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01

ARCHIVE ISSUE NUMBER

INSIDE THE ARCHIVE

WORKING THE 1873 SPRINGFIELD TRAP-DOOR SINGLE- SHOT RIFLE

MORE LEGISLATION FROM THE BENCH • SERVICING THE REMINGTON 11-87 PREMIER TRAP SHOTGUN • FITTING AN EXT...

ORIGINAL METHODS. MODERN ACCESS.

ARCHIVE EDITION 038

DIGITAL ARCHIVE EDITION

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PEOPLE & COMPANIES

More Legislation from the Bench

BY AMERICAN GUNSMITH EDITORS JANUARY 2007

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Just as we went to press, an Indiana judge ruled that the city of Gary's frivolous lawsuit could proceed in spite of the new federal law that prohibits such suits. Named in the suit are 16 firearm manufacturers, including Smith & Wesson, Colt, Browning, Ruger, and Beretta. Lake County Superior Court Judge Robert A. Pete declared that The Protection of Lawful Commerce in Arms Act, enacted a year ago, is unconstitutional.

A spokesman for the National Shooting Sports Foundation (NSSF) called the ruling "a badly flawed constitutional analysis" and promised an appeal. The lawsuit, originally filed in 1999, seeks to blame firearm manufacturers for gun crimes committed in Gary, Indiana. The manufacturers had moved to have the suit against them dismissed based on the Act. During congressional debate on the measure, Gary's suit was cited as an example of precisely the sort of frivolous lawsuit that the bill was intended to stop.

Nevertheless, Judge Pete ruled that the Act is unconstitutional, claiming it violates the city's constitutionally protected due process rights and violates the separation of powers between the judicial and legislative branches of government. "The court's ruling that the city of Gary has "due process" rights is badly flawed. It's black-letter law that municipalities do not have due process rights," said Lawrence G. Keane, senior vice president and general counsel of NSSF.

Equally at odds with well-established law, Keane said, is the Indiana court's finding that the Act violates separation of powers. "Congress is well within its power to regulate interstate commerce and preempt state lawsuits. Every other court in the nation that has examined the law has concluded it is perfectly constitutional. We're confident this clearly erroneous decision will not stand up on appeal, said Keane.

Gary's suit served as a catalyst for passage of an Indiana state law in 2001 that would have prohibited the filing of Gary's suit if it was filed today. That law was not an issue in this week's ruling because, unlike the federal Act, it does not apply to cases pending at the time it was enacted. Prior to the passage of the federal law, over 33 states had enacted similar laws to block suits against gun makers for the criminal misuse of firearms.

Essentially, what this means is that a county judge from Indiana thinks he has veto rights over 33 state legislatures (including his own state's) as well as over the U. S. House and Senate. I can't help but be reminded of an old joke. Question: "What do you call a lawyer who's not smart enough to succeed in private practice?" Answer: "Your Honor." I'll keep you posted on this one.

Editor Keith Lawrence Technical

PEOPLE & COMPANIES

Servicing the Remington 11-87 Premier Trap Shotgun

You're likely to see far more of this shotgun than those from the high-end offshore makers. Here's how it works and how you can keep it working.

BY CHICK BLOOD JANUARY 2007

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The platform for this popular clay-pigeon destroyer has been around since 1987 when Remington introduced its Model 11-87. In case you're not familiar with it, the shotgun featured anew gas-compensation system requiring no manual adjustment for firing intermixed or separate loads from low-brass 2-3/4to 3-inch Magnums. This unique system was not included on skeet or trap models.

The logic for this was based on a belief that it was highly unlikely that clay-target shooters would enjoy discharging 50 or 100 rounds of Magnum shotshells. The trap gun wore a trap stock and a 30inch barrel with trap full, trap extra full, or super full screw in Rem Choke constrictions. The skeet model had a 26-inch barrel with skeet and improved skeet Rem- Chokes. Both models delivered their optimum performance with 12-gauge target loads and had two #32 drill-sizediameter gas ports.

Field Stripping The chamber and magazine are empty and the safety is engaged. Unscrew the magazine cap (#58). Slide the forend to the front and off the magazine tube. Remove the gas-cylinder collar (#46). Grasp the barrel in front of the gas cylinder and pull it from the receiver. Next slide the barrel seal (#12), piston (#66), and piston seal (#67) from the tube. Now commit this to memory: Whenever the action is open with the barrel removed, you don't want to allow the bolt to slam forward.

Instead, control its motion by holding onto the operating handle (#63). Moving on now, pull the operating handle out of the bolt (#13). Press the carrier release (#29) and push upward on the carrier (#17). Insert a finger into the ejection port and hold down the feed latch (#39). Pull the action assembly free of the receiver and magazine tube, lift the bolt assembly from the

action-bar assembly, and replace the magazine cap. Tap out the two trigger-plate screws (#88 and 89).

You can start them with a standard drift punch or M1911 mainspring-housing tool, but you'll have to finish them off with a parallel drift as pictured here. Neither the standard punch nor the mainspring-housing tool are long enough to push the pins completely out of the receiver. Lift the trigger-plate assembly by its rear to remove it from the receiver. Detailed Disassembly With Reassembly Tips Action Bar Sleeve.

Insert a screwdriver into the slot of the sleeve (#2) behind the action bar (#1) on one side of the sleeve. After carefully prying that side away from the sleeve with one hand, grasp the bar and rotate your other wrist to free up the opposite That difference is described in the text. Note the differing sizes of the trigger-plate retaining pins just under the loading port.

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Stepped or tapered tools are too short for this purpose, but can be used for the initial dislodging of each pin. side of the bar for removal. When reassembly time arrives, engage one side of the bar and tilt it over the sleeve. Tap the other side down into engagement with the sleeve, taking care to avoid any damage to the bar. Slide-Block Buffer/Operating-Handle Detent System. This need only be taken down to replace worn or damaged parts. Drive out the return-plunger retaining pin (#69) right to left.

Hold on tightly to the plunger and pull it from the block (#79). The operating-handle detent ball (#64) and its spring (#65) will slide out of the block when the action bars are tilted downward. If you ever have to replace a buffer, insert the new one fully into the block, then drill through the buffer with a .078-inch-diameter drill. Breechbolt. Number 13 on the schematic, the breechbolt is the primary component of a vital assembly.

To take it apart, drive the firing-pin retaining pin (#41) at the rear of the bolt downward. Pull out the breechbolt buffer (#14), firing pin (#40), and its retractor spring (#42). Force the extractor plunger (#37) to the rear until the front claw of the extractor (#36) can be pivoted in toward the bolt face. This will allow the rear of the extractor to be pushed upward (with a small tool) past the plunger. The extractor, plunger, and spring (#38) are all removed to the front of the bolt.

Installing a fresh breechbolt buffer is similar to the replacement of a slide-block buffer. Drill through it, this time using a #24 drill. Also be certain the firing-pin retaining pin is reinstalled flush with the bottom of the bolt. Magazine Components. Examine the tube to the rear of the cap threads. On this model, there are visible detents or "dents" present. Unscrew the plastic magazine plug, but keep a couple of fingers standing by to prevent the possible escape of the magazine-spring retainer (#61).

Keep the end of the tube covered with your fingers, slip a screwdriver between them, and insert its blade into the retainer's slot. Push the retainer into the tube, turn it 90 degrees, and slowly release it to move upwards. Pull out the spring (#60), tip the tube downward, and the follower (#58) will fall free. In reassembly, the follower goes back in first. Now you have to argue with the spring. When you have it almost inside the tube, slip on the retainer.

Align the tube and retainer detents, push the retainer into the tube about an inch, and turn it 90 degrees to lock up the related detents. It's wise to maintain control while easing off on the retainer just to make sure the lockup has been accomplished. Having the retainer and spring strike you from the tube like some angry Cobra doesn't feel real good. Trigger-Plate Assembly. Before getting into these instructions, I'm obliged to mention that factory service is required for all trigger-related problems.

You may not be able to get apart, although you can get a complete assembly. Having alerted you to this circumstance, I'll continue. When working with this assembly, some manuals advise the hammer (#48) should be cocked and the safety engaged to prevent an unintended tug on the trigger from releasing the hammer to smash into the front end of the trigger plate. I prefer to ensure this can't occur by disengaging the safety, thumbing back the hammer, pulling the trigger, and easing the hammer to its fired position.

An additional benefit from this action is the lessening of tension on the assembly's various springs. Starting with the carrier components, slide the trigger-plate detent spring (#86) off the carrier-pivot tube (#28). Depress the carrier-dog follower (#22) to prevent it from popping off the plate. Push out the carrier pivot, pull the carrier latch (#24) to the rear, and disengage the carrier group from the trigger plate.

You can take this assemblage down still further for part replacement or repair by drifting out the carrier-dog pin (#20) to the inside of the carrier. The carrier-release spring (#31) is taken off by disengaging its bent (front) end from the carrier and pushing the spring to the rear. The carrier release (#29) operates two ways: manually or when struck by around being fed back from the

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1 Action Bar Assembly 2 Action Bar Sleeve 3 Action Spring 4 Action Spring Follower 5 Action Spring Plug 6 Action Spring Plug Pin 7 Action Spring Tube 8 Action Spring Tube Nut 9 Action Spring Tube Nut Washer 10 Action Spring Tube Nut Lock Washer 11 Barrel Assembly 12 Barrel Seal 12a Barrel Seal Activator (20 ga and 12 ga Super Magnum only) 13 Breechbolt 14 Breechbolt Buffer 15 Breechbolt Return Plunger 16 Breechbolt Return Plunger Retaining Ring 17 Carrier 18 Carrier Assembly 19 Carrier Dog 20 Carrier Dog Pin 21 Carrier Dog Washer 22 Carrier Dog Follower 23 Carrier Dog Follower Spring 24 Carrier Latch 25 Carrier Latch Follower 26 Carrier Latch Pin 27 Carrier Latch Spring 28 Carrier Pivot Tube 29 Carrier Release 30 Carrier Release Pin 31 Carrier Release Spring 32 Connector, Left 33 Connector, Right 34 Connector Pin 35 Disconnecter 36 Extractor 37 Extractor Plunger 38 Extractor Spring 39 Feed Latch 40 Firing Pin 41 Firing Pin Retaining Pin 42 Firing Pin Retractor Spring 43 Forend Assembly 44 Forend Support 45 Front Sight 45a Gas Cylinder Collar (12 ga only) 46 Gas Cylinder Collar

47 Grip Cap 48 Hammer 49 Hammer Pin 50 Hammer Pin Washer 51 Hammer Plunger 52 Hammer Spring 53 Interceptor Latch Retainer 54 Interceptor Latch Spring 55 Interceptor Latch 56 Link 57 Locking Block Assembly 58 Magazine Cap 60 Magazine Follower 61 Magazine Spring 62 Magazine Spring Retainer 62a Middle Sight 63 Operating Handle 64 Operating Handle Detent Ball 65 Operating Handle Detent Spring 66 Piston 67 Piston Seal 68 Receiver Assembly 68a Return Plunger Retaining Pin 69 Return Plunger Retaining Pin 70 Recoil Pad 71 Recoil Pad Screws 72 Safety Switch 73 Safety Switch Detent Ball Remington Model 11-87 Autoloading Shotgun (Specifications subject to change without notice) 74 Safety Switch Spring 75 Safety Switch Spring Retaining Pin 76 Sear 77 Sear Pin 78 Sear Spring 79 Slide Block Buffer 80 Stock Assembly 81 Stock Bearing Plate 82 Trigger 83 Trigger Pin 84 Trigger Plate Safety 85 Trigger Plate Pin 86 Trigger Plate Pin Detent Springs, Front 87 Trigger Plate Pin Detent Spring, Rear 88 Trigger Plate Pin, Front 89 Trigger Plate Pin, Rear

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Failure to ensure this relationship when re-assembling will result in an autoloading shotgun that only fires one shot—a malfunction not appreciated when faced with around of doubles or string of mallards. magazine. The carrier-release pin (#30) is swaged at both open ends to maintain a snug relationship with the carrier. It's best to have a new replacement on hand that you can re-swage after installation. If not, at least reswage the original.

Press the carrier-latch follower (#25) down to release it as you push out the carrier-latch pin (#26) when removing these elements from the trigger plate. As for the rest of the plate, grind or file the staked end of the hammer pin (#49) until it's flush with the hammerpin washer (#50).

Drive out the hammer pin and leave your drift in place. (If the hammer is cocked, pull the trigger and ease the hammer forward before proceeding.) With the hammer uncocked, remove the hammer plunger (#51), its spring (#52), then withdraw the drift and remove the hammer. Note: A new hammer pin will be needed for reassembly. It must be staked to make certain there is minimal play with the disconnecter. Also note that the bent tail of the disconnecter (#35) must be located under the left connector (#32).

Overlook that and you'll transform an autoloader into a single shot instantly. The link (#56) is susceptible to damage and can be replaced. Longnose pliers are your tool. Reach into the receiver from underneath and grab the link just in front of the action-

spring follower (#4). Squeeze the link tails together, pull them away from the follower (forward), then carefully twist to dislodge the leading edge of the link from its ledges under the ejection port before withdrawing it.

The interceptor latch (#55) fits over its receiver stud and is held there by its retainer (#53). Spread the tabs on the retainer to release its hold on the stud. Disengaging the latch spring (#54) from the latch frees the latch from the receiver. When replacing or reassembling, position the latch so the recess of its stud hole is staring at you, its hooked end is facing forward, and the small numbers on its tab are upwards.

Fit the top of the latch spring into its groove at the rear of the latch, and push the latch down against the inner wall of the receiver. Spread the tabs on the retainer and press it down over the stud. The stud has a groove. The retainer should audibly snap into that groove. The Remington's feed latch (#39) or shell latch has two holes that correspond to the trigger-plate pin holes and is staked into its channel in the receiver. The proper gauge for the latch is marked on its rear flat.

Drift the latch rearward in its channel to disengage it from the staking. If it sticks, tap it through a trigger-plate hole and it will drop into the receiver. For reinstallation, the latch holes must be aligned with the trigger-plate pin holes and it must be re-staked. A staking tool very similar to

that used at the Remington Armorer's School is available from Brownells. You'll be needing it.

Such things as the magazine tube, action-spring tube (#7), barrel stud, and interceptor latch stud are either brazed or projection welded into the receiver during the manufacturing process. Enough said. Conclusions Atop-of-the-line trap or skeet gun tends to become a pet. The gun's owner will place it carefully in a case during transit and will guard it possessively while it rests in a rack with other shooters' shotguns awaiting the next round.

Most of those shooting at clay birds do so to sharpen their skills when stalking afield after live ones. For these real hunts, they invariably use a shotgun other than the one they've favored for the practicing. That field gun will not shoulder, point, or feel like their "practice" gun. This brings a question to my mind: Why would a hunter, target shooter, cowboy-action or IPSC fan practice with one firearm only to enter the woods with another? This doesn't make sense to me.

Why not use the same shotgun that brings down the fake birds to bring down the real ones? Is it fear of scratching the stock? Or the possibility of having a pricey smooth-bore rained upon? Probably, although there's no sound reason why this particular trap & skeet gun would be any less effective afield as it is on the range of a private club. It does, however, require a major alteration to achieve this equality. That's right; you guessed it: Change the barrel. I

PISTOLS

Fitting an Extended Thumb Safety on the M1911

On a 1911-style auto, an extended thumb safety helps to put the thumb of the shooting hand in the correct position for fast action.

BY DENNIS A. WOOD JANUARY 2007

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One of the more common jobs requested by 1911-style pistol owners involves the fitting of an extended thumb safety. With some very basic equipment and attention to detail, this job can be done in less than an hour. Why is an extended safety a desirable addition to a 1911-style pistol frame? Reasons vary with each owner, but some folks believe that the extension on this type of sear safety puts the thumb pad right where it should be.

Others like the wider area on the extension and use it as a platform on which to rest the shooting hand thumb, claiming that it stabilizes the shooting hand better. And then, there are those who just like the look. For whatever reason, the extended thumb safety does make the release of the safety more pos-

itive, and that enhances reliability. The customer has several choices of make and style when selecting an extended safety in either blue or stainless steel.

There's even an ambidextrous safety available for those who prefer the option of releasing the safety with either hand. All of the extended safeties I've dealt with appear to be investment castings, which means they require no additional machining after the casting process, although a slight cleanup of some surfaces maybe necessary. Wilson Combat, Ed Brown, McCormick, and STI all make excellent extended safeties that serve the purpose well.

Prepping the Safety The first thing you need to do is remove the magazine and retract the slide to ensure you're indeed dealing with an empty pistol. You must remove the grip on the left side of the frame, but it's better to remove both to prevent any damage to the grips, especially if they are checkered. Cock the hammer until it locks back in the firing position, and remove the factory thumb safety. For me, it's easier to remove the funneled magazine extension (if there is one) as well as the mainspring housing.

The thumb safety maintains the grip safety in place, so removing the thumb safety will also release the grip safety and allow removal of the safety-detent plunger and spring. On most of the aftermarket extended thumb safeties I've dealt with, the

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detent for the safety plunger in the replacement extended thumb safety is quite shallow. The face where the shallow detent resides should be dressed with a pillar file to clean up any irregularities in flatness but leave enough of the plunger-detent hole visible. I use a 3/32-inch (.0938) drill with a 135-degree cutting face to deepen the detent to around 1/16 inch. This will give the thumb-safety plunger a good home to enter and help it to stay put when the safety is in the "off" position.

Once the 3/32-inch hole has been drilled to depth, an escape ramp is cut with a tapered carbide burr using a rotary tool as shown. This step does require caution and a steady hand. Before any fitting is attempted, look over the safety for rough areas on the inside face that will go against the left outside face of the pistol frame. Dress any of these areas with a smooth-cut pillar file to even out and smooth up this surface.

Also, if this hasn't already been done, crimp the spring of the slide release and safety plunger about in the middle of the spring.

This crimp will help hold the spring inside the plunger tube during disassembly next time. This crimping can be done with aside-cutting pliers. Use caution to avoid cutting or nicking any of the spring coils; you just want to kink the spring slightly as shown in the photograph.

For smoother operation, it helps to polish the stand-off that fits through the sear and disconnector to eliminate any roughness on the stand-off's diameter. Fitting the Safety The thumb safety on the 1911-style semi-auto pistol is designed to block the sear movement not the hammer, as some suspect.

If the extended thumb safety being installed is a replacement for a factory-provided thumb safety, you'll be able to see where the factory safety has been filed for fit at the point where the sear pad on the safety engages the sear. If you're building a 1911-style auto from the frame up, the process gets a bit more involved. On most frames, the extended safety will slip into the frame without any difficulty.

During the fitting of extended safeties on several Auto-Ordinance frames I've worked on, the window where the sear pad fits through had to be opened up a bit to allow entry of the sear pad. Using a cylinder-shaped carbide bit in a rotary tool, the upper rear edge of these frames may have to be relieved until the sear pad can enter. If you encounter this issue, proceed slowly and check your progress often to prevent any overenlargement of the sear-pad window.

Insert the extended-safety sear pad to see how it fits to the sear. On stainlesssteel safeties, you only need to blacken the outer face of the sear pad. On blued safeties, you'll first need to remove the bluing on the front face of the sear pad with #400 emery paper, and then blacken the front face. With the hammer cocked all the way back, push the safety home until you feel resistance and then remove it to observe any witness mark created by contact.

FITTING AN EXTENDED THUMB SAFETY ON THE M1911 CONTINUED

ORIGINAL PAGE 9

with the side of the sear. This will appear as a shiny line on the blackened sear-pad face. The front edge of the sear pad will now need to be dressed back with a pillar file, but don't go past the shiny mark. Try the safety fit once again to see if it goes in all the way. If not, a few more swipes of the file will be necessary until you feel the sear pad encounter slight rubbing on the sear. This will tell you that the sear pad is engaging the sear and arresting its movement.

Reassemble the pistol, including the grips. Now check the top upper edge of the extended thumb safety to see if there is any rubbing along the bottom rails of the slide. If rubbing is detected, the upper edge of the safety that is rubbing on the slide bottom will need to be removed with a few swipes of a smooth-cut file. Activate the safety to see if the thumb extension is contacting the left grip panel on its upper edge.

If so, the Smith & Wesson Issues Product-Safety Warning and Recall Notice for Performance Center Model 460XVR Revolvers Smith & Wesson Corp. is voluntarily recalling its Performance Center Model 460XVR revolvers. This recall applies only to the Performance Center Model 460 and does not involve Smith & Wesson's standard production Model 460 revolver. The recall applies only to revolvers that contain barrels manufactured for the Performance Center by an outside supplier.

No other firearm models within the Smith & Wesson product line are affected by the recall. The Company is initiating this recall as a result of a few isolated reports of barrel failures limited to the Performance Center 460 revolvers. Investigation has revealed that the quality of the steel in some of these barrels did not meet perfor-

mance requirements. The recall applies to all Performance Center Model 460 revolvers shipped by Smith & Wesson prior to September 18, 2006.

The Company is working diligently with its distributors and dealers to identify affected customers and to provide prompt and timely notice of s who purchased the Performance Center Model not use their revolver until it has been inspected.

The affected revolvers were sold under the following SKUs: 170262, 170263, 170267, 170268, 170280, 170281, and 170287; and are within the following serial number ranges: EBD0001 " EBD0524, EBF0002 " EBF0251, LHZ0000 " LHZ0511, LLL0000 " LLL0702, LRR0001 " LRR0552, MMM0001 " MMM1809, XMC0001 XMC0109. Anyone who currently has a Performance Center Model n call range should contact the compa ext. 3800, or through the website at grip panel will need to be relieved to allow the safety extension clearance.

Here again, only remove what's needed to allow the safety extension some clearance above the grip's top edge when in the off position. The last check involves removing the grip safety so that the sear can be observed more clearly. Cock the hammer back and observe the sear carefully as you place pressure on the trigger with the safety on. There should be absolutely no movement of the sear, which means you've successfully blocked all sear movement with your fitting process.

Conclusions Any time you choose to work on the firearm's safety, your approach must be deliberate and cautious throughout the process. In the case of an extended thumb safety on an M1911, you must work slowly, checking your progress often. I

MEASUREMENT & INSPECTION

Making and Installing a Barrel/Receiver Coupler Sleeve

On some rifles, adding a coupler sleeve to strengthen the junction between the barrel and receiver can improve barrel stability and accuracy. The Remington Model 504, used here, is one of these rifles.

BY NORMAN E. JOHNSON JANUARY 2007

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The Remington Model 504 rimfire action has the appearance of a modern high-power rifle. Its short, cylindrical receiver shows inherent strength with a full 1.2-inch diameter and a massive wall thickness of 0.294 inch. Nevertheless, close inspection suggests the rifle could be improved somewhat in the area of barrel-to-receiver stability. The 0.913-inch-long barrel shank with a 0.671-inch diameter is not threaded into the receiver.

Instead, it's held in position by a split receiver ring with a #10-32 transverse barrel-clamp locking screw. A fair amount of torque is required of a screw of this size in providing ample clamping in locking the barrel to the receiver. The barrel is free-floating in its entirety, which places some additional strain on the barrel-receiver juncture, particularly if a heavier target barrel is used.

I devoted some study to the possibilities of strengthening the barrel-to-receiver union on rifle actions, with special attention to the Remington Model 504. After some consideration, I devised a viable means of strengthening the union in this area. The face of the Model 504's large receiver has a wide milled recess at the front, which also has a clamping action as the receiver screw is torqued.

I could see no significant purpose for this recess, however, aside from providing a shroud for the barrel joint—apparently for aesthetic purposes. Though the receiver recess is precision milled and functionally closed down as the barrel clamp screw is torqued, it doesn't touch the barrel. I concluded that this recess was a perfect place to incorporate a sleeve-like barrel coupler, which would fit precisely over the barrel and serve as an interface when clamped into the receiver recess.

The coupler would further be locked to the barrel by four 1/4-28 set screws triangularly positioned on the lower side of the coupler. This assembly would essentially double the length of the linear barrel surface contact to 1.725 inches extending from the receiver, and would add greatly to barrel/receiver rigidity. In theory, at least, I felt this should be a solid and worthwhile modification. A single precision part would do the job.

The coupler would also be bedded into the stock with Brownells super-strong Steel-Bed. Making the Coupler I used a piece of 416 stainless steel to make the coupler. The unaltered diameter was perfect, as it was taken from a piece of rifle barrel with a diameter the same as the Remington 504 receiver. In use, the coupler slips over and locks onto the barrel. In this case, the barrel had to be turned down some just forward of the factory barrel shank.

MAKING AND INSTALLING A BARREL/RECEIVER COUPLER SLEEVE CONTINUED

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Four 1/4-28 set screws hold the barrel to the coupler when in use. I put the part in the lathe and completed the entire work before removing it to ensure total concentricity. The hole in the coupler was bored first at 0.800 inch. The step was then formed on the coupler to fit precisely into the receiver recess and butt firmly and squarely up to the inner surface of the recess. The length of the step is 0.116 inch, which was set up to the lathe carriage stop.

The diameter of the step must be absolutely perfect so it clamps together into the receiver recess as the barrel clamp screw is torqued. Both the barrel shank and the coupler step are clamped at the same time as the barrel clamp screw is tightened, so these two diameters must contact the receiver together. To

accomplish this, I made two test parts to ensure a perfect hold of the parts as the barrel clamp screw is torqued. This is very important, particularly where more than one barrel is used.

Each barrel, of course, must receive the same attention. As the coupler was completed, I drilled and tapped the four 1/4-28 set. The action of the transverse clamp screw is shown here. From the top is the original Remington barrel with a removable sleeve (overturned portion of barrel) used to fit the barrel-to-receiver coupler. Second from the top is a Green Mountain barrel with a coupler in place, ready to use. Next is a Douglas barrel with a turned area, ready to use with a barrel/receiver coupler.

At the bottom is a Lilja barrel that has not yet been adapted for the use of a barrel/receiver coupler. screw holes used to hold and align the coupler to the turned portion of the barrel. The set screws were triangularly positioned on the coupler from below on 0.280-inch centers. I must emphasize this point: A test of the coupler must be performed to be sure the receiver clamp tightens on both the barrel shank as well as the receiver recess.

The barrel shank is 0.671 inch, whereas the closed receiver recess is 1.0145 inches as the receiver clamp screw is torqued. Additional barrels, as fitted, must agree (continued on page 21)

MAKING AND INSTALLING A BARREL/RECEIVER COUPLER SLEEVE CONTINUED

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precisely in diameter at the shank with factory specifications here. If the shank diameters are made under-size, problems in using the coupler will result. The barrel can be used in its original form by simply removing the coupler and tightening it into position with the barrel-locking screw. A sleeve can be made to slip over the turned portion of the barrel when the coupler is not in use, and retained with a small #6-48 set screw.

Conclusions Adding a coupler to strengthen the joint between a rifle barrel and receiver is a very worthwhile project. Making the part presents no significant complications for a competent machinist. From the appearance standpoint, the coupler is an attractive extension of the receiver, and functionally, it definitely adds strength to the barrel fitting. I would strongly recommend this simple and innovative revision, particularly on the Remington Model 504 rifle.

PISTOLS

Smoothing the Taurus Model 80 Revolver

Trigger work on this early Taurus revolver is relatively simple and straightforward, but don't assume it's a clone of the Smith & Wesson Model 10.

BY ROBERT K. CAMPBELL JANUARY 2007

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Taurus' double-action revolvers have earned a reputation for quality, reliability, and accuracy. But this was not always the case. At one time, Taurus revolvers were recognized as an inexpensive alternative to the Smith & Wesson. While they were worth their modest cost, they may not have been as durable or as smooth as the more popular American brand. But these early revolvers should not be dismissed out of hand; they're still good revolvers, even if they're not as highly developed as Taurus' newer products.

The flagship of the Taurus revolver line, the Model 80, was the bread-and-butter revolver from Brazil for some time, and is probably responsible for much of the company's success. A hard look at the early model revolvers shows a handgun similar in outward appearance to the Smith & Wesson Military and Police revolver. But anyone who thinks the internal workings of the revolver are the same as the M&P has another thought coming.

Smith & Wesson revolvers such as the Military and Police (Model 10) feature direct-impact firing pins. In other words, the hammer has a firing pin mounted in the hammer itself. The most significant difference in the early model Taurus revolvers is that they feature a floating firing pin. This firing pin is mounted in the frame and is spring loaded so that it doesn't touch the primer; only impact from the hammer can drive it forward.

The hammer cannot contact the firing pin no matter how hard it is struck, because the Taurus uses a transfer-bar firing system. In my opinion, Taurus was wise to change to the transfer bar. Made popular by Charter Arms and Ruger revolvers introduced in the 1960s and early 1970s, this system is an improvement in many ways over earlier types. The transfer bar raises when the hammer falls, and the hammer strikes the transfer bar which then transfers energy to the firing pin.

This is the safest means of producing a revolver action. As a bonus, the rebound slide is eliminated, which can allow for a slicker action. In direct-impact actions, the rebound slide is necessary to prevent the hammer from contacting the primer if you slip while cocking the handgun or otherwise release the hammer prematurely. Early Taurus revolvers lock on the ejector rod the same as the Smith & Wesson revolvers of the day.

As a result, they're subject to the same type of binding from a loose ejector rod as the S&W can be. As for operation, the Taurus Model 80 is again similar to the Smith & Wesson, but there are differences. When the trigger is pressed and the hammer moves, the hammer action compresses a coil spring as opposed to the familiar Colt and S&W-type Trigger work is similar, but not the same as that required on the Smith & Wesson.

SMOOTHING THE TAURUS MODEL 80 REVOLVER CONTINUED

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leaf spring. The cylinder bolt falls away from the cylinder notch, and the hand moves the cylinder. The bolt returns to lock the cylinder at the moment of firing. The sear releases as the trigger is fully depressed, and the piece fires by releasing the hammer. The hammer is propelled forward by energy stored in the hammer spring. Smoothing the Taurus Model 80 is fairly simple, but disassembly is a bit more complicated than is the case with more modern Taurus revolvers or the Smith & Wesson Model 10.

The sideplate comes off in the same manner as similar double-action revolvers, and there are no surprises internally. But, if you're not familiar with it, there could be a certain surprise in the sideplate. If you look carefully at the hand, you'll see that it's spring loaded. There is a tiny spring set in the sideplate that holds the hand forward. If the hand is removed, this spring will leap from its blind hole.

A close look will reveal a tiny hole drilled in the sideplate that serves to run the spring back in place using a long needle. With the spring held in place, you carefully insert a screwdriver blade tip in front of the spring, then move a needle or unwound paper clip and place the hand back in place. Then release the spring and let it bear against the hand.

The problem in returning the sideplate to the revolver is that the hand must be placed back in alignment with the trigger while keeping the hand firmly in its spring-

loaded slot in the sideplate. I have no idea why this system, absent from the modern Taurus, was adopted. For all I know it may have been designed for more positive operation of the hand. In practical terms, disassembly is no more difficult, but reassembly of the revolver is more difficult than most revolvers.

I wish there was a trick I could pass along for reseating the sideplate but there's none that I know of. The only course is to carefully hold the revolver in an attitude with the internal lockwork properly assembled, minus the sideplate and hand, and carefully align the sideplate while fitting the hand in its slot in the trigger and frame. This is no easy task, but give it three or four tries and you'll eventually succeed.

The narrow blind hole and small spring are definitely more like a Colt internally, while maintaining the general appearance of an S&W externally. It's a good bet that most of the Taurus Model 80 revolvers brought into your shop for repair will be in need of something simple such as a spring or hand. But you have nothing to lose by suggesting to the owner that the trigger action can be improved, and I've had a number of owners over the years who have asked for this type of work.

It's a straightforward action, but be aware that an early revolver, say 1960s vintage, may be made of softer steel and caution should be your guide. Also, keep in mind that parts cannot be interchanged with those from a Smith & Wesson. Taurus re-

volvers in the Model-80 series have decent actions that are heavier than modern Taurus production. A sure-fire means of smoothing the action is to address the single-action notch in the hammer. This notch has a bevel.

By lightly stoning this area without losing the angle of the bevel, an improvement in letoff is realized. By cleaning this area up, a bad trigger can become quite smooth. While as straightforward as any double-action revolver, the inner workings of the Taurus are reminiscent of the Charter Arms and Ruger revolver as well as the Smith & Wesson. Note the serrations on the cylinder flute, with a minimum of effort. Improvements in double-action trigger press are pretty straightforward, too.

Carefully stone the mating surfaces, preserving the angles, and bringing the revolver to a higher state of smoothness. To get to the interior, the sideplate must be removed (being careful to keep the hand in place and to retain the small spring I warned you about). On one Taurus M80 I worked on recently, the top screw snapped under pressure of disassembly, which is common with softer metal. Gun Parts Corp. may be able to help with these screws. To take the action down, first cock the revolver to full cock.

Then place a pin in the hole in the main-spring end that protrudes at full cock. Release the trigger and the hammer will go forward, leaving the spring without pressure on the hammer. Next, lift the

SMOOTHING THE TAURUS MODEL 80 REVOLVER CONTINUED

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Take care in disassembly, especially if parts seem difficult to remove. hammer and the trigger out of their slots. I polish the pins the hammer and trigger ride on—especially the hammer-axis pin, which is an often-overlooked part that can add to the pistol's smoothness. Don't get too ambitious when polishing small parts such as the hand and the bolt stop. While both can benefit from a polish, bad things happen when the angles of these parts are broken.

The mating surfaces of the trigger and hammer will show rough wear spots on the mating areas. The heart of an action job is to carefully stone these surfaces and apply a quality lubricant. The sideplate can also be addressed if it exhibits excess tool marks. Cylinder drag is common on older revolvers. This is easily discovered by working the action and by noting any drag marks on the cylinder itself. This comes from the bolt. The bolt is failing to release after the hand moves the cylinder.

Few of these revolvers cease to function altogether, but cyl- Brownells Offers All-In-One Cleaning Kit from Otis Brownells and

Otis have paired up to bring gunsmiths the most complete gun-cleaning kit ever developed. The Otis Elite (#668-000-016) features everything necessary to clean every pistol, rifle, or shotgun from .177 caliber to 12 gauge. The Otis Elite Kit includes bronze bore and chamber brushes in .22, .25, .27, .30, .35, .38, .41, .45, and .50 caliber, plus .410, 28, 20, 16, and 12 gauge.

The kit also contains .177- and .22-caliber short bronze cleaning brushes, a NATO adapter and .223-chamber brush, inder drag is not a good thing if accuracy is your goal. The hand and bolt should be stoned to a clear mirror polish to be certain that the parts operate as designed. Often, the trigger extension that meets the bolt needs to be polished as well. Conclusions The procedures described here apply to the various .22-caliber revolvers as well as the .38/.357-caliber versions.

I'm not certain when the spring in the sideplate was deleted, but I believe it and a dual-ended nylon receiver brush. A complete Otis Tactical Kit for small arms and an Otis Scraper & Punch Kit are also included,

as is a DVD which gives instructions on proper firearm care. A complete list of the components is available on the Brownells website. The assembly comes in a durable nylon case which features a special lining designed to prevent rust.

The case also includes a lock, allowing it to double as a secure storage case for handguns. Every cleaning component in the kit is was in the late 1980s. Early model Taurus revolvers can be identified by serrations in the cylinder groove; later revolvers without this serration won't have this spring that holds the hand. When working with any revolver action, it's good to remember to smooth slowly and carefully and preserve the original angles.

The Taurus Model 80 responds well to such work, often producing a pull rivaling that of the modern Taurus Model 82 and other high-quality revolvers. I backed by a lifetime gor inform or visit

METALWORKING

Working the 1873 Springfield Trap-Door Single-Shot Rifle

If the internal parts of the 1873 Springfield breechloader look the same as those of the 1861 muzzleloader, that's because most of them are.

BY DAVID R. CHICOINE JANUARY 2007

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Designed by Erskine S. Allin, master armorer at Springfield Armory, the trap-door rifle was originally built as a breech-loading conversion of the muzzle-loading 1861 Springfield percussion rifle. Designated the Model of 1865, 5,000 of these single-shot rifles, chambered for a .58-caliber rimfire cartridge, were manufactured at Springfield Armory. Erskine Allin's system involved cutting away the top section of the muzzle-loading rifle barrel at the breech.

It made use of a hinged breechblock that attached to the barrel top. The breechblock was locked closed into the rear of the barrel by a cam latch. In 1866, the armory converted 25,000 Model 1863 rifles to .50-caliber centerfire using the Allin system. For these rifles, they lined the .58-caliber barrel down to accept the new caliber. This hinged-breech design was continually improved, and soon the idea of converting all the leftover musket barrels was dropped.

From 1868 on, Springfield Armory made the rifles using separate receivers with new screw-in barrels in .50/70 caliber. These

new rifles still made use of many parts from the old rifle musket. By 1873, the Army eventually settled on a .45-caliber rifle cartridge using 70 grains of blackpowder. The trapdoor action was successfully used by the U. S. Army in regular service until it was officially replaced by the Krag bolt-action repeater in 1892.

As early as the mid-1870s, it was becoming apparent (to some) that the singleshot Springfield rifle would soon be outdated by world military standards. The greatly increased firepower offered by commercially available "sporting" repeaters like the Winchester lever-action left the single-shot looking like a poor relation. Be that as it may, the U. S. Army liked their Springfield rifle and the Armory produced over half a million of them in all, the last of these leaving Springfield Armory in 1894.

Some years after its official obsolescence, the venerable trap-door Springfield was still in use by our military. In fact, Top of page: This original trapdoor Springfield Carbine, from the Ed Wade collection, is an 1873 model made prior to Little Big Horn.

Author photos. many single-shot Springfield rifles and carbines were carried into the Spanish American war in 1898 by volunteers and guard units in Cuba.

Pitted against the Spanish who were armed with state-of-the-art Mauser bolt-action repeaters and smokeless ammunition, the old single-shot rifles with blackpowder cartridges were hopelessly outclassed and showed they were ready to be retired. The trap-door action was never noted for great strength, nor did it develop a reputation for reliable extraction and ejection. As ingenious as the design was, it must be remembered that it was not designed as a state-of-the-art cartridge rifle.

This action system was merely an expedient which was intended to save the Army money by developing a system for converting surplus muzzle-loading rifles to shoot metallic cartridges. As history shows us, it was an expedient that worked better in theory than it did in practice. In any case, hundreds of thousands of these trap-doors rifles, car-

WORKING THE 1873 SPRINGFIELD TRAP-DOOR SINGLE-SHOT RIFLE CONTINUED

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Notice the saddle-ring bar on the left side of the stock; on carbines, the two lock screws pass through the bar's tangs. Bines, and shot-guns have been sold as military surplus over the hundred years since the turn of the 19th century. As a result, the gunsmith is likely to run into many of the original variants as well as the modern-made reproductions of this grand old rifle. Disassembly Instructions Note that, with some small variations, the following disassembly procedures will work for all of U. S.

Springfield rifles and carbines using the trap-door system, as well as most modern reproductions of the Springfield. For part numbers, refer to the illustration on the opposite page. This drawing comes from the author's book *Antique Firearms Assembly/Disassembly*, Krause Publications, Iola, WI 54990; 1. Always check first, of course, to be sure the weapon you are about to handle is unloaded.

Grasp the rifle around the barrel and wooden fore- Once the barreled action is out of the stock, the hinge pin can be removed, freeing the bolt, the extractor, and the ejector parts. arm with your left hand and point the muzzle

in a safe direction. Pull back on the hammer (#41) to place it in the loading position. (Depending on the internal lockworks, you'll hear either one or two-audible clicks.) Then open the action by lifting up on the thumb-piece (#15).

This will unlatch the breechblock (#10), which you can tilt all the way up and open with your other hand. Look down into the Springfield's action, checking to be sure there is no cartridge in the barrel's chamber. If you can see a cartridge in the chamber, reach in and manually remove the round by pulling the cartridge up



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Springfield Model 1873 Trap-Door Single-Shot Rifle 1 Barrel 2 Rear Sight 3 Front Sight and Pin 4 Breech 5 Ejector Stud 6 Extractor 7 Hinge Pin 8 Ejector Spring 9 Spindle 10 Breechblock 11 Cam Latch Spring and out the top of the action. Remove all live ammunition to a separate location's somewhere well away from the area where you are working.

I prefer to store live ammo in another room altogether. 12 Firing Pin 13 Cam Latch 14 Breechblock Cap 15 Thumb Piece 16 Breechblock Cap Screw 17 Firing Pin Screw 18 Breech Screw 19 Tang Screw 20 Side Screws 21 Side Screw Washers 22 Buttplate Screws 2. The next step is to remove the lock and the stock. If you're working with a rifle, remove the ramrod (#31) first.

For a rifle or carbine, leave the hammer still at the half-cock position, unscrew and remove the two side (or 23 Buttplate 24 Stock 25 Lower Band 26 Upper Band 27 Ramrod Stop 28 Stock Tip 29 Stock Tip Screw 30 Band Springs 31 Ramrod 32 Lock, Complete 33 Guard Plate 34 Guard Screws 35 Guard Bow 36 Guard Bow Nuts 37 Guard Bow Swivel 38 Guard Bow Swivel Screw 39 Trigger 40 Trigger Screw 41 Hammer 42 Tumbler Screw 43 Lock Plate 44 Mainspring 45 Tumbler 46 Mainspring Swivel 47 Mainspring Swivel Pin 48 Sear Spring 49 Sear Spring Screw 50 Sear 51 Sear Screw 52 Bridle 53 Bridle Screw lockplate) screws (#20) from the left side of the stock (#24).

The lock (#32) assembly can now be pulled out from the right side of the stock. Be gentle and ensure that the edges of the lock plate don't grab any slivers of the

WORKING THE 1873 SPRINGFIELD TRAP-DOOR SINGLE-SHOT RIFLE CONTINUED

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inletted stock as you remove it. Unscrew and remove the tang screw (#19). Depress the band springs (#30) and slide the band or bands (#25 and 26) off toward the front of the barrel. The barrel and breech assembly (#1 and #4) are now free and they can be lifted straight up and out of the stock. 3. This next operation'd is assembly of the breech and the breechbolt' frees the extractor, which is powered by a very strong coil spring.

Hold your hand over the hinge area to prevent the loss of parts while performing this operation. With the breechbolt remaining in the open position, push out the hinge pin (#7) and lift the breechbolt out of its hinge in the breech (#4). The extractor (#6), ejector spring (#8), and spindle (#9) can also now be lifted out of the left-side hinge. Make careful note of the relationship of these ejector/extractor parts for reassembly later.

The point or tip of the ejector spindle has to be engaged with the detent at the rear of the extractor during reassembly. For this operation, it helps to have along tapered punch to keep the extractor/ breechblock holes aligned during the reassembly of the breechblock to the receiver. 4. Disassembling the breechbolt starts A really perceptive reader might notice there's a screw missing in this picture. It's the breechblock-cap screw. with unscrewing and removing the breechblock cap screw (#16).

Then remove the following parts together: the cam latch (#13), the thumb piece (#15), and the breechblock cap (#14). These parts can be lifted out to the side. The cam-latch spring (#11) is now free and can be lifted out of the breechblock. Unscrew and remove the firing-pin screw (#17) from the bottom of the breechbolt. Now the firing pin (#12) can be removed by pulling it out through the rear. Note: Some modern copies use a two-piece firing pin with a return spring. 5.

To disassemble the lock, place the hammer (#41) all the way forward for this operation. Compress the mainspring (#44) using a mainspring vise, a machinist's clamp, or a small Cclamp far enough so you can disengage it from the mainspring swivel (#46). Tilt the mainspring out to the side, removing it from the lock plate (#43).

Reassembly tip: Since the mainspring will have to be compressed for assembly, you may want to just leave the mainspring vise or clamp in place, setting the assembly aside until you are ready to reinstall the spring. Unscrew the sear-spring screw (#49) and lift it and the sear spring (#48) off the lock plate. Unscrew and remove the sear screw (#51). The sear (#50) is now free and can be pulled off the lock plate. Unscrew and remove the bridle screw (#53) and lift out the bridle (#52).

Unscrew and remove the tumbler screw (#42) from the center of the hammer, and insert a straight punch into the hole in the tumbler. Be sure to use a punch that is smaller than the threads in the tumbler to prevent damaging them. Tap the punch until the hammer (#41) comes loose. Now the hammer is ready to be pulled off the tumbler. Lift away the freed tumbler (#45) from the rear side of the lockplate.

Reassembly tip: As you reassemble the lock assembly into the stock, be sure to set the hammer in the loading position. Also, hold forward on the trigger as the lock plate is being inserted back into the stock to avoid any interference with the sear.

Some items of note here: Some Springfields used a two-notch tumbler (1-safety/load and 2-full cock), but the majority seem to use the familiar three-notch tumbler (1-safety, 2load, and 3-full cock.) On H&R reproduction Springfields, the hammer screw passes all the way through the tumbler, acting as the inside pivot point for the tumbler. Original Springfields had their pivot points forged as one piece with the tumbler. 6.

For disassembling the guard plate and buttplate, unscrew and remove the two guard screws (#34) from the (trigger) guard plate (#33), and carefully ease the guard plate down and

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out of the stock. Again, be careful with this step so that the edges of the guard plate don't grab any slivers of the inletted stock as you remove it. Unscrewing the two guard-bow nuts (#36) releases the guard bow (#35), which can now be pulled down and out of the guard plate. Unscrew and remove the trigger screw (#40) and the trigger (#39) will drop down and out the bottom of the guard plate. The rear sight can be removed from the barrel by simply removing the two screws that fasten the sight base to the barrel.

Make note of the position of the rear sight for reassembly later. The buttplate (#23) is easily removed by unscrewing and removing the two buttplate screws (#22).

The buttplate is simply lifted off the stock to the rear.

If the buttplate is equipped with a door to access a cleaning rod, I remove the buttplate-door spring screw and lift off the buttplate-door spring. (Note that none of these parts are shown in the illustration.) Use a small pin punch and hammer to drift out the buttplate-door retainer pin, and lift off the retainer ring. The buttplate door is now opened and removed by pulling it straight out the rear of the buttplate. As always, you simply reverse the disassembly procedure above for reassembly.

READER FORUM

Reader Forum

BY AMERICAN GUNSMITH EDITORS JANUARY 2007

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Whitney Barrel Found? I read Dave Yager's letter in the November 06 Reader Forum, and noted that he is looking for a Whitney Barrel. If he sends me an email, I might be able to help him out. Regarding Dave Yager's search for an Eli Whitney barrel: The Dixie Gun Works catalog states that they have "the last remaining stock of Whitneyville Armory pistol parts from the old E. Whitney Corporation." This may be a source worth checking. Douglas E. Bates Singers Glen, Virginia Thanks, Dan and Douglas, for the info.

M742 Gas Nozzle Diameters Where can I find the proper gas-nozzle inside diameter for the different Remington Model 742 rifle calibers? Thank you. The 740/742 orifice and nozzle diameters can be determined by number drill size. The first number in the calibers that follow is the orifice drill, while the second is the nozzle drill: .30-'06: #44, #39; .280 Rem: #49, #44; .308 Win: #33, #30; 6mm Rem: #48, #44; .243 Win: #48, #44. **.22 Conversion Units** I have some questions and comments about .22 conversion units.

The first question concerns an original Colt with the floating chamber. It's a collector's piece, and I have not shot it for years. There are no repair parts available, and when the floating chamber burns out there is no rea-

sonable repair. The second question is about the Ceiner conversion. I like it; it is fairly accurate and reliable; but it's finicky about ammo. It likes Remington Cyclone best, and will not work with any hollowpoint. It uses a proprietary magazine and will not stay open after the last shot.

The third one is a Jarvis conversion. It's reliable, fairly accurate, and is not as picky about ammo. It doesn't like CCI Mini-Mags for some reason. Best of all, it uses Colt magazines and stays open after the last shot. None of these, in my opinion, will deliver competitive target accuracy. Their best use is for practicing with a 1911 for developing the muscle memory for IPSC/IDPA-type shooting without the expense of .45 ACP ammo.

If I wanted an accurate .22 for pure target work, I would buy one that would give me that level of accuracy. What's your take on the subject? The Ceiner requires the use of highvelocity .22 ammo—not the best choice for target use. The Jarvis is probably set up for standard velocity, would short cycle with hotter rounds, and would likely jam or smoke-stack as a result. The best, most accurate .22 conversion for the M1911 was designed and produced by Fred Kart noted manufacturer of match barrels for the .45.

In spite of our protests and pleas, he no longer makes the conversion but may know of someone who has one and is willing to sell it. We assure you the purchase price will not be cheap. A couple of years ago, we reviewed a .22 conversion by Bob Marvel which was very close to the Kart, and shot like it, with .22 LR Standard Velocity. We've been unable to reach him to see if it is still available.

However, we have noticed a similar conversion from Bill Wilson that you can check out at We haven't ordered one for an article and review yet, but Wilson is known for producing "really good stuff." Browning Misfires I have a Browning Model BL-22 lever action. It misfires about once every 15 to 30 rounds. If you cock the hammer after the misfire, it will fire the round.

I thought perhaps the brand of ammunition was the problem (Aguila 20grain subsonic), but I switched to CCI CB Long (subsonic) and the same thing happens. Any help would be appreciated. Thank you. Browning lists two causes for your problem that are not ammo-related: One is a broken firing pin, and the other is a failure of the sear link to make contact with the sear. We suggest you replace the firing pin, and check for a bent cocking lever. If the latter is bent, replace it.

Also check to see if the cocking-lever screw needs to be filed down; it maybe preventing the lever from completely cocking the rifle. Remington 870 Sight Removal Please assist me with a simple problem. On an 870 Express with a vent rib, how do I remove the front sight for replacement? It looks like it just unscrews. Is it Loc-Tited? Use mild heat? Your problem isn't quite so simple. The bead front sights on the 870 have been press fit to the rib since the 1960s. And "press fit" is an understatement, in our opinion.

It's more like the blasted things are riveted in place. The key to removal is to support the barrel and rib to prevent crushing. One approach we've used is to insert a dowel filling the first 8 inches or so of the barrel, with a small wooden wedge slipped under a rib opening near the sight. Then secure the barrel between protected vise jaws, with one jaw of the vise bearing on the rib and the other on the barrel. The bead to be removed needs to extend clear of the jaws.

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FROM THE ORIGINAL PAGE

After taping a piece of cardboard atop the rib (to prevent scratching or scuffing), clamp on to the bead at its base with wire-cutting pliers. While squeezing firmly, lever the pliers upward to free the bead. Regardless of how you attack the bead, the supportive measures must be fol-

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lowed. Otherwise, prying up on the bead could separate the rib from the barrel. Once the bead is removed, the hole it left behind can be tapped to accept the threads of a replacement sight. Winchester Stock Replacement I have a Buffalo Bill Commemorative with a defective stock that has caused the gun to rust on the upper and lower tang. Numrich Gun Parts Corp. has a commemorative stock to replace a John Wayne commemorative. Will this stock work on the B. B.?

And also how do you get the medallion off the old stock without damage? We're not sure how a defective stock can cause rifle tangs to rust, but if your commemorative is the same base model as the John Wayne, the stock is likely to be interchangeable. (We believe all Winchester commemoratives were based on the Model 1894 rifle or carbine.) We're also not sure how the medallion was affixed. Some had studs on the back and were pressed in, while others were epoxied in place.

And, unfortunately, we were unable to reach anyone at U. S. Repeating Arms regarding exactly how the Buffalo Bill medallion was installed. (In view of what's transpired with Winchester in New Haven, the failure in making contact with an informed, live person is understandable.) If possible, we suggest you remove and repair the original stock, carefully cleaning the rust from the tangs without damaging the underlying finish, and reinstalling the original stock.

Anything else you do will likely lessen any value it may hold. Hamilton Single-Shot I have a .22 single-shot rifle that was my grandfather's. He used it to finish off the

pigs he sold from the farm and had cut the barrel down to 7 inches. I know little to nothing else about it or its manufacturer, and would appreciate any information you can provide including the value of the gun. The following information is stamped on the barrel: The Hamilton Rifle #27, .22 Cal, Patented October 1900 - August 13 1907. MFD by C.

J. Hamilton & Son, Plymouth, Michigan, USA. Thank you Kenneth Bash Indiana, Pennsylvania The rifle was made between 1900 and 1911. The company ceased operations in 1945 after producing a million or so of these single-shots. The rifle, as cut down by your grandfather, is illegal. BATF specifies 16-inch minimum barrel length for a rifle. In its present condition, it's probably worth no more than a hundred bucks. We recommend you remove the firing pin and retain the rifle as a keepsake.

Restoring Old Muzzleloaders Maybe you can help me. I have two muzzleloading shotguns—a W. & C. Scott & Son and a J. H. Johnson. I need to know the finish on the barrel, trigger guard, etc. The two guns were in a barn for who knows how many years. Both have a coat of rust on them. They will become wall hangers when restored. Thanks. We spent quite awhile scouring The Gun Traders Guide and Flayderman's Guide to Antique Firearms looking for any mention of your shotguns' makers and came up empty.

Perhaps the NRA Museum would be able to pin them down, but if the shotguns are as ancient as we think they are, getting specific details on their finish might not be possible. Old-time gunsmiths frequently

used home-brewed solutions to blue or brown their metal, and most kept their personal formulas to themselves.

In your case, even if the formula was known, duplicating it would involve deciphering the names of the chemicals employed and trying to find modern equivalents. For example, one formula we came across called for "muriate of mercury [whatever that is] dissolved in alcohol [which kind not specified] plus a pint of water and a little whitening." It was applied, allowed to dry, wiped off, and reapplied over a two or three-day period to produce "a beautiful brown finish on inferior barrels."

Since you have wisely chosen to use these guns as decoration, we suggest you remove the rust, polish the metal, apply a commercially available browning or cold-bluing solution on the metal components, and rub a good quality wax into the stocks. Then enjoy the gasps of admiration from those viewing your accomplishment. Stevens Model 250 Parts I have a Stevens s/s double-barrel shotgun with serial number 2803 on the left-hand lock assembly.

It's a rabbit-ear gun I bought several years ago and just put in the gun safe and forgot about until now. I am a gunsmith, but have never seen one of these before. I need to find a stock and a complete forearm wood and metal. Talk over your stock needs with Boyds Gunstock Industries and check with The Small Arms Shop regarding the metal. Browning Trigger Job Have you ever written an article on trigger work on a Browning BL-22? I bought a used one a few years ago. It's

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(continued from previous page) in beautiful shape (Grade 1, I think), but the trigger varies from 6-1/2 to 8 pounds! I even left it at a shop with a "certified Browning Repair technician" with instructions to lower the pull to 3-1/2 to 4 pounds. After five weeks, they called and told me to come and get my rifle; they couldn't or wouldn't do anything. I guess Mother Browning is worried about liability. Any advice would be helpful. Thanks.

There's an article on the Browning BL-17, almost a ringer for the BL-22, in the February 06 issue. It doesn't get into the details of reducing trigger pull, but if you study your rifle with the article at hand a few possibilities will present themselves. The first would be to contact Wolffe Springs to see if they offer a reduced-power trigger/sear spring. You can also polish the interface between the hammer and sear, being extremely careful not to alter the engagement angles.

Next, brightly polish the sides of the firing pin and the slot it rides. (Polishing of the firing pin, its firing-pin spring or guide, and the bolt tunnel in which they ride is known to speed up lock time in many lever actions.) We're not surprised to hear about the position taken by the Browning technician. If he reduced the trigger pull below factory specifications, Browning would yank his certification.

Years ago, manufacturers were adding \$65 to the wholesale cost of a firearm to cover the cost of liability insurance. We can only

guess what that cost is today. All manufacturers are worried about liability, and you don't have to be a manufacturer to be counted among the concerned. If you work on other peoples' guns, you take almost as high a risk if an injury occurs. The gunsmith is simply farther down on the list to be sued because their pockets aren't as deep as those of a large corporation. L. C.

Smith Restoration I'm restoring an old L. C. Smith, hammered, double-barreled, 12-gauge. The serial number is 142103. Could you tell me where I could get an exploded view of the gun, and whether it's possible to get a replacement right hammer? Also, is there a reliable value if the gun is shootable? Thanks. According to the Blue Book of Gun Values, no hammer models were made after 1898 (serial number 58,000, Fulton, NY). Additionally, the book indicates that all hammer models were fitted with Damascus barrels.

Fitting your gun with Briley fulllength tubes in a smaller gauge to allow the safe use of modern loads in Damascus barrels would reduce the collector value of the gun to somewhere between absolute minimum and zero. We haven't noticed it in their catalog, but Dixie Gun Works may have a replacement hammer. The other possibility is to contact the L. C. Smith Collector's Association. The association would also be the folks to ask regarding value.

No one is presently building reproductions of the hammer models, and we doubt a schematic exists. But, for what it's worth,

there's a schematic of a hammerless double (sidelock) in Jack First's catalog, Volume II. Colt Lightning Schematic? I'm looking for a schematic for the Colt Lightning Rifle, in the small frame .22 caliber. All of my books are for the medium and large-frame rifles. Can you tell me where I can find a parts schematic (assembly/disassembly) for the small frame?

I recently bought a receiver, and I'm trying to get all the parts to assemble the rifle. Thank you for your time. Jack First Inc. shows a schematic of the Colt Lightning .22 pump rifle in Volume II of their catalog of parts. We're sending you a copy by mail, but we can't be sure Jack First will have all the parts you need. We've been told that the take-down procedure for the small-frame rifle isn't all that different from that of the large frame Lightnings that show up in older NRA Shoulder Arm assembly guides.

You'll be interested to know that Taylors & Company will soon be distributing a Colt Lightning reproduction, and we'll be doing an article on it as soon as we can get our hands on one. Whether it will be a large medium or small-frame rifle, we can't say for sure at this time. We also don't know whether the parts will be interchangeable. Hopefully, the Taylor rifle will be a small frame and interchangeability will present no problem. Otherwise, we wish you luck; the small-frame Lightning hasn't been made since 1904.

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