



APR 2010

DIGITAL ARCHIVE
EDITION

PRECISION ARMS WORKSHOP

AND THE AMERICAN GUNSMITH ARCHIVE

A TECHNICAL JOURNAL OF CRAFT, REPAIR & RESTORATION

04

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

DISSECTING THE DAN WESSON REVOLVER

MASS MEDIA SHOOTING SPORTS • MAKING A CUSTOM CASE-NECK EXPANDER DIE • IMPROVING ON A PERFECT STOCK ...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 076

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 • APRIL 2010

ISSUE RECORD

ORIGINAL DATE	April 2010
VOLUME	Archive volume not stated
ISSUE NUMBER	04
SOURCE ID	ag-f710d97e6a526f90a29b184b

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 April 2010.

2 Mass Media Shooting Sports

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 2

3 Dissecting the Dan Wesson Revolver

CHICK BLOOD • ORIGINAL PAGES 3-6

7 Making a Custom Case-Neck Expander Die

NORMAN E. JOHNSON • ORIGINAL PAGES 7-8

9 Improving on a Perfect Stock Design

DOMINIC PISANO • ORIGINAL PAGES 9-13

14 Refinishing Gun Metal

BRIAN E. CAPPS • ORIGINAL PAGES 14-17

18 The 1911 Trigger Action

ROBERT K. CAMPBELL • ORIGINAL PAGES 18-21

22 Reader Forum

AMERICAN GUNSMITH EDITORS • ORIGINAL PAGES 22-24

RIFLES

Mass Media Shooting Sports

BY AMERICAN GUNSMITH EDITORS APRIL 2010

ORIGINAL PP. 2

For the 2010 Winter Olympics, Time (Time.com) ran a series of “How They Train” segments interviewing athletes competing in the Games. Tim Burke (TimBurke.us) of the US Biathlon team was interviewed by reporter Sean Gregory in a feature that discussed the sport of biathlon, including a basic run down of the marksmanship and rifles used. The interview included Gregory explaining the course of fire and attempting to shoot some of it. It was a positive, non-political look at one facet of our shooting sports.

Footage is available at Burke’s and Time’s web sites. Mass Media Shooting Sports This interview was more than a formality of complete coverage on Gregory’s part. Burke is a major contender! For the first time in Biathlon history, an American shooter is leading on the global stage. After a string of wins prior to the Olympics, Burke earned the yellow bib, signifying he had become the current leader in the Biathlon World Cup.

If you’ve been following any of the shooting disciplines on the International level then you’re well aware that America fares poorly. As a whole, gun owners in this country aren’t supportive of organized shooting and don’t participate. This has been a trend for decades and shouldn’t be a surprise. Consider that the Biathlon in 2002 was televised during MSNBC’s coverage of the Winter Olympics.

In fact, MSNBC had an actual shooter (Josh Thompson) do their coverage and featured Magdalena Forsberg in an “Athlete’s Voice” segment. The Today Show featured a segment with anchorman Matt Lauer receiving instruction on Biathlon, learning to both ski and shoot, and stating that the sport deserves more attention in the States. This wasn’t much of a stretch because Biathlon is the most watched televised winter sport in Europe.

It does seem to surprise American gun owners, though, and it makes me wonder what the folks at Fairfax are thinking. Perusing the NRA’s multitude of web sites in the days leading to the Olympics I could find no mention of this shooting sport or of Burke. During the 2002 games, there was no apparent Biathlon coverage on any NRA site either. In fact, the “Top Sports Stories of the Day” reported on their web site during that time featured such venues as Figure Skating and NCCA basketball. Why should we care?

Biathlon is a shooting sport that has earned and is earning positive coverage nationally in the “anti-gun” media. The NRA should appear at least as supportive of Biathlon as MSNBC and Time. Mass media will show shooting in a positive light if the story is big enough, presented properly and enough people show they care about it. What the gun industry needs to work on is creating more shooting events of “Olympic proportions” backed by enough enthusiastic participants and fans.

PISTOLS

Dissecting the Dan Wesson Revolver

Reports of the death of the Dan Wesson might be greatly exaggerated. Here's how to treat one arriving in a plastic bag.

BY CHICK BLOOD APRIL 2010

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-90A29B184B-A1447-P03-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1447-P03-F01

News that CZ-USA has ceased making the wheel-gun that won ninety percent of the top places in metallic silhouette competition right out of the box for five years in a row puzzled me some. How so? CZ never actually made the Dan Wesson. Under the CZ/Wesson arrangement the revolver is produced at a Dan Wesson facility in Norwich, NY — also the guns' warranty service center — with CZ-USA handling sales and distribution from its Kansas City headquarters.

Parts can be ordered from either location with a larger variety available from Norwich along with multiple barrels ranging from two-and-a-half inches to a near Buntline-length of ten inches. Any Dan Wesson needing warranty service is first sent through the Kansas City HQ, not directly to Norwich. At least that's how things are as this is written, but I'd advise checking in with the CZ-USA home office before doing any shipping or ordering.

There's one thing I've learned about the firearms business: Standard Operating Procedures can change faster than a speeding bullet and what's a fact today ain't necessarily so come tomorrow. "It takes far longer to describe the metamorphosis of a Dan Wesson from the contents of a plastic bag to a complete revolver than to get the job done. It actually has fewer parts than Colt

and Smith & Wesson revolvers. An example is the matter of the Dan Wesson revolver being gone forever. Well, maybe not.

While new gun production is currently at a halt in Norwich, it could return to high gear soon. Which way things go depends on some tweaking here and there, plus the cost of the tweaks, to modernize the gun without detrimentally affecting its unique features and near legendary accuracy. I, for one, intend to write and call the CZ-USA head office in support of keeping the Dan Wesson alive and invite you to join me! "I Took It Apart to Clean It" Now for the contents of that plastic bag.

Inside were the jumbled components of a Dan Wesson Model 15-2, which is mechanically identical to the Model 15 distributed by CZ-USA. We're using the same schematic and parts list as the original, but with a difference. Regulars amongst you know I go "by the numbers" in my take-down-and-rebuild contributions to these pages. In this case, I've shunned the numbers in favor of the part names.

The tools you'll be using include a good set of Allen wrenches, a pair of parallel-jaw pliers (Brownells), roll pin punches, a small blade screwdriver, a large blade screwdriver, a .006" feeler gauge and, perhaps, a pair of tweezers. You can skip the

DISSECTING THE DAN WESSON REVOLVER 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-90A29B184B-A1447-P04-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1447-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-90A29B184B-A1447-P04-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1447-P04-F02

Allen wrenches and feeler gauge if you call CZ-USA for a Dan Wesson disassembly tool and barrel/cylinder gap gauge. Both are packed in with every revolver shipped but I suspect the individual bringing the plastic bag to your attention will have misplaced them. Before using the pliers, apply two or three strips of duct tape to the opposing surfaces of the jaws for extra protection against marring. Let us begin. A roll pin retains the firing pin through the rear of the frame.

Hopefully it hasn't been drifted completely out. If you're unlucky and that pin happens to be among the loose parts in the bag, bring a roll pin starter punch (Brownells) into action. This will help prevent damage to the pin and makes it easier to drift back in, acting as a retainer for the firing pin. Note that the firing pin has a groove allowing the roll pin to clear it. Align the groove with the pin hole before any drifting or driving is done. Underneath the firing pin is a hole for the aligning ball screw.

Insert the aligning ball and its spring in the hole then turn in the screw until it's flush with the back of the frame. The ball, spring and screw are critical elements in the revolver's frontal lock-up feature. Insert the double action strut spring and plunger into the hammer and capture the plunger under the rear surface of the double action strut. This can be pushed into its hammer cut-out from either direction.

You can hold the strut to the rear temporarily with a small strip of tape to make sure the plunger and spring don't escape. The tape has to be removed later so provide for the inevitability. Take a close look at the photo of the action with the side plate removed. Note the slit on the rear of 006" barrel-to-cylinder gap gauge, the hand and the small, bent end of the hand spring and how the trigger return spring is finally installed. Place the connector (hammer block) in the frame.

The block has a middle and lower stud on it. Eventually, the lower stud will engage the trigger. Right now, the coil of the hand spring is slipped over the middle stud with its top end inserted through the block to its upper rear position. Install the cylinder bolt on the stud located forward of the trigger stud in the frame. Lift the rear of the bolt upward and install the trigger on its own stud and move along to the mainspring and guide. Select the longer side plate screw.

A hole in the bottom of the guide accepts the screw. Drop in the mainspring, its guide and install the mainspring seat. The threaded section of the side plate screw will pass through the hole in the mainspring seat. It will require some fishing, much patience and a hefty blade screwdriver pressing downward on the guide to make screw contact with the hole in the guide. Now, turn in the screw to compress the mainspring until you A

DISSECTING THE DAN WESSON REVOLVER 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-90A29B184B-A1447-P05-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1447-P05-F01

can place the hammer on its stud in the frame. Before releasing the guide, make sure it will contact the hammer as shown in the photo then back out the plate screw slowly allowing the mainspring to exert all its upward pressure in forcing the guide into solid contact with the hammer. Place the coil of the trigger return spring on its frame stud with the short spring leg downward. Lift the long leg of the return spring back on to rest on the hammer shelf.

The hole at the bottom of the hand fits a stud on the trigger. Once these two parts have been properly joined, swing the hand forward and use a small tool to locate the little bent end of the hand spring into the slot at the rear of the hand. Place a finger over the hand/trigger union then cock the gun and pull the trigger a few times to establish the presence of a properly functioning firing system. If all is well, reinstall the side plate.

The front edge of the plate has to be first back into the frame, then the plate is carefully pivoted down and given a gentle tap to seat it. Reinstall the plate screws remembering the longer screw goes in the rear most hole in the plate. Be extremely cautious when handling this

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-90A29B184B-A1447-P05-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1447-P05-F02

plate. I've never seen one with edges as sharp. I think you could manage to shave with it. How close? Can't say for sure ... haven't tried it.

Just in case your plastic bagger went overboard with the "cleaning" I'll add some appropriate words about the latch assembly. A small roll pin in the crane retains the latch and latch spring. Since both are removed Due to its extremely sharp edges great care should be taken when handling this plate. Upward in disassembly they must go in downward before drifting the pin back into place.

Something, perhaps past and plentiful experience with plastic baggers, tells me to keep going with some guidance on the crane/cylinder assembly. Working with it is when the paddedup, parallel jaw pliers come into play. Install the bolt plunger and bolt spring in the crane. Use the pliers to reinstall the crane, the ejector rod bushing, its spring and the ejector rod. They all go in the front of the cylinder. The extractor ratchet goes in the rear. Finishing up will be easier if you have the factory disassembly/reassembly

sembly tools mentioned. In addition to all the built-in Allen wrenches of the proper size are two studs fitting the recesses in the barrel nut, a plastic guide that fits the bore and a dead-on .006" barrel/cylinder gap gauge.

The Dan Wesson Model 15 Revolver (Specifications subject to change without notice) 1 Barrel Wrench 2 Barrel/Cylinder Gauge (.006) 4 Barrel Nut 5 Front Sight 6 Front Sight Pin 7 Shroud 8 Barrel 9 Frame 10 Mainspring Guide 11 Mainspring 12 Firing Pin Retaining Pin 13 Rear Sight Tension Spring 14 Rear Sight Elevation Screw loose barrel is screwed back into the frame clockwise. The shroud is slipped on and tightened with the barrel nut.

Stop when the gauge tells you there is a .006" gap between the cylinder and barrel. 15 Rear Sight Body 16 Rear Sight Retaining Pin 17 Firing Pin Spring 18 Firing Pin 19 Cylinder Aligning Ball 20 Cylinder Aligning Ball Spring 21 Aligning Ball Screw 22 Ejector Rod 23 Latch Retaining Pin 24 Latch 25 Latch Spring 26 Crane 27 Ejector Rod Bushing 28 Ejector Spring 29 Short Sideplate Screw 30 Long Sideplate Screw 31 Sideplate 32 Cylinder 33 Extractor 34 Bolt Spring 35 Shroud Locating Pin 36 Bolt Plunger 37 Bolt 38 Hand 39 Trigger 40 Front Sight Retaining Screw After everything is back together the plastic bag of parts should look just like the assembled Dan Wesson shown here.

Whether it works just like it and equals its accuracy should be checked out at a range. AG 41 Trigger Return Spring 42 Crane Lock 43 Hand Spring 44 Connector (Hammer Block) 45 Strut Plunger 46 Strut Spring 47 Double Action Strut 48 Hammer 49 Mainspring Seat 50 Grip 51 Trigger Stop Screw 52 Grip Screw

PEOPLE & COMPANIES

Making a Custom Case-Neck Expander Die

Sometimes the gunsmith is the one to turn to for those hard-to-find items ... especially precision parts that require special lathe work.

BY NORMAN E. JOHNSON APRIL 2010

ORIGINAL PP. 7-8

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-90A29B184B-A1448-P07-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1448-P07-F01

Reworking case necks to accept larger-diameter bullets is a procedure often performed by handloaders. This is particularly true for the wildcat cartridge aficionado who sometimes needs a case neck expanded up a few calibers. This was the issue when sizing a 243 Winchester Super Short Magnum case neck to 6.5mm (.264) diameter. Each caliber increment in case neck diameter normally requires passing of a different expander-button through the case mouth. There is a better way.

A three-diameter stepped expander requiring but a single pass of the expander button into the case mouth does a perfect job. Making a three-step expander button to up-size a .243" neck to .264" neck to fit into a 7/8" x 14" standard reloading press involves only basic shop procedure. First, I found a 7/8" x 14" sizing die body with a suitably large enough case neck expander button to be reformed into a threestep expander.

The hardened expander button began at .30 caliber with sufficient length to form into three graduated steps from .250", .256" and .262". A carbide tool bit was required to make the steps and 600 grit (15 micron) silicon carbide mesh paper was used as a button polishing medium. There is some leeway in making the three-step expander because the cases must later be run through a standard reloading die specific to each cartridge before the case is charged with powder and a bullet is seated.

Steps shown here are graduated from .250" to .256" and finally to .262". This expander button is made to form a .243 case neck to .262" with a single pass into the expander die. With the expander button in place inside the 7/8" x 14" die, attached via the adjustable, threaded rod, check to see if it extends beyond the die mouth opening. If the die mouth isn't large enough for the new

case to enter, the die must be cut off so the stepped expander button extends fully beyond the die mouth.

This is necessary to prevent an overly-large cartridge case from jamming into the smaller die opening. The threaded die is just a means of holding the stepped expander button in alignment with the case while resizing the case mouth. Annealing Case Necks Before case necks are expanded more than one caliber they should be properly annealed. This prevents work hardening of the brass during forming and repeated reloading operations, a condition that often causes necks to split.

There are a few ways case necks can be annealed. One very effective means of doing it is to have cases standing upright in a pan with water covering the base of the unprimed case. The case neck is then heated with a small torch to the point of discoloration or a cherry red color and then tipped over into

MAKING A CUSTOM CASE-NECK EXPANDER DIE 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-90A29B184B-A1448-P08-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1448-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-90A29B184B-A1448-P08-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1448-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-90A29B184B-A1448-P08-F03. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1448-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-90A29B184B-A1448-P08-F04. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1448-P08-F04

From left, cut down die body, stepped expander button on threaded shaft, die shaft adapter with lock nut and lock ring collar. The case on the left is an unaltered .243 WSSM case with case on right annealed, shortened and expanded to .262" inside the neck. The other way is to have a means of rotating the vertical case as the neck and shoulder are heated and then dropped into room temperature water.

An excellent way to rotate cases is to use one of the electric case mouth chamfering tools with a fixture to hold the upright rotating case. A simple, cup-like fixture made of brass and threaded to fit one of the stations does a perfect job. A forceps or needle-nose pliers is used to place cases into the rotating fixture as the .243" to .262" with a single pass over the stepped expander button. properly directed flame heats the case neck and shoulder.

Sometimes the resized cases will later require outside neck turning to uniform the wall thickness and trimming to length. Then, with a good case sizing lube applied to the case mouth, an easy, single pass of the stepped button performs a perfect upsizing of the case neck. These cases will then withstand repeated reloading without case loss due to neck splitting. AG

PEOPLE & COMPANIES

Improving on a Perfect Stock Design

The Ruger #1 may be the perfect stock design, but the customer is always right! Here's how to add a custom touch to the finest wood.

BY DOMINIC PISANO APRIL 2010

ORIGINAL PP. 9-13

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-90A29B184B-A1449-P09-F01. Know the rights holder? Please ask them to contact us.
AG-90A29B184B-A1449-P09-F01

Back in the mid-1960's Sturm, Ruger & Co. came out with the Ruger #1, a falling block rifle featuring a completely new action. It was an incredible move on Ruger's part because single-shot rifles were not nearly as popular as they have since become. If you were interested in a single shot, be it a falling block or other action type, you were limited to the used gun market, such as Winchester High Walls and Low Walls, Stevens, and a plethora of military Rolling Blocks being given away at ridiculous prices.

The Ruger #1 is an outstanding example of the falling block design. It is incredibly strong and will handle everything from the .22 Long Rifle up to the .458 Winchester Magnum and larger. It will digest rimmed cartridges like the .30-40 Krag and rimless designs, such as the .30-06, and it does it with aplomb. Needless to say, it is a beautiful and compact design. Above all it is American made. That is saying something in this day and age.

As a professional stock maker I have seen many Rugers come across my bench over the years. My customers have one thing in common: They want a custom stock with a cheek piece and shadow line. However, the

Ruger #1 comes from the factory without this feature. As with the rest of the Ruger line, the #1's stock was designed by the late Leonard Brownell who insisted that a well-designed stock did not need this. He's probably correct because every Ruger I have ever handled felt perfect as it came out of the box.

Legend has it that Brownell moved to Connecticut to teach Ruger employees "the art." Be that as it may, when one is making custom stocks — which usually means highly figured high dollar wood — the customer wants, yea insists, on a cheek piece with well defined shadow line. I must admit as a stockmaker I appreciate the senti New and "Improved" Ruger #1 Buttstock: Note shadow line shaped and the thumb notch in the nose cut.

This goes back to the customer who in turn will send it along with an exhibition grade Turkish walnut stock blank to serve as a pattern. ment as it gives me an opportunity to demonstrate my ability to produce the same. To get on with the point of this piece, I have a customer who fits that mold. He wanted me to make a pattern featuring a cheek piece and shadow

IMPROVING ON A PERFECT STOCK DESIGN 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-90A29B184B-A1449-P10-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-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-90A29B184B-A1449-P10-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-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-90A29B184B-A1449-P10-F03. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-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-90A29B184B-A1449-P10-F04. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-P10-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-90A29B184B-A1449-P10-F05. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-P10-F05

Above center: The tracing is overlaid on the original stock to ascertain fit and location. line. His stock wood purveyor recently purchased CNC equipment and is in the process of collecting patterns to provide his customers with machined wood. Why add a cheek piece to an existing stock when you can have one machined from scratch? There are numerous stock turners who are set up to do exactly that. I can't answer that except to say that my customer insisted that I use the original Ruger stock and modify it.

It was a challenge for me and I readily accepted it. To begin, I took the original stock and drew a line on it to identify the stock bolt hole. Since I would be doweled a piece of wood unto the stock I did not want to go through the stock bolt hole thereby rendering it useless. Then, I traced an outline of a cheek piece from one of my personal stocks in order to see how it looked on the Ruger and cut the tracing out, attaching it to the Ruger stock. It looked OK.

Next, I traced the outline on a scrap piece of poplar. I like to use poplar because it is inexpensive and works well being neither too

hard nor too soft. This was then cut out using a band saw and attached to the Ruger stock being careful to get it exactly where I wanted it. I used Brownell epoxy to make this glue up. After the epoxy cured, I drilled and set several dowels in place.

This may seem like a belt-and-suspenders situation but I wanted to be certain the new cheek piece would not be knocked off due to the hard rasping to follow. I trimmed off excess wood on my table saw after affixing the buttstock

IMPROVING ON A PERFECT STOCK DESIGN 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-90A29B184B-A1449-P11-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-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-90A29B184B-A1449-P11-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-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-90A29B184B-A1449-P11-F03. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-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-90A29B184B-A1449-P11-F04. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1449-P11-F04

I made several passes in an effort to not remove too much wood. to apiece of scrap 2x4. Scrap wood keeps my hands way from the table saw blade. One can't be too careful. I made several passes so as to not make a mistake and remove too much wood. Having completed that portion of the shaping there was still a lot of wood in the area of what would become the comb and I used a sharp chisel to remove a good deal of this excess wood.

Once this was accomplished I used Bondo to fill in what would be the cove on the cheek piece and shadow line. Bondo is excellent for

careful shaping as it is soft and takes to rasps and files readily. It took me several applications to build up then shape this area of the cheek piece. Bondo was also used to fill in any areas of the new cheek piece that did not make full contact to the original stock.

Using a variety of rasps, including rat tail and half round rasps, I carefully shaped the cheek piece to a pleasing form finishing off the shaping with careful sanding to smooth everything out. The customer told me that the new CNC wood machining equipment would pick up any imperfections, so I was careful to treat the addition to the original

butt The cove is roughed out and shaped to determine how much more Bondo is needed. stock as though I was prepping the wood to apply the final finish.

As a final step I called the customer and asked him to try the rifle with the modified stock to be certain it fit him. He returned the rifle about two weeks later and said it fit him perfectly. He sent the modified stock off the serve as pattern for his personal and very exquisite Ruger #1. AG

FINISHING

Refinishing Gun Metal

Refinishing Gun Metal Multiple options for metal refinishing are possible on even the tightest budget. Here's how to set your shop up on the cheap!

BY BRIAN E. CAPPS APRIL 2010

ORIGINAL PP. 14-17

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-90A29B184B-A1450-P14-F01. Know the rights holder? Please ask them to contact us.
AG-90A29B184B-A1450-P14-F01

Most of my friends consider me tight with a buck. Never one to pass up a scrap of metal or broken tool, my shop is littered with stuff I plan to use ... someday. When my wife decided it was time for a new stove for the kitchen, I immediately moved the old one into my shop. Since then, I have done numerous handguns with baked-on finishes, but lacked the equipment to do rifles or long-barreled shotguns because of the limited space inside the oven.

I briefly considered getting a hot bluing set-up, but balked at the space and dollar requirement for a first class operation. That idea was put on the back burner (pun intended) until a visit to the shop by a friend and mentor. Bluing, browning, and the various sprayed-on finishes are there for a couple of reasons; to make the gun look presentable and to protect the underlying metal. While bluing isn't the sturdiest finish, it has legions of fans because it just looks right.

The beauty of Belgian bluing is the quality, strength of the finish, and the ease with which it can be done. Even if you only have

about \$200 (the price of a used stove and various supplies) you're in business. For those who wish to get involved in this sort of work, I have included a list of items at the end of this article. Bluing the Belgian Way My friend and fellow gunsmith had put together a nice, yet very inexpensive, set-up.

His starting point was the same as mine: A cheap stove for \$75 at a local used appliance shop. Much like the traditional hot bluing process, Belgian bluing requires a Everything can be purchased for around \$200, yet even this humble set-up can turn out some fantastic looking finishes! heat source since the metal must be a consistently warm temperature to allow the bluing to take.

After trying a couple of different containers to hold the amount of boiling water needed (glass and stainless steel were tried) he found the best quality bluing came with using a plain, old, black iron tank. The tank he uses is nine inches deep, six inches wide and forty inches long, so it will accommodate most any barreled action. Water and iron equals rust, so a can of high tempera-

ture black paint from the auto parts store was used to coat the tank to prevent rusting between uses.

In order to get the very best finish the old bluing and any rust on the barrel must be removed before starting the refinishing process. To meet this requirement a soaking tank is needed. Scrap pieces of PVC pipe, commonly found in hardware and home improvement stores, can be used to construct this.

The materials needed are a piece at least forty inches in length and five or six inches in diameter, a pair of end caps in the same size, a couple of lengths of smaller tubing approximately two inches in diameter for the legs, a can of PVC glue, and a saw. The end caps are glued to the large tube and half-moon-shaped notches are sawed into the pieces of smaller tubing. This will allow the big tube to nestle into the cut-outs and create a stable base.

A very healthy coating of glue is brushed onto the legs, the larger tube is set in place, and everything is put aside to dry. Once the adhesive sets up, the saw is used to remove a section from the

REFINISHING GUN METAL 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-90A29B184B-A1450-P15-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1450-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-90A29B184B-A1450-P15-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1450-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-90A29B184B-A1450-P15-F03. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1450-P15-F03

top of the main tube. This will allow the metal to be easily placed into the soaking tank. A helpful option is to drill and tap a hole for a PVC plug in the soaking tank to allow fluid to be drained in a much less messy manner. With all the preliminaries out of the way, it's time to work some magic. I use a product called Steel White to remove the old bluing. It doesn't attack the base metal (only rust and blue), is not hazardous and is very economical to use.

I start by diluting the Steel White with water, as per the directions on the bottle, and pour the mixture into the soaking tank. The barrel and other metal parts are gently lowered into the tank. Within a few minutes the metal is clean. With the metal soaking the bluing tank is put on the stove, filling it approximately half full with distilled water (the minerals and other contaminants in tap water can mess up the bluing.) The heat is turned on to get the water boiling.

Because this process deals with chemicals and a fair amount of heat, it is wise to take some precautions. I recommend a pair of heat and chemical resistant gloves, an apron to keep stuff off nice clothes and some form of eye protection. After removing from the Steel White soak, place the barrel in the boiling water and pour a small quantity of the Belgian bluing material into a plastic cup.

When the barrel is removed from the tank, I wait a few moments for the water to evaporate and then apply the bluing solution with a small swab. After an even coat ing, the metal goes back into the water to be reheated. When it is taken out for the second and subsequent applications I use a piece of rough cloth to "card" the surface, meaning to gently rub the metal to make it ready for the next coat. Usually two or three coats does the trick, but will vary with the barrel material.

Once the bluing looks right, the barrel is carded for a final time and is liberally sprayed inside and out with a light oil such as WD-40. I then set everything aside until the next day before putting the pieces back together. The gun now has bluing that rivals all but the finest (and most expensive) professional jobs. Browning: Almost a Lost Art The next type of finish dates even further back than some forms of bluing.

It is quite common to see browning on original muzzleloaders and good quality replicas, but seldom on more modern firearms. That's a shame as this unique finish can be used to disguise a multitude of "sins." I recently received a Winchester model 1897 shotgun that was to be used for Cowboy Action shooting. It was certainly no collectible. While the action was still very tight, the surface was covered with rust and tiny pits. This is a bit of a different case than many firearms as at some point in cycling

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-90A29B184B-A1450-P16-F01. Know the rights holder? Please ask them to contact us.
AG-90A29B184B-A1450-P16-F01

the '97's action, most parts are visible and all of them must be refinished if the job is to look right. I began the process by taking the old gun down to its tiniest components, a tough job as it has lots of bits and pieces. These parts were then subjected to abrasive blasting by using fine grade aluminum oxide propelled by fairly low air pressure and then into the soaking tank to remove any remaining rust. The free stove is about to get another workout, this time using the oven.

While some people claim to successfully brown by using a propane torch to heat the metal, I have never been able to achieve a consistent finish in that manner. The browning material I like isn't what was used in the old days. This more modern stuff is called Plum Brown and is made by Birchwood Casey. While preheating the oven, I get out my "specialty tools," an old cookie sheet, a wooden dowel (inserted into the bore, it makes the barrel much more easily managed), another swab and more carding cloth.

The small parts and receiver are placed directly on the cookie sheet and the barrel is suspended by using some pieces of coat hanger (this last bit is optional as I've never seen much difference but continue to do it because I'm a creature of habit.) Once everything is up to temperature, the pieces are given a good coating of Plum Brown and returned to the oven. Then, much like

Belgian bluing, the pieces are carded before their next coat. Usually two coats does the job.

On this shotgun I used three because of the rust pits. Once the browning is done to my satisfaction, the parts are coated with automobile engine oil (I use the least expensive stuff I can find) and set aside for a couple of days. For whatever reason, the oil seems to give Plum Brown-coated metal an even more pleasing appearance. After removing the car oil and applying a light coat of gun oil, the parts are reassembled into a working shotgun.

The final finish is matte rather than shiny and it requires a very close inspection to see those pesky pits. Oh, and if for some reason you choose to take a Model '97 apart, do yourself a big favor and find a detailed instruction manual. It is very difficult to put the thing back together correctly without one. Gun-Kote Gun-Kote has been around for awhile and for good reason. It was originally made for military-type firearms that are subjected to conditions most of us will never face.

For that reason, it will hold up well for duck and deer hunting or for a gun that is holstered a lot such as police and concealed carry use. Gun-Kote is an epoxy material that contains molybdenum disulfide, so it can also function as a friction fighter in addition to protecting the metal. And, because each coat is so thin (approximately .0004"), this can be used to coat the inner

workings without any binding problems. Gun-Kote also has one more interesting characteristic: It helps dissipate heat.

While this may seem to be only useful on a machine gun, I spray it on the cylinders and heads of my air-cooled drag bike as a cool engine makes more horsepower. This time the rifle requiring a makeover is an old, beat-up Mosin-Nagant carbine with a fine bore and an exterior that looks like it went through the Battle of Stalingrad. The abrasive blaster was set up with much coarser aluminum oxide media and double the air pressure so the rifle's exterior would soon have a much rougher surface.

For some idea as to its new look, check out afield grade Remington 870 that has a much tougher skin than the blued version. Since all the rust and most of the pitting was removed, I skipped the soaking tank routine and sprayed the parts with TCE cleaner (brake cleaner from the auto parts store works almost as well) to insure that the coating would stick. With the oven preheated to 100 degrees and the parts "cooking" I got out a can of matte black Gun-Kote and put on a respirator.

If these parts were coated outside that kind of protection may not be required, but I do most of my work inside and don't want all those airborne particulates in my lungs. With the metal warmed, I lightly spray the piece until it is evenly coated. After allowing a few minutes for the Gun-Kote to completely dry I reset the oven to 300 degrees

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-90A29B184B-A1450-P17-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1450-P17-F01

Gun finishes don't get much easier or cheaper than this, and bake for an hour. Once cooled and reassembled the rifle looks much better and is now resistant to cleaning chemicals and abrasion. The old "trunk gun" can now take its rightful place alongside all the nicer and more expensive rifles. Dura Coat I get a lot of good out of my free stove, but I've got great news for those without a one. Dura Coat is air dried. That's right, no heat source required. And this stuff is really tenacious.

It will bond to old bluing, Parkerizing, most any material as long as it is well cleaned. It can also be layered to allow for any sort of camo pattern you can think of, or the manufacturer can provide specialized camouflage templates. While there was recently an article about Dura Coat in this publication I have a few things I'd like to add. Dura Coat is blended just before applying, much like auto body paint. By adding more or less hardener the material can take on a glossy or flat tone.

In this particular case, a twelve gauge slug gun, flat is preferred to glossy, so I mixed the two materials to achieve that look. I chose to work in my garage so I could suspend the barreled action from a section of the garage door track. This allowed me to work my way around the piece and see it from a variety of angles so I could insure an even coating (good lighting is a great help.) Dura Coat is not available as an aerosol, so applying it requires your own air pressure.

Not to worry, a starter kit is available which has all the needed items including an airbrush and a container of canned air for propellant. For those who like to sporterize beat up old military rifles, Dura Coat offers a product called Du ra Fill which can be applied to pits and gouges. Once they are filled in, the coating is sprayed on and the defects vanish like they were never there. The key to applying Dura Coat products (and other coatings too) is to follow the directions to the letter.

Insure that all pieces to be coated are surgically clean and take plenty of time to do the job right. The first and subsequent coats must dry a few minutes before spraying again. The use of a small heat gun on its lowest setting or an inexpensive hand-held hair dryer can be used to speed up the drying process. Gently heat the metal as fresh Dura Coat needs to be dried, not cooked.

Although the folks at Dura Coat say that, if necessary, coated parts may be used the next day, I always like to allow a slightly longer drying time for maximum hardness. Oxpho-Blue This stuff is the ultimate for a good, cheap finish and, like Dura Coat, can be applied at room temperature. While this material doesn't have the look of "real" bluing being somewhat lighter in color, it is a whole lot tougher. Again, the metal needs to be very clean with all the old bluing and rust removed.

The first coat involves using a swab and a generous coating of Oxpho-Blue. Set it aside for a minute or so to allow the magic to happen, but don't let the metal become dry.

Carding can be done with the usual cloth, but I prefer to use steel wool. No, that isn't a misprint; I told you this is a stout finish. The second and subsequent coats are applied with fine steel wool such as 000 or 0000 and a minimal quantity of the bluing liquid. It seems the harder the steel is rubbed, the better and deeper the finish.

Once the color is to your liking, wipe off any remaining Oxpho-Blue and burnish the metal with another piece of steel wool. Apply a coat of your favorite gun oil and the pieces are ready to put back together. Making that old gun look new again ain't rocket science. All that's required is detailed preparation of the parts and a bit of old fashioned craftsmanship. Now is the time to start checking with appliance shops or the local used furniture store for a pre-owned stove and hardware dealers for scraps of PVC pipe.

Once people see the quality of your refinishing efforts, they will beat a path to your door.

These items are available through Brownells or brownells.com Black iron bluing tank: 082-003-664 Bottle of Belgian Blue: 464-100-016 Bottle of Steel White: 082-055-032 Package of shop swabs: 080-529-040 Bottle of Plum Brown: 167-000-002 Can of TCE cleaner: 083-060-024 Respirator: 284-000-003 Can of Gun-Kote: 083-051-001 Dura Coat Starter Kit: 100-000-989 Durafil: 100-001-005 Durafil Hardener: 100-001-001 Bottle of Oxpho-Blue: 082-024-008 For further information on the complete Dura Coat line of products, contact Lauer Custom Weaponry AG

FROM THE ARCHIVE

The 1911 Trigger Action

Thanks to its remarkably tunable trigger, Browning's masterpiece handgun design still sets the standard for custom builders. Here's how to get the best trigger possible.

BY ROBERT K. CAMPBELL APRIL 2010

ORIGINAL PP. 18-21

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-90A29B184B-A1451-P18-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-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-90A29B184B-A1451-P18-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-P18-F02

Sometimes we have to restate the obvious. Performing a trigger job, trigger smoothing or any action work should be undertaken only by individuals who are competent and confident. While there are disagreements among these professionals as to exact procedure, nobody feels that work on the 1911 trigger action should be undertaken by inexperienced individuals. I have further opinions on the pistol and on action work.

I do not believe that older pistols such as the GI pistol are prime candidates for a good trigger action. The reason so many were presented to gunsmiths for trigger jobs is that the pistols often had a heavy trigger compression of eight pounds or more as issued. Others actually have rough spots in the parts. When World War Two GI pistols were put together, rapid manufacture was as important as anything. The pistols had to have interchangeable parts and they had to be reliable.

While they certainly are reliable handguns, the triggers were often too heavy and difficult to use well. Commercial variants were seldom superior. The same is true of many of the modern Philippine-produced 1911 pistols and a number of the commercial GI types. While the occasional good trigger action is encountered among GI pistols and inexpensive 1911s, I have seen a few as heavy as eight pounds. Getting them to five pounds, clean, should be about the limit without replacing action parts.

Attempting to produce a clean, sharp 1911 trigger action below five pounds requires first-class aftermarket parts. Overworking original parts may result in insufficient engagement. In addition, the steel in Llama and Star pistols — and a couple of American “parts guns” I have examined — is often so poor they need to be left alone. Any good quality 1911 may be improved, to a point. There is no question and no subjective guessing when you have a scale on hand.

You do not have to start with a bare frame but in some cases stripping the frame and adding quality parts is the way to go. But the level of improvement desired may demand boutique parts. To simply smooth a trigger action to an extent we may take other steps. As an example the interface of the sear and the hammer may be carefully polished and lubricated with a quality lubricant such as Tetra Lube. The hammer hooks and the sear are the true base of a smooth trigger action.

The trigger is simply the lever that trips the action. Smoothing these parts is a simple enough modification but one that may be misused and abused. When polishing the hammer contact surfaces we must never take so much off of the hammer that the hammer will slip on the sear. I have had this happen after performing a trigger job on an Argentine 1911, the well known Modelo 1927. This pistol seems well made of good material but weighs an ounce or so more than the Colt 1911A1.

THE 1911 TRIGGER ACTION 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-90A29B184B-A1451-P19-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-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-90A29B184B-A1451-P19-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-P19-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-90A29B184B-A1451-P19-F03. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-P19-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-90A29B184B-A1451-P19-F04. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-P19-F04

These are more or less standard parts, the trigger is along version. This is a true custom supplier, with good close tolerances evident. due to being constructed of denser metal. I had a terrible time getting a good trigger action as the metal was harder than the Colt. I attempted to keep the original angles while polishing, but the hammer followed. I was forced to replace the internals with Ed Brown parts.

The smoothness that we find as an improved function of trigger compression is most evident after takeoff and before the hammer falls. The sear can be stoned but a .020" engagement in the hammer hooks must be

maintained. This is easy to check using a feeler gauge. At the same time, the hammer hooks must be checked to be certain they are perfectly square. When performing this type of work I get better results setting the stone in the vise rather than the part.

Of course, with some aftermarket parts stoning and polishing might not be necessary. As an example, parts from Dave Berryhill I've purchased came properly cut for engagement and did not require additional smoothing. We must be aware of problems that may occur. Firing upon dropping the slide or doubling is rare but can happen. Thankfully, those trigger action problems will more likely find the

hammer following to half cock long When bending the leaf spring you may affect trigger action adversely.

The function of this spring must be completely understood before detail stripping the handgun. before the more severe problem of firing twice with one press of the trigger (doubling) is found. We should have enough sense not to keep using the pistol and wait for the inevitable. I am not saying a finely tuned 1911 won't possibly drop the hammer to half cock if the slide is dropped on an empty chamber — which is abuse — but the hammer should never follow when loading the chamber from 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-90A29B184B-A1451-P20-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-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-90A29B184B-A1451-P20-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-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-90A29B184B-A1451-P20-F03. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-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-90A29B184B-A1451-P20-F04. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-P20-F04

Everything looks just fine. The bow should move smoothly in its tunnel. full magazine. Take care in polishing the sear and hammer as this is where the problems begin. Carefully study the hammer hook and sear and how they fit together. When polishing the goal is to produce a smoother surface while always maintaining the original angles. And it is not all in the hammer and sear. The sear spring is another part that bears close study.

The sear spring places resistance on the trigger bar and on the bottom or foot of the sear. I have checked many factory sear springs to

become familiar with what a proper sear spring feels like. The spring is sometimes adjusted by bending to reduce pressure on the trigger. This expedient does reduce trigger resistance but the resistance of the spring against the sear is also reduced in turn. Usually in gunsmithing there is an opposite and equal reaction to everything we do, good or bad.

I do not wish to reduce sear spring tension and find that the sear does not engage the hammer hook when the piece cycles. If bending the sear spring is undertaken then the bend should be very slight. It is important

that the mainspring is matched to the action springs. This is a Wilson Combat Bureaucrat. The main function of the mainspring is to transfer energy to the hammer. While some old hands are adept at modifying the spring, I prefer to switch and change springs in order to produce a smoother let off.

I have used the Clark spring in a custom pistol on several occasions with good results. The force needed to crack the primer or “pop the cap” is the deciding factor. Some primers are harder than others.

THE 1911 TRIGGER ACTION CONTINUED

ORIGINAL PAGE 21

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-90A29B184B-A1451-P21-F01. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-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-90A29B184B-A1451-P21-F02. Know the rights holder? Please ask them to contact us.

AG-90A29B184B-A1451-P21-F02

It is far different from other 1911s, but most 1911 pistols are pretty much the same. Foreign primers are less reliable and a dirty pistol with a dirty chamber may allow the cartridge to be compressed by the firing pin's forward motion, impeding the firing pin from its chore of cracking the primer. This may result in a too-soft primer strike if the mainspring is a light version. There is a reason for the heaviness of the mainspring and the original spec is usually capable of cracking just about any primer.

The mainspring also helps in keeping the pistol locked upon firing. Using a light mainspring can create cycle issues in which the slide blows open too quickly, creating an unreliable and inaccurate handgun. Keep particularly alert when working with a lighter mainspring in the 10mm or a pistol intended for +P .45s. When examining factory 1911 mainsprings the majority of mainsprings will run to 23 pounds. I sometimes use an 18-pound replacement spring for a lighter press.

When properly applied to a handgun with the proper recoil spring and a good trigger action this will still allow good ignition re-

liability. Lets look at the trigger itself, especially the bow. Light material, such as aluminum, is desirable. A lighter part is less likely to rebound. The bow must move freely in the trigger channel. I always check all magazines to be certain they are compatible as some are thicker than others.

The Metalform magazine is high quality, and will lock and perform in pistols that have problems with other types of magazines. Some GI magazines are thicker than modern stainless or aluminum magazines. There is always the possibility of burrs on the trigger bow. The best procedure is to check the bow closely and stone away burrs. I do this as a matter of course when I have the trigger in hand. This type of work does not lighten the trigger action but results in a more consistent action.

Details Having addressed the major pieces, lets dig into the details. As mentioned before, minimal modifications should be done to the sear spring but it should be checked. The spring arm that runs to the rear controls the grip safety, while the middle spring bears on the disconnect and the far spring keeps the sear against the hammer.

If the grip safety is springing back slowly you may bend the spring arm toward the grip safety but this is seldom needed.

Bending the sear spring just slightly away from the sear may make for a lighter action but you must bend, reassemble and check. I stone the disconnect to be certain that it rides correctly and smoothly. Always check the disconnect by pushing on it to make certain it pops up as designed. Practically every good 1911 now comes with an adjustable trigger from the factory, although this is a misnomer as the trigger is set at the factory.

When installing a true adjustable trigger you will set the trigger to break with as little movement as possible. The trigger screw bears against the magazine release and the set screw is adjusted ¼ turn at a time. Get it right, make it tight, and check the action. Then Loctite it in place. I hope this report gives you information and a perspective on a job we absolutely must get right. AG

READER FORUM

Reader Forum

BY AMERICAN GUNSMITH EDITORS APRIL 2010

ORIGINAL PP. 22-24

Wholesalers in Canada I'm anew member and hopefully you can help me in my request. I live in Saskatchewan within the Province of Alberta and British Columbia to the west and Manitoba and Ontario to the east. I am a gunsmith and have been sending for parts from the United States but the exchange rate, postage and extra time this costs is prohibitive. I have contacted a couple of area gunsmiths to see if they would help me to find a local wholesaler to provide me with parts to no avail.

Do you know of any wholesalers that would make acquiring needed parts in my area more affordable? If you include my email address perhaps my fellow American Gunsmith readers in Canada could advise me as well. The U. S. Federal Government has made it expensive for a manufacturer to ship his product anywhere outside the country. The expense has been increased by the involvement of the State Department to the tune of \$2500.00 (USD) plus a tall stack of paperwork. Add to the expenses imposed by the U.

S. the excise taxes of the receiving country and you begin to get an idea of why you have you problem. But wait ... there is hope in Edmondton, Alberta. The operation is Western Gun Parts (westerngunparts.com). We've been told Irv Hein, President, and his son, Jeff, are good people to do business with. Century Arms Bearcat I have a .22 caliber rifle manufactured by Century Arms Company. BEARCAT No. 5 22 S-L-LR is stamped on the receive upper barrel.

I need a firing pin and stock for it, but I can not find if the company is still in business. Where I can purchase parts or get repair instructions for it? Century Arms is an importer, not a manufacturer. Their Vermont operation services all Century

Arms imports. Call Vermont to see if they might have the parts you need for your rifle, which we believe has become a discontinued item. If it is still on their shelves, no problem. If not, they may be able to guide you to another source.

Howa Ri le Tech Question Could you please advise me as to the potential causes of an erratic firing pattern in a Howa rifle? A friend has a Howa rifle in .300 Winchester Magnum topped with a Nikon Buckmaster 4-12X50 scope. The rifle has been grouping shots about three inches at 100 yards with every third or fourth shot low about four-inches and off a bit to the right.

After a week or two he went back to the range and the rifle shot eight-inches high for the first two shots and then dropped back down to point of aim and grouping around three inches in size. My friend states that no adjustments were made and is at a loss for a solution. He has consistently been using Winchester Super-X 180 grain Power Points. We suspect a bad scope, however, any suggestions would certainly be helpful. W.

Bradbrooke We'll give you benefit of the doubt and assume that potential marksmanship errors have already been factored out. Before anything else is tried, check the scope rings and base for any looseness. If loose, tighten and use BLUE Loc Tite on the threads. If that doesn't cure the disease, replace the Nikon scope with one you know to be consistently "on" and test fire the rifle.

If the replacement works, it's a pretty sound indication there's something amiss within the Nikon and it should be returned to the factory with a test target for correction. M1 Carbine and Sears 200 Need some directions on solving two problems. First, I have a M1 W. G. Conner

Norfolk, VA Carbine, an Iver Johnson, that fails to eject. The carbine smoke stacks all brands of ammo, including US military issue ball. It has been cleaned thoroughly.

My second question is a Sears Model 200 shotgun that is a Winchester Model 1200 look alike. It unlocks upon firing and the bolt opens at least a half-inch, even when not holding the forearm. Burt Franke The gun seems to be extracting but not ejecting. Common causes for this malfunction are rooted with the ejector spring (weak, rusted, altered, damaged or substituted), ejector plunger (altered or damaged), Ejector spring/plunger stuck or frozen, rusted or damaged plunger/spring passage within the bolt, short recoil.

An excellent shop manual on the U. S., 30 Caliber Carbines has been written by Jerry Kuhnhausen and is available from Brownells. It covers complete rebuilding, repair and contains technical data in depth. As for the shotgun, check the cross reference index in a Numrich Gun Parts Corporation catalog (gunpartscorp.com) to affirm the OEM of the piece. There were some 12-gauge pumps designed to allow the bolt to pop open slightly after discharge.

We don't recall the Winchester 1200 to be among them so you may have a wear problem with the bolt lugs or the bolt locking system. Pete Rodriguez Marlin 336 Feeding Problem I have Marlin Model 336 chambered in .30-30 in my shop with a feeding problem. The round hangs up between the carrier and magazine when cycling the lever. I've changed the carrier, finger lever, carrier rocker, extractor and ejector. It seems to work better but still exhibits the same problem.

John Savely We're going to assume all related springs, such as the carrier spring,

READER FORUM CONTINUED

ORIGINAL PAGE 23

were included in your overhaul and your cartridge guide isn't out of adjustment (see May 2008 issue, page 16.) A rare cause for your feeding problem might be a broken or weakened inner magazine tube spring. Ergo, the cartridges aren't reaching the guide as they should and getting hung up between tube and guide. 1917 Enfield and AR-15 A co-worker of mine has a US 1917 Enfield he got from his father. At some time before he got it, someone took a saw to the forstock.

He has asked me to find a synthetic sportier stock that will fit his Enfield. I have checked with H. S. Precision, Mc Millan, and Boyds, with no luck. Can you help me locate a stock for this gun? He has also asked me about converting it from cocking on closing to cocking on opening. I have spoken with an old retired gunsmith friend of mine that has converted several of them in years past. From his explanation it is a rather involved process.

He suggested I check to see if there is anyone who has developed a conversion kit to accomplish this job. Is there such a conversion kit available and how do I find them? Also, I have an AR-15 I built when I was studying at Trinidad State Junior College, assembled with a bull barrel that I turned. It's an excellent, sub-minute of angle shooter, however, I would like to lighten the muzzle weight by fluting the barrel, I have had no luck finding anyone that will do the fluting job for me. Can you help?

On the 1917 Enfield, these are rapidly becoming rare collectibles. Despite the forend being butchered we'd concentrate on restoration inclusive of replacement with a 1917 original. If your friend, the old gunsmith, is willing and able ask him to perform the cocking conversion. There are no kits available but you may be reducing value since it's a departure from the original.

The reason you may be having a problem outsourcing the fluting job could be due to the outside provider, fearing liability, does not wish to take on the task when the barrel was machined elsewhere. Concentrate your search with quality barrel makers such as Shilen, Douglas and Mc Millan. If necessary, have a legal agreement drawn up for you to sign relieving the supplier of all responsibility. We wonder, however, if you can machine a sub-MOA barrel why can't you flute it yourself?

All you need is a ball-end mill bit combined with a strict adherence to safe barrel wall thickness. Remington 1100 A customer is having problems with his 1100 not ejecting. His magazine tube is pretty well pitted from past abuse and is letting too much gas escape from not sealing around the rings. I can put a film of grease on the tube and it functions fine, but clean it off and it does not. Is there away to remedy this without replacing the tube and if not, what's the best way to remove and replace it?

I know this sounds crazy, but could you fill in the pits with something like Bondo and sand smooth, or something along that line? We can't see the patch up and sanding thing restoring the union between the beat-up tube and the gas ring, piston and piston seal. All three of the latter should be replaced and anew tube installed. That's where some real repair bucks can come your way. The tube is silver soldered in the receiver. 1400 degrees will defeat the solder so the tube can be pulled.

Due to the heat, the receiver will have to be refinished. Remington sells both tube and the tube shims required for proper alignment. Suggestion: We think Brownells still offers a lower temp/high strength sil Bob Obarska ver solder blend you could use when reinstalling the tube. Model 12 Shotgun I need a how-to on

changing out a barrel on a Model 12 Winchester shotgun. I can't find any info on this nor can I locate any tools that are made to do this either.

How much force it will take to unthread the barrel from the extension? Bill West Paladin Firearms Before you start this project we'll assume you have a replacement barrel on hand. These are the steps described in along out-of-print factory manual dating back to when Olin Corporation still owned Winchester. They apply after the barrel and its receiver extension have been removed from the receiver.

To separate the barrel from the extension requires fabrication of an offset drifting tool which can be made from 1/2 x 7-inch bar stock. A true flat is ground on one-inch of one side at the end of the work piece. A 5/16" copper plug with rounded head and beveled edges is centered and pressed, or soldered into the flat. The portion of the bar that has been ground flat and that now includes the copper plug must be bent at a 90 degree angle. The opposite end will receive impact from a hammer as described later.

Danny Griner Insert a hardwood dowel to prevent crushing and secure the barrel between padded vise jaws with the magazine tunnel in the receiver extension upward. An offset drift is inserted into the hole with the copper plug placed and held in contact with the strongest portion of the extension near its base. Viewing the extension from the barrel thread end, the tool is struck with a hammer to start the extension moving counter clockwise. Afterwards, it can be unscrewed by hand.

You may elect to grind the above mentioned flat in the round stock to a length longer than one inch, bend

READER FORUM CONTINUED

ORIGINAL PAGE 24

the stock before the copper plug is installed, or solder in two plugs. A longer flat could “spread out” the hammer impacts somewhat and help protect the extension from being damaged or knocked out-of-round, but this is up to you. Ruger MK II I never thought I would never need help with one of these, but I seem to be up against a bit of a wall. A Ruger MK II target model was brought in with the main spring housing partially installed.

It can't be fully installed, but it's really bound up and will not tip out for removal. I removed the mag latch, hoping to get a better look after the grips were off, but no luck. I thought about removing the red dot sight and rail with the thought of drifting out the receiver locking pin. I'm in no rush to apply force because there should be no reason to, however, the whole thing is really jammed in there. Any suggestions would be appreciated.

I know as a last resort I could have him send it back to the Ruger Service Department but I really would like to win this one! We appreciate and sympathize with your will to win. Most likely your customer failed to tilt the muzzle downward when trying to reassemble the pistol. As a result, the hammer strut failed to swing forward against the front of the grip frame. This caused the mainspring assembly to be blocked.

Perhaps this frustrated the customer and the situation was forced considerably but to no avail, thus causing the jammed up condition. Factory jigs are normally used to disassemble the mainspring assembly. These jigs prevent the very powerful mainspring from transforming the detent ball at its base into an extremely dangerous projectile. Our best advice is to place a phone book on your bench top. Tilt the muzzle down, pull the trigger and rap the muzzle against the book.

This often jars the hammer into its fired position and the mainspring housing can be removed. The rapping may have to be performed more than once. If it fails to help, allow wisdom to surpass lost pride and ship the pistol to Ruger's Service Department in Arizona Mike Solomon Sportsman 48 Ejector I have a Remington Sportsman 48 in my shop that needs the ejector replaced. I can't seem to get the old one to budge from its place. Any ideas or suggestions that may help?

Paul Hickey The ejector is brazed to the Sportsman barrel extension. Remove the magazine cap, forend and barrel. Heat ONLY the area of the extension to soften the brazing material. Remove the ejector, clean out its slot and braze in the replacement. Ancient Marlin Woes Okay, so in a moment of weakness, I bought a single-shot Marlin Model 10, most likely of pre-WWII vintage due to the lack of the date stamping on any metal. After the initial cleanup it appears to have been worth the forty dollars I paid for it.

Here's the rub. Upon firing, the extractor will slide over the case rim and not extract the spent case. If you push down on the forward edge of the bolt on the extractor cut in the bolt head, it will grudgingly work but you can tell it doesn't really want to. I have tried five different types of ammo, thoroughly cleaned the extractor, bolt and spring, checked the chamber for cavitation due to shooting 22 Shorts and everything appears to be as it should.

Is my only choice to replace the extractor and spring and hope for the best, or can you recommend a teeny adjustment that will solve my problem? Thanks for your time, 'cause you guys have saved me a ton of it over the years! C. J Groote The “teeny adjustment” might be to build up and reform the tip of the extractor but Gun Parts shows they have parts for the Marlin Glenfield Model 10. Check with Marlin Customer Service to assure compatibility. AG

SEARCHABLE ISSUE RECORD

Archive index

Mass Media Shooting Sports American Gunsmith Editors	2	Refinishing Gun Metal Brian E. Capps	14-17
Dissecting the Dan Wesson Revolver Chick Blood	3-6	The 1911 Trigger Action Robert K. Campbell	18-21
Making a Custom Case-Neck Expander Die Norman E. Johnson	7-8	Reader Forum American Gunsmith Editors	22-24
Improving on a Perfect Stock Design Dominic Pisano	9-13		

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