectors. You didn't mention the type of rear sight

on your carbine. There were three. The earliest had no windage or elevation adjustment other than a flip-up leaf. The second, or intermediate, was a milled assembly with a windage knob on its right side that had a serrated edge like a present day ten cent coin.

The later type, like the second, was adjustable for windage and elevation with diamond pattern checkering on the windage knob. The base and parts, excluding the springs, were stamped. All three types of rear sight dovetail into the receiver. Removal drifts from left to right and installation from right to left. Both must be accomplished with the receiver secured dead level.

To avoid marking up the receiver a nylon drift is recommended but a rear sight pusher would provide extra insurance against any damage from occurring. Dented Barrel I had a shotgun barrel come into my shop with a dent in the barrel. I have been an American Gunsmith Association member since the 1990s but can't seem to find anything in them that says how to remove a dent. What is the proper procedure to about this?

Gary Jones Brownells offers the Original English Hydraulic Dent Raiser for shotgun barrels that does double duty as a shotgun magazine tube dent raiser. They are offered in 12, 16 and 20 gauges sizes. At \$467.99 each they aren't exactly cheap but if you do much scattergun work the price is well worth it as these devices will spare you the time and effort of removing dents by hand.

Lacking a dent raiser, turn a hardwood dowel down to bore diameter, round or point its end to a lesser diameter and tapping the dowel into the barrel until the dent is raised. Sometimes, the dowel gets stuck inside and you have to drive it

READER FORUM CONTINUED

ORIGINAL PAGE 24

back out from the breech end. A full article on the dent raiser and dowel method doesn't show up in our files but we've mentioned them both several times in responding to readers with problems such as yours. G2 Contender Has American Gunsmith ever done an article on the G2 Contender? There is a ton of info on the old Contender but I can not find a parts list for the G2. We've published on the T/C Classic, Encore and Contender but no reprints are available on them.

The last phone we have for the factory is A call there should get you a G2 owner's manual and parts list. .270 Winchester M70 Problem A friend of mine reported that he was having problems with his .270 Winchester. The bolt would stick closed after every fired round even when using quality factory ammunition. The rifle is a Winchester Model 70 bought in 1995 and features a stainless barreled action and synthetic stock. I haven't seen the rifle, only the fired nickel plated cases.

Except for four or five annular rings running around the body's outside diameter, which are very slight but can be seen and felt, and the firing pin hit is slightly off center by about half the diameter of the indentation, the cases look normal. The rifle was returned to Winchester, but they could not find a problem. Any thoughts on what can be wrong? Bob Curry John vito De Angelis Lawrence, KS We suspect the nickle-plated ammo, not the rifle.

Those OD rings, however faint, hint at the cartridge cases being slightly undersize or, conversely, the chamber slightly oversize. Both would cause cases to swell and make extraction difficult. The latter seems doubtful since Winchester has checked out the rifle. Use JB bore paste on a moderately rotating swab to polish the chamber, make a Cerro Safe casting to check out the chamber against SAAMI specifications for the caliber and switch to brass-case factory loads.

Star Firestar Barrel I have a Star Firestar in .40 S&W caliber and need anew barrel for it. I have checked Numrich Gun Parts Corporation, Jack First and a couple of others but have had no luck so far. Joe Zito Call Brownells for a free copy of their parts source list. Your fingers may have to do considerable walking before you find the barrel. As always, if the pistol belongs to a customer add the cost of the calls to your bill for services rendered.

Marlin Model 90ST I have a Marlin Model 90 ST 20 gauge in my shop. The bottom barrel will not shoot. Have you ever done an article on the Marlin 90 ST? I am especially interesting in learning how to take the Sear Block out. John Conti We haven't even seen a Marlin 90 let alone do an article on one. It was last made in 1960 as a result of an agreement between Marlin and Sear's Roebuck who wanted an O/U in their line. Sears sold it marked as a Ranger before WWII and as J. C.

Higgins after the war, though Marlin also sold the shotgun bearing the factory name. At present, Marlin has become part of The Freedom Arms Group, which also holds a controlling interest in Remington, H&R 1871 and Bushmaster. More companies may soon be added to Freedom's list. As a result, our historical contact at Marlin has been temporarily lost to us amidst relocations, expansions, phone number and personnel changes.

Meanwhile, the best we can suggest is get in touch with the Patent and Trademark Office in Washington, DC. Ask for a copy of patent # 2,376,358. The facts on how the gun operates and accompanying drawings in the document can be of considerable help, more often than not. Last time we checked the cost of a copy was \$3.00. AG

SEARCHABLE ISSUE RECORD

Archive index

Hunting License Sales American Gunsmith Editors	2	Improved Muzzleloader Ignition Module Norman E. Johnson	19-20
The Ruger LC9 Chick Blood	3-8	Scope Mounting An Airgun Dovetail Receiver Norman E. Johnson	21-22
Kids In The Shop: A Gunsmith's Legacy, Part Two Wendell Deaner	9-13	Reader Forum American Gunsmith Editors	23-24
Working The Walther P38 Robert K. Campbell	14-18		

Rights and corrections. Images without confirmed permission remain reserved in place. Authors, photographers, and rights holders may contact editor@gunsmithmag.com. Corrections to searchable text are tracked against the source-page record.



American Gunsmith

The complete searchable archive of a technical journal devoted to craft, repair, maintenance, machining, and restoration.

GUNSMITHMAG.COM • EDITOR@GUNSMITHMAG.COM