



JAN 2017

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

01

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

BEGINNING ENGRAVING

THE WINCHESTER • SAVAGE/STEVENS MODEL 350 • MORE SMITHIN' TOOLS • CUSTOM RUGER MODEL 44 SCOPE BASE

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 157

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 • JANUARY 2017

ISSUE RECORD

ORIGINAL DATE	January 2017
VOLUME	Archive volume not stated
ISSUE NUMBER	01
SOURCE ID	ag-c2f72d71f51c721379a60a4a

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 January 2017.

2**The Winchester**

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 2

3**Savage/Stevens Model 350**

CHICK BLOOD • ORIGINAL PAGES 3-6

7**More Smithin' Tools**

DICK MAHEU • ORIGINAL PAGES 7-9

10**Beginning Engraving**

RAY ORDORICA • ORIGINAL PAGES 10-14

15**Custom Ruger Model 44 Scope Base**

NORMAN E. JOHNSON • ORIGINAL PAGES 15-17

18**Converting Ruger Redhawks**

ROY SEIFERT • ORIGINAL PAGES 18-20

21**Glock Custom Ideas**

DYLAN COURTNEY • ORIGINAL PAGES 21-22

23**Reader Forum**

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 23-24

PEOPLE & COMPANIES

The Winchester

BY AMERICAN GUNSMITH EDITORS JANUARY 2017

ORIGINAL PP. 2

The maker of the iconic Winchester '73—"The Gun That Won The West"—was a New England-based shirt maker with little firearms experience descended from modest immigrants from England. Oliver Fisher Winchester began his business career going from haberdasher to manufacturing shirts based on his own patented design still used on men's garments today.

While he knew almost nothing about guns at the time, fate coupled with his business and manufacturing sense put him in dealings with the almost-bankrupt Volcanic Arms Company. As odd as it seems today, the Industrial Revolution hadn't quite caught on and the idea of a mass-produced repeating firearm had yet to appeal to the military and others in need of arms.

Benjamin Tyler Henry of Henry Repeating Rifles fame was initially hired by Winchester to repair and maintain sewing machines at the company's New Haven-based shirt factory. The Winchester name so entrenched in the firearms world began life as a shirt maker and would go on to make things like electric irons, lunch kits, lawn mowers, roller skates, and ice skates.

The Winchester The Winchester: The Gun That Built an American Dynasty by Laura Trevelyan is a detailed account of the history of the families and businesses behind and surrounding the Winchester name. The book details the extraordinary life of Oliver Winchester, the company, and its rapid rise and slow fall as told by a distant family descendant and noted BBC anchor and

correspondent. From Little Bighorn to the Winchester Mystery House, the entire history of an American icon is told in great detail.

The rise and fortunes of the Winchester Repeating Arms Company spans three generations, from Oliver Winchester's involvement with the Volcanic Arms Company in 1855 through the following turbulent decades of the nineteenth and twentieth centuries. This family business rose through the Civil War era, continued to grow through World War I, and began to slowly decline thereafter.

With six very detailed chapters, the book opens with the Winchester family tree and "The Damn Yankee Rifle" chronicling Winchester's rise and the company's firearms as used through the Civil War era and follows with "The Spirit Gun" as Winchester expanded and their rifles became popular through the Western expansion.

Business and family details and dramas continue in "The Wrestler" and "Lady of Mystery" with the family behind the company that built The Gun That Won The West, setting the stage for "Decline and Fall" through World War II and the current state of the company in "Aftermath." Winchester arms mirrored American expansion and rugged individualism at the opening up of the Western frontier. These paradigm-changing firearms became apart of American culture celebrated in fiction and praised by the real shooters using them.

PISTOLS

Savage/Stevens Model 350

A retrospect on guns for home defense.

BY CHICK BLOOD JANUARY 2017

ORIGINAL PP. 3-6

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-1379A60A4A-A2028-P03-F01. Know the rights holder? Please ask them to contact us.
AG-1379A60A4A-A2028-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-1379A60A4A-A2028-P03-F02. Know the rights holder? Please ask them to contact us.
AG-1379A60A4A-A2028-P03-F02

It wasn't the first time Hollywood tempted far too many folks to make a wrong decision. All too soon after Dirty Harry's final challenge to bad guys of "Go ahead, make my day," was seen and heard by movie goers I began getting beaucoup potential customers asking about .44 Magnum revolvers for home defense. Back then, I was selling guns as well as servicing them and always began the process of such possible sales with a series of questions. Have you ever fired a .44 Magnum revolver? If so, how often and how well?

How thick are the walls of your home? How much distance exists between your house and your next door neighbor? Do your kids sleep or play in the room where you'll be keeping the gun? What if you miss the intruder? Once I had the prospect's full attention, the fact that a quality-made .44 Magnum revolver started at about \$600 back then usually cooled off his original magnum desires but For complete field stripping this stock must be removed.

It remains quite healthy amongst the small knot of pump shotguns that eject spent hulls downward instead of across the operator's face. (A) points to the bolt release lever. lessened not a whit their desire for a home defense gun.

My quick response to their plea was "a pump shotgun." After a few assurances the weapon would be easier to control than a magnum handgun, that one doesn't have to aim but merely point it and that, held properly, would not dislocate or even bruise a shoulder, I'd reach for one of the recommended pieces and racked the action. Once. That sound alone, I explained, would cause many intruders deep concern and likely result in the hostiles making a quick exit of the premises.

A The shotgun deliberately chosen for this little demonstration was aside ejector and served another purpose. Using dummy rounds, I demonstrated how it ejected them in front of one's face, depending on the model chosen. Left-hand models throw

hulls to the left; right hand models to the right. Then I removed my initial deal clincher from the rack. "This one ejects the spent hull straight down. It doesn't care whether you're right or left handed." The gun under discussion was designed by John M.

Browning and originally sold as the 20 gauge Remington Model 17. Later, Browning's design was changed by Remington into aside-ejecting 12 gauge: The Model 31. It became quite popular and provided worthy competition for the Winchester Model 1912. By the time the armistice to end the first world war was signed, the Ithaca Gun Company was casting around for a pump action they could produce to join the competition.

Believing the patents for the bottom eject Model 17 would be expiring in 1933, Ithaca planned to hold off production until that year and introduce a Model 33.

SAVAGE/STEVENS MODEL 350 CONTINUED

ORIGINAL PAGE 4

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-1379A60A4A-A2028-P04-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2028-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-1379A60A4A-A2028-P04-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2028-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-1379A60A4A-A2028-P04-F03. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2028-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-1379A60A4A-A2028-P04-F04. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2028-P04-F04

) Surprise! It was discovered one of the Model 17 patents would remain in effect until 1937. And that, class, is how the Ithaca Model 33 was abandoned and the Ithaca Model 1937 shotgun was born. In spite of numerous ownership changes and a total production halt during the Great Depression era, the Model 37 has had considerable success with the military, law enforcement on both coasts, security agencies, and prisons.

Yet another ownership change caused a production Visible is the thin trail left by its dent during hand tightening. Never over

tighten the cap. A B Chalt in 2005. Never mind. The Model 37 is again coming off production lines in Ohio. Recently, Chinese copies of it have been imported. That's all this gun writer has to say regarding clones from the Far East, except "Go Buckeyes!" On occasion, my absolute positive, never-failed sales clincher didn't happen to be a Model 37.

It was descended from a bottom-eject pumper designed by the same John M. Browning in 1904: The Stevens Model 520. A variant of the shotgun Dsaw action in WWI

and afterward gained wide acceptance with law enforcement. Savage Arms acquired Stevens in 1927. Thereafter, the Model 620 was introduced and served in WWII.

Meeting military production demands may have contributed to a decline of the Stevens' presence with law enforcement but the offspring that became my sales clincher from its place in the shotgun rack was introduced by Savage/Stevens as the Model 350. Available in field and defensive configurations, the all-steel 350 is a cosmetic update of its Model

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-1379A60A4A-A2028-P05-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2028-P05-F01

Savage/Stevens Model 350 (Specifications subject to change without notice) 1 Firing Pin 2 Firing Pin Spring 3 Bolt 4 Upper Extractor Spring 5 Upper Extractor Spring Plunger 6 Upper Extractor 7 Firing Pin Retaining Pin 8 Bottom Extractor Pin 9 Bottom Extractor Spring 10 Bottom Extractor 11 Bottom Extractor Spring Retaining Pin 12 Slide Pin Pin 13 Slide Pin Spring 14 Slide Pin 15 Slide 16 Butt Plate Screw 17 Butt Plate 18 Stock 19 Stock Bolt 20 Stock Bolt Lock Washer 21 Stock Bolt Washer 22 Carrier Screw Lock Screw 23 Carrier Screw 24 Receiver 25 Trigger Guard Retaining Screw 520/620 heritage and retains all their best operating features.

Yes, it still ejects spent hulls to the feet instead of across the face.

26 Left Cartridge Stop 27 Left Cartridge Stop Pin 28 Carrier 29 Right Cartridge Stop 30 Right And Left Cartridge Stop Spring 31 Right Cartridge Stop Pin 32

Barrel 33 Front Sight Bead 34 Pistol Grip Cap 35 Upper Sling Stud 36 Rear Swivel Stud Nut 37 Magazine Band 38 Magazine Band Screw 39 Barrel Lug 40 Magazine Cap Detent Plunger 41 Magazine Cap Detent Spring 42 Magazine Cap Detent Screw 43 Magazine Tube 45 Magazine Spring 46 Magazine Cap 47 Right Action Bar 48 Left Action Bar 49 Forend Tube 50 Forend 51 Forend Nut 52 Hammer Strut 53 Hammer Strut Pin 54 Hammer 55 Hammer Pin 56 Trigger Guard 57 Action Slide Lock 58 Retaining Pin 59 Action Slide Lock Spring 60 Action Slide Lock Release Spring 61 Safety Spring 62 Safety Spring Plunger 63 Safety 64 Hammer Spring Plunger 65 Hammer Spring 66 Hammer Spring Seat 67 Hammer Spring Seat Pin 68 Trigger Pin 69 Trigger Spring 71 Secondary Sear Pin 72 Secondary Sear Spring 73 Secondary Sear 74 Swivel Stud Yes, it does it whether the shooter is right or left handed.

Yes, its MSRP is half the price or less than a name brand .44 Magnum revolver. No, it's

SAVAGE/STEVENS MODEL 350 CONTINUED

ORIGINAL PAGE 6

not tricky to dismantle or service, so let's get on with it. Field Stripping The bolt has to be half open with the muzzle facing away from you and your eye protection. With a good many side ejecting shot guns, field stripping frequently begins by drifting out a couple of receiver pins and removing the trigger assembly. With the Model 350 it's always the magazine cap (46). Loosen it. The barrel (32) is screwed in clockwise. It gets loosened for withdrawal after a quarter turn counter clockwise.

With the barrel removed, take a minute or so to do a little exploring. There are threads and slots inside the receiver. The low lugs at the rear of the barrel fit in the slots. Remove the butt plate (17) and its screws (16). Backing out the stock bolt (19) will require an extension wearing a 13mm socket. Follow this with removal of the stock bolt lock washer (20) and bolt washer (21), the carrier screw lock screw (22), the carrier screw (23), and the trigger guard screw (25). Pull out the butt stock (18).

You have no choice. It's either that or forget about totally field stripping a Model 350. How so? Almost everything else from here on is removed via the back end of the receiver (24). The stock blocks that exit. The factory guys use thin, needle nose pliers to separate the carrier (28) from the action bars (47 and 48). A pair of hefty tweezers can be substituted for the needle nose. If you're familiar with the carrier of a Model 37 you'll notice right away how closely it resembles the carrier of a Model 350.

Was John M. Browning being lazy? Not even on a bad day. He must have realized he had a good thing going when he designed the 350 in 1904 and opted to take an "If it ain't broke, don't fix it" approach with his bottom-eject designs. The bolt (3) glides to the rear to be separated from its slide (15). Inserting a small tool behind the left cartridge stop (26) will free up the

entire trigger guard assembly (56). Withdraw it to the rear and clear of the receiver. So much for field stripping.

Some additional disassembly guidance will follow along with a few, very important, reassembly tips. How far can you go from here? A pretty large socket and long extension, to put both mildly, are used at the factory to extract the magazine follower (44). A photo is included here.

Being unable to conceive of possible uses other than retrieving Model 350 followers, I shunned any tooling expenditure by reaching for one of the oldest hanging from hooks extending from the heavily-populated, perforated pegboards mounted above my bench. I'd purchased the specialized grasper probably 35 years ago from Brownells. It has smooth jaws and opens wide. It has been removing caps from shotgun mag tubes starting the day after it arrived from Montezuma, Iowa.

With the 350, I fed spent hulls into the mag from the rear until the follower showed itself and seized it. The tool appears here in all its naked simplicity but I admit to putting a couple of wraps of duct tape around its jaws as extra assurance against my dinging up any pristine magazine tube caps or components. Last time I looked, Brownells still offers it. Loosen the upper sling swivel stud (37) and magazine band screw (38). Backing out the magazine cap all the way at this point allows removal of the magazine.

Watch it. Taking off the cap prompts the magazine spring (45) to demonstrate its best imitation of a striking cobra. The forend (50) comes next. Remove the forend nut, then the forend. The right action bar (47) and left action bar (48) will hitch a ride with it. Ready for the bolt? The Model 350 has an upper extractor (6) and a bottom extractor (10). Both have springs (4 and 9). All pins associated with the extractors drift right to left.

When and if removal of the firing pin (1) is necessary, orient the retaining pin (7) upward and extract the firing pin to the rear. The pin drifts in either direction but look to see if it's a roll pin. If so, use a roll pin punch and drift only enough to free up the firing pin. This little trick leaves enough of the pin in the bolt to eliminate troublesome false starts in reassembly. Parts List While there are no restrictions beyond the receiver, a shortage may exist.

If you take in a Model 350, check in with Savage/Stevens on availability. You may need a copy of Gun Parts Source List from Brownells to check if the needed component is out of stock. Reassembly Tips When reattaching the bolt slide to the action bars, move the forend as far forward as you can to make reinstalling #12, #13, and #14 less of a headache. When reinstalling the barrel, reach into the receiver and push the bolt to its half open position.

This assists greatly in achieving positive alignment with the receiver and avoids damage to its internal threads and barrel lug channels. By now, you may have noticed the 350 bolt has two extractors, with one at the top and the other at the bottom. There are two extractor relief cuts in the barrel. The larger of the two is at the bottom. In reassembly that large cut must be facing upwards and slightly to the left. Same for the locating seat.

Rotate the barrel a quarter turn clockwise to barely engage the locking seat. Turn the locking nut clockwise to fully engage the seat. Hand tighten the nut and make certain to not over tighten it. When properly reinstalled, the barreled shoulder must be flush all around with the receiver. No threads showing. You have every right to ask how my advisory on legal, short barrel, bottom-eject pump guns affected my business. It was better than good.

I sold ten defensive pumps for every .44 Magnum that made it out the door. One final question. Do you think this fellow John M. Browning will ever make it as a gun designer? AG

METALWORKING

More Smithin' Tools

Here are some more shop-made tools that will save time and money.

BY DICK MAHEU JANUARY 2017

ORIGINAL PP. 7-9

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-1379A60A4A-A2029-P07-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2029-P07-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-1379A60A4A-A2029-P07-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2029-P07-F02

Following my first article on shop-made smithin' tools in the December 2016 issue, I'll cover several more handy gunsmithing tools I have made over the years. Some of these are from existing commercial tools modified for my own use and others are from scrap tool steel and brass rod I had on hand. I hope to feature other shop made tools in future articles. I'm sure with the ingenuity, thriftiness, and craftiness of the smithin' trade that many of you have already made some of these tools or facsimiles of them.

The tools covered here were made from relatively cheap, common, ordinary screw drivers kept on hand for just this type of project. Some of these tools I have had for well over 40 years and they have seen more use than I can remember! Not only have these tools been mighty handy for gunsmithing work, but for a myriad of problems around the house I have encountered over the years such as repairing snowblowers, generators, small game traps, etc.

Some of them were made for specific tasks and some for general workshop tasks. I'll let you be the judge as to how you want to use them in your work. You may find you want to modify my tools for more exacting

use. There are several old, used tool places here in Maine where I find many specially-made tools by some other enterprising soul for a special purpose. Usually being able to procure these for less than a dollar, I scarf up most of them for future modification.

I'm sure you have some of these places near you and it's worth finding them. It's also entertaining figuring out what the tool was made for. Some of them show definite signs of commercial industrial manufacture, but reasons not immediately obvious. Once in awhile, I find one that I am relatively sure was made by a fellow gunsmith because it is usable as is in gun work. Enjoy these tools as you ponder which one of them will help you in your shop.

Brass Pry Tools I made these brass tools many years ago as I was always grabbing a handy screwdriver when I needed to pry up on a spring or other gun part during disassembly or repair. Often times in my haste (sound familiar?) I would mar apart using that hardened screwdriver to my chagrin. Needing something stronger than plastic or other synthetics, brass rod seemed ideal. For many years, I have kept on hand in my shop various common sizes of brass rod for parts or projects.

These tools are easily made in 20 minutes or so, and are the first I reach for on many occasions. The first one is made out of 1/4" semihardened brass rod just the way it comes from Industrial Supply. The rod is 3 3/8" long with an inch of it entering the wood handle. The handle is simple 5/8" dowel rod 3 3/4" long with a 1/4" center hole drilled 1" deep with the rod epoxied inside. This ensures a strong handle for the tool.

The other end of the rod is ground down in the shape of a common screwdriver tip, finding this most useful for my needs. You may choose a different shape for your needs. The 3/16" tool is made the same way utilizing 3/16" brass rod of the same type and 3 3/4" in length. I made the shaft 1/4" longer for better utility. A bench grinder or belt sander shapes the tip, thought I prefer the belt sander here. When your tip gets marred after extended use, it's easily cleaned up with a piece of 100 grit sand paper.

Dick's Poppers These are made from common 3/16" shaft screwdrivers of any tip style as it is cut off. Both have

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-1379A60A4A-A2029-P08-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2029-P08-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-1379A60A4A-A2029-P08-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2029-P08-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-1379A60A4A-A2029-P08-F03. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2029-P08-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-1379A60A4A-A2029-P08-F04. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2029-P08-F04

3" handles, with one shaft being 2 1/4" with a 90 degree bend on the end, and the other with a 3 1/4" shaft with a 45 degree bend. I use a Dremel tool with a cut-off disk to cut off the end of the shaft, however, a hacksaw will work if the steel is not super hardened. You can use a regular propane torch to do the bending and then anneal the shaft if required. I heat up the shaft tip, do the bend, then quench in either water or motor oil depending on the hardened state wanted. Both methods work.

If you break or bend one of these out of shape, make another and throw the old one away. I made these for pushing in on the plunger and releasing the trigger guard as-

sembly on Ruger revolvers but have found other uses in general gun work. Once you have the shaft tip shaped properly, set up on a drill press and drill the tip with a 1/8" drill bit or ball endmill approximately 3/16" deep and clean up on a wire wheel brush.

General Purpose Plunger Tool This tool is very similar to the popper tools but a little smaller for general gun work involving depressing plungers and detents. I found the poppers to be a little too big for some work so made the smaller tool. It has a 2 1/2" long, 3/16" diameter shaft with a 2 5/8" handle and a 3/8" 45 degree bend at the tip. I used a 1/8" bit to drill the tip to a depth of 1/8". It is made the same way as the poppers.

S&W Tools I originally made these tools for disassembling the rebound slide on Smith & Wesson revolvers but have found them useful on a lot of other gunsmithing jobs. I made them with two different diameter shafts. The first one has a 3 1/8" handle with a 3 3/8" long, 3/16" diameter shaft. The tip was cut off straight as in the previous tools. I cut out a 3/32" wide and deep gap. The second tool has a 3" handle, 2 3/4" length shaft, 1/8" in diameter, 3/4" 45 degree bend, followed by a 1/4" straight tip.

It has a 1/16" gap width, 3/32" deep that I cut with a Dremel tool disc. This smaller shaft tool has come in mighty handy on a lot of similar gunsmithing jobs.

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-1379A60A4A-A2029-P09-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2029-P09-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-1379A60A4A-A2029-P09-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2029-P09-F02

General Purpose Tools These tools are all self explanatory. I did not make these tools for a specific purpose except for the one with the grossly curved tip, made to disengage the end of a very strong stretch-type spring on an old gun that escapes my memory. It has come in handy on many other gunsmithing jobs. I made a small concave cut near the end with a small round Dremel stone to be able to retain apart without having it slip off the tool.

I have used all five of these tools more times than I can remember on a myriad of gunsmithing jobs and other projects. I was told early on by an old timer gunsmith that gunsmithing is 33% knowledge, 33% skill, 33% ingenuity, and 1% luck. After 49 years in this business, I have to agree with that ol' codger! These general purpose tools are between seven to eight inches in length with either 3/16" or 1/4" shaft diameters. Here again, the tips were heated and bent with a propane torch and shaped with a Dremel tool.

General Purpose Spanners I show only two of the many spanner wrenches I have made over the years to give you a general idea of how they are made. Whatever your needs are, these are tools that are easily made for the purpose. The round one was made to

remove firing pin bushings from shotguns. I must have well over a dozen of these in different sizes for different makes of guns. The shaft is made from apiece of drill rod and is drilled on one end for a handle which is another piece of smaller drill rod.

You can drill a slightly smaller hole for the handle and press fit it in or epoxy the handle in. The pins on the business end are also drill rod and fit the diameter of the bushing holes. Spacing is determined by the bushing hole spacing. On the wrenches that I knew would not see a lot of use, I epoxied or super glued the pins in after drilling the appropriate size holes.

On others, I went to the trouble of drilling side holes and threading the holes for cap screws to be able to adjust the pins and/or easily replace a broken pin. Again, your choice. Should you break a pin on ones you have glued in, rotate the shaft and drill for anew pin with the same spacing. Break more pins? Just make anew wrench. The flat-type spanner wrench was simply made from apiece of tool steel scrap I had on hand.

I used the exact size piece I had, rounding and smoothing the edges to prevent cutting my hand in use. It may be handy to use a leather glove when utilizing these type of

tools. A hole was drilled to hang the tool up and two holes drilled for the pins with proper spacing. On this particular spanner, I press fit the pins in. Spanners are easily made and I must have a ton of them hanging around my workshop.

Synthetic Wedges Somewhere, a very long time ago, I picked up apiece of Bakelite, neoprene, plastic, or whatever it is for one whole dollar. Probably at a garage sale! It was a foot long, 1 1/4" wide and 3/4" deep. The first thing I did was cut off two pieces with my bandsaw and shape them on a disc sander. The bigger wedge is 5 5/8" in length, 1 1/4" wide and 3/4" deep. I sanded a 30 degree slope in it, approximately 3" long and utilize it for straightening bent cylinder yokes in revolvers, among other things.

It is a tough, non-marring tool. The smaller wedge is 2 3/4" in length, 1 1/4" wide and 5/8" thick, also with a 30 degree slope. I use this for many small jobs where wedging or spacing of some sort is needed. I hope you will be able to use these examples of tools I have made to make your own tools that will fulfill your needs. As always, I welcome your comments, ideas, and feedback on my articles. Strive to learn each day and enjoy the trade. AG

FINISHING

Beginning Engraving

Getting started on getting good results with engraving is easier than you may think! Here's how to begin.

BY RAY ORDORICA JANUARY 2017

ORIGINAL PP. 10-14

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-1379A60A4A-A2030-P10-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-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-1379A60A4A-A2030-P10-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P10-F02

Some time back I wrote a piece on engraving for this journal. It's been long enough that I'll briefly cover a few of the basics again, such as where to get help, how to make a graver, and how to get started. Then I'll show you the steps I take to carve into a real project so you can see from start to finish at least one section of the project. Before we begin, I believe that to be a successful engraver you must have at least some small sense of artistic feeling.

You don't have to be Van Gogh or Vermeer, or (God forbid) Picasso, but I believe you have to be able to tell when something is balanced. While it's well and good to say that your engraving is how The tools shown are all you need to get started.

There's info on lettering and on every tool you might need, how to get certain effects, many hundreds of drawings and illustrations, and many examples of some of the finest engraving by top masters. You want it to look, even though it might be regarded by critics as being not that good, remember

it'll survive long after you're gone. Try to make your engraving look like what you want future generations to think of you. If in fact you want a Picasso-like figure with one ear and two noses, that's ultimately up to you.

And it might even be well received. Your author, however, is mighty conservative. What you're going to do as a firearm engraver is cover various areas of the gun with patterns cut into the metal that look right and fit in, and either disguise or augment the lines and sections of the gun. The work has to be uniform all over the various parts of the gun. It would not do to have full coverage of, say, a 1911's slide and only patches of engraving on the frame.

Nor would it be appropriate to have large scrolls on one side and tiny scrolls on the other, or scrolls on the frame and oak leaves on the slide. However, bear in mind appropriately mixing different engraving styles can produce a wonderful effect. Check out Purdey's rose-and-scroll pat-

terns, or Rigby's leaves and scrollwork on his double rifles. There are ways to "cheat" without it's being noticeable.

My relatively famous .458, featured in my article in *Cartridges of the World*, 14th Edition and in my book *The Alaskan Retreater's Notebook* (Amazon, Barnes & Noble, etc.), has patches of engraving here and there. The barrel has images on the front sight and on the sling ring wrapped around the barrel, plus an image of a Cape buffalo on top of the barrel where it joins the action. There's scrollwork there too, and a banner for my monogram.

The trigger guard has images of my cat and a bird in my hand surrounded by scrolls. The floorplate has my beloved fox friend, a mouse, and a bird. The bolt handle has some engraving, too. Yet there are exactly no cuts on the action itself. Why is that? The action is an early Springfield, case hardened to the point where all I could do was ruin my gravers when I tried to put

BEGINNING ENGRAVING CONTINUED

ORIGINAL PAGE 11

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-1379A60A4A-A2030-P11-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-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-1379A60A4A-A2030-P11-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-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-1379A60A4A-A2030-P11-F03. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-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-1379A60A4A-A2030-P11-F04. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P11-F04

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-1379A60A4A-A2030-P11-F05. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P11-F05

This is a copy of the work of L. D. Nimschke. What if that's the best you can do on a piece of steel? Don't give up! even the slightest scratch on it. Yet no one notices the absence of engraving on the action proper. By the way, my Alaskan Retreater's Notebook tells how I became an engraver and what was involved in that effort. A key factor was my burning desire to achieve that goal. All rifle actions are not impossible to cut. I built my a Browning action and I was able to cut its action relatively easily.

I put an open design of rose and scroll on it, which leaves lots of the metal uncut. Besides being less work, this type of engraving is to my eye more pleasant than full coverage, especially the deeply contoured sculpting as seen on some German custom rifles of long ago. Without getting too much into matters of taste, some fancy guns I've seen in catalogs from major auction houses like Julia have scrolls deeply cut and inlaid with gold, and similar work covering the entire gun.

While such work is amazing and exceptionally difficult, I don't like it. I prefer understatement. Here's a recap of where to look for help. First, go to as many art museums as

you can and look at all the great old paintings. This will help give you a taste for what's artistic and what's not. Look at the old masters, not modern art. Leave the modern stuff to Steve Martin, who has a sharp eye for it. If you have time and enough interest, a course in art appreciation might be valuable.

Most important, by any and all means look at as many engraved guns as you can. Gather images. With the Internet, that's easy. Gather a collection of images of engraved guns, blow 'em up, and look at how they're done in detail. Some of them look pretty crude up close, and some, like the work of the late Lynton Mc Kenzie for example, look stunning at high magnification often engraved under a microscope.

His English-style scrollwork was perhaps the best in the world, so don't be discouraged by a close examination of his work. No one else but maybe one or two top engravers could do as well. You'll need a good book, and Meek's *The Art of Engraving* is still one of the best for beginning engravers. Brownells still offers Lynton Mc Kenzie's DVDs last time I looked, but I'd start with Meek's book, also available

from Brownells. I suggest, as does Meek, that you do a bunch of work with pencil and paper.

There's no better way to train yourself than this and you'll quickly learn if you have a knack for it. Put away your iPhone, let your Twitter and Facebook accounts fend for themselves awhile, pick up a pencil and start drawing scrolls. Draw an image of the gun you want to engrave, or a portion of it, and experiment with pencil to find out where the scrolls should go and how they should flow together.

Fill 'em in properly, maybe draw some overlapping scrolls, and when you think you're ready, get started with the real thing. Get a graver, learn how to sharpen it, mount it in a suitable wood handle, get yourself a light hammer and start cutting steel. Get some practice plates and draw on them with pencil or very pointed Sharpie to give a thin line. Mount the plate in a vise of any sort on as sturdy a bench as you can get and start cutting what you've drawn. I suggest starting by drawing some straight lines, maybe

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-1379A60A4A-A2030-P12-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P12-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-1379A60A4A-A2030-P12-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P12-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-1379A60A4A-A2030-P12-F03. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P12-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-1379A60A4A-A2030-P12-F04. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P12-F04

There's just one to go. an inch long, and cut them. Making a straight cut is much harder than cutting curves, so it's great practice. Draw some scrolls and cut them. Don't cut too deeply. The little undercut on the properly sharpened chisel will keep the graver from cutting too deeply into the steel, but you still have to learn how to control the graver to cut a line that's of even depth, which also means uniform width, and learn how to follow the lines you've drawn.

Brownells sells five practice plates for \$12.77 as this is written. They also have some gravers, but today I'd go to Glen Steel Gravers (grstools.com, for my graver needs. They have 'em all, including some "beading" tools, which can be tricky to make. I've made my own, but with their selection in graduated sizes it doesn't pay to try to make them. These bead-makers have a hollow tip that makes a dot or bead in the steel when struck with a hammer.

They are used to fill out the background between scrolls, giving a sense of depth to the work. Nimschke, my favorite of the old masters, used them frequently. If you want only

one graver to begin with I suggest a square one, about 1/8" to 3/32" square, length about two to three inches. This is mounted into a simple handle like a wood dowel, and be sure to put a ferrule made from copper pipe onto the dowel to keep it from splitting. The dowel should be about 5/8 to 3/4 inch in diameter, whatever's comfortable.

Another type of handle for gravers has a tulip or mushroom shape. These are intended for driving the graver with your hand, not the hammer. A relatively small or fine graver set into one of the tulip or mushroom shaped handles is great for making shading cuts, and probably ought to be the second graver you obtain. To sharpen a square graver, grind the tip at about a 45-degree angle to give an elongated-diamond shape, one of the corners making a point.

Then knock back the metal under the tip on both sides for a short length, maybe an eighth to three-sixteenths. If it's too long it's hard to cut curves. Make sure the undercut comes to a short, straight line underneath and ends in a sharp point. The undercut prevents the graver from just digging into the

work, and instead it'll slide along the groove you make. Keep the point sharp with a fine stone as you go along. Meek gives a great description of how to do this.

About the chasing hammer, if you have a lathe I suggest you make your own, as I did. It's easy. Keep it small, and make the handle slim so it has some give. Some of the graver hammers sold are more like sledge hammers, not conducive to careful or delicate work, and their cost is quite high. Engraving is basically cutting a vee-shaped groove into the steel along the lines you have drawn on the steel. Controlling the depth and therefore the width of the line is what you have to learn.

The apparent width of the line can be altered by rotating the tool axially toward one side. Turning corners is done by rotating the tool away from the direction you want to turn. As noted before, because cutting straight lines of uniform width is one of the harder things to learn, I suggest you begin there. Here are two more points to keep in mind about engraving Far 45 auto. Surely you can do better than this! The scrolls don't need to be huge nor perfect to give a pleasant effect.

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-1379A60A4A-A2030-P13-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P13-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-1379A60A4A-A2030-P13-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P13-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-1379A60A4A-A2030-P13-F03. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P13-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-1379A60A4A-A2030-P13-F04. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P13-F04

44 Magnum, the first step is to take out the cylinder. ing. First, if you engrave a blued gun you'll have to refinish it. If you need to re-blue a gun the best way to bring out its finest—and once you know what you're doing you would not bother engraving a gun that did not have a heart of gold in the first place—is to rust blue it. This is not particularly difficult, but quite time consuming. Be aware of that.

The author came up with a simple design that leaves lots of the gun without engraving, but will make it stand out as being something different. The pencil gave the engraver the approximate size and location for the engraving work. The next step, not shown, is to fill in the curves with smaller curves, blending lines or shading, and do it to all five of the areas on the cylinder. The second point is that if you engrave a stainless-steel gun you won't be burdened with rebluing.

However, you won't have the option of erasing or obscuring any slip-ups on the stainless surface, which you can do to some extent on a blued gun. Once you get past the concept of practice guns and start working on better subjects you might find many The spindle thread is left-hand, and don't lose that tiny spring (arrow). of the guns you choose to chisel up don't have flat surfaces. This is common with many investment-cast guns.

My friend John Linebaugh commonly stones the surfaces of the powerful handguns he builds to overcome that wavy look before he applies his final finish to them. This takes a lot of time as it's largely hand work. I like the work of L. D. Nimschke (1832-1904), a German engraver who worked in the U. S. around the time of our Civil War and later. I engraved a single-action 45 clone of a Colt (made by USPFMA) in Nimschke's style.

The gun I did was easy to engrave because I went to the SHOT Show, spoke with the CEO of the then-new company and arranged to buy one of his guns "in the white." The gun came to me with no finish, no case coloring, but was in all other respects a finished firearm. I first worked up a load for the gun and filed the sights to match the load so the bullet impact was right where I wanted it. Then I set about engraving it, doing as careful work as I've ever done, and trying to match the style of Mr. Nimschke.

When I was satisfied I sent the gun off to have it case colored and blued by grand master Dan Cullity, the man who taught Doug Turnbull his skills. I acquired a set of genuine elephant ivory stocks for it. When the gun came back to me I was, and am, so stunned by the beauty of its finish I have yet

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-1379A60A4A-A2030-P14-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P14-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-1379A60A4A-A2030-P14-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2030-P14-F02

There's obviously a lot more room for embellishment, but that's not what the author wanted." The portrait was done without a hammer, all by hand. The surrounding scrollwork was done in the same manner as on the Taurus cylinder. to turn the cylinder, much less fire it again. That was a case of everything working out just right. My only regret is that it's not a genuine Colt. I had an early genuine Colt SAA that I considered engraving, but it had already been color-case-hardened.

Although the coloring was long gone, the hardness was not. If you have a gun like my old Colt that you want to engrave, and it's been case-colored, you can forget about cutting into the hardened steel... unless you find the right people. I haven't tried this, but you can apparently have the case-hardened parts annealed and then engrave the gun. Then of course you'll have to re-case-color it and reblue it when you're done.

I sold my old Colt before I engraved it so I can't comment on how well this technique works, nor who might be able to help you. At any rate that's what I was told about how to engrave a color-case-hardened gun. Take a look at the scrolls I drew with pencil. The first four spirals are crudely drawn within the confines of the lines on the

notebook paper. One scroll turns on itself and then a second one extends in the opposite direction from that, and on and on. The next step is to fill in the scrolls with... stuff.

This can be most anything, but it must be appropriate. Smaller scrolls are appropriate but some of them can appear like leaves. Don't forget the gaps between each scroll. A leaf can come out there very easily. There's also the starting point and the ending point to consider. By the time I'm done with the four scrolls they have lost much of their crudeness. The intentionally crudely drawn work ends up looking quite reasonable, and overlaid on a drawing of a 1911 .45 auto it looks fairly presentable.

Naturally, if I took more time they'd look better. When actually cutting steel I find it's easy to make a clean, smooth cut even though the pencil drawing on the metal might be messy. The pencil work shows me where to go and gives some indication of the size of the scrolls. Although it's possible to hide bad work with lots of busy cutting, the cleaner your cutting and the smoother the curves the better the job will look when all done.

I had a stainless Taurus five-shot .44 Magnum Tracker on hand that I wanted to engrave. I took the cylinder out, stripped it,

and began with it. I drew some crude scrolls with a pencil, erasing until I got about what I wanted. Then I dug in with the graver. As you can see on the photos of the Taurus cylinder, just as with a drawing on paper I first cut the simple scrolls, fitting them into the space in a manner that I liked, and then filled them in.

I don't show how I did the intermediate cuts but you can get the idea from my pencil work. Next up is to do the frame, but in order to get this story into print I'll leave the rest of the work for a later date. However, to keep your interest up I've included a photo of the engraving on the floorplate of my custom .458 of my friend Cookie, to whom my book *The Alaskan Retreater's Notebook* is dedicated.

His portrait is done in what's called "bulino" style, done entirely without a hammer, but the scrollwork that surrounds his portrait is done exactly as detailed here on the Taurus. I hope you give engraving a try. You might find it's easy. If it gives you fits you might come back to it at a later date. I first tried it when I was a much younger man and could not get a handle on it. Then when I had time I found I still had a strong desire to engrave and this time it worked well enough to satisfy me.

BEST LUCK TO YOU. AG

PEOPLE & COMPANIES

Custom Ruger Model 44 Scope Base

Where a rifle is designed for a two-piece scope base and the customer wants a one-piece base, it's time for some serious searching. Here's how I adapted a one-piece scope base to a Ruger .44 Magnum rifle.

BY NORMAN E. JOHNSON JANUARY 2017

ORIGINAL PP. 15-17

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-1379A60A4A-A2031-P15-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-P15-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-1379A60A4A-A2031-P15-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-P15-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-1379A60A4A-A2031-P15-F03. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-P15-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-1379A60A4A-A2031-P15-F04. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-P15-F04

A hunter presented me with his Ruger Model 44 chambered in .44 Remington Magnum. He tried, to no avail, in locating a one-piece Picatinny base for mounting an Aimpoint red dot sight. If possible, he also wanted to retain access to the open sights on removal of the quick-detachable optic. This turned out to be a rather challenging request, but I keep bumping into this sort of situation a lot.

A close look at the top of the receiver and the back end of the barrel showed three pairs of screw holes, all with apparent hole plugs. The front pair located on the barrel and the

rear-most pair located near the base of the receiver had 6-48 size hole plugs. The central pair of holes on the receiver were larger screws. The two central screw holes would fit the two rear holes in the Ruger carbine. A 90-degree scribe is used to mark the exact position of the screw hole with access through the inside of the receiver.

Bottom Designed for a two-piece base mounting, the central pair of screwholes are not meant for scope mounting, but one was used for this purpose, with 82-degree heads. Curiosity found me removing one of these screws which weren't screw hole plugs. They

appeared to have a function in holding something in place as some sort of bolt guide inside the rifle.

Upon discovering another 6-48 deep thread hole, my immediate thought was to use this for an attaching screw if I could find a suitable one-piece base to span the distance atop the receiver. I could see where removal of both screws at once could be a mistake, so I removed only the front one. The customer was still there as I searched through my assortment of one-piece scope bases. I came up with a Weaver Model #62, a 4.5" one-piece base. The base had two lateral slots each lo-

CUSTOM RUGER MODEL 44 SCOPE BASE 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-1379A60A4A-A2031-P16-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-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-1379A60A4A-A2031-P16-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-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-1379A60A4A-A2031-P16-F03. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-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-1379A60A4A-A2031-P16-F04. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-P16-F04

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-1379A60A4A-A2031-P16-F05. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-P16-F05

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-1379A60A4A-A2031-P16-F06. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-P16-F06

cated near the end, and two sort of randomly placed pairs of screw holes. The bottom radius of the base would work out atop the Ruger rifle receiver. On placing the base over the receiver, a pair of holes near the This helped make this one-piece base mount rear third of the base matched perfectly with a pair of holes near the back of the receiver—a real stroke of luck.

Laying the base over the receiver so the rear holes lined up indicated The customer could readily understand my plan and became very

excited about the prospects of a solid, one-piece base on his Ruger carbine. It would involve cutting a pair of cross slots in the base for a solid mounting of the Aimpoint sight. This would also provide proper eye relief as mounted, also allowing a standard rifle scope to be used on the new base using regular rings if desired later.

Work Done Correctly When it comes to mounting a scope, or any gun sight, absolute precision must all I would need to do is drill a hole in the base to match that of the hole

where I had removed a screw in the receiver. There would be more than sufficient thread depth for a solid screw purchase at that point, as the screw continued to serve its function. be attained. Sights that move around from shot-to-shot leave shooting to guesswork at best, and this can often be traced back to the base or bases.

AS A MEANS OF ATTAINING A

CUSTOM Ruger Model 44 Scope Base 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-1379A60A4A-A2031-P17-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-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-1379A60A4A-A2031-P17-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-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-1379A60A4A-A2031-P17-F03. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2031-P17-F03

precision fit between the scope base and receiver, I remove minor imperfections by micro-lapping the base. This was done by moving the base straight forth and back along the top of the receiver with a sheet of 600 grit between the parts. A few linear passes over 3M paper does the trick. Using a paste-type grit for this purpose would mar the bluing on the receiver, which has a uniform, smooth surface. The scope base was temporarily attached to the receiver with two 6-48 Fillister-head screws.

A 90-degree scribe was then used to precisely mark the front base screw hole from inside the receiver with the bolt withdrawn. The base was then placed in the mill vise where it was drilled for an 8-32, 82-degree socket-head screw. The base was again attached with

the three screws, making sure the screws didn't protrude beyond thread depth. It is well, however, to get all the screw-length possible as bases are mounted, but over-length screws can get you in trouble.

In the case of along front screw here, the bolt would bind or fail to close. Tolerances needed to be quite close. Milling the cross slots in the base was routinely performed on the milling machine. I also enlarged the back slot for rearward mounting of the Aimpoint sight. The two more centrally located slots were spaced an inch apart at a width of 0.194". Normal Weaver slots are 0.145", as are many of the Picatinny style slots.

Mounting The Aimpoint The Aimpoint sight has a unique, knurled, adjusting knob which is turned finger tight until a springloaded

clamping mechanism slips at correct torque. This prevents an over tightening of the knob. Good idea. Haven't we all encountered overly tight screws and knobs or scope turret caps? This sight base allows proper eye relief, which is not critical with the Aimpoint sight.

The standard leaf-style open sight remains usable while viewing over the newly mounted base when the Aimpoint sight is removed. Standard scope rings also can be used to mount a regular scope sight on the new one-piece base. Conclusions In this case, finding and adapting a one-piece scope base on a rifle not designed for this was a real plus. Sometimes a one-piece base will require custom fitting to the gun, along with relocation of screw holes in the base and/or the receiver. AG

PEOPLE & COMPANIES

Converting Ruger Redhawks

Firearms that shoot multiple calibers are more flexible, cost effective, and just plain fun to shoot. Here's how I converted a Ruger Redhawk .45 Colt to shoot .45 ACP.

BY ROY SEIFERT JANUARY 2017

ORIGINAL PP. 18-20

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-1379A60A4A-A2032-P18-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2032-P18-F01

Ruger has been manufacturing the Redhawk double-action revolver since 1979. The Redhawk is a large-frame version of Ruger's "Six" line of double-action revolvers originally designed to take the larger, more powerful .44 Magnum cartridge, but has since been manufactured in other calibers such as .41 Magnum, .454 Casull, and .45 Colt (or .45 Long Colt.) Unlike other double-action revolvers, the Redhawk uses an innovative, one-piece frame rather than a removable side plate, giving the Rugers superior strength.

The cylinder locks into the frame at the rear, bottom, and in the crane, giving the revolver additional stability and accuracy. .45 Colt. Due to its innovative design it is a very strong revolver. Beginning in 2015, Ruger began producing a model of the Redhawk in .45 Colt that also took .45 ACP cartridges using full moon clips.

This model 5032 Redhawk comes with three full moon clips and additional moon clips are available direct from Ruger (Shop-Ruger.com, .45 ACP ammunition is cheaper to shoot, is more readily available than .45

Colt, and has many more choices for plinking and self defense. I am a big fan of interchangeable caliber guns.

I fitted .45 ACP cylinders to my two old-model .45 Colt Ruger Vaqueros (see "A Tale Of Two Cylinders" in the November 2015 issue) and I have two Ruger Super Single-Six Convertible revolvers that shoot .22 Short, Long, and Long Rifle out of one cylinder and .22 WMR out of a second cylinder. I wanted the flexibility of being able to shoot two different calibers with the Redhawk but didn't want to pay the price for a new one. The standard .45 Colt Redhawk can be converted to also shoot .45 ACP.

I found a used older -45-4 Redhawk in .45 Colt caliber on Gunbroker.com for a very reasonable price. It had the 4.2-inch barrel, adjustable sights, and came in stainless steel like the newer 5032 model so I was ready to make the conversion. Full Moon Clips .45 Colt cartridges headspace on the rim. On the Redhawk the rim sets on the rear face of the cylinder and ejector star. .45 ACP cartridges headspace on the case mouth.

Since there is no lip in the .45 LC chamber for the mouth of a .45 ACP cartridge, that cartridge would fall through. The way to get around this is to use a full moon clip to hold the .45 ACP cartridges. .45 ACP cartridges snap into the full moon clip at the ejector groove. With the moon clip in place .45 ACP cartridges headspace on the rim just like a .45 LC cartridge.

I purchased a package of eight full moon clips from MidwayUSA.com (#323361) manufactured by Ranch Products (Ranch-Products.com, To get the moon clip to work with the .45 LC Redhawk I needed to remove metal from the ejector star. This is standard practice for competition shooters who want to modify their revolver to take full moon clips because this makes loading and unloading much faster.

There is an excellent video on You Tube by TK Custom (youtu.be/WVf_HKk_AAE50) on how they mill a Smith & Wesson 686 cylinder and ejector star to accommodate full moon clips. The ejector star on the Redhawk was wide enough to accommodate the full moon clips so I didn't have to remove any metal from the cylinder itself.

CONVERTING RUGER REDHAWKS CONTINUED

ORIGINAL PAGE 19

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-1379A60A4A-A2032-P19-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2032-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-1379A60A4A-A2032-P19-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2032-P19-F02

I used wooden sticks so I wouldn't mar the frame or grips. .021" off of the ejector star. A .010" shim under the ejector star prevents it from rocking during the milling process. Disassembly There are many books and videos on how to disassemble the Redhawk. This gun did not come with the manual but a quick call to Ruger customer service and the nice lady there sent me one. I placed all small parts in plastic trays so they wouldn't get lost.

There are five different plungers and springs used in the revolver and they are all different, so I was careful not to get them confused. When I reassembled the gun I made sure all moving parts were properly lubricated. This used gun didn't come with the special tool for removing the Hogue monogrip. I requested the tool during that same call to Ruger customer service and they sent me the tool and instructions free of charge, but I've since learned how to remove the monogrip without the special tool.

First, insert two plastic cards between the bottom rear of the grip and the frame. Do this on both sides of the frame. I used some old NRA membership cards. Then, slip Popsicle sticks or similar between the two cards to spread the monogrip away from the grip panel locator. The plastic cards help to prevent marring the frame. Finally,

slip the bottom of the grip forward, remove the plastic cards and sticks, then rotate the grip down and off of the frame.

Light Primer Strikes The Ruger website showed that my Redhawk was built in 2008. As late as 2011 it was reported that many Redhawks suffered from light primer strikes. Internet research indicated this was caused by a short firing pin, thick hammer surface, a short and/or radiused transfer bar, or a combination of any of these. However, not every model or individual revolver displayed this problem.

The most common fix was to remove a small amount of metal, 0.0005-0.001, from the top face of the hammer so it would move the transfer bar farther against the firing pin. Be warned, removing too much metal from the top face of the hammer can cause the hammer to strike the firing pin without the transfer bar in place, effectively disabling this safety feature. Bowen Classic Arms (BowenClassicArms.com), sells an extended length firing pin for the Redhawk if the hammer solution doesn't work.

Testing for this condition is fairly easy. I pressed the trigger completely to the rear and lowered the hammer so it would press against the transfer bar and firing pin. I measured the firing pin protrusion with a firing pin protrusion gauge and it measured 0.050". With the hammer removed I pressed the trigger and pressed the transfer

bar against the firing pin. I again measured firing pin protrusion and it also measured 0.050". Industry standard for this is 0.050-0.055".

Because protrusion was the same with and without the hammer I didn't have to remove metal from the top of the hammer face. **Milling The Ejector Star** The whole purpose of this exercise was to modify the .45 Colt Redhawk to take .45 ACP using full moon clips. In order to accommodate the moon clips I had to mill the ejector star. This was not a problem with my CNC mill, but I needed to do a little math first.

According to SAAMI cartridge specifications, the rim of a .45 LC case is 0.060" thick, but the rim of a .45 ACP case is only 0.049". The thickness of my .45 ACP moon clips is 0.032". Since this Redhawk headspaces on the rim of a .45 Colt cartridge which is 0.060", I needed to make sure with the moon clip in place the rear face of a .45 ACP cartridge was also 0.060" above the edge of the cylinder. Adding it up, we have 0.032 for the moon clip thickness, plus 0.049 for the .45 ACP rim thickness equaling 0.081.

Subtract 0.060 for the .45 LC rim thickness and that gives us 0.021 as the amount to mill off the ejector star. The thickness of the ejector star was 0.070" and I was afraid I would have to mill 0.032 off of the ejector star, almost half of the thickness. I

CONVERTING RUGER REDHAWKS 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-1379A60A4A-A2032-P20-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2032-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-1379A60A4A-A2032-P20-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2032-P20-F02

.45 Colt cartridges still headspace on the rear face of the cylinder. Because the ejector star is now 0.021" thinner, not all of the case head is supported. .45 ACP cartridges to be loaded using a full moon clip. I was concerned that removing that much metal would weaken the ejector star, but removing only 0.021" should not affect the strength of the star. However, I won't be able to use moon clips for .45 LC cartridges but that's really not a problem. If necessary, I could use speed loaders.

Ruger built in to the Redhawk cylinder a very innovative solution to a common revolver problem. If the revolver is not held muzzle-up when ejecting cases, unburned powder granules can get caught under the ejector star causing the star to protrude and possibly jam the gun. Ruger milled a 0.010" gap in the cylinder under the outer edge of the ejector star to help alleviate this problem. I made a 0.010" shim ring with an outside diameter of 1.312 and inside diameter of 0.750.

I cut a split in the ring and installed it under the ejector star to provide support during the milling process. I fixed the cylinder to the milling table of my hobby CNC mill and centered a 1/4" square end bit to the center of the cylinder. I milled 0.021 off of the ejector star. I left the ejector star installed on the cylinder; the cylinder provided extra support during the milling process. Now .45 LC cartridges can still be loaded one at a time as before or by using a speed loader.

The rim of the case sets on the outside edge of the cylinder and doesn't touch the ejector star. Headspace is still on the rear face of the cylinder, exactly the same as when the revolver came from the factory. With the recessed ejector star, I can now load six .45 ACP cartridges with a full moon clip. I did notice, however, that a raised primer had a tendency to bind the cylinder because the primer would rub against the recoil shield.

If I plan to shoot .45 ACP reloads with this revolver I need to make sure all primers are flush or below the level of the case head. Reducing Trigger Pull Weight I made one additional change to this revolver. On the Redhawk, the mainspring serves as both the hammer spring and trigger return spring. This is the reason why the single-action trigger pull is so heavy. Wolff Gunsprings (GunSprings.com, produces a hammer spring pack for the Redhawk that includes three reduced power mainsprings at 12, 13, and 14 pounds.

The factory spring is 17 pounds. I placed the rear of the hammer strut in a padded vise, pushed down on the mainspring lever, removed the takedown pin, and gently relaxed pressure on the factory spring. I wore safety glasses and covered the assembly with a cloth so I wouldn't lose the spring. I polished the hammer strut with 800-grit wet/dry sand paper, then replaced the mainspring with the 12# replacement mainspring, the lightest of the three.

I reassembled the gun and tested the new spring with six empty .45 LC cases primed with CCI 300 large pistol primers. CCI

primers are the hardest in the industry so if the gun can reliably ignite CCI primers, it will pretty much fire anything else. I loaded the cases into the cylinder and tested by cycling the gun double-action because the hammer does not come as far back in the double-action cycle as it does manually cocking it single-action. All six primers ignited and the trigger returned without binding.

The double action was already smooth, just heavy. Replacing the factory mainspring with a lighter aftermarket spring significantly reduced the trigger pull. My trigger pull gauge couldn't measure the double-action pull weight but single action went down from 6 pounds, 12-ounces to 4 pounds, 7 ounces; very acceptable.

Summary Pretty much any revolver designed for .45 Colt can be modified to also take .45 ACP, either by fitting a separate .45 ACP cylinder to a single-action revolver or by milling the ejector star of a double-action revolver. I have also seen this done to a .45 Schofield revolver by milling the ejector star and some of the cylinder so it could take .45 ACP using moon clips. This conversion makes the revolver more flexible by being able to shoot multiple calibers, and a lot more fun to shoot.

By the way, the ejector star is a Ruger restricted part which can only be installed at the factory and is not sold separately. Be careful with this conversion to the Redhawk or you will have to send the entire gun to Ruger for a new ejector star. AG

FROM THE ARCHIVE

Glock Custom Ideas

An overview of ideas and reasons for home gunsmiths interested in customizing Glocks.

BY DYLAN COURTNEY JANUARY 2017

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-1379A60A4A-A2033-P21-F01. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2033-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-1379A60A4A-A2033-P21-F02. Know the rights holder? Please ask them to contact us.

AG-1379A60A4A-A2033-P21-F02

I have many friends and family members regularly asking why I make modifications to my firearms. “Why did you do that to your Glock? It was fine before.” I always reply, “Because it’s my gun and I wanted to.” I’ve recently started my gunsmithing hobby and am in the middle of attending an online school for some extra information.

Everything else I have learned from books, online and magazine articles, and from visiting local shop owners happy to talk and answer questions with a fellow gunsmith—although I think the link between us as veterans may be the real reason they put up with me. This article is more for those at-home gunsmiths and do-it-yourselfers. The coil-type trigger spring and trigger bar is at the top left. ers preferring to learn on their own.

As to the “Why?”—the first question anyone choosing to customize an already-working firearm will likely get—this isn’t a question you need to answer to anyone but yourself. For me, the answer is easy as I just like working on my guns and I like the idea of improving something. My Glock is my go-to home defense gun and for this reason I want it to be the very best that I

can make it. Your reason may differ from mine merely wanting to is reason enough. Let’s begin by looking over the handgun.

I bought my Glock used from a local gun store in San Antonio. The first thing I noticed was that it had seen some shelf time, being pretty well covered in dust held on by some kind of gunk. A good cleaning with some Hoppe’s Elite Gun Cleaner was my first step. I took the pistol apart down to the frame and slide, inspecting for any damage. Satisfied that I purchased a solid gun with no problems, I looked for things that could be better. The first thing I put on my list was the recoil spring.

The guide rod from the factory is plastic and I could bend it with my hand. This seemed a failure waiting to happen, plus replacing the guide rod with one made of metal along with a fresh recoil spring should provide better stability. Given how much I shoot my Glock, I didn’t want to worry about wear and tear on a plastic part. The current GEN4 Glocks use a different recoil spring than previous models, consisting of a dual spring design to improve recoil and control of the firearm.

I selected a simple stainless steel design but there are other options, including light weight titanium units if you are feel-

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-1379A60A4A-A2033-P22-F01. Know the rights holder? Please ask them to contact us.
AG-1379A60A4A-A2033-P22-F01

Have a plan first! ing fancy and have the money. The process of changing these out is very easy and can be done with a simple field strip of the weapon and a little working of the action. The next part on my list is the barrel. While factory Glock barrels are good, I use mine for both home defense and shooting sports. Where a threaded barrel and/or a muzzle break increases length, making the pistol more difficult to conceal and carry, I'm looking for multiple uses. For me, a muzzle break is an ideal touch.

There are a number of options here but Lone Wolf Distributors (LoneWolfDist.com), make the units I like best. While many Glock aftermarket barrels are listed as pre-fit drop in, nothing is perfect. I recommend Gunsmithing Pistols & Revolvers 4th Edition by Patrick Sweeney, having found this book to be informative with solid descriptions and illustrations. Most shooters desiring firearm modifications want an improved trigger pull.

With Glocks, the advice is often limited to replacing the connector, trigger spring, and firing pin, however, factory parts can be polished for improvement. Patrick Sweeney also goes over this in his book. By polishing the connector (the lower tab on the trigger housing group) the trigger pull can be lightened. This requires a honing stone (I used a standard India stone), a good vise, and plenty of lighting. My first mistake was polishing just the top of the connector, making it flat.

That did lighten the trigger pull from 5.5 pounds to 4.7, but the trigger was very choppy and felt like it hit a wall and then slipped over through the pull. After disassembling and inspecting again, I could see

that it was flat and made a corner that the trigger bar would catch. I carefully rounded out the edge, resulting in an even smoother pull and dropping the weight down to nearly four pounds even.

For any further weight changes, the only choice is to replace the connector with one that has a different angle along with a trigger spring of lesser weight. If you or your customers prefers a trigger pull more like a doubleaction revolver with a consistent weight through the whole pull, a New York trigger, as used by the New York Police Department, is what you are looking for. This unit replaces the coil trigger spring and slips into the space below the trigger arm.

Standard Glocks use coil typically yielding a 5.5 pound pull that remains constant over the entire trigger travel. The N. Y.1 trigger as first requested by NYPD when the department transitioned from issue revolvers to Glocks, increases trigger pull weight from 5.5 to 11 pounds. The N. Y.2 trigger spring is even harder, continuous, revolver-like increase of the trigger pull weight from 7 pounds up to 11. I plan to cover these in detail in a future article along with shooting comparisons.

The last topic I'll cover is stippling, the process of melting the polymer frame to improve purchase while shooting. Done correctly, it can also add a nice, unique look to the pistol. There are a growing number of people doing this at home and goofing up their pistols, prompting them to want anew one. If you're going to try this, be ready to own up to the work you did as it's not easy getting anew serialized frame without buying anew gun.

While I've received comments that my first attempt came out great, it actually didn't. My first attempt at stippling taught me to find something else to practice on first and to pick the right tool. I used an old wood burning tool shaped more like a pencil and this made it hard to burn straight down at a consistent rate. I would instead recommend a tool with either a pistol grip or curved tips. The other problem was how hot it burned.

Without any temperature controls, I was forced to stop after an hour or so and let the tips cool off because they would become loose, making it hard to control and burning more of the polymer than I wanted it to. This works best with a plan and a design already laid out. I have some random looking designs on my Glock and that's because they were random little lines and dots mashed together the starting to make one big mess. Finally, be careful how deep you make the burns. There only needs to be a shallow burn.

Anything deeper makes sharp edges for the hand. This is uncomfortable and led to lots of filing work before I could tolerate to grip the firearm again. On the plus side, this procedure to eventually yield much better purchase than before, which was the desired result and a silver lining to this failed project. Unless you are like me and can take a lot of jokes at the range, let a professional take this one—at least until you get a plenty of practice.

These are simple modifications that any gunsmith and most shooters can make to customize their Glock to better suit their shooting. AG

RIFLES

Reader Forum

BY AMERICAN GUNSMITH EDITORS JANUARY 2017

ORIGINAL PP. 23-24

Bayard Rifle I am looking for bolt parts for a Bayard 1909 .22 Short rifle. My research so far has failed to find any information about the Bayard. Based on your description we are going to assume the rifle is not a semiautomatic and is a single shot. It was manufactured in Belgium and imported into the U. S. around 1909. If we are correct, and the only information we managed to uncover so far was via the Web, you probably should inquire of the National Firearms Museum, Fairfax, VA 22030, nramuseum.org.

Of course the museum isn't in the parts business for resurrecting out-of-production guns. With a Bayard, you are now up to your neck in the practice of turning up rocks to either find what you're looking for or to get hold of instructions on how to make it.

Among the rocks you might consider turning up, start with ClassicOutdoorMagazines.com and conducting a Gun Search in that site's Library.

As described there, you can hunt through the publications indexed on that site and any gun-specific articles such as on the Bayard. Material there is downloaded as PDF files. Further searching can be done on Simpson Ltd's site (SimpsonLTD.com) which has nice photos of Bayard rifles.

Another resource is the The American Single Shot Rifle Association (assra.com) and worth the \$40 annual membership if you regularly use and/or work on single shots as the organization maintains a renowned archive of shooting history covering not only modern single shots but 19th and early 20th century models as well. Fire Lapping Do you have an opinion on fire lapping using Tubb's Final Finish? John Doe Author Joe Carlos responds.

When I went on as the match armorer for one of the major military shooting teams I found that I had inherited a lot of uppers that weren't shooting well. This was not due to barrels being shot out. Many of the uppers were not assembled properly so I tore them down and rebuilt them. The biggest culprit was failure to properly stabilize the barrel extension in the upper receiver. My articles "Barrel Extension Diameter And Accuracy, Parts 1&2" in the March and April 2013 issues discusses how to do this.

Even a good barrel will fail to shoot optimally if the extension is not stabilized properly in the receiver. Jerry Spadorcio

ORIGINAL SOURCE PAGE

23

READER FORUM CONTINUED

ORIGINAL PAGE 24

I also found a lot of uppers that had gas tube to float tube contact resulting in gas tubes being improperly aligned with the bolt carrier key and detail this in "Gas Tube Alignment" in the March 2014 issue. Having fixed all of the "usual suspects" I retested the uppers in the machine rest and found that some were still not shooting properly. The Team did not have enough budget money to purchase a bunch of new barrels to replace barrels that weren't worn out, so I resorted to fire lapping.

I've fire lapped about 100 barrels and every one of them improved! Note, these were barrels whose next step was going to be the trash can. I did not fire lap any barrels that were shooting well. Almost never did these barrels go from destined-for-the-dumpster to tack driver. They did become serviceable, which is what I was hoping for. My advice is to fix all other potential problems before resorting to fire lapping. Fire lapping will shorten barrel life and that will be quite variable.

Barrels made from cheaper soft steel will suffer the most. Almost every barrel maker will void any warranties if they find out that you have fire lapped their barrel. If you have a barrel that is not shooting well I would Submit a question or letter to the Reader Forum column by addressing an email to or posting a letter to American Gunsmith, Alexandria, VA 22310. Send

subscription questions to contact the maker first and see if they will replace it before resorting to fire lapping.

I would also never substitute fire lapping for a proper barrel break in, as discussed in "Gas Gun Barrel Break-In" in the October 2014 issue. It is important to give any barrel about 200 rounds after a formal break in before making judgments about it. I haven't had to resort to fire lapping barrels in about a decade. Buying from a reputable custom maker that hand laps at the factory avoids having to resort to workarounds to get it shooting right.

Barrels from companies such as Bartlein, Krieger, Brux, or Lilja should not require fire lapping. My article "Electropolishing & Fire Lapping" in the May 2015 issue on this fire lapping topic goes into further detail. If you have any further questions feel free to contact me directly at Lone Star Rolling Block A customer brought in his Lone Star Rifle Company rolling block chambered in .45-110, serial number 1XX. It has been well cared for and looks like new, however, it has a double set trigger that won't reset.

I removed the trigger plate and found that the trigger return spring had broken off about 3/8" from the tip. Under a magnifier I found it was crystallized at the break. Since the demise of Lone Star's owner, I have been unable to find any diagrams of the assembly and can't determine how the spring even touched the trigger. I believe that the trigger was proprietary but not

patented and was only used on these rifles. Do you know of any schematics or a picture of the complete assembly? Robert A.

Scott Scotts Gunsmithing Service Lone Star Rifle Company in Conroe, Texas was an active maker of fair to very pricey black powder reproductions. Dixie Gun Works carries Lone Star rifles and parts. Contact them at DixieGunWorks.com or call or for all else. Star Modelo Super I have a Star Model Super Bwith a missing firing pin. I have been told there are three different diameter firing pins available for this.

Without the original firing pin available to check the diameter, how do I determine which replacement is correct? Sean Matheny The Star pistol, outwardly a close clone of the M1911A1 but quite different inwardly, was found to be well made and very reliable by American troops serving in Europe during WWII. It was first brought back home by its admirers, was later imported, and has never lost its reputation. Numrich Gun Parts Corporation (gun-partscorp.com, lists parts.

Your missing firing pin may be caliber specific since the pistol was made to fire other cartridges beside .45 ACP so give specific details when ordering and they should be able to nail down which firing pin you'll need. Another possibility on imported firearms is Bob's Gun Shop in Arkansas (gun-parts.com, Fax: as they sells parts and are very knowledgeable on imported firearms. AG

SEARCHABLE ISSUE RECORD

Archive index

The Winchester American Gunsmith Editors	2	Custom Ruger Model 44 Scope Base Norman E. Johnson	15-17
Savage/Stevens Model 350 Chick Blood	3-6	Converting Ruger Redhawks Roy Seifert	18-20
More Smithin' Tools Dick Maheu	7-9	Glock Custom Ideas Dylan Courtney	21-22
Beginning Engraving Ray Ordorica	10-14	Reader Forum American Gunsmith Editors	23-24

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