MAADI
grimm
THE WORLD'S LONG SHOT STANDARD

MAADI-GRIFFIN

50 CAL. RIFLE PLANS

Written, Published and Totally Owned by
JNS Supply Company

All Rights Reserved

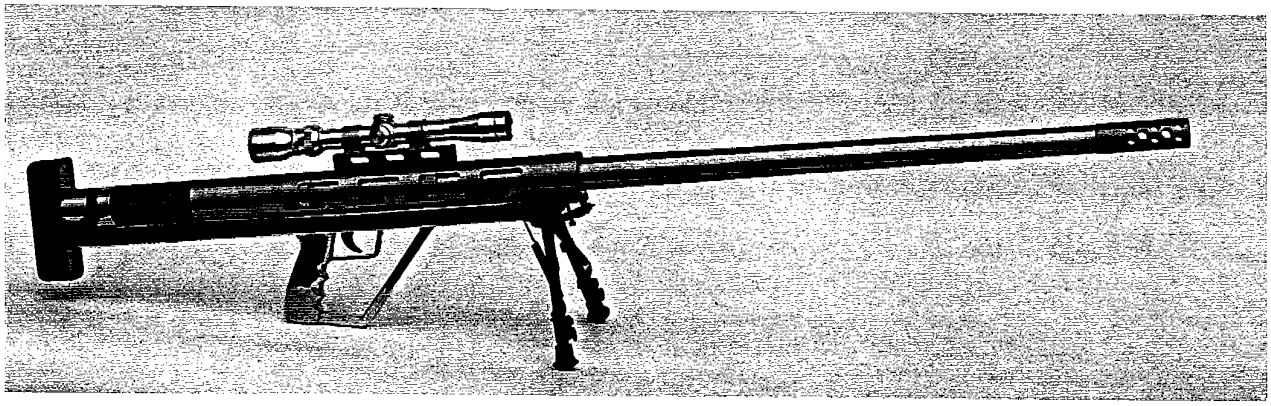
Under Federal Copyright Laws
no portion of this publication may be copied or reproduced in any form whatsoever
without written permission from JNS Supply Company.

Copies of this publication are sold and distributed for information purposes only.

Copyright 1995
by
JNS Supply Company
2812 North 34th Place
Mesa, Arizona 85213-9724

TABLE OF CONTENTS

Subject	Page
Introduction	1
Tool & Machinery List	2
Field Strip	3
Major Rifle Components	4
Parts List	5
Suppliers List	6
Trigger Bar Assembly	7-36
Handle Frame	37-41
Quick-Pins	42
Aluminum Cast Handle Frame	43
Receiver Tube	44-47
Bolt Assembly	48-75
Receiver	76-77
Shroud	78-79
Barrel	80-81
Barrel Locking Ring & Forward Shroud Ring	82
Scope Mount Base & Base Tube	83-84
Shroud Attachments	85-86
Muzzle Brake	87-91
Head Spacing	92-96
Forward Shroud Ring Installation	97
Barrel Assembly	98-100
Scope Mount Base Installation	101
Maadi-Griffin Parts Price List	102
Index	103
Carbine	104



INTRODUCTION

The Maadi-Griffin Rifle was first developed in 1991 as a long distance 50 caliber competition match piece. It is a single shot, bolt action, bull pup modified Mauser design. At this printing, it has the strongest bolt/receiver in the industry. On April 22, 1991, before a crowd of 26 people, in the Utah desert, a five-shot, 4" group was shot from a distance of 600 yards using Lake City ball ammunition.

Please read this book completely through until you are thoroughly familiar with it before you begin. It is very important that you have a clear understanding of every part and its relationship to the rest before any work begins. You can modify the rifle, but please write to us and explain what you have in mind, so we can help prevent potential problems that could arise. The design of the Maadi-Griffin has been thoroughly tested and is fully developed.

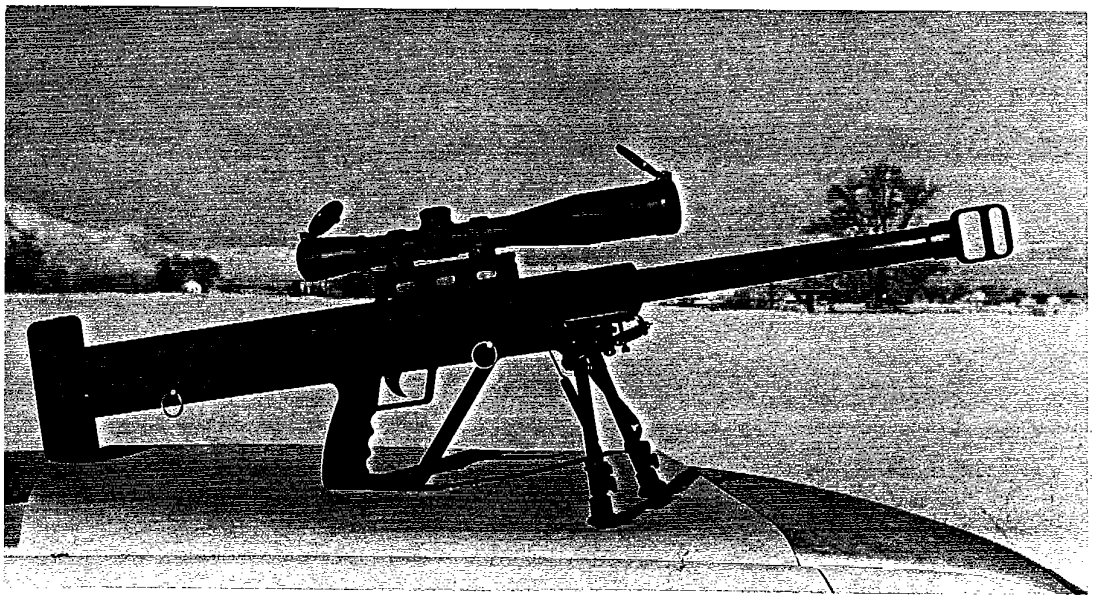
Due to the fact that Maadi-Griffin Co. cannot be present, and has no control over the circumstances and conditions under which any construction takes place, the Maadi-Griffin Co. and JNS Supply Co., assume absolutely no responsibility for any accidents, injury, loss of life or limb, or property damage in any form or manner. Nor will either company be held liable for any loss of any kind. It must be understood that any construction or attempted construction of any item listed in this book is totally at your own risk. This firearm is dangerous and can cause loss of life. All precautions must be used. **PROCEED AT YOUR OWN RISK.**

The MAADI-GRIFFIN Plans Book is written, published and totally owned by the JNS Supply Co. All rights reserved. Under Federal Copyright Laws, no portion of this publication may be copied or reproduced in any form whatsoever without written permission from the JNS Supply Co. Copies of this publication are sold and distributed for information purposes only. Copyright 1995 by JNS Supply Co., 2812 North 34th Place, Mesa, AZ 85213-9724.

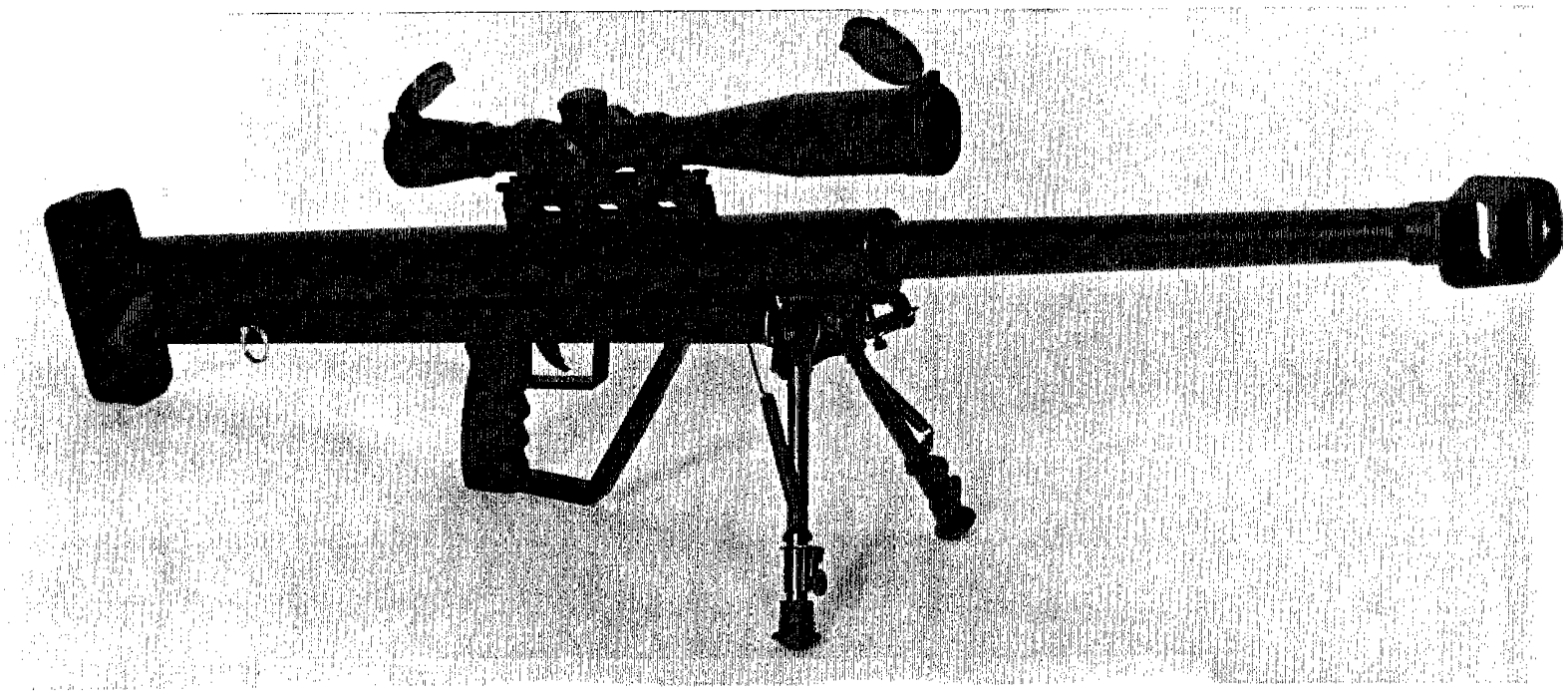
Tools and machinery you'll need access to for completion of this rifle:

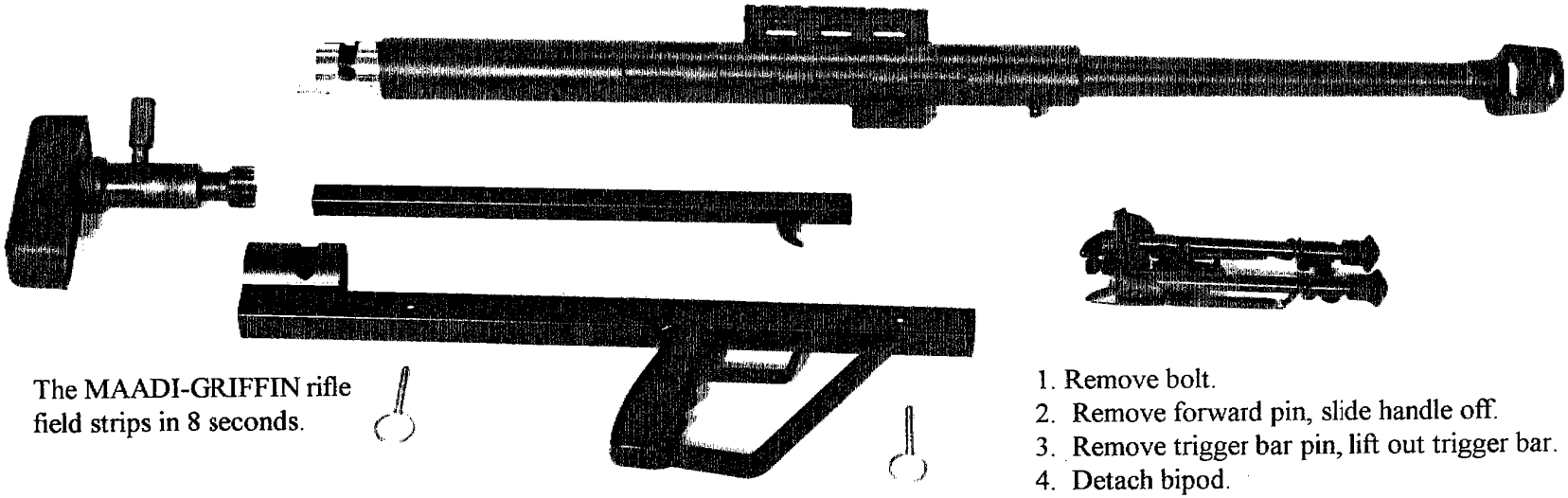
Dial caliper
Tig-welder
Small industrial lathe (with thread cutting capacity)
Small industrial vertical mill
Bench grinder
Disc sander
Drill press
Metal saw
Bench vice
5/16ths (drill, tap & die set NF)
Chain spanner vice-grips (2)
Mikita hand grinder (or equivalent)
Patience and ingenuity

If you run into any problems you can write: JNS Supply Co.
2812 North 34th Place
Mesa, AZ 85213-9724
or call (480) 325-5623, ask for Bob and he will talk you through any problem.



THE MAADI-GRIFFIN .50 CAL RIFLE (pictured with forward pin removed, reason unknown)





The MAADI-GRIFFIN rifle field strips in 8 seconds.

1. Remove bolt.
2. Remove forward pin, slide handle off.
3. Remove trigger bar pin, lift out trigger bar.
4. Detach bipod.

The barrel assembly complete (minus the bipod mount lug).

The bolt inserted

Trigger bar

Trigger bar Quick-Pin

Forward Quick-Pin

Handle frame

The muzzle brake

Butt pad cover

This is the complete rifle minus the bipod.

To assemble:

1. Insert trigger bar into handle frame and secure with Quick-Pin.
2. Remove bolt from receiver, insert barrel assembly into handle frame secure with Quick-Pin.
3. Insert butt pad into butt cover and fit on the butt plate.
4. Insert bolt into receiver.
5. To attach muzzle brake: use PC-7 epoxy on threads, screw on the brake until the muzzle protrudes out from the back plate with 1 to 2 threads showing. Align the muzzle break with the rest of the rifle and let set.

The butt pad

Maadi-Griffin Rifle Parts List

The Maadi-Griffin rifle has 35 parts (counting the bipod as one part).

TRIGGER BAR ASSEMBLY

Part # 1	Trigger Bar
# 2	Sear
# 3	Sear Spring
# 4	Sear Pin
# 5	Sear Link
# 6	Sear Link Spacer Spring
# 7	Sear Link Pin
# 8	Trigger
# 9	Trigger Spring
#10	Trigger Pin
#11	Actuator Rod

BOLT ASSEMBLY

Part #12	Bolt
#13	Bolt Handle
#14	Bolt Handle Set Screw
#15	Firing Pin
#16	Firing Pin Tail Stock
#17	Firing Pin Spring
#18	Bolt Cap
#19	Butt Plate
#20	Butt Pad
#21	Butt Pad Cover

BARREL ASSEMBLY

Part #22	Barrel
#23	Muzzle Brake
#24	Forward Shroud Ring
#25	Barrel Lock Ring
#26	Shroud
#27	Receiver Tube
#28	Locking Lug
#29	Scope Mount Base
#30	Base Tube
#31	Bipod Mount Lug
Part #32	The Handle Frame
#33 & 34	Quick Pins
#35	Harris Bipod

SUPPLIER'S LIST:

Barrels:

K & P GUN COMPANY (Ken or Peggy Johnson)
1024 Central Ave.
New Rockford, ND 58356
(701) 947-2248

KRIEGER BARRELS, INC. (John Krieger)
N114 W18697 Clinton Dr.
Germantown, WI 53022
(414) 255-9593

LILJA PRECISION RIFLE BARRELS, INC. (Dan Lilja)
245 Compass Creek Road
P. O. Box 372
Plains, MT 59859
(406) 826-3084 Fax (406) 826-3084

OBERMEYER RIFLED BARRELS (Boots Obermeyer)
23122 - 60th St.
Bristol, WI 53104
(414) 843-3537

OYSTER BAY INDUSTRIES (Robert Ruben)
31 South Street
Oyster Bay, NY 11771
(516) 922-1376 Fax (516) 922-7542

SARCO, INC. (Glenn deRuiter)
323 Union St.
Stirling, NJ 07980
(908) 647-3800

WALTHER PRECISION ENGINEERING CO. (Woody Woodall)
3425 Hutchinson Rd.
Cumming, GA 30040
(770) 889-9998

WILSON ARMS CO. (George Wilson III, Tom Ross)
63 Leetes Island Dr.
Branford, CT 06405
(203) 488-7297

WISEMAN BARRELS (Bill or Judy Wiseman)
P. O. Box 3427
Bryan, TX 77805
(409) 690-3456 Fax (409) 690-0156

Ammunition:

RIVER VALLEY ORDNANCE (Tom Owsley)
3790 Harvester Road
Harvester, MO 63303
(314) 926-3076

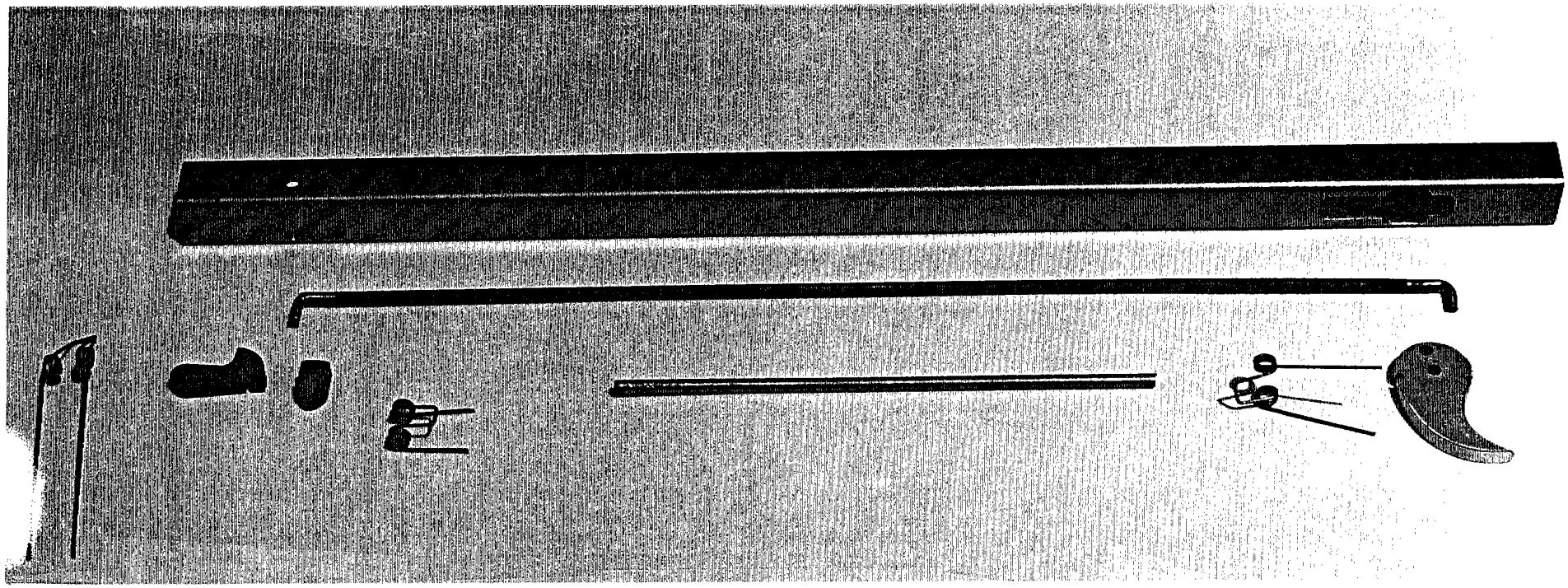
All Parts:

MAADI-GRIFFIN CO. (Bob or Naomi Stewart)
2812 North 34th Place
Mesa, AZ 85213-9724
(480) 325-5623 Fax (480) 325-5625

TRIGGER BAR ASSEMBLY

Parts List:

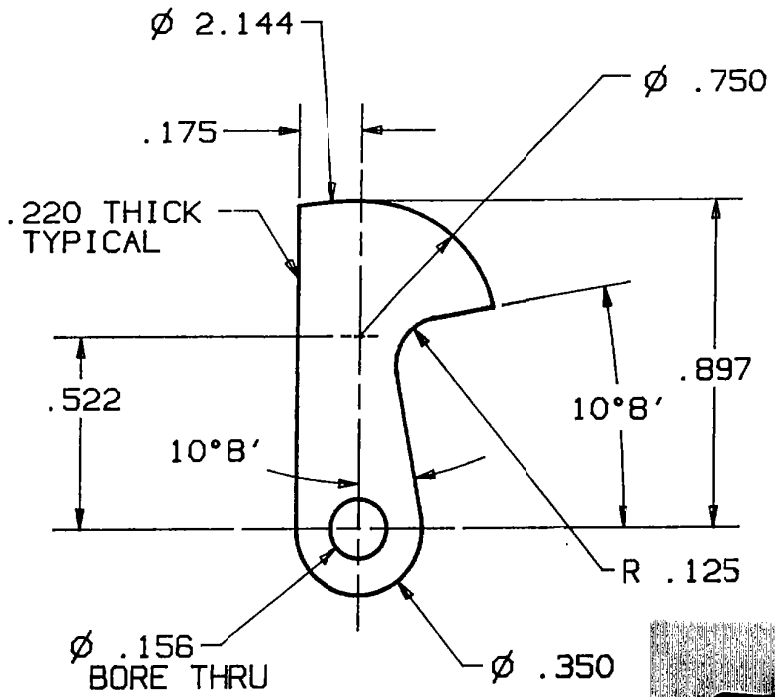
1. Trigger Bar
2. Sear
3. Sear Spring
4. Sear Pin
5. Sear Link
6. Sear Link Spacer Spring
7. Sear Link Pin
8. Trigger
9. Trigger Spring
10. Trigger Pin
11. Actuator Rod



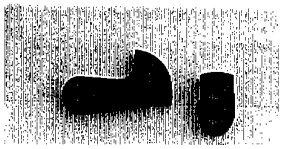
TRIGGER BAR ASSEMBLY

SEAR

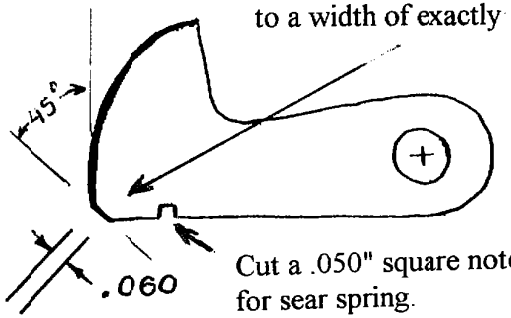
Material: 4140 steel, .250" thick, after milling, heat treat to **42 ROCKWELL C-Scale.**



SEAR

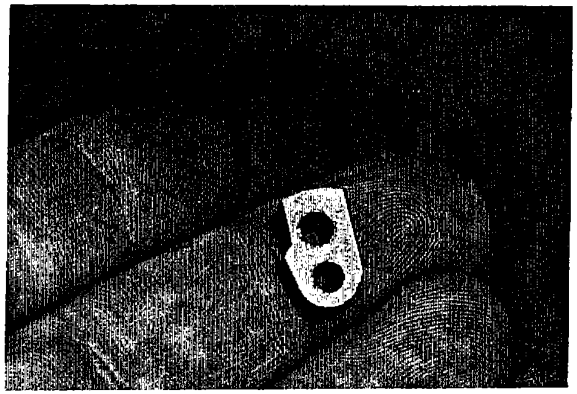


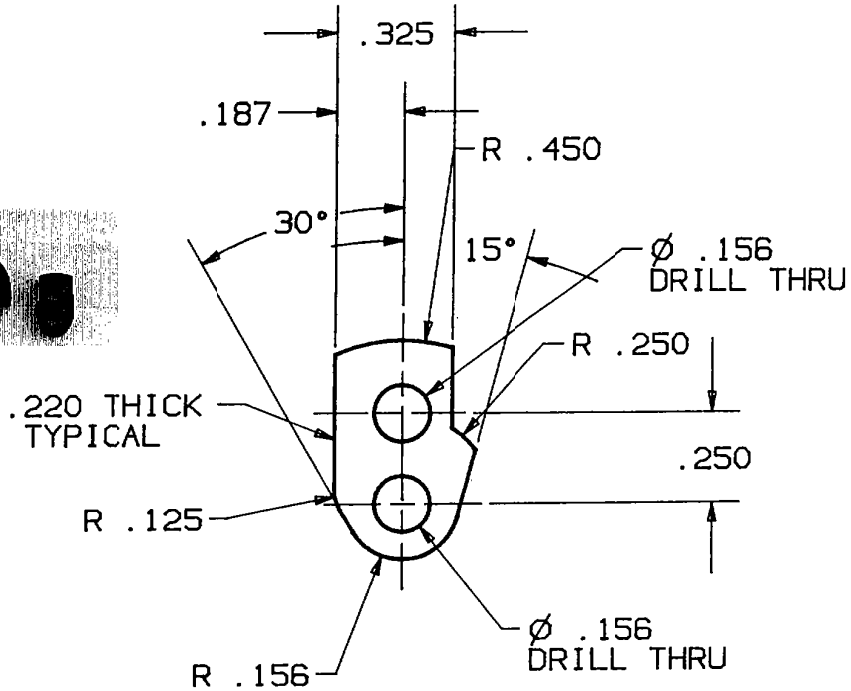
Mill or flat grind off the corner edge of the SEAR exactly 45degrees to the sides, and to a width of exactly .060"



Cut a .050" square notch here for sear spring.

Material thickness can be from .220" to .250"

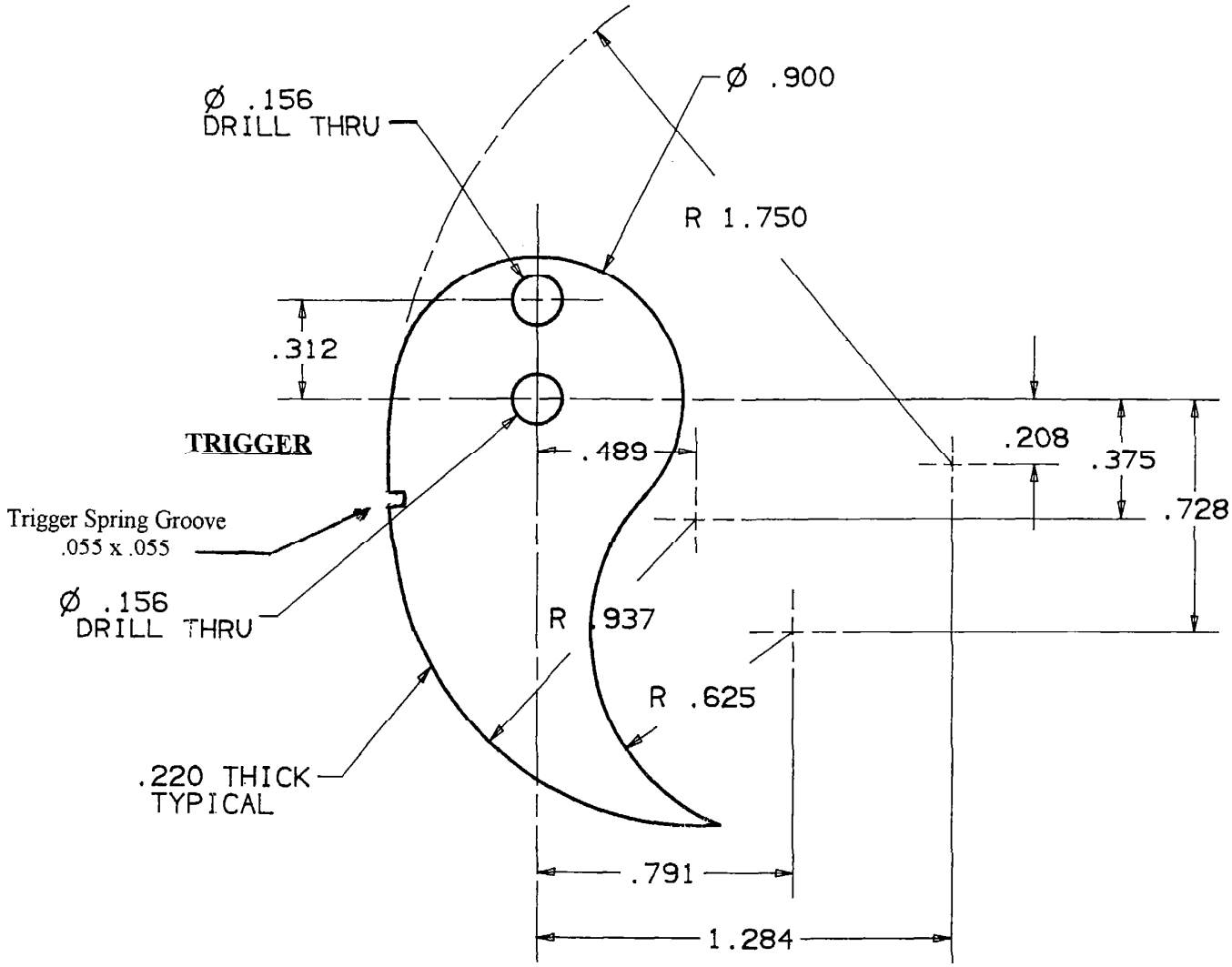




SEAR LINK

Material: 4140 steel, .220" thickness.

(After milling, heat treat to **46 ROCKWELL C**-Scale)



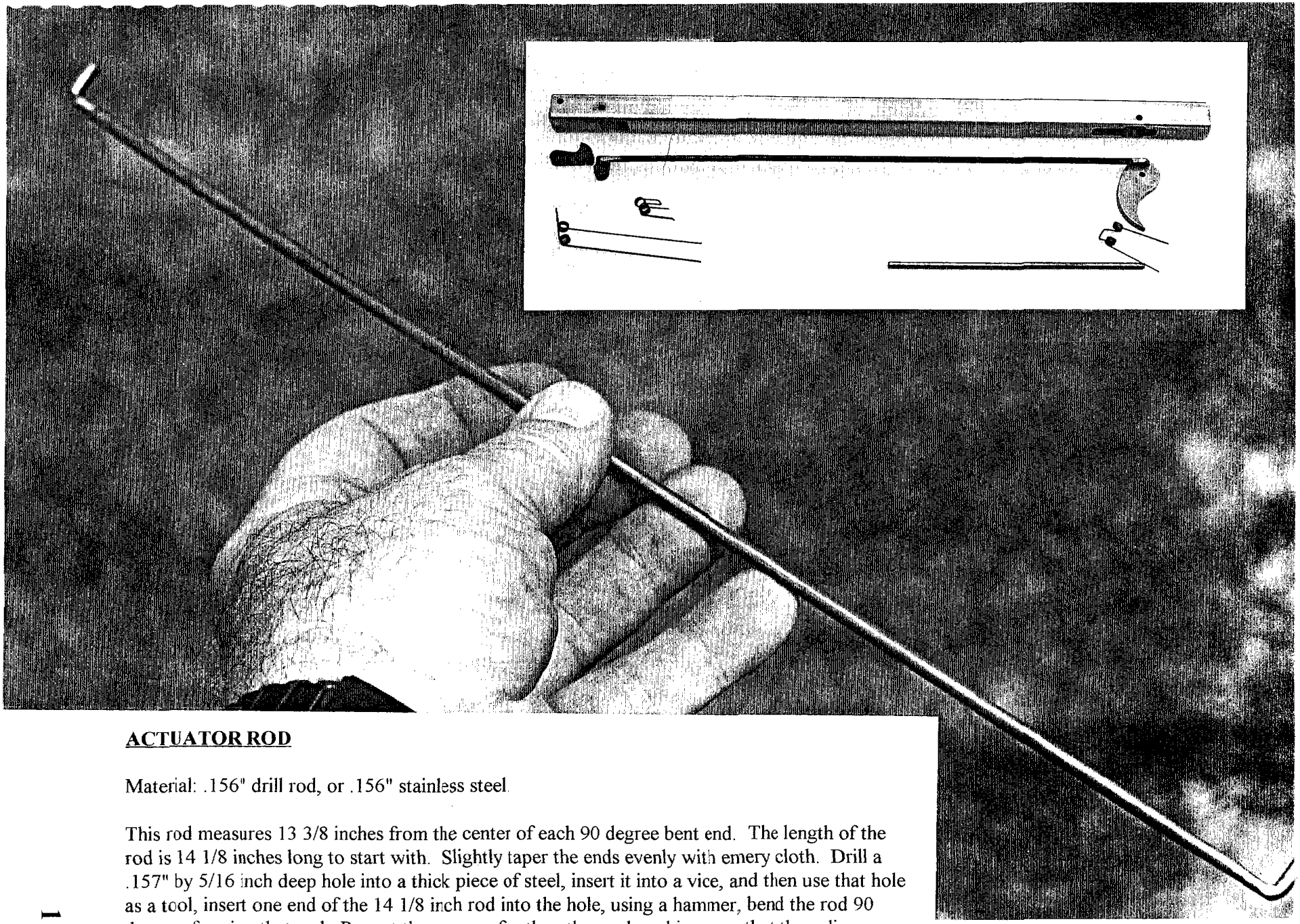
Material thickness can be from .220" to .250"

TRIGGER

Material: Any .250" thick steel, bronze, brass, stainless steel. (Soft material such as aluminum is not recommended.)

THE TRIGGER

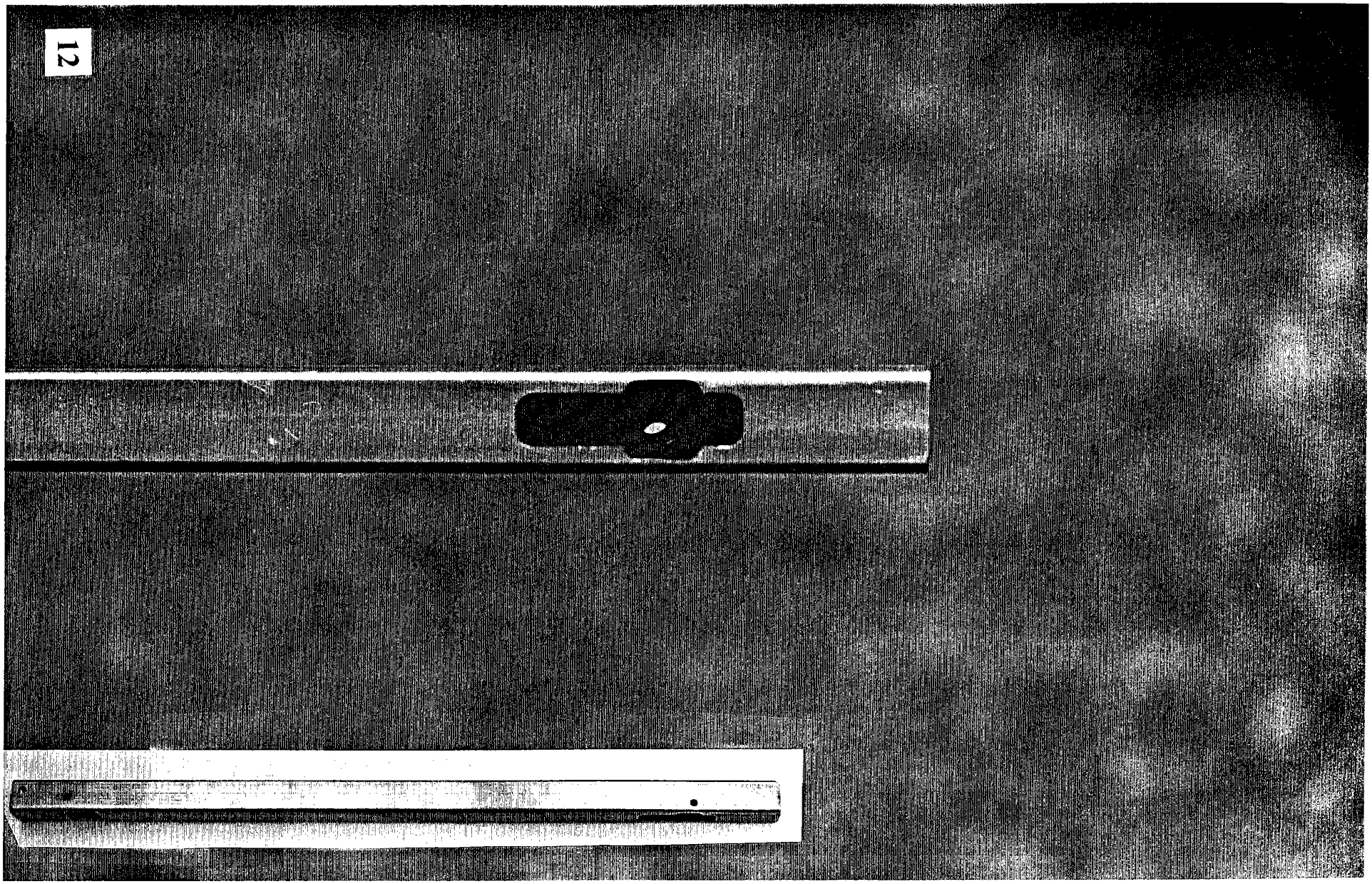
On the back of the trigger, use a hack saw to cut a .060" groove for the trigger spring as shown here, be as close to the position shown as possible. The trigger can be polished up to show well, many have used stainless steel, or bronze. Some have even had their triggers gold plated. (Or chrome plated)



ACTUATOR ROD

Material: .156" drill rod, or .156" stainless steel.

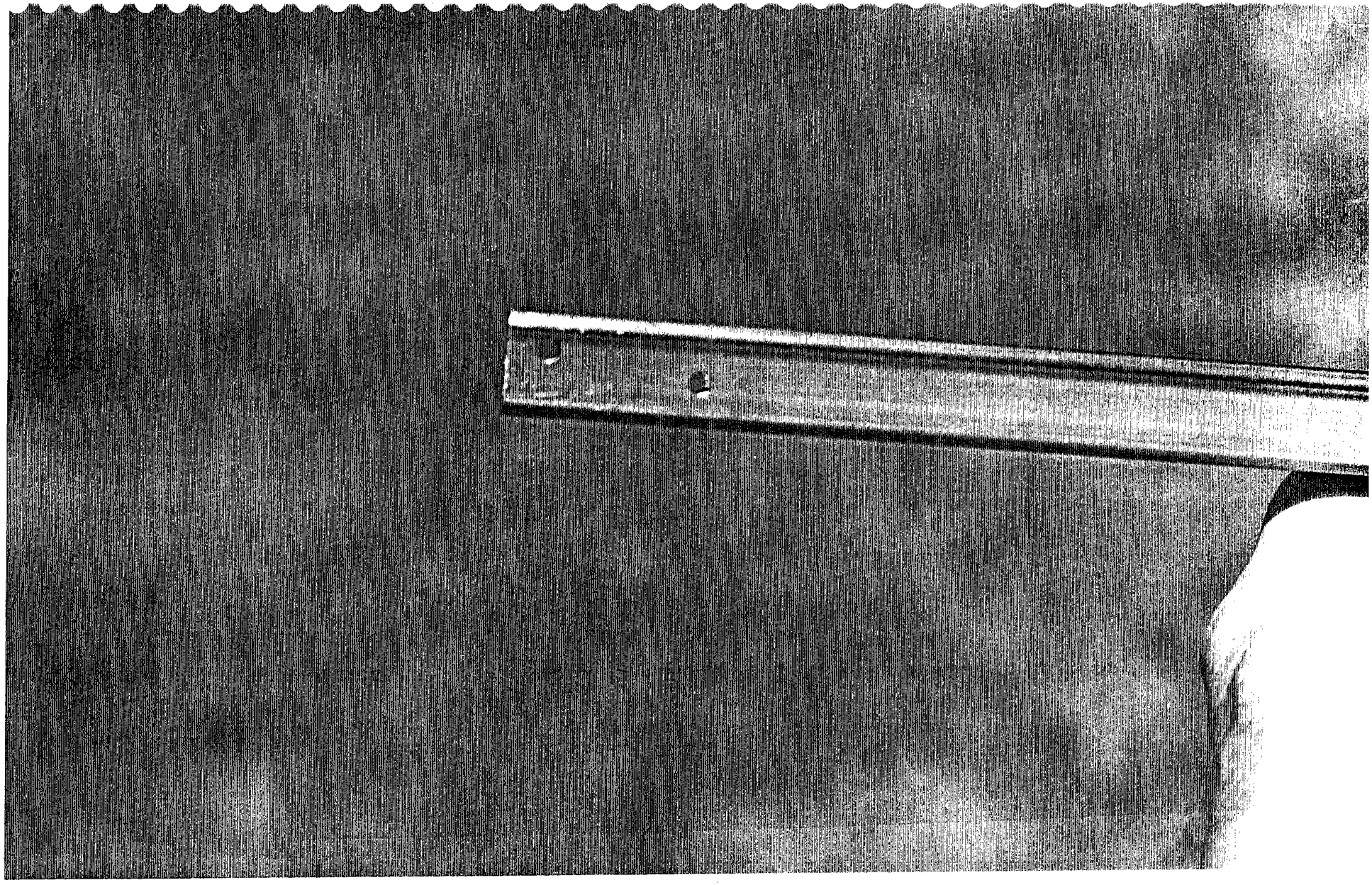
This rod measures 13 3/8 inches from the center of each 90 degree bent end. The length of the rod is 14 1/8 inches long to start with. Slightly taper the ends evenly with emery cloth. Drill a .157" by 5/16 inch deep hole into a thick piece of steel, insert it into a vice, and then use that hole as a tool, insert one end of the 14 1/8 inch rod into the hole, using a hammer, bend the rod 90 degrees forming that end. Repeat the process for the other end, making sure that they align as shown.



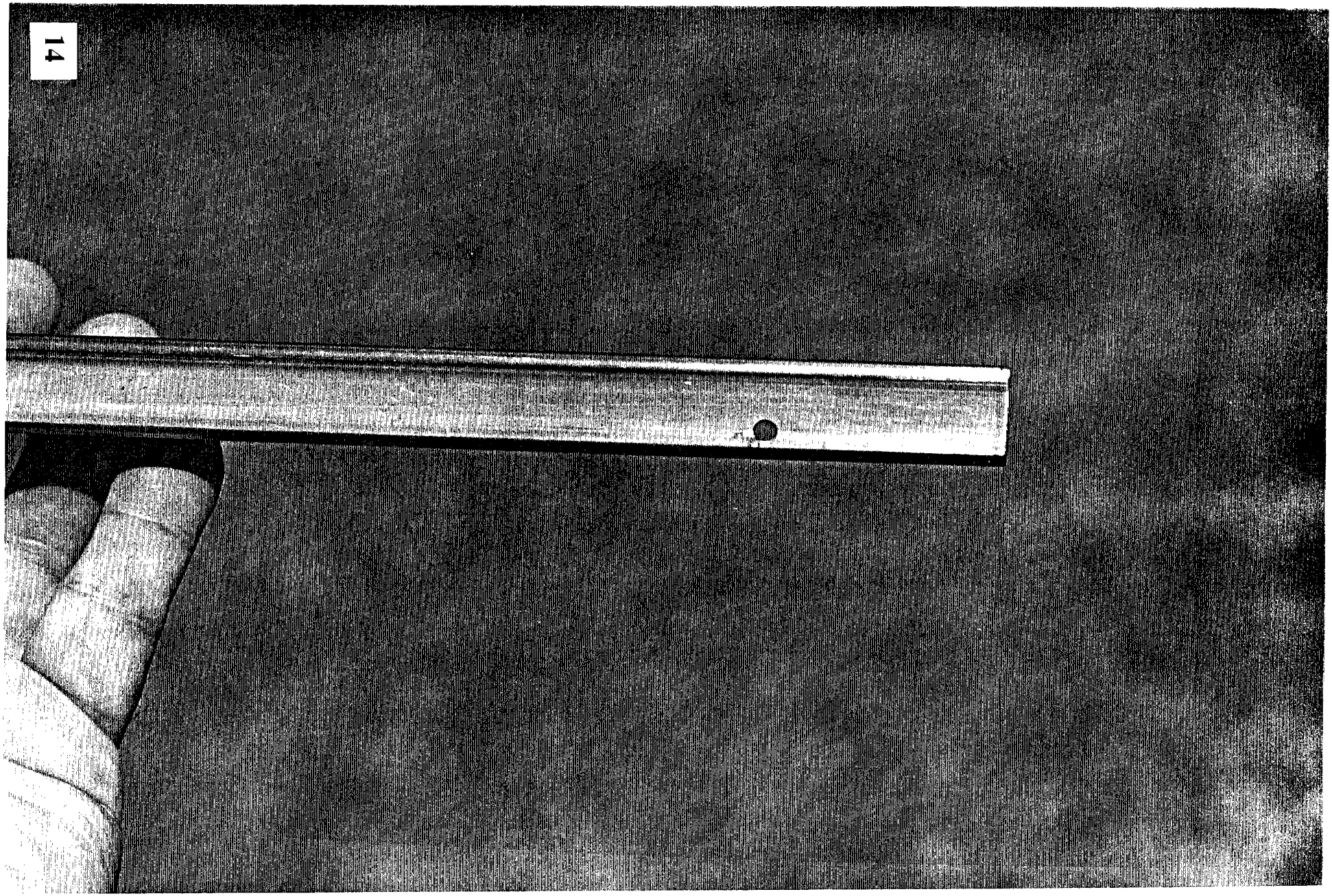
TRIGGER BAR

Material: Stainless Steel, or mild steel
Dimensions: 3/4" square tubing, .060" wall thickness
16.250" long

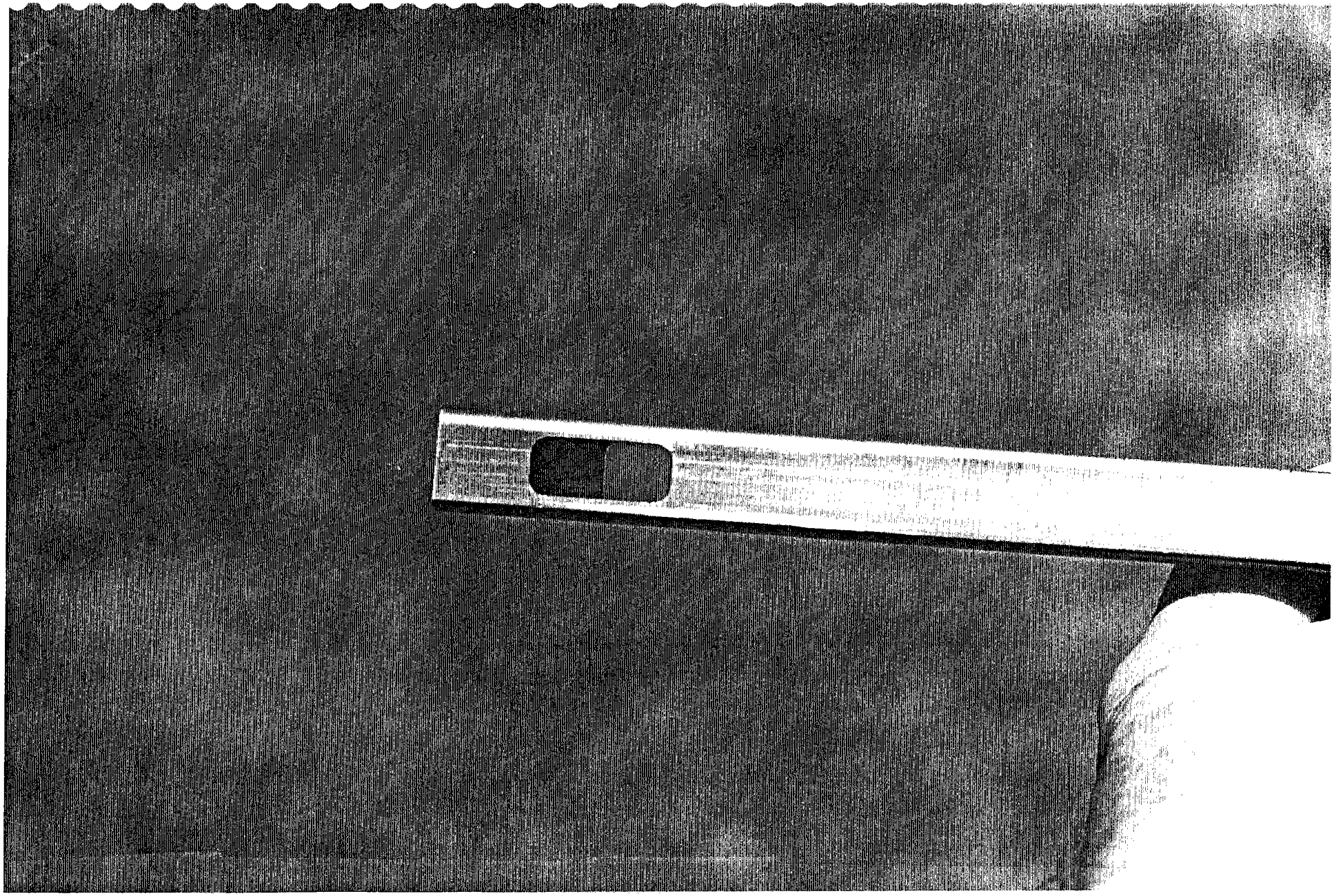
This is the **TRIGGER** end of the bar, the forward end and the opening is on the bottom. The opening can be a simple rectangle measuring 1.590" long and .600" wide. The distance from the rear of the opening to the back end of the bar is 13.450"



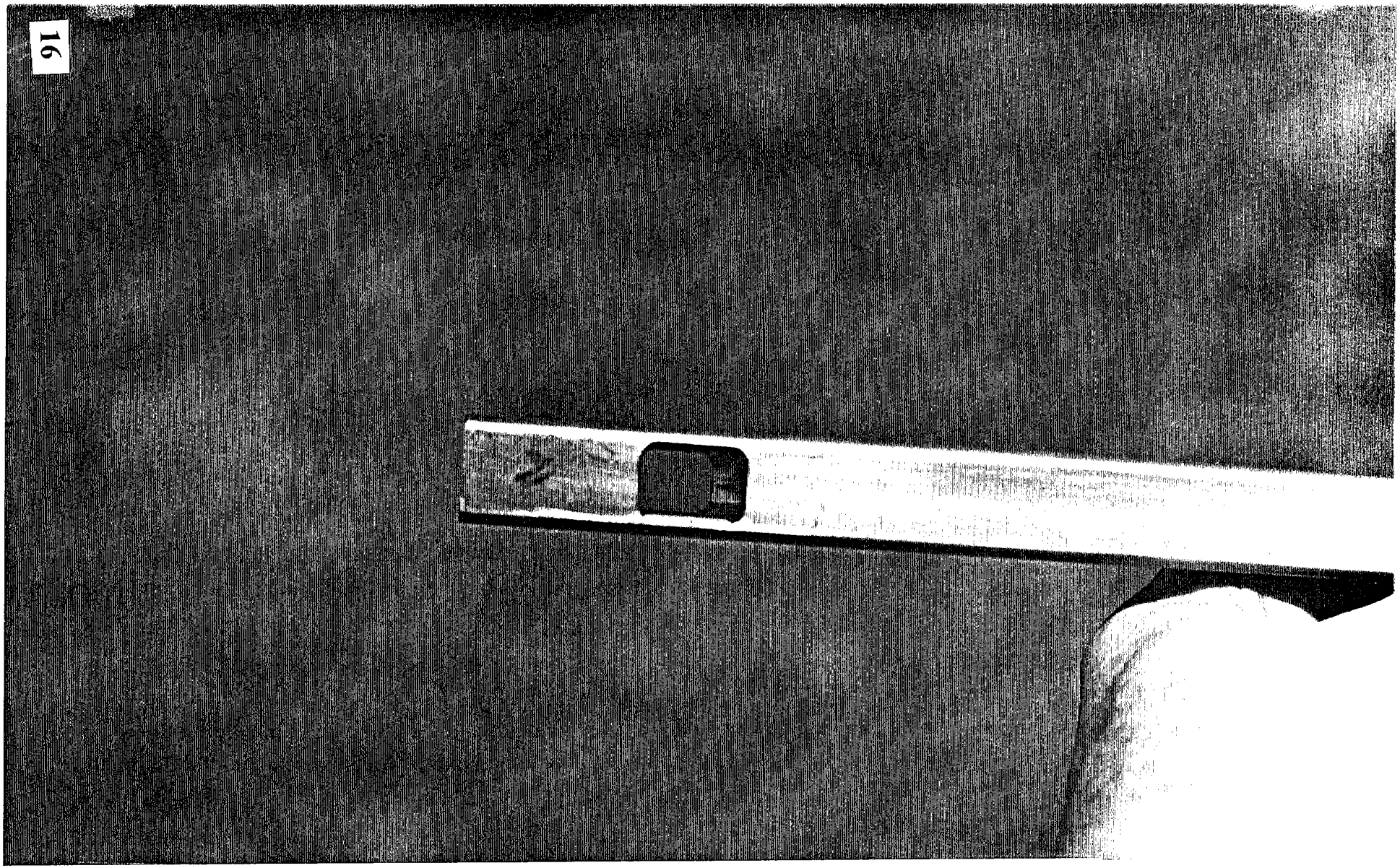
This is the rear end of the **TRIGGER BAR'S** right side. These two holes are .156" diameter. The upper left hole is the pin hole for the **SEAR PIN**, and its center is **.285"** in from the end and down **.270"** from the top of the bar. The lower right hole is the pin hole for the **SEAR LINK PIN** and its center is located **1.355"** in from the end and down **.430"** from the top of the bar (Drilling these holes should be done on a drill press to insure proper alignment.)



This is the right side, forward end of the trigger bar. This is the hole for the **TRIGGER PIN**. It is .156" diameter and the center is 14.600" right from the BACK END, and .545" down from the top.



This is the top side of the trigger bar rear end where the **SEAR** will be located. This opening measures 1.030" long and .435" wide. This opening starts .700" from the rear end of the bar. (A verticle mill using a .250" mill bit is recommended.)

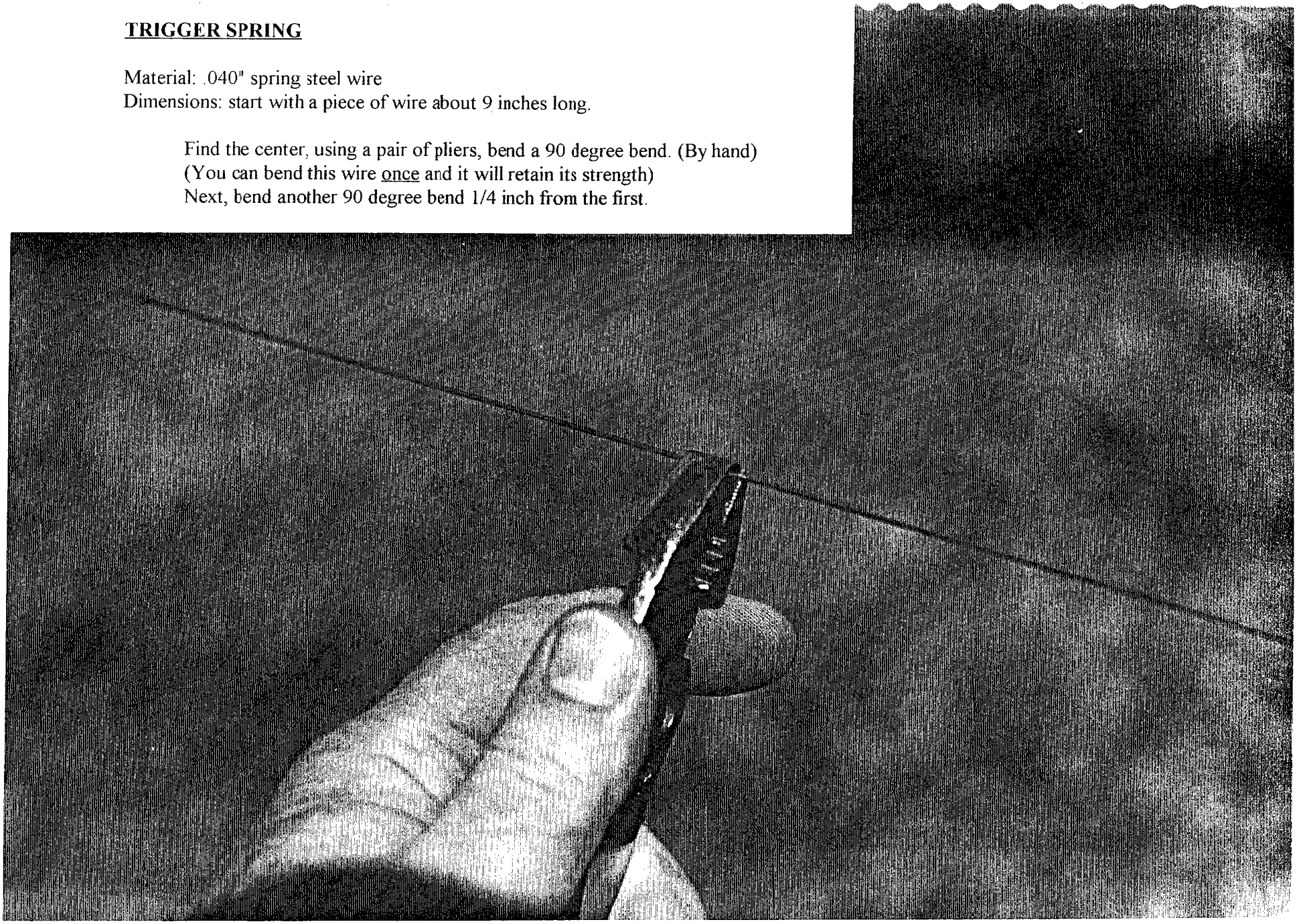


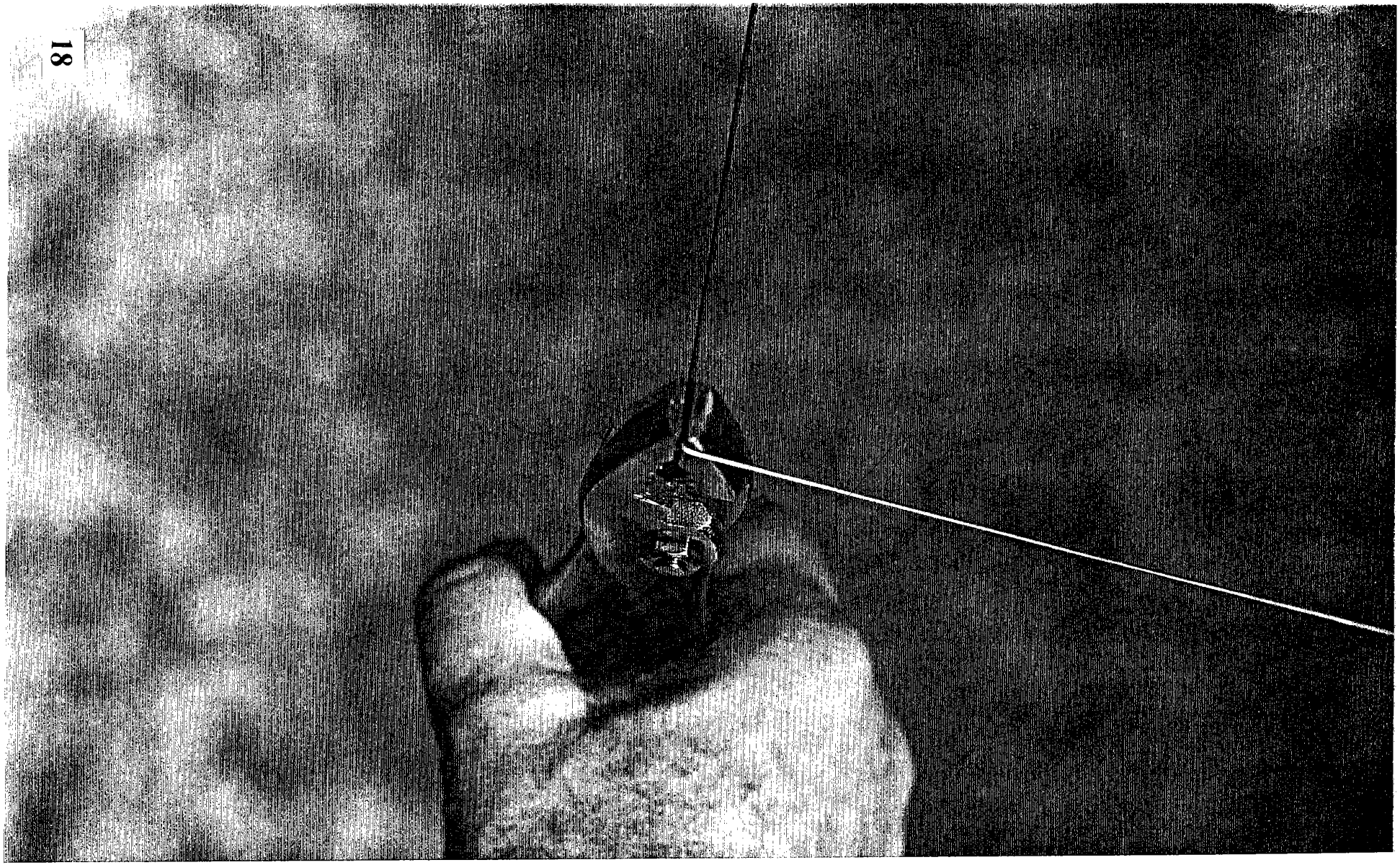
This is the bottom side of the trigger bar (rear end) where the sear link will be located. This opening measures .725" long and .600" wide and it begins 1.235" from the rear end of the bar.

TRIGGER SPRING

Material: .040" spring steel wire
Dimensions: start with a piece of wire about 9 inches long.

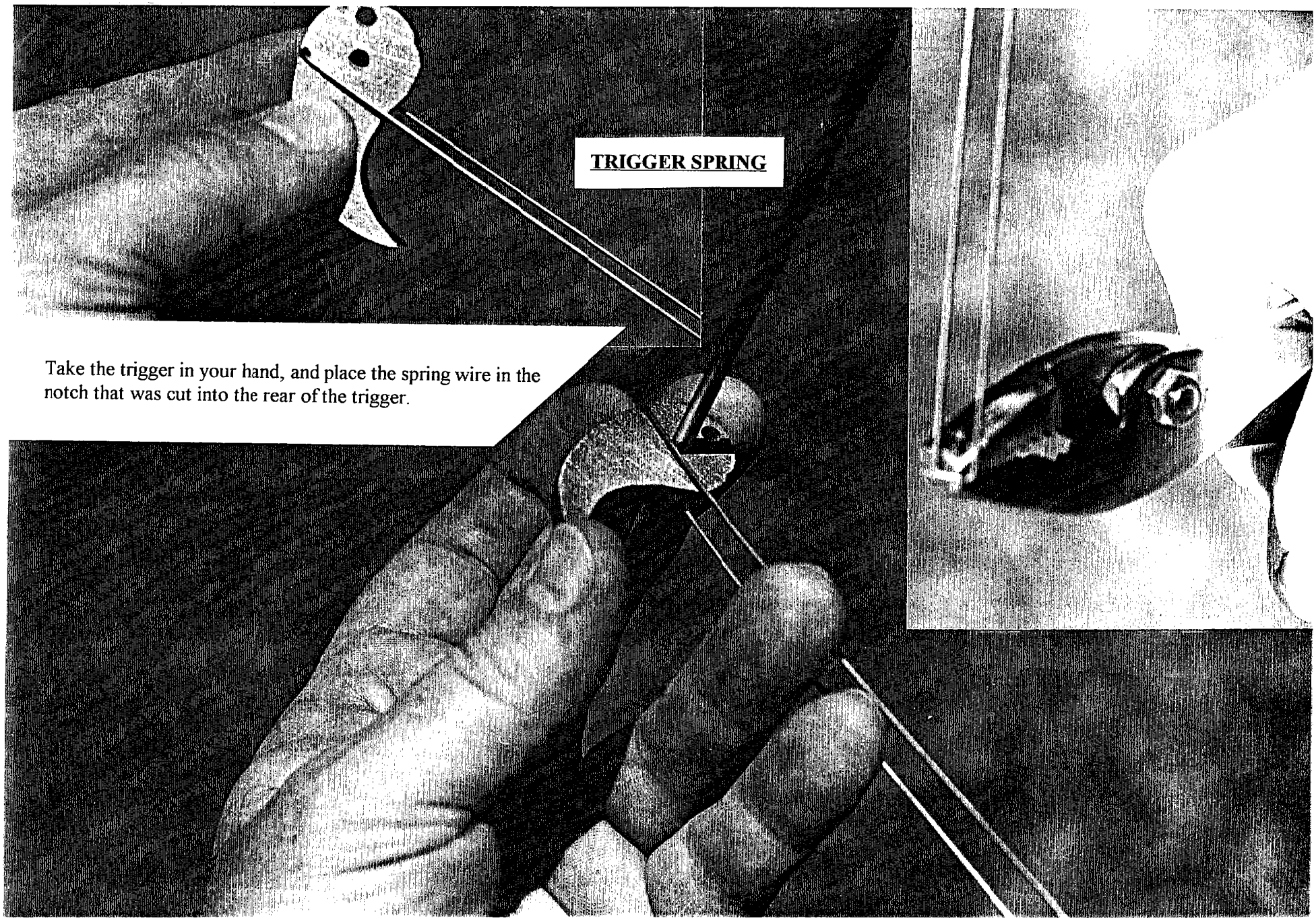
Find the center, using a pair of pliers, bend a 90 degree bend. (By hand)
(You can bend this wire once and it will retain its strength)
Next, bend another 90 degree bend 1/4 inch from the first.





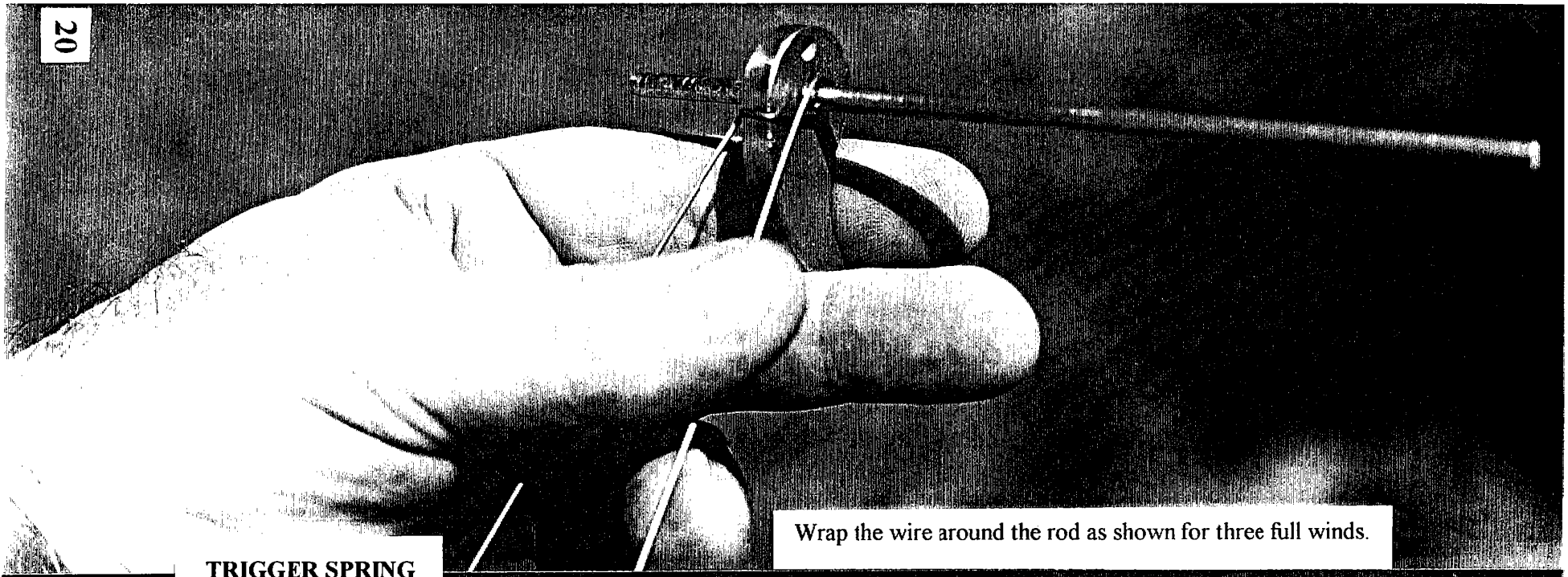
MAKING SPRINGS

This is .040" dia. spring wire and it can be shaped easily by hand using a pair of pliers. Be careful. This wire can be bent once. Do not use any wire that has been straightened out after a 90 degree bend, as it will break. You can bend it one time and it will remain strong.



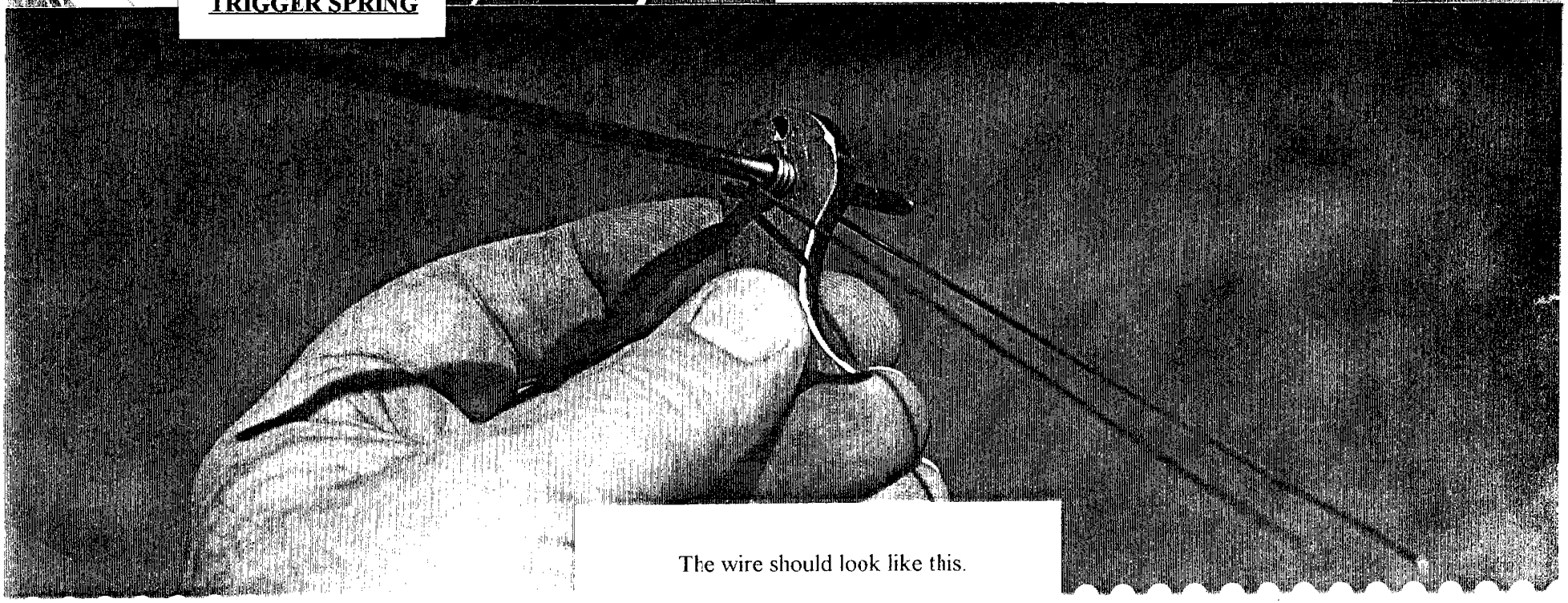
Take the trigger in your hand, and place the spring wire in the notch that was cut into the rear of the trigger.

Insert a length of .156" diameter drill rod (the same rod that the pins are made of) and wrap the wire around the rod as shown here.

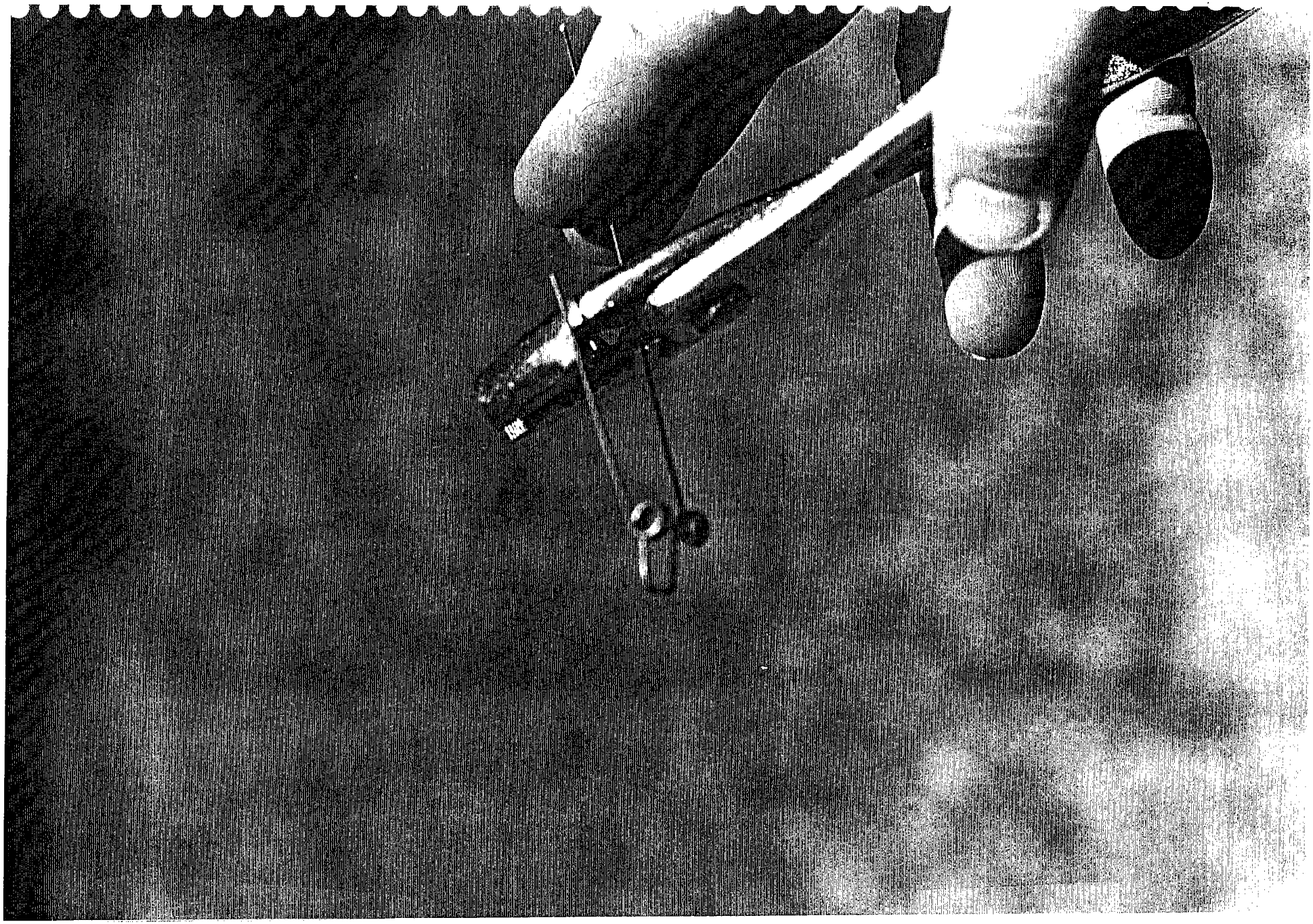


TRIGGER SPRING

Wrap the wire around the rod as shown for three full winds.



The wire should look like this.



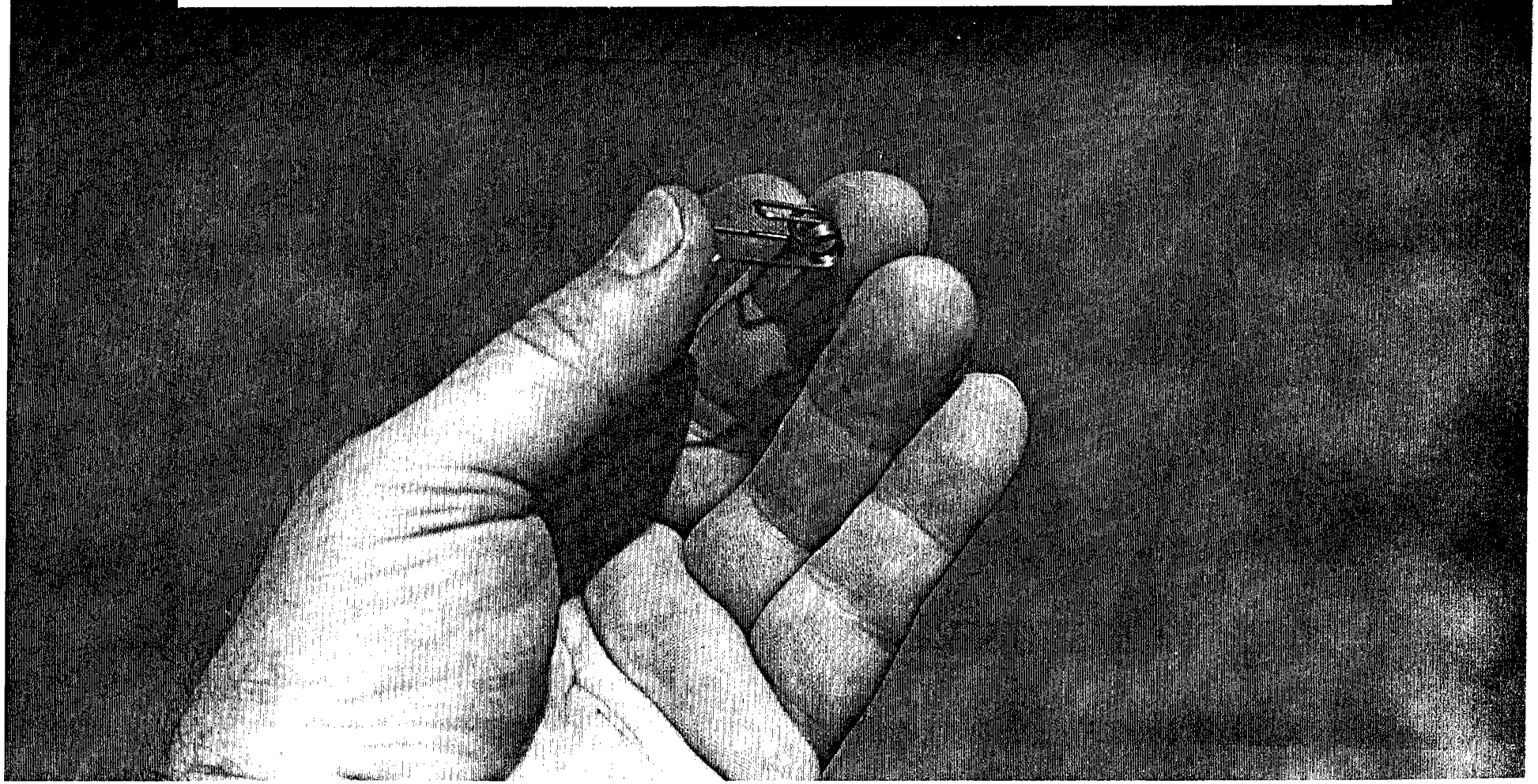
Trim the wire spring leads to 1.750" long each.

TRIGGER SPRING

SEAR LINK SPRING

Material: .040" spring wire

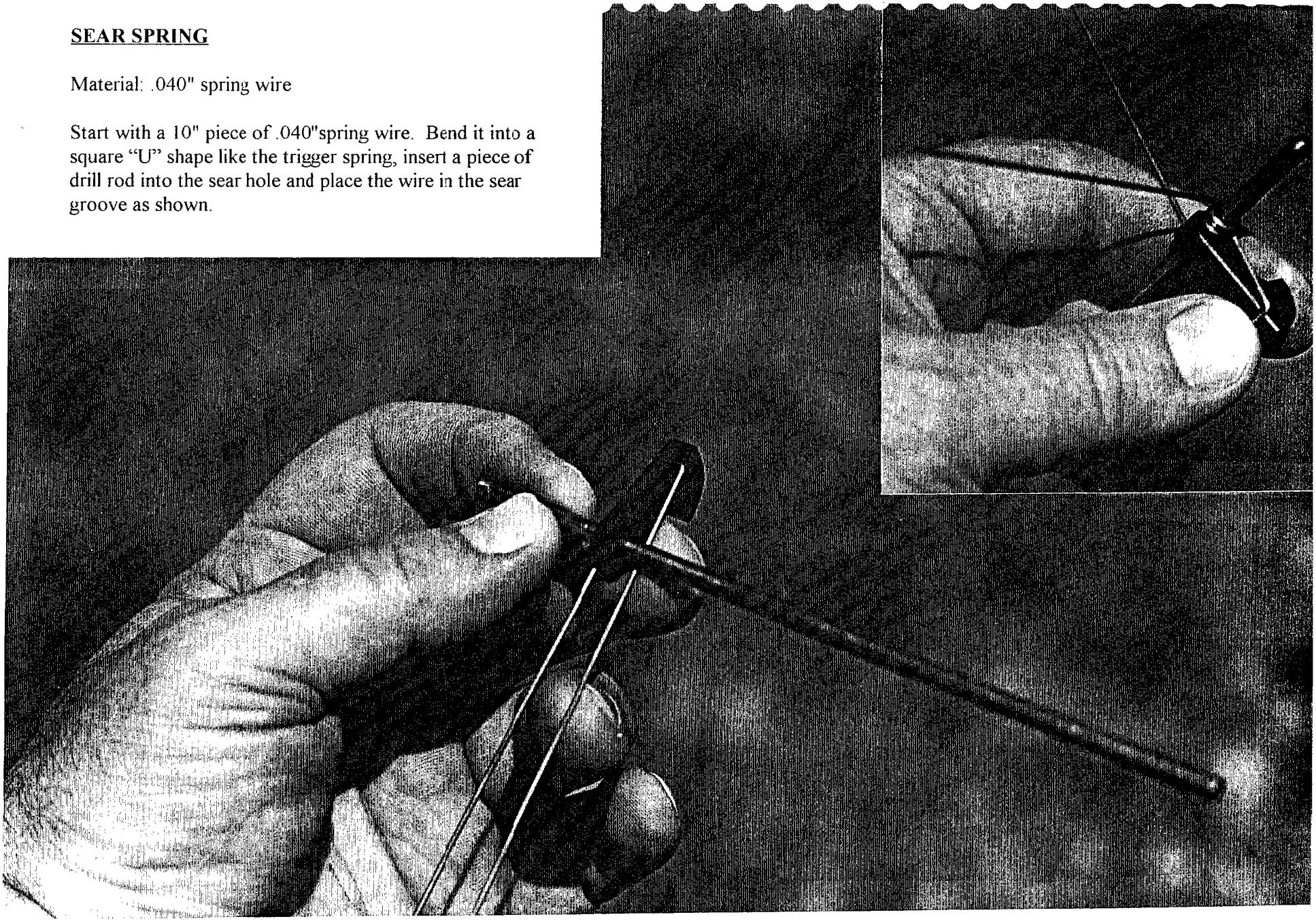
This is actually a spacer, and does not function as a spring. To make this, follow the same exact procedure as making the trigger spring, except that you continue to bend the wire another half turn, and trim the leads to .900" There should be four full coils on each side. As shown.



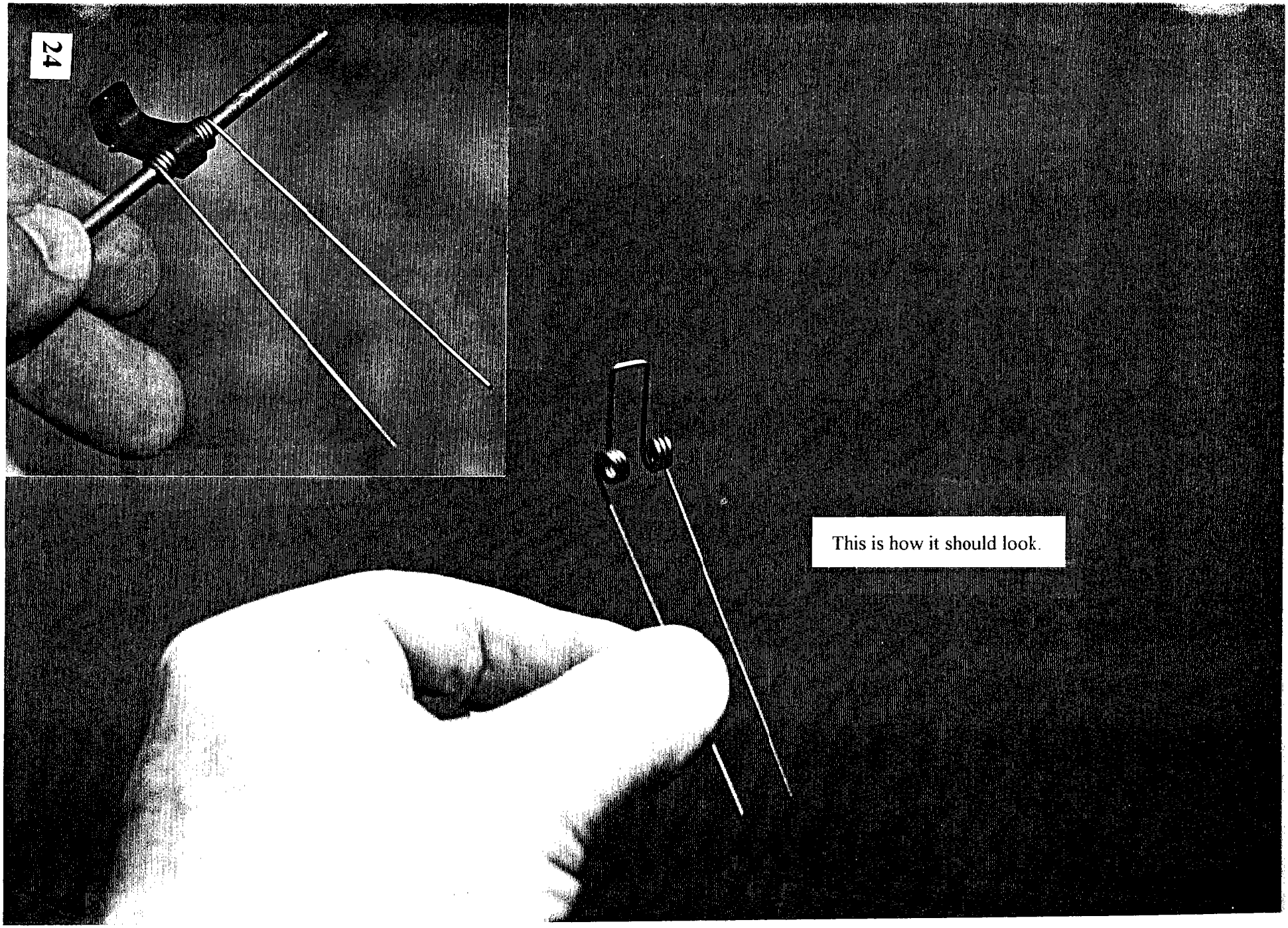
SEAR SPRING

Material: .040" spring wire

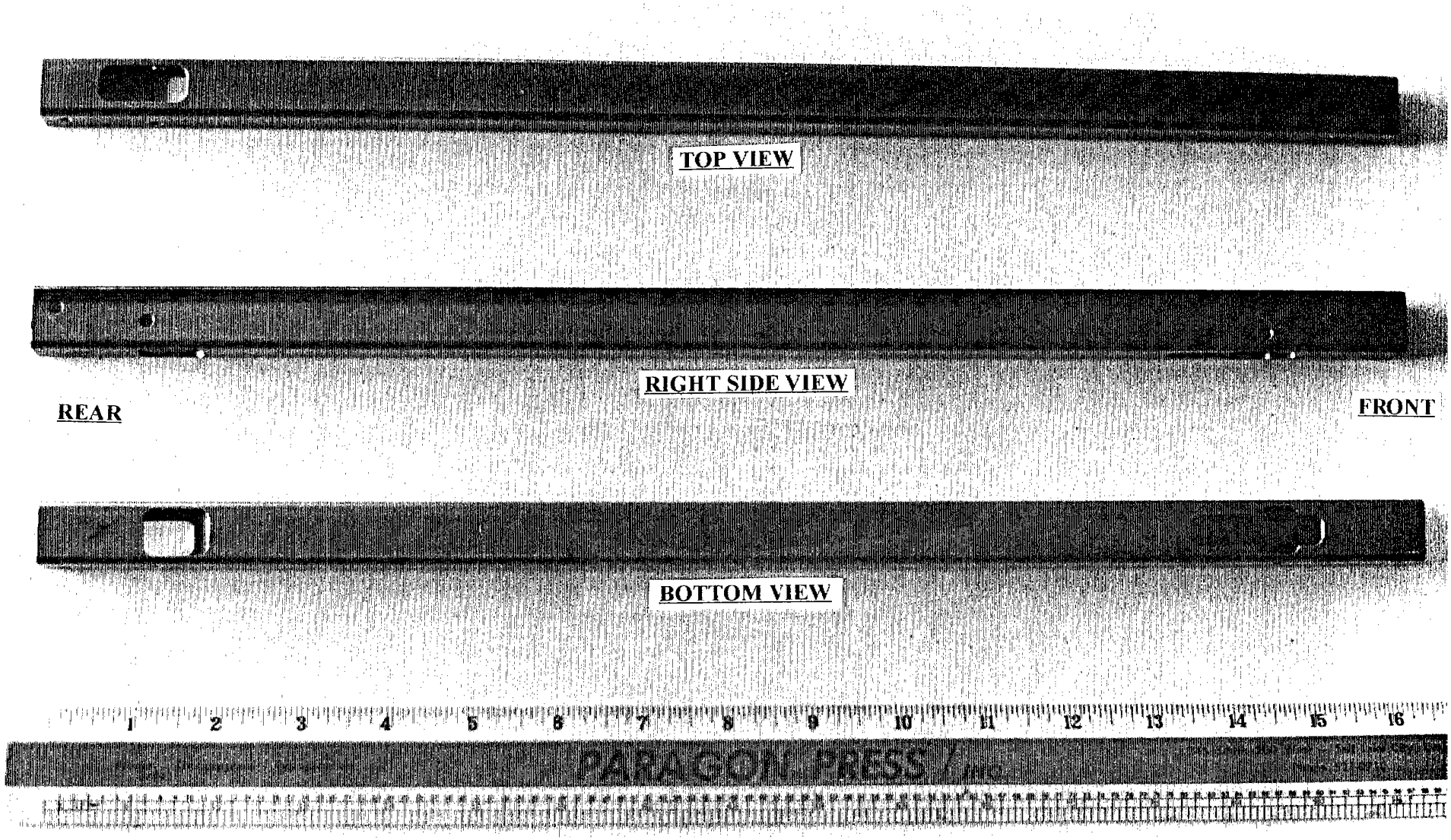
Start with a 10" piece of .040"spring wire. Bend it into a square "U" shape like the trigger spring, insert a piece of drill rod into the sear hole and place the wire in the sear groove as shown.



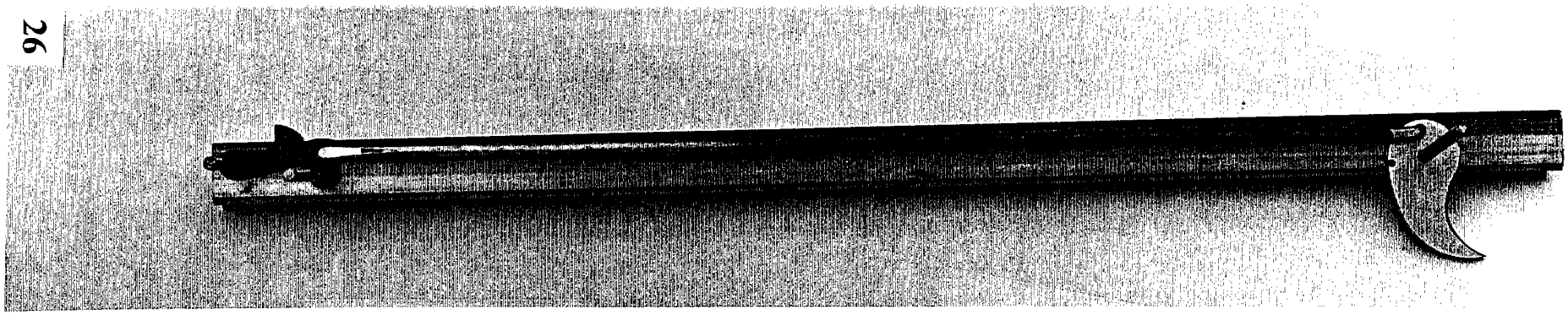
Hold the wire and sear firmly and bend the wire around the drill rod as shown making sure that the loop end of the wire stays inside the sear groove. There should be three and a half coils, see



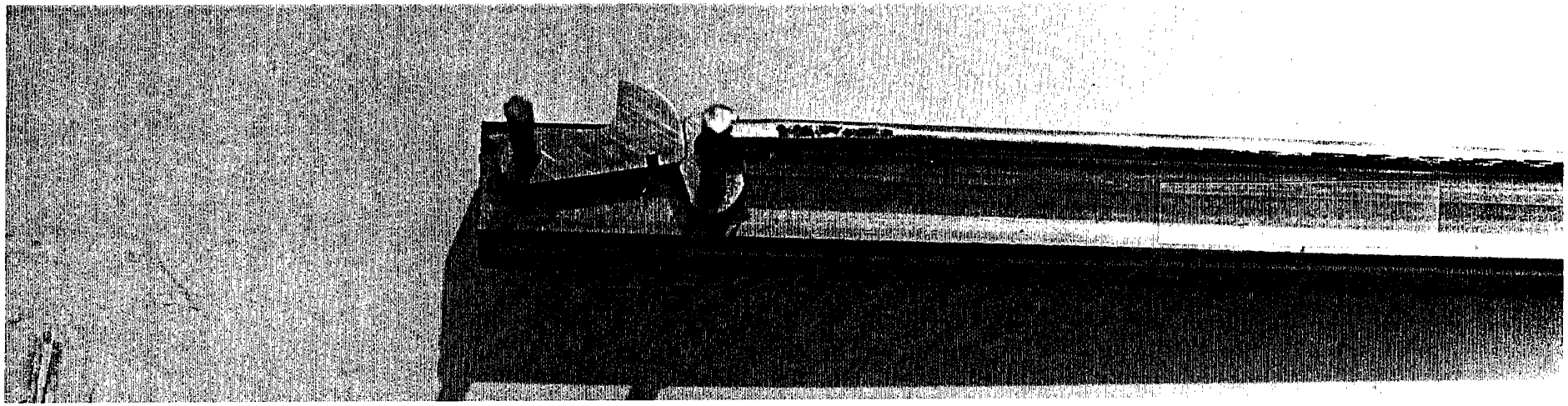
THE SEAR SPRING



THE TRIGGER BAR

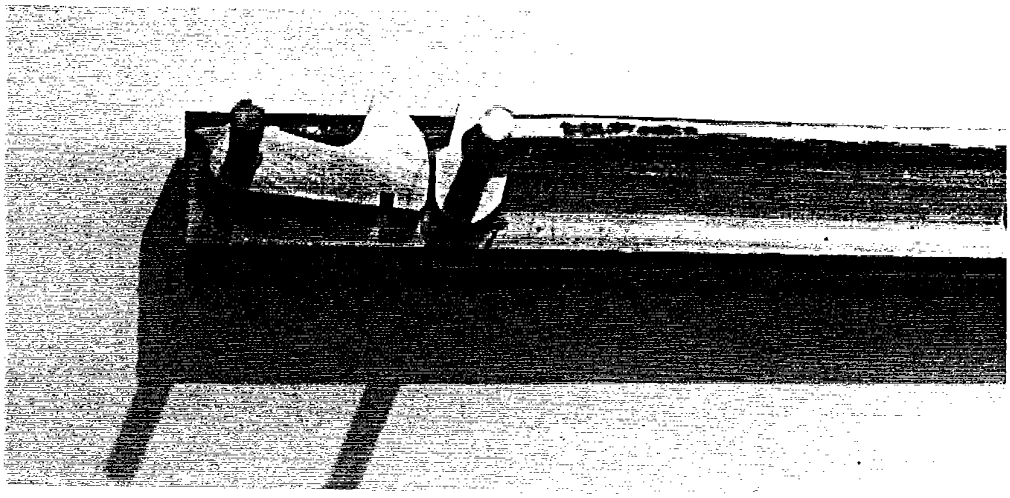


Before any assembling, check out the rod length and parts to insure that they work first.

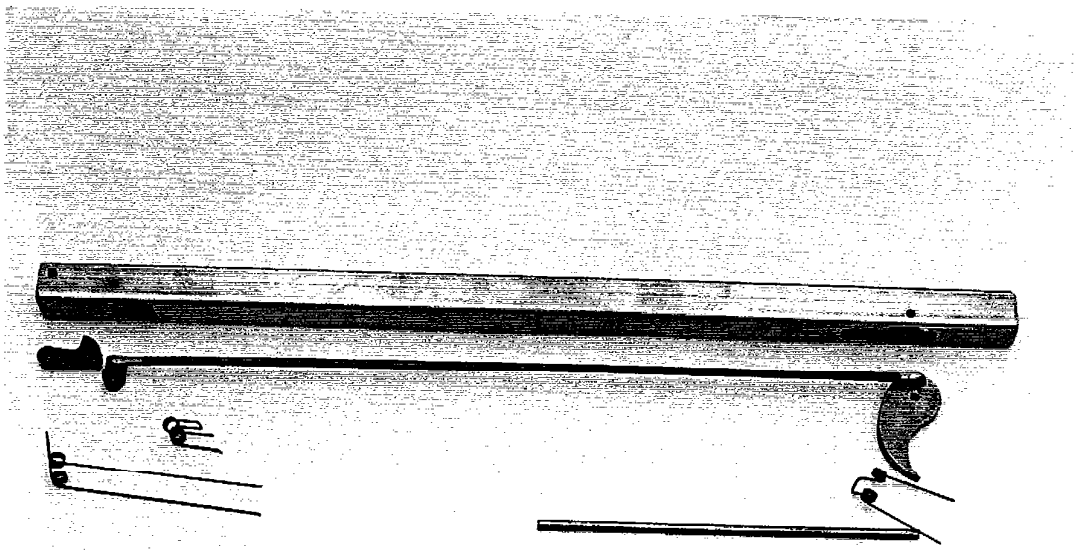


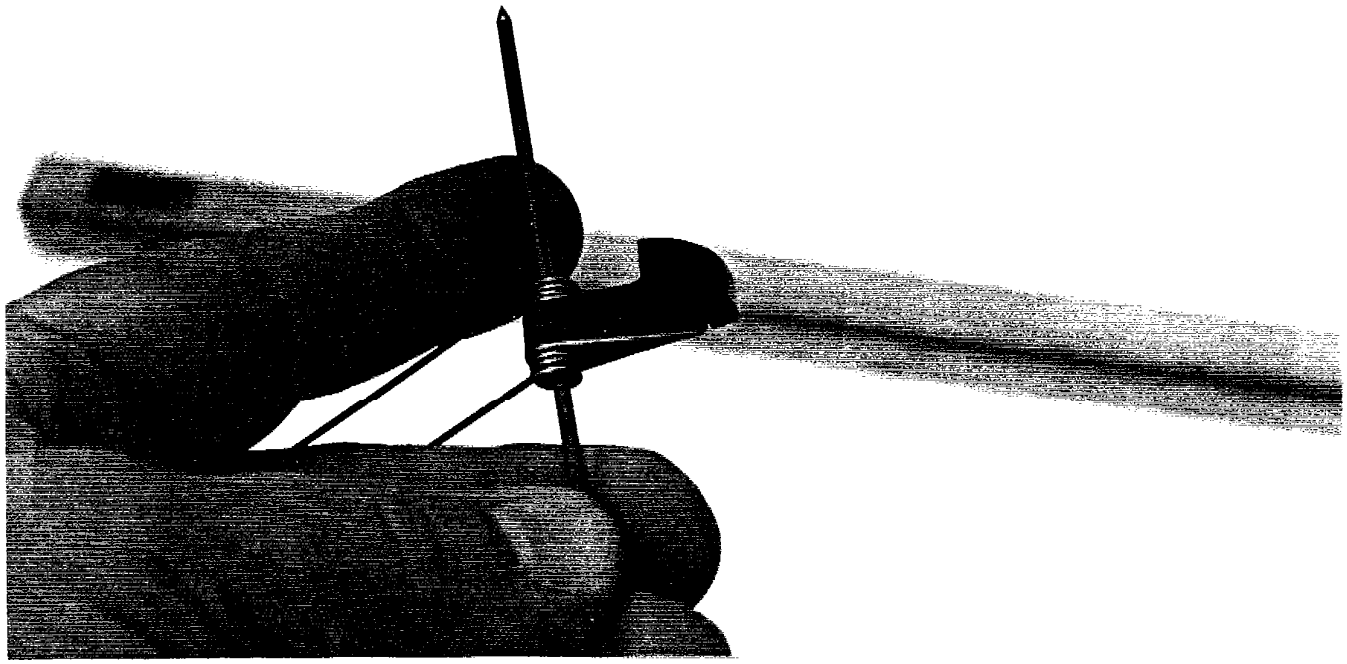
First, cut three 3½ inch long pieces of .156" dia drill rod. Taper one end of each. Then take the trigger bar and lay it on its left side, and pin the sear, the link, and the trigger and place the actuator rod between the trigger and the link. Do this on the outside (right side) of the bar.

Notice the position of the sear and the link, they should fit together snug, and in this position, the trigger holes should be aligned vertically. If not, make a new actuator rod until the position of the trigger is as shown.



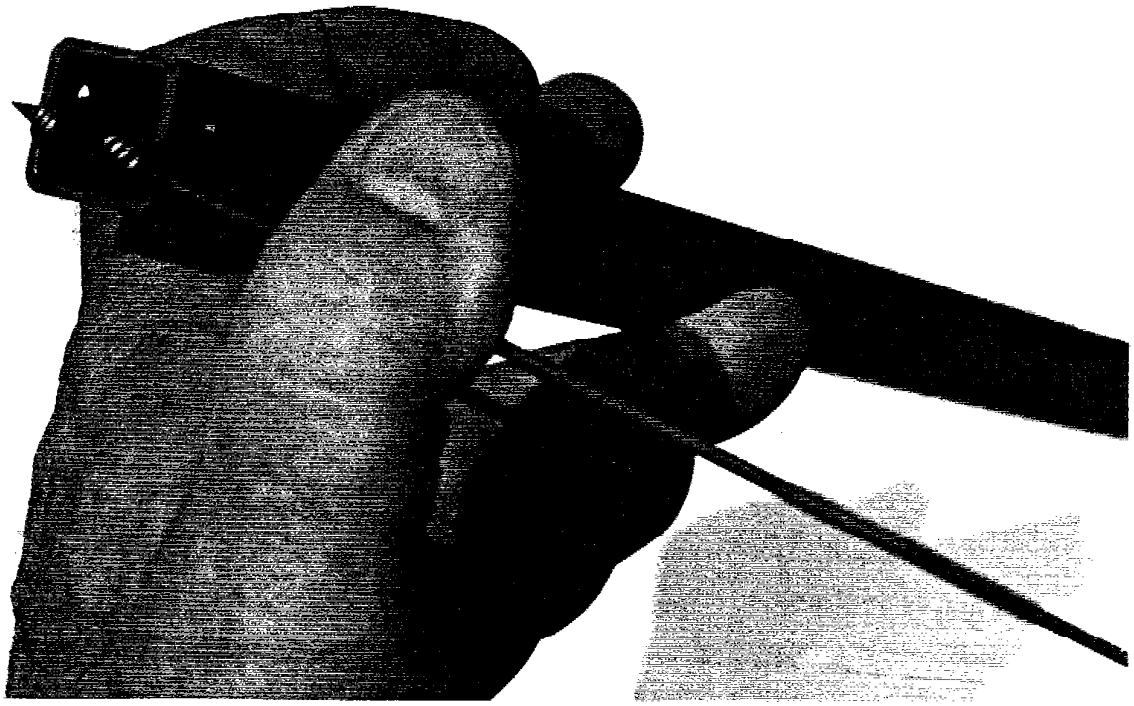
With pieces and pins and rod installed as shown, check the clearance between the sear and the link when the link is moved forward by the trigger rod. The sear must not hang up on the link. Reset the sear on the link by raising the sear up and moving the link back to contact the sear.



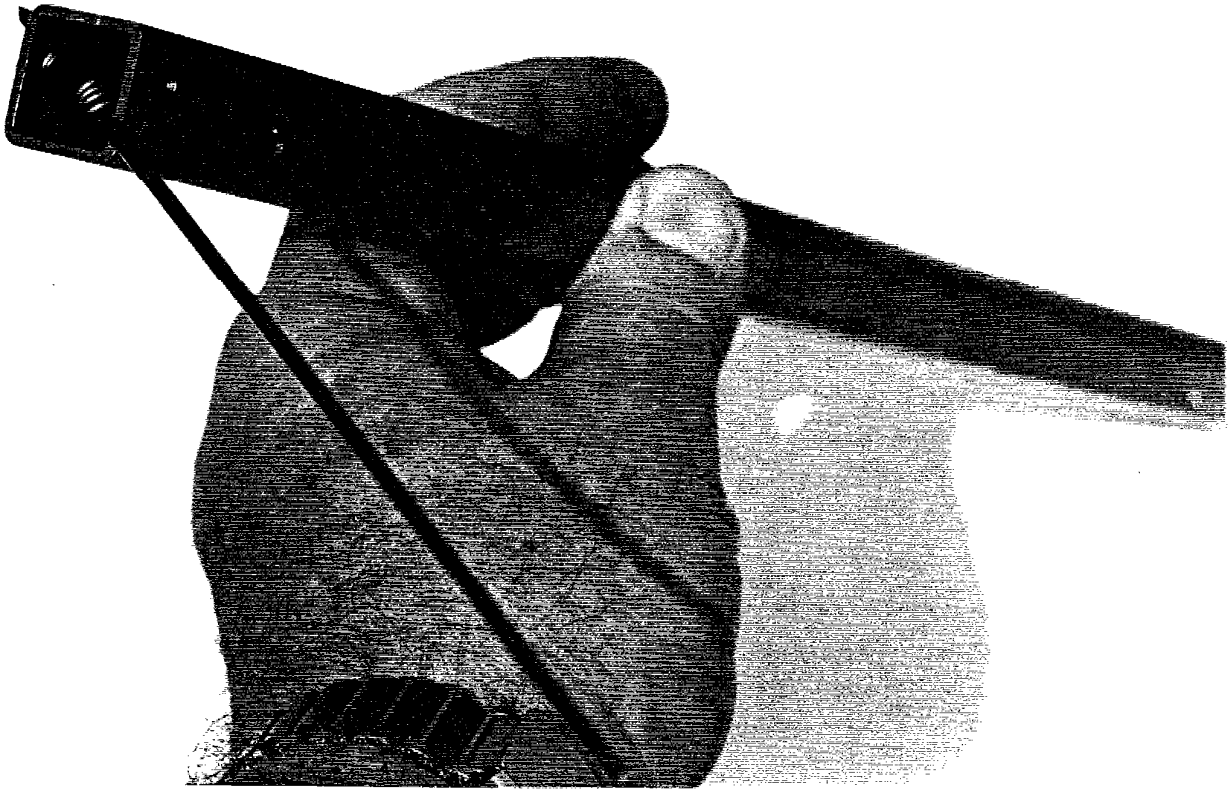


Two useful tools are: two pieces of clothes hanger wire, 7" long, with a pointed end.

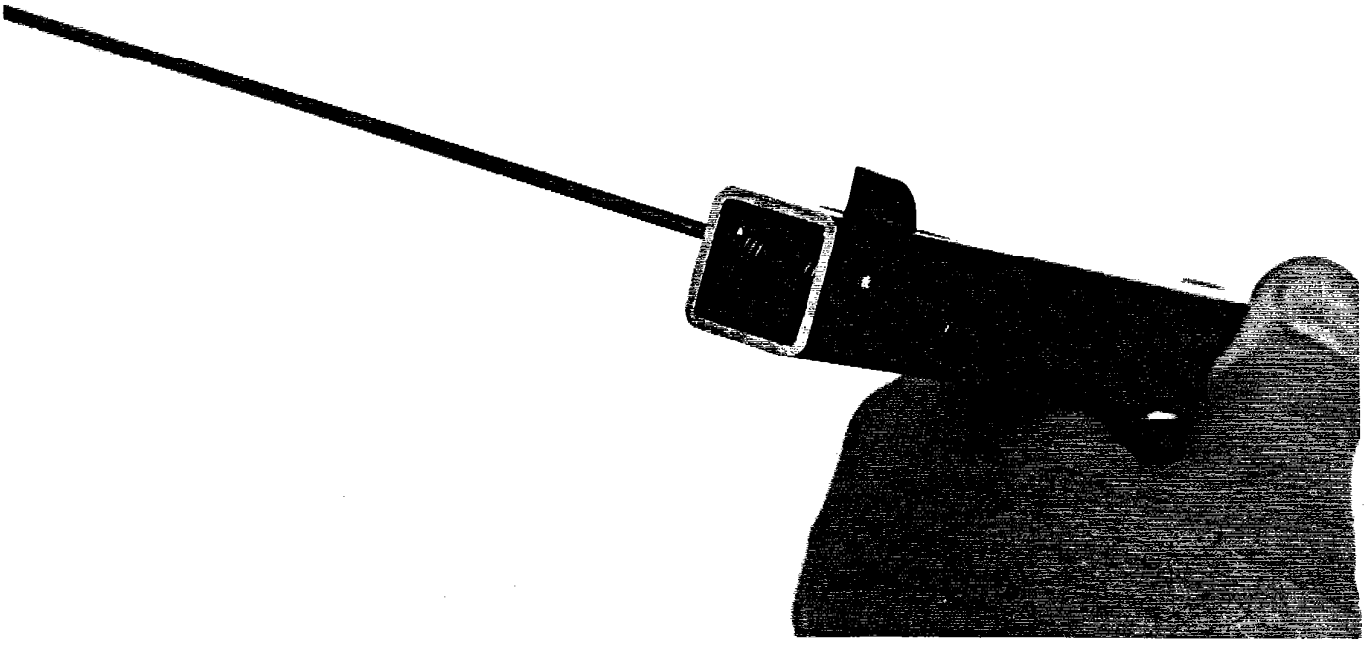
1. Run the tool through the sear spring and sear as shown.

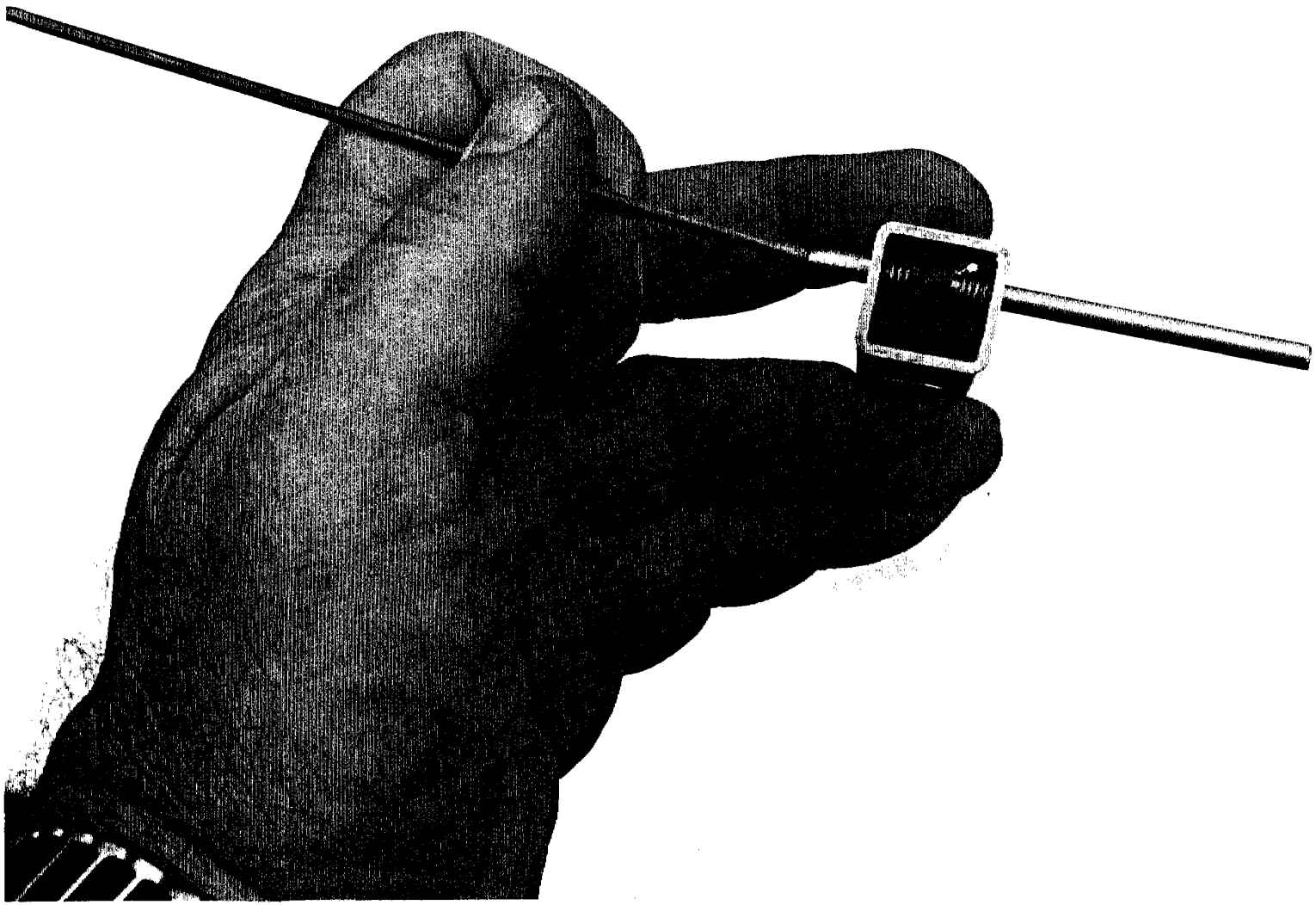


2. With a little force, insert the spring tails and the head of the sear into the back of the bar as shown here.

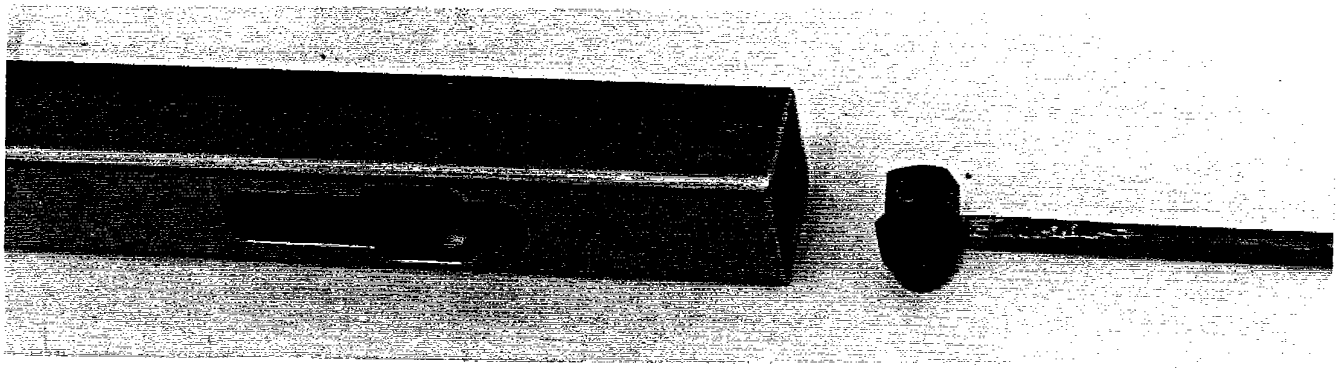


3. Then angle the wire tool up and through the left side hole first, then push the wire tool all the way through until the blunt end can be inserted through the right side hole like this.

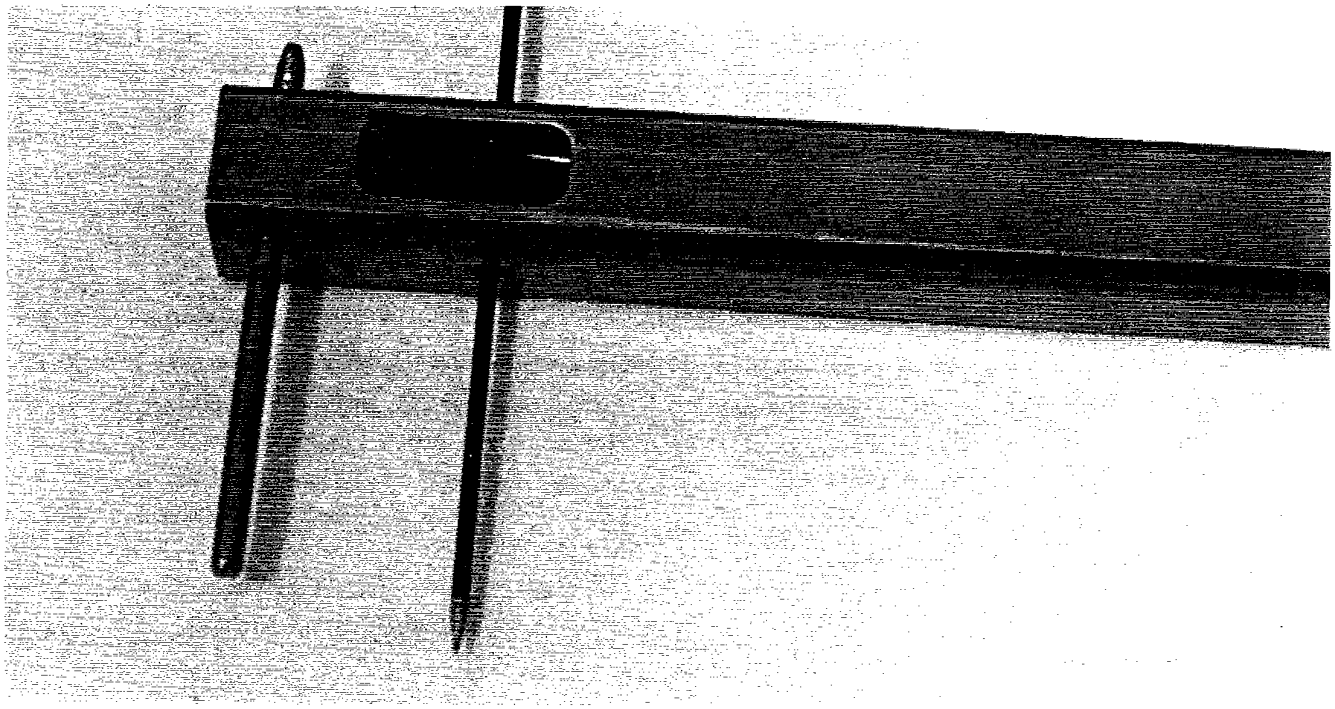




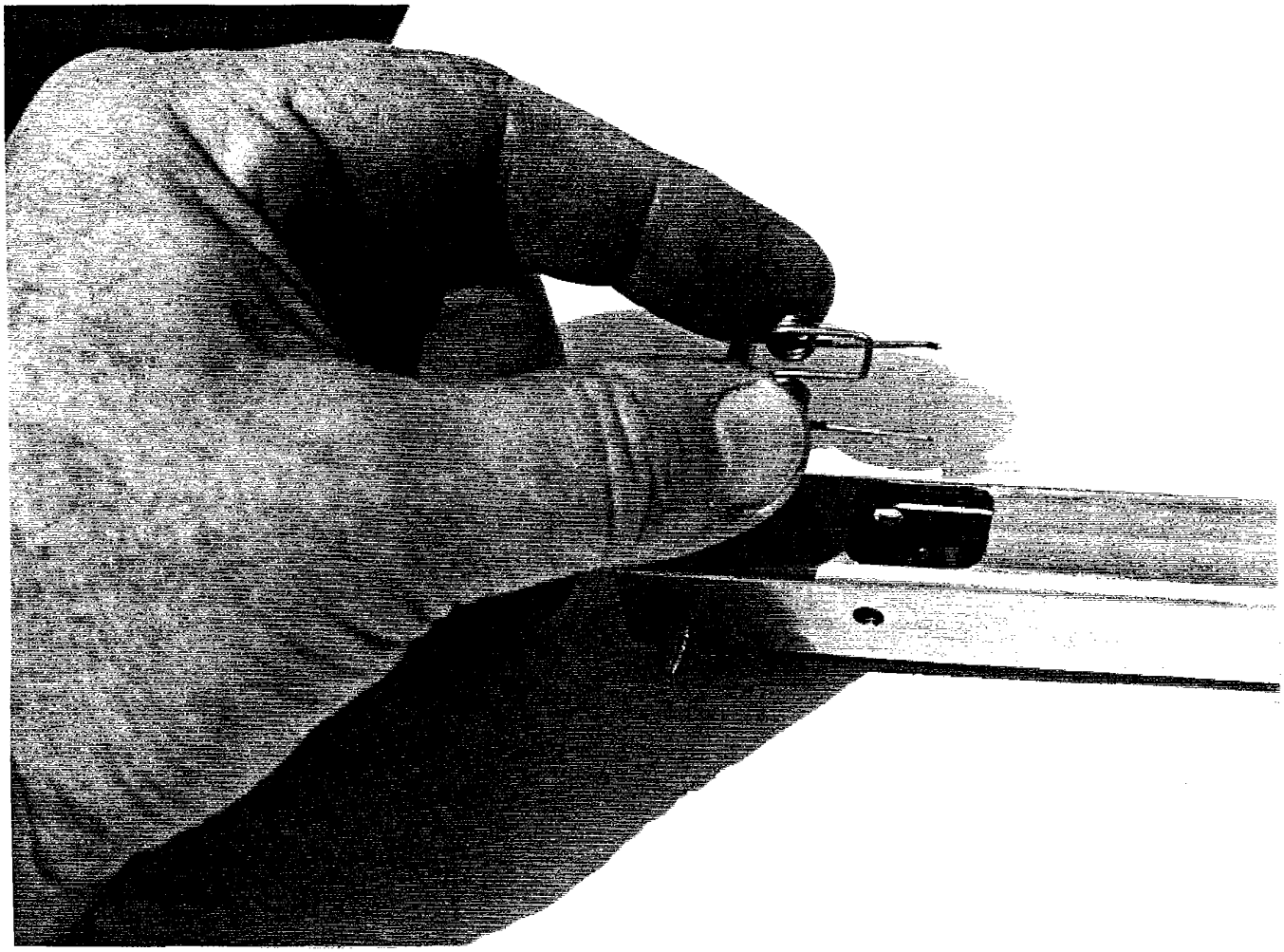
4. Then push the .156" dia tapered front piece of drill rod (this will become the sear pin) into the right side hole and push the hanger wire tool out as the .156" rod is pushed through the spring, sear and out the left hole of the bar. The hanger wire tool keeps the spring and sear in alignment while the .156" rod is being pushed through.



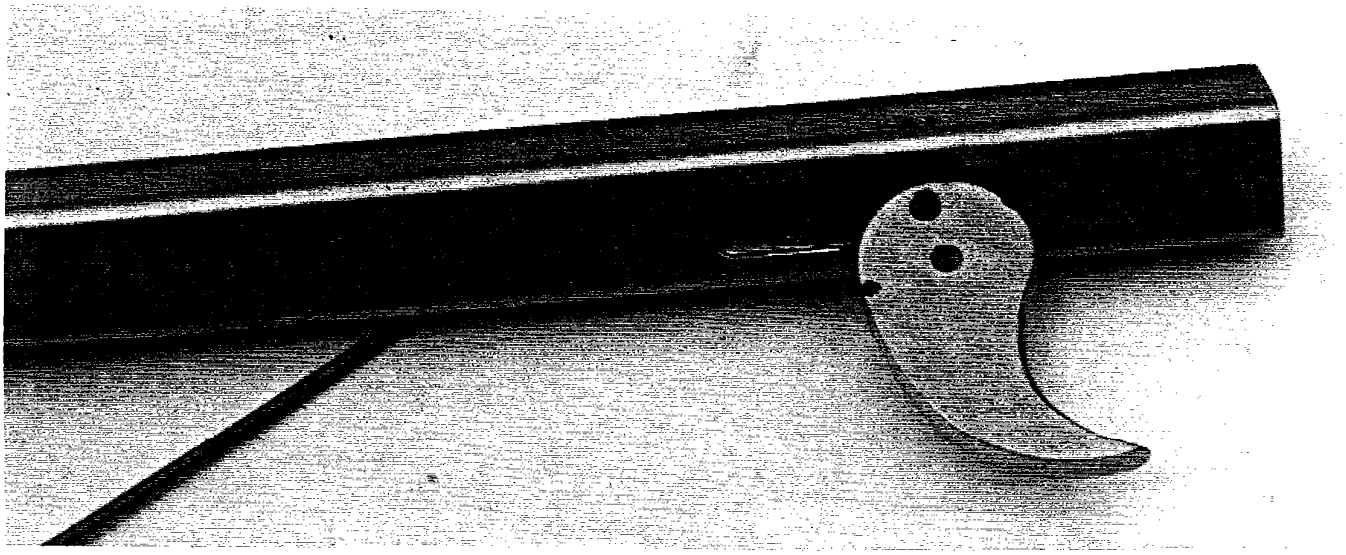
With the sear installed, put the sear link on the rod in this position and insert it into the bar.



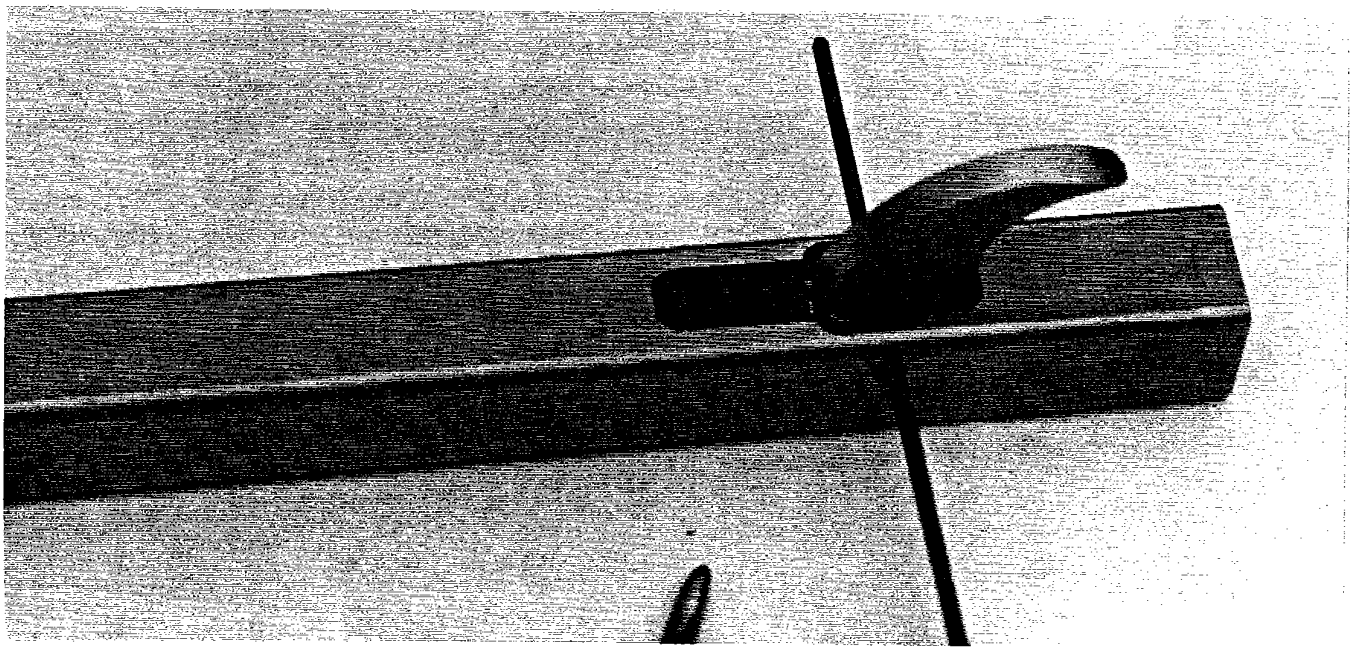
When the link is near the hole, use the hanger wire tool to hold the link in place as shown while you install the trigger.



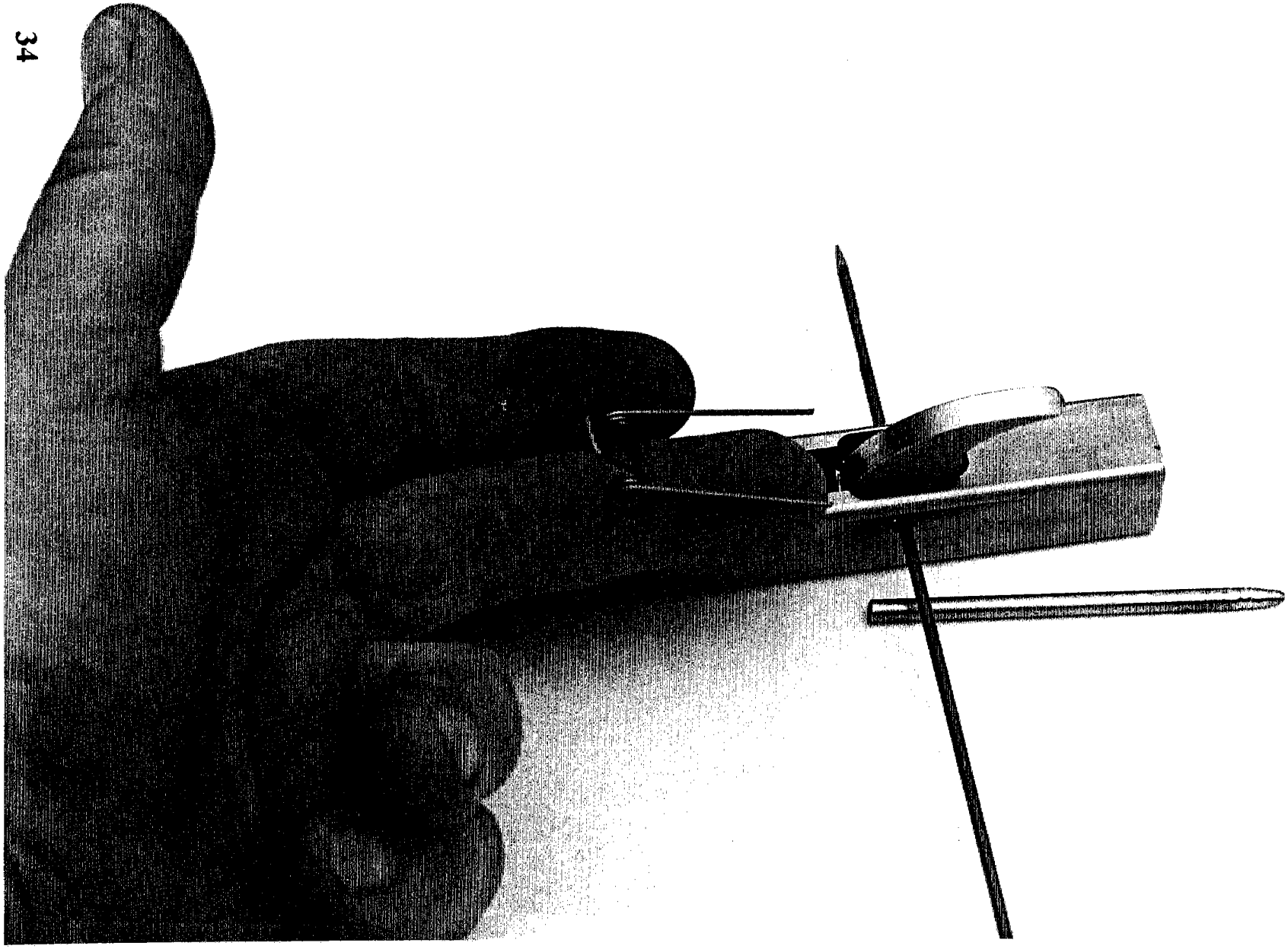
The spacer spring for the link goes in like this. Use the hanger wire tools to align and pin the spacer and the link together.



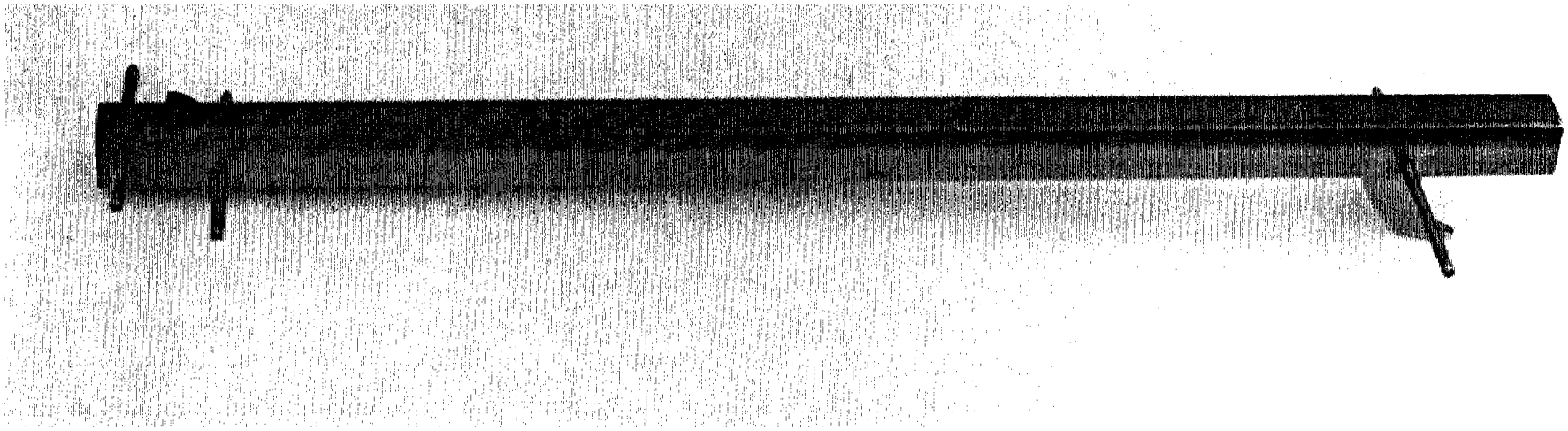
Install the trigger by placing the trigger on the rod, use the upper hole as shown.
Then insert the hanger wire tool into the bar hole and through the trigger lower hole to hold in place while you install the spacer spring for the link.



This is how the trigger looks with the spring in place held by the hanger wire tool.



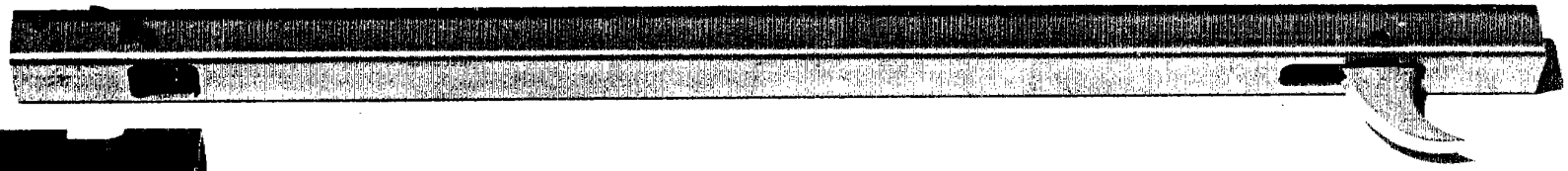
To install the trigger spring, it goes in like this. Remove the hanger wire tool and put the spring in making sure that the back part of the spring fits securely into the notch in the back of the trigger. When the spring is in position and lines up, insert the hanger wire tool to hold in place until you put in the .156" (tapered end) rod. (That will become the pin when trimmed off.)



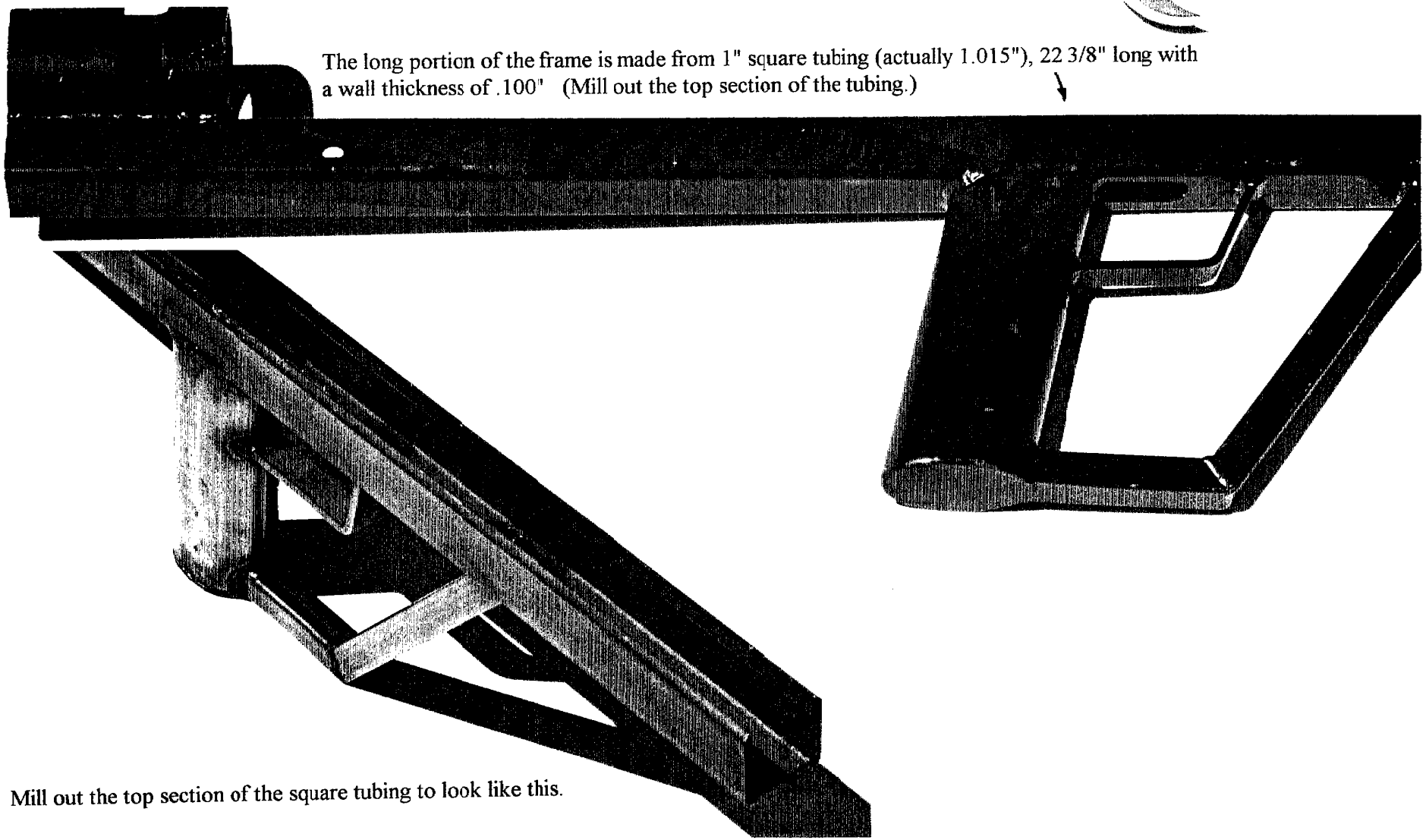
Now, the bar should look like this. Check for free and easy movement of the trigger and sear. If any of the parts are stiff, or do not move easily, then take some emery paper and polish the rods and tap them in so that the particular piece moves easily. Make sure that all of the pieces move freely. The next step is to BALANCE the springs. The sear spring exerts the most pressure. The trigger spring should be just strong enough to reset the trigger by itself when released and at the same time the sear must reset itself. If the trigger will not reset itself, first check for free movement. Use emery cloth to sand off and smooth the pin rod until free movement occurs.

Now check it out: Push down of the sear with your thumb, and pull the trigger with your finger and the sear will drop. Hold the sear down, release the trigger first, then release the sear..... and the sear should some up by itself, if it does, your bar springs are in balance. (To strengthen a spring, un coil it, to weaken it coil it further around the rod. See springs section)

This is how a finished trigger bar should look.

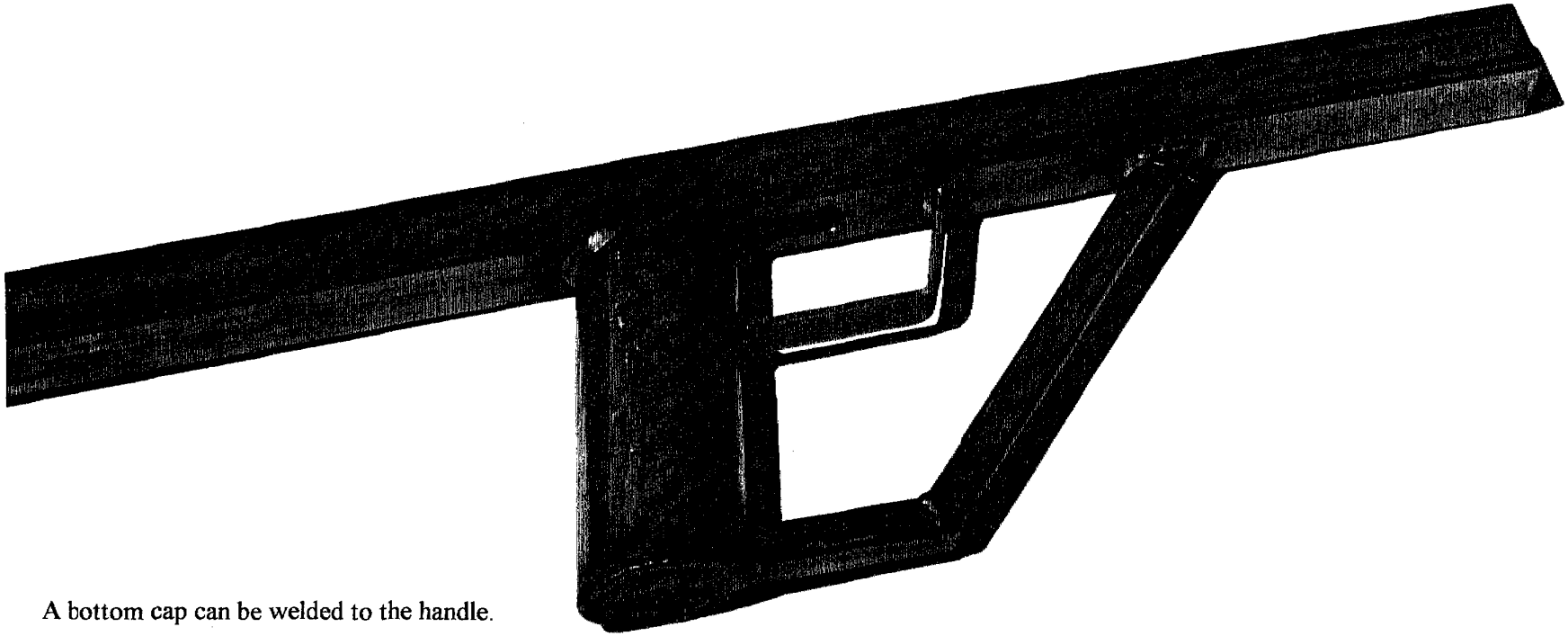


The long portion of the frame is made from 1" square tubing (actually 1.015"), 22 3/8" long with a wall thickness of .100" (Mill out the top section of the tubing.)



Mill out the top section of the square tubing to look like this.

Cut the desired angle of the handle to suit your liking. The forward edge of the handle is attached exactly 14" from the back end of the handle frame.



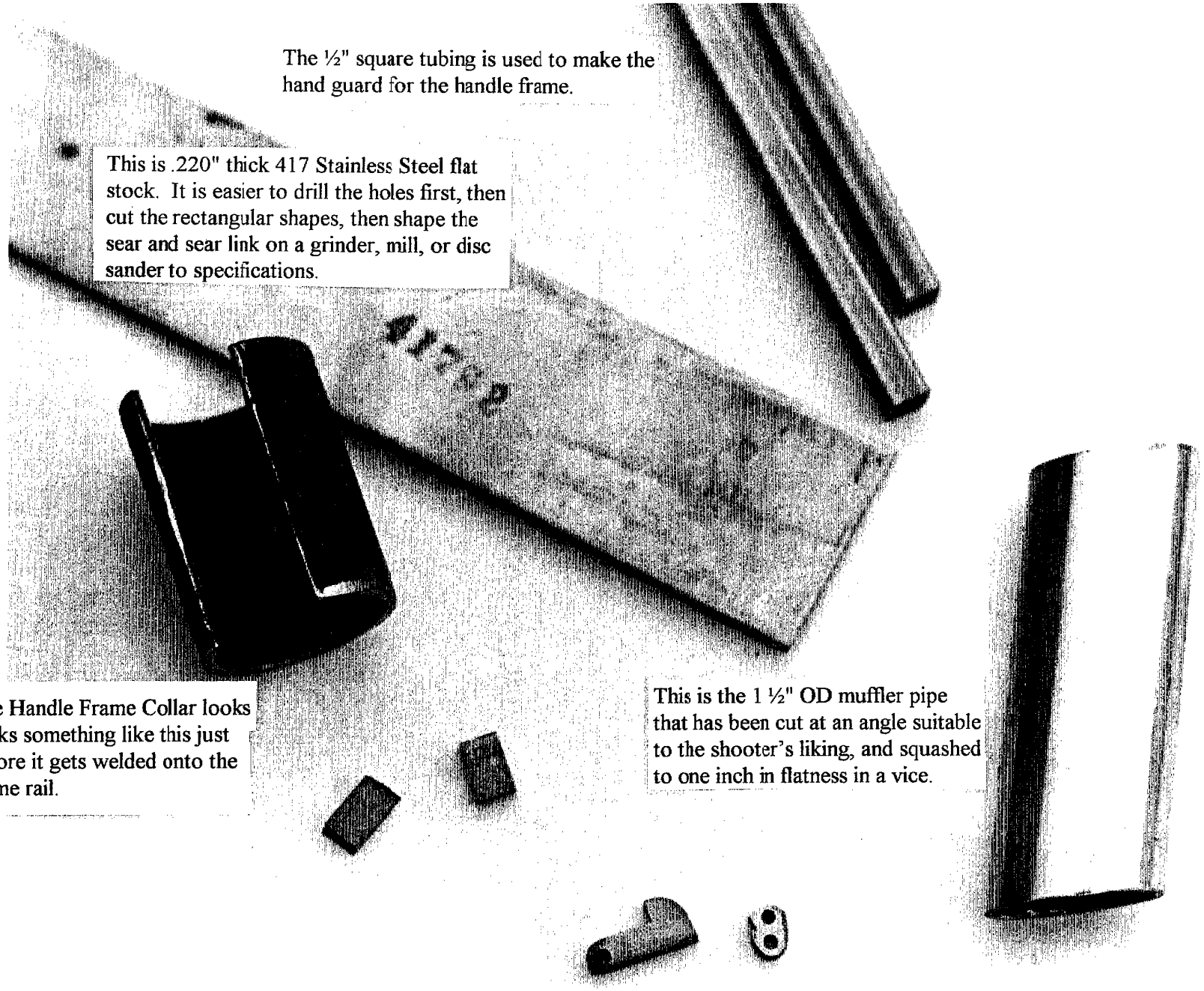
A bottom cap can be welded to the handle.

This is a handle frame that was made from scratch. The handle is made from 1.500" muffler pipe which was mashed in a vice to give it the "oval shape", cut it to the length comfortable to your hand.

Use ½ inch square tubing to fabricate the hand guard, (carrying handle) and lay out the style you prefer.

The trigger guard is made from ½ inch by .125" thick flat stock. Again, lay it out to fit your style and weld it in place.

Cut out a trigger hole .400" wide and 1.300" long, centered of course, and the back of the hole is exactly 14 inches from the back of the frame.

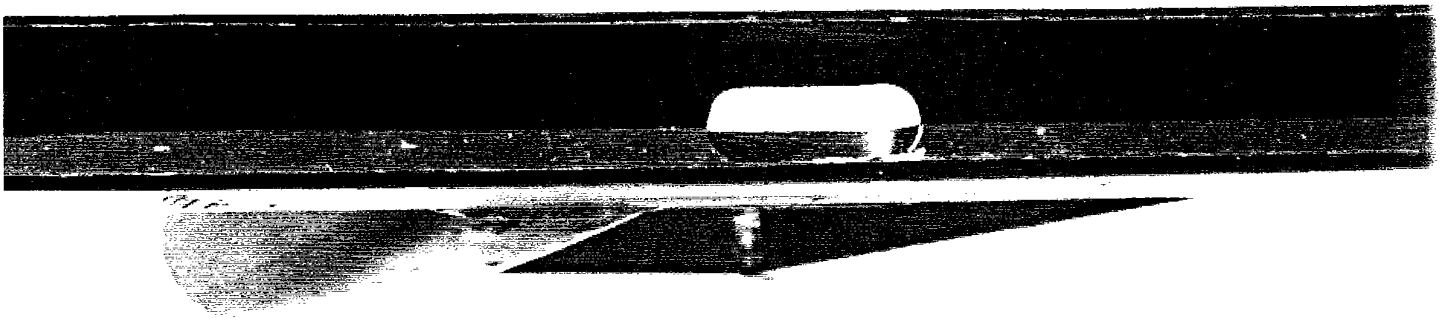


The ½" square tubing is used to make the hand guard for the handle frame.

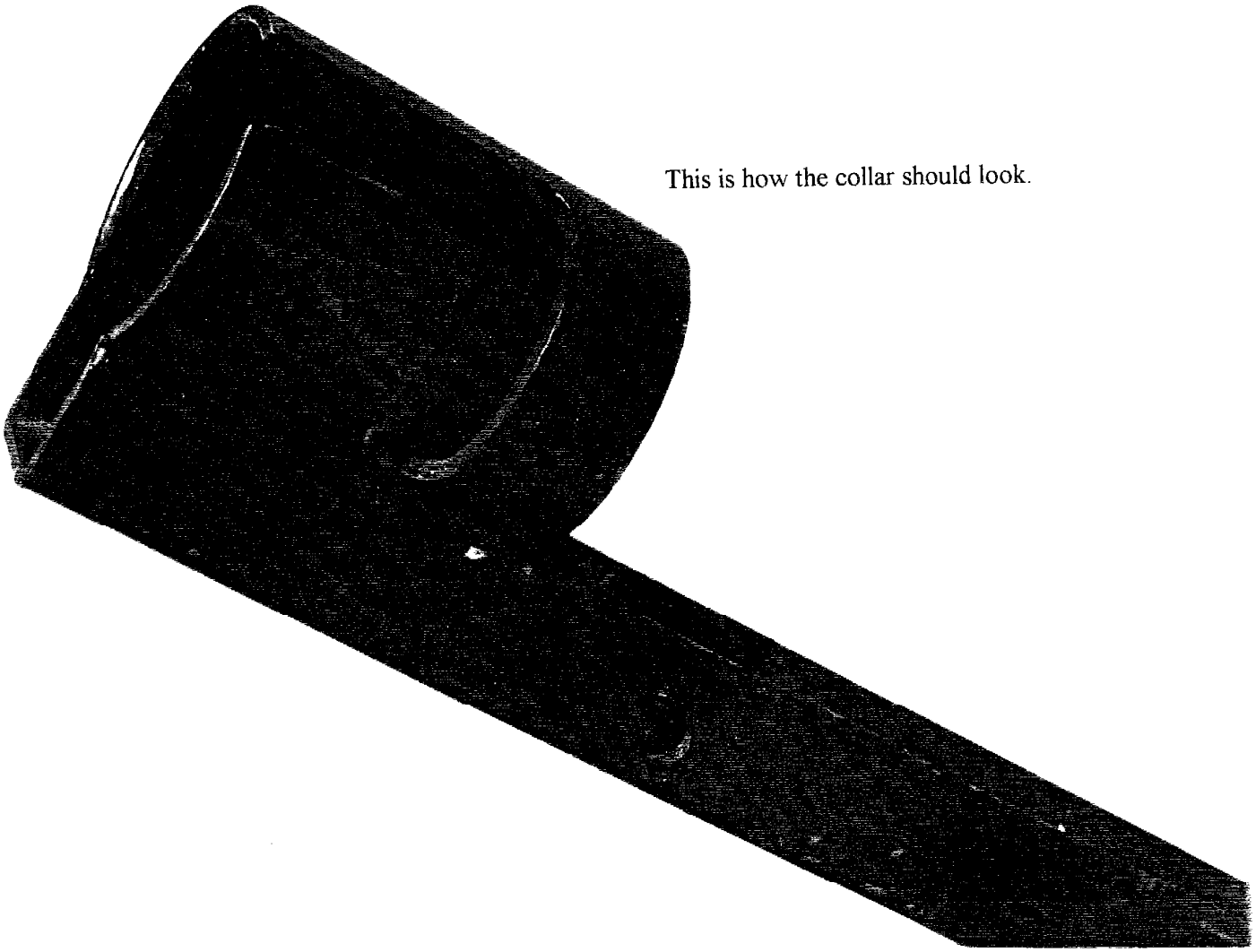
This is .220" thick 417 Stainless Steel flat stock. It is easier to drill the holes first, then cut the rectangular shapes, then shape the sear and sear link on a grinder, mill, or disc sander to specifications.

The Handle Frame Collar looks looks something like this just before it gets welded onto the frame rail.

This is the 1 ½" OD muffler pipe that has been cut at an angle suitable to the shooter's liking, and squashed to one inch in flatness in a vice.

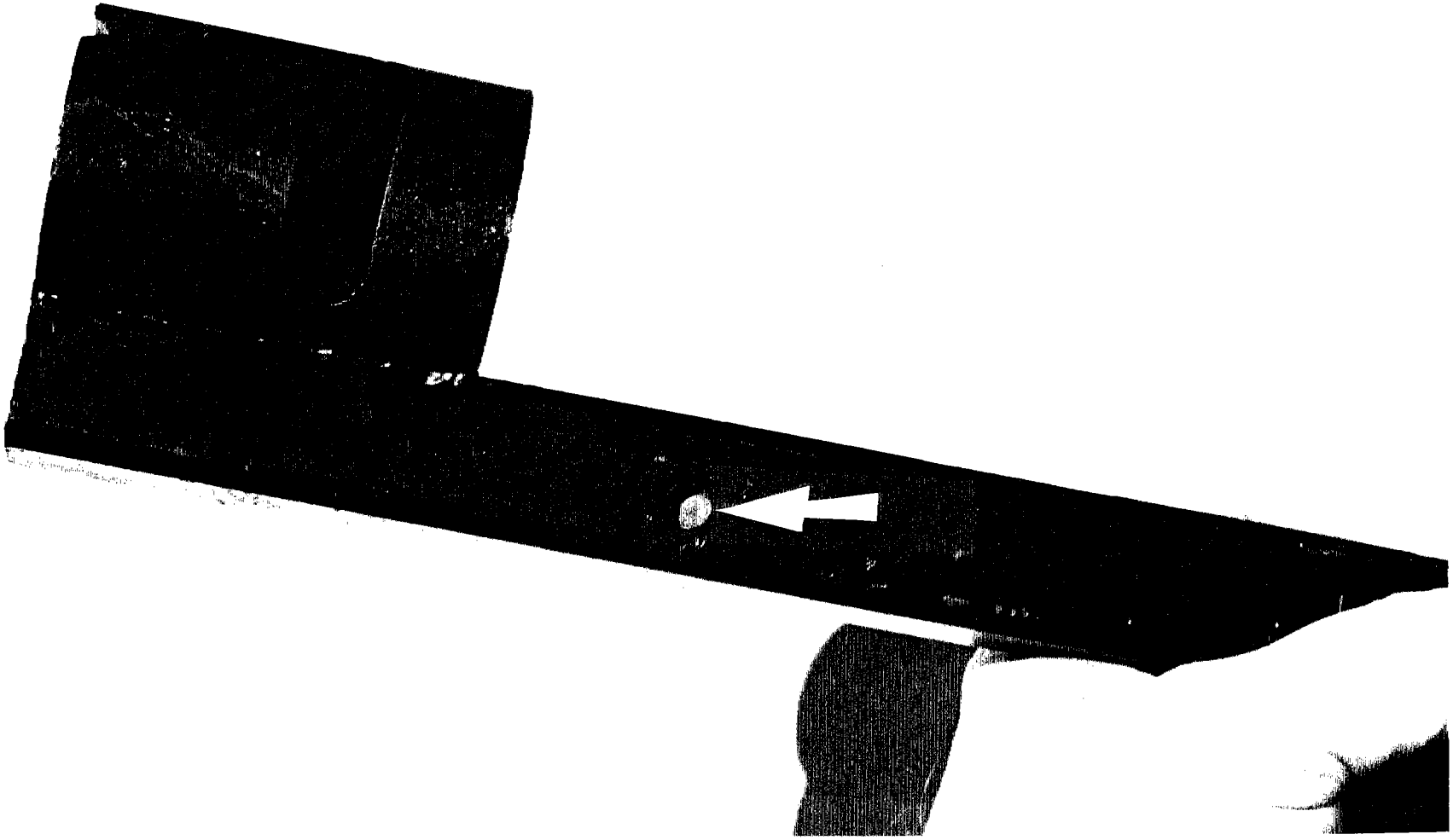


The back of the trigger hole is exactly 14 inches from the back end.

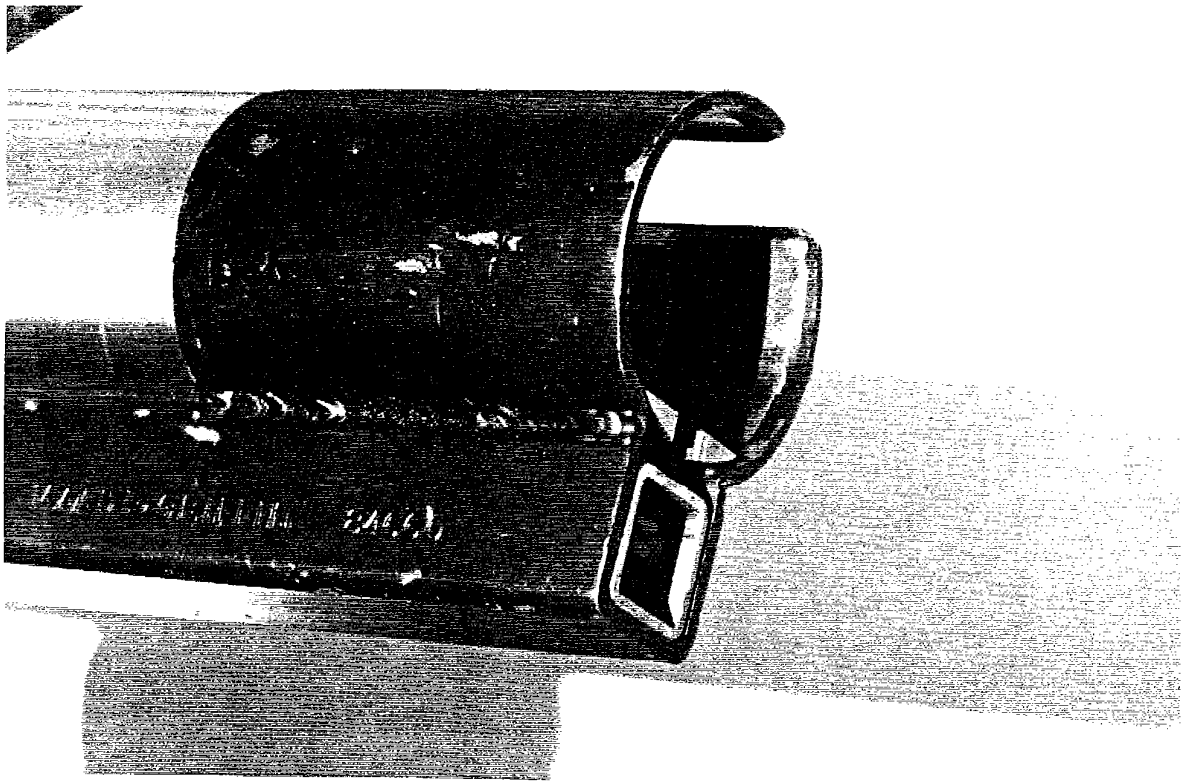


This is how the collar should look.

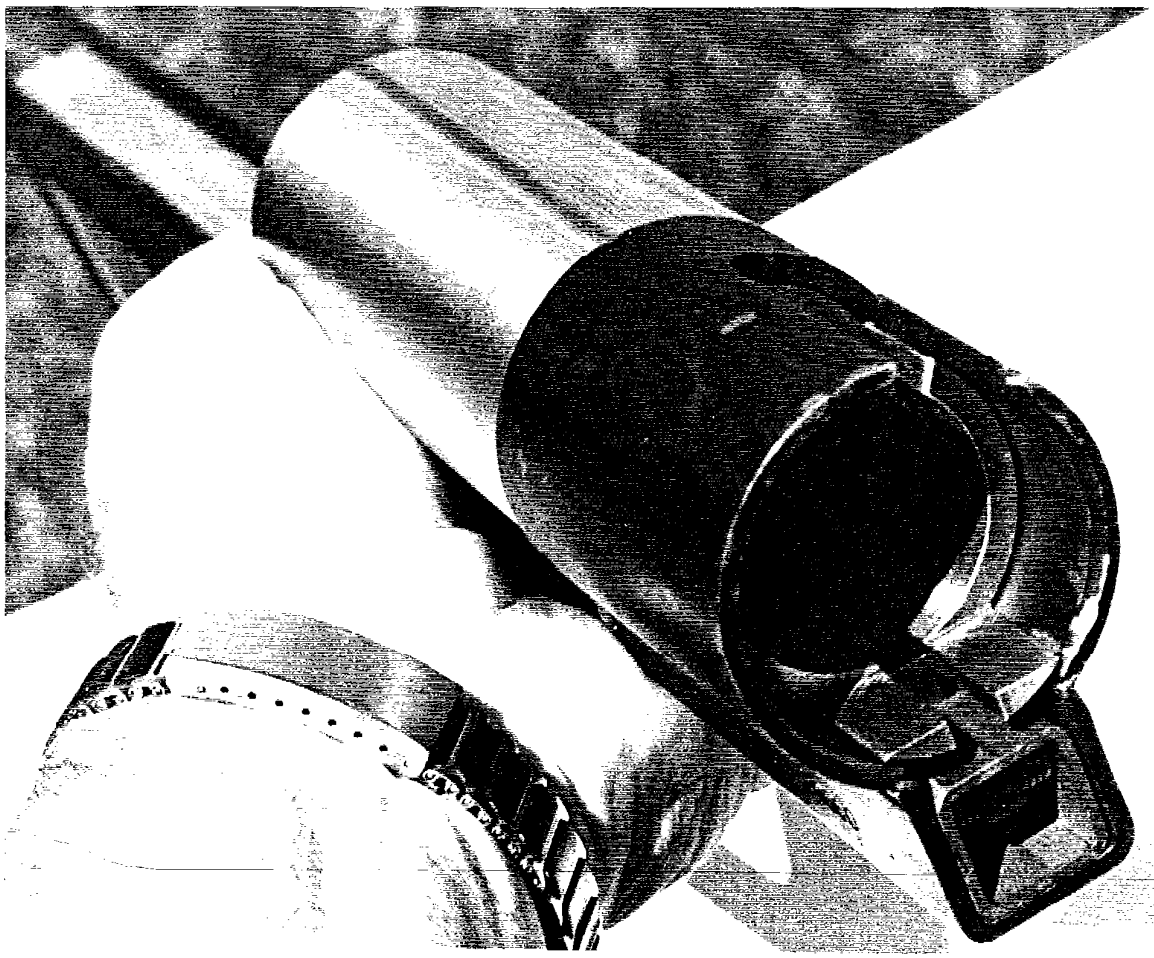
This collar is made from 2" OD pipe .150" wall thickness. 2.800"long. Cut out a .775" section. (At this point, the bolt handle slot may be milled out to conform to the receiver.) Study this carefully before you begin. The width of the handle slot is .550" to .610". The downward portion of the handle slot is 1.435" from the back of the collar. The front of the downward portion of the handle slot is .780" from the front of the collar. Before welding the collar to the channel iron, use the receiver as a plug, secure it to the channel iron to insure alignment of the collar.

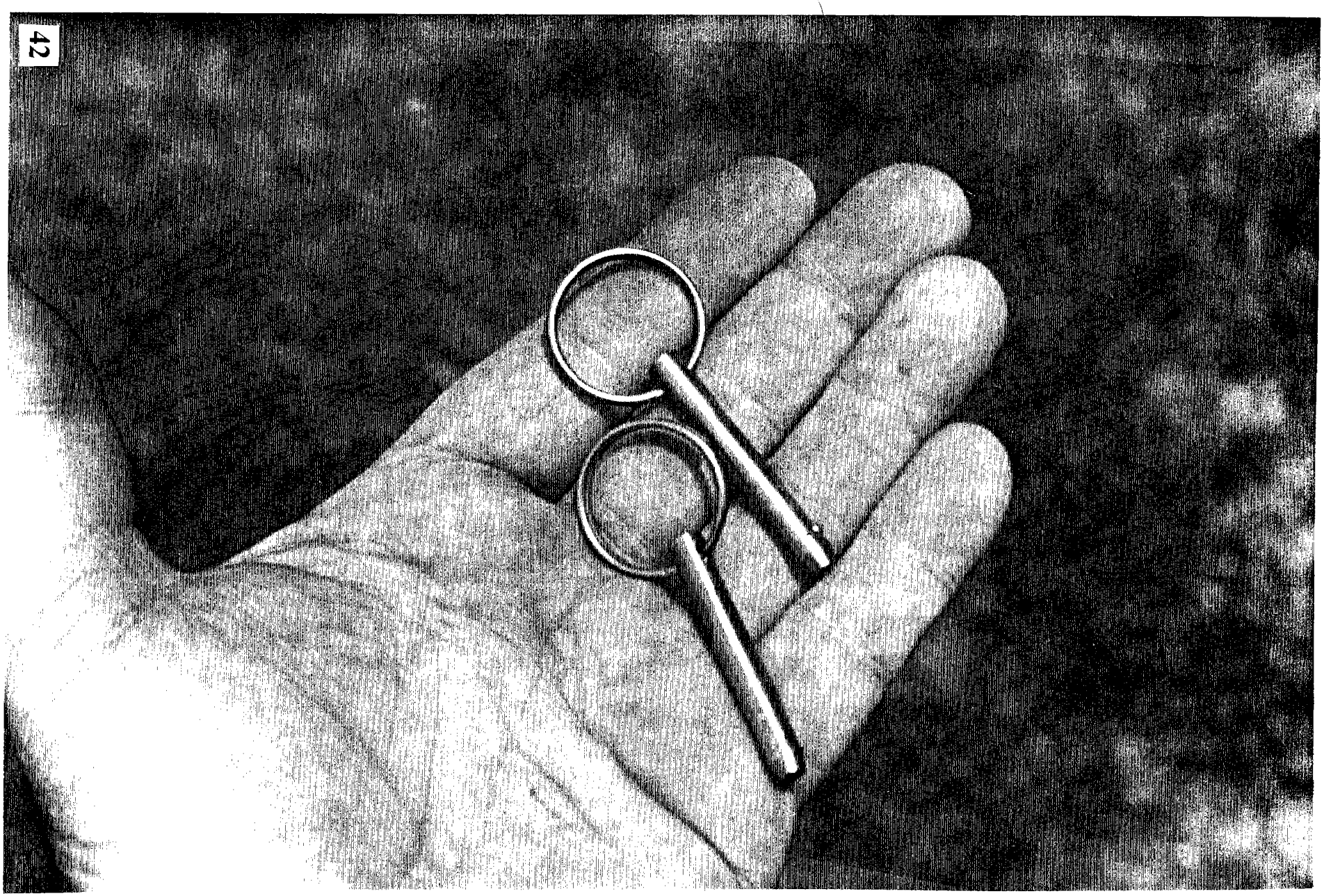


Now, insert the trigger bar into the handle frame, be sure that it fits snug but not tight. (Make it so that the bar slides in and out easily.) Align the trigger bar, check the trigger slot for proper clearance. THEN, ALIGN THE TRIGGER BAR AT THE BACK. IT MUST BE PERFECTLY FLUSH WITH THE BACK END. USE A CLAMP TO HOLD THE BAR FIRMLY AGAINST THE BOTTOM OF THE CHANNEL, THEN DRILL A 1/4" HOLE 4.135" FROM THE END AND UP EXACTLY .400" FROM THE BOTTOM. Use a drill press for this operation. Drill through both handle frame and trigger bar. If you measured correctly, the 1/4" drill bit will miss the actuator rod in the trigger bar. Insert the 1/4" Quick pin to hold the trigger bar inside the handle frame.

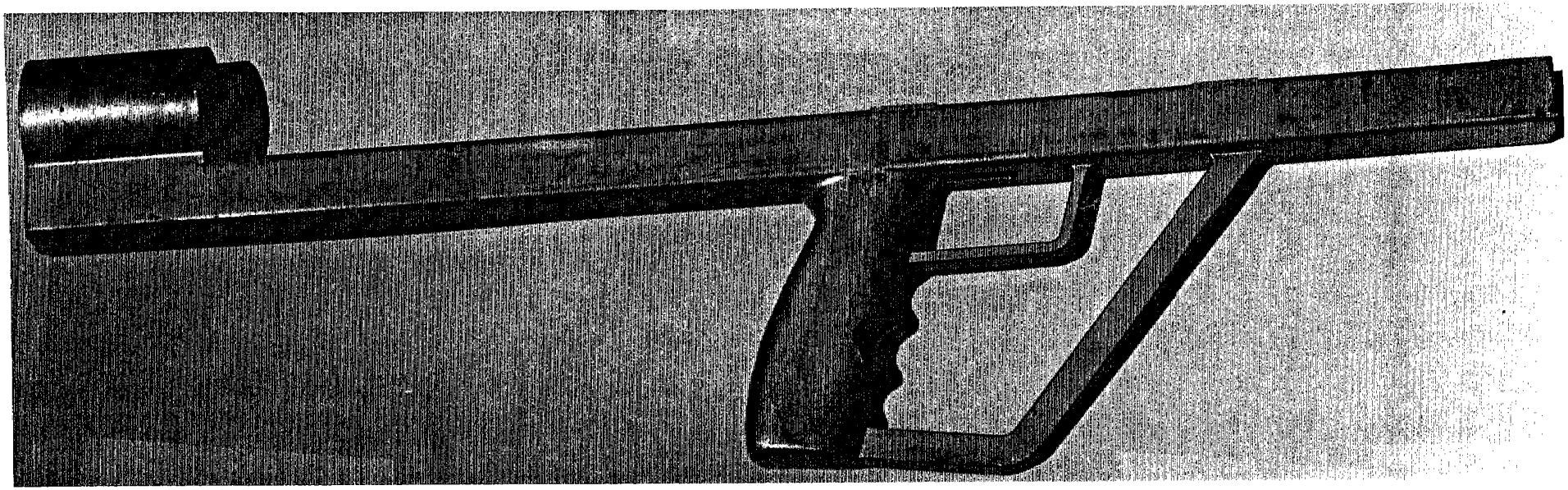


This is the way it should look. The back end of the trigger bar and the back end of the receiver should align up perfectly with the end of the frame handle as shown..

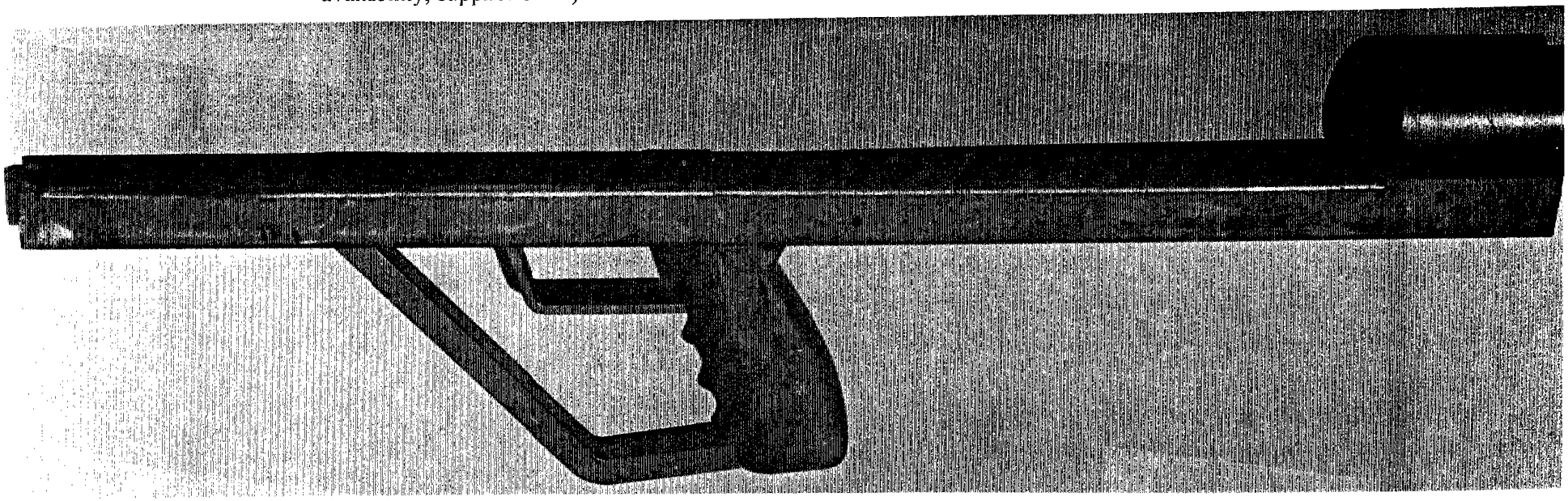


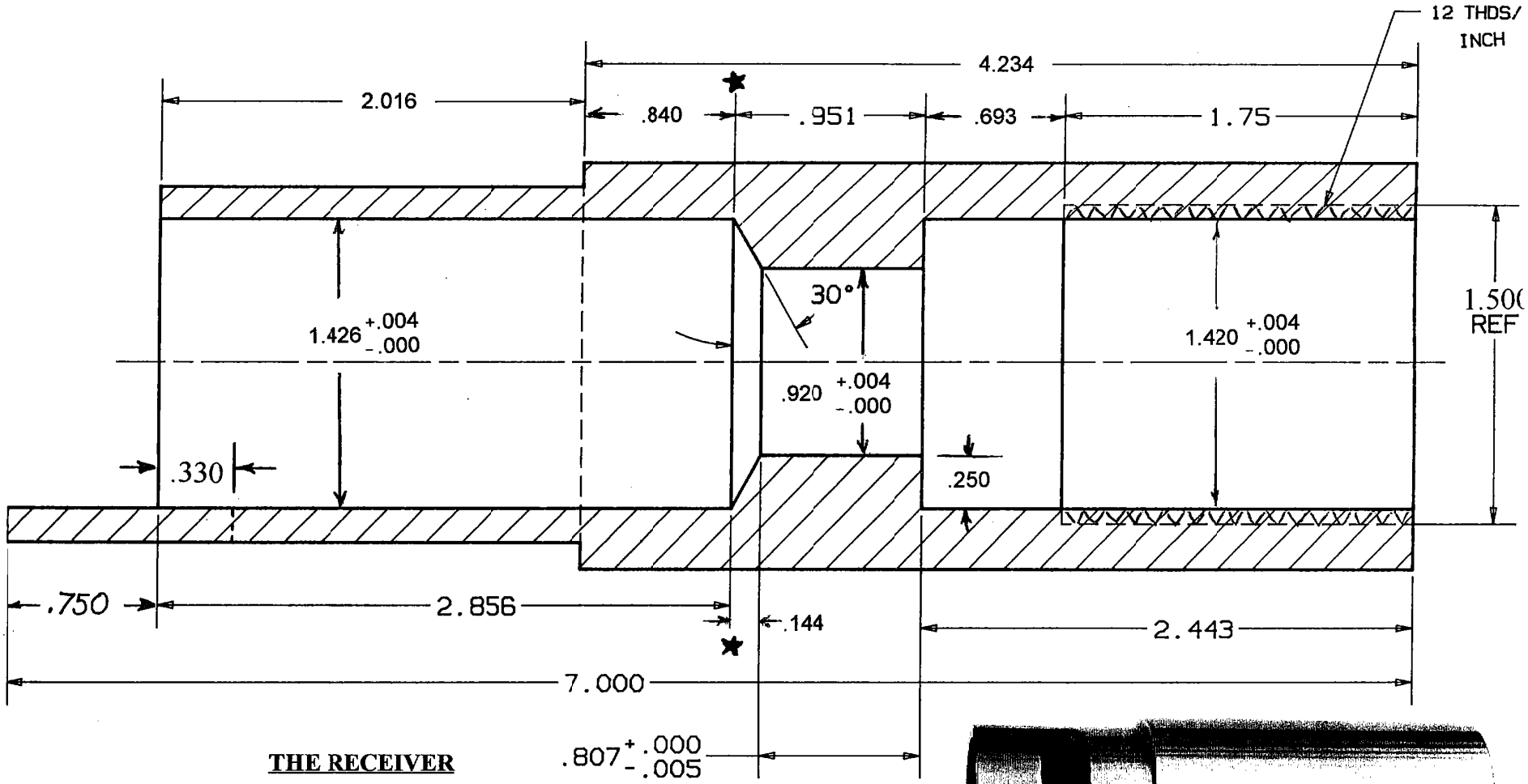


These Quick-Pins are 1/4 inch dia. and 1 3/4 inches long. They are made of stainless steel. They are for the trigger bar lock, and the forward barrel lock. (Available from JNS Supply Co.)



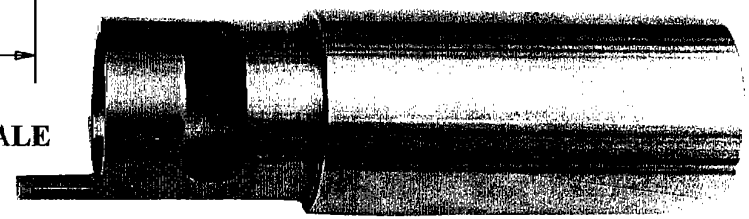
This is a special cast A-356 Aircraft aluminum handle frame, heat treated to T-6, fully machinable and can finish to a beautiful luster or can be anodized any color. The center groove and trigger hole are precision cast in, but the bolt handle slot must be cut out, and the two Quick-Pin holes need to be drilled. This is available only from JNS Supply Co. (Check JNS for price and availability, supplier's list.)





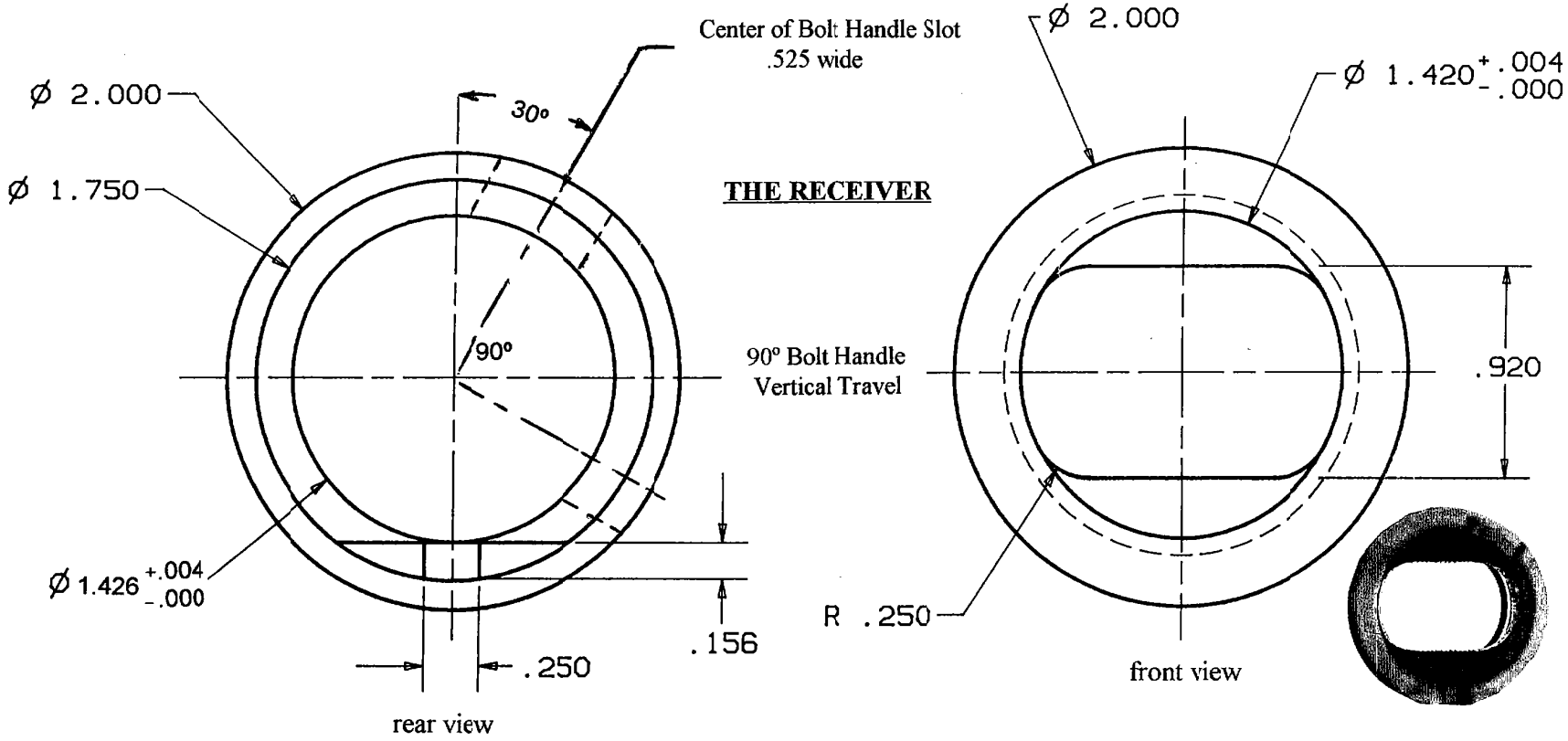
THE RECEIVER

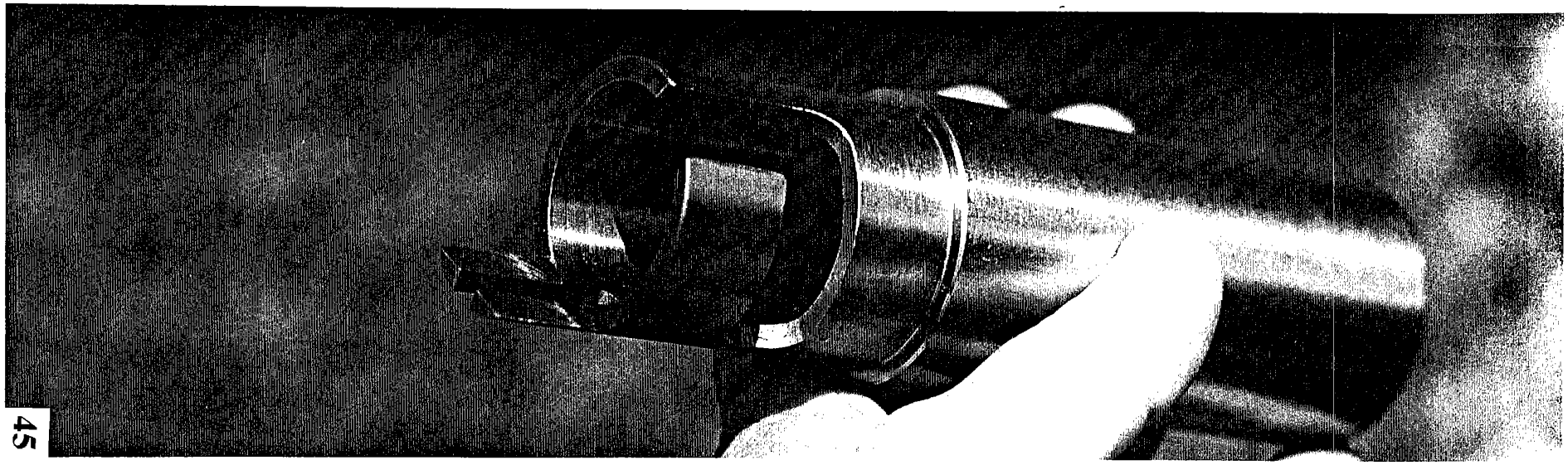
Material: 4140 steel, heat treated to **42 ROCKWELL R/C SCALE**

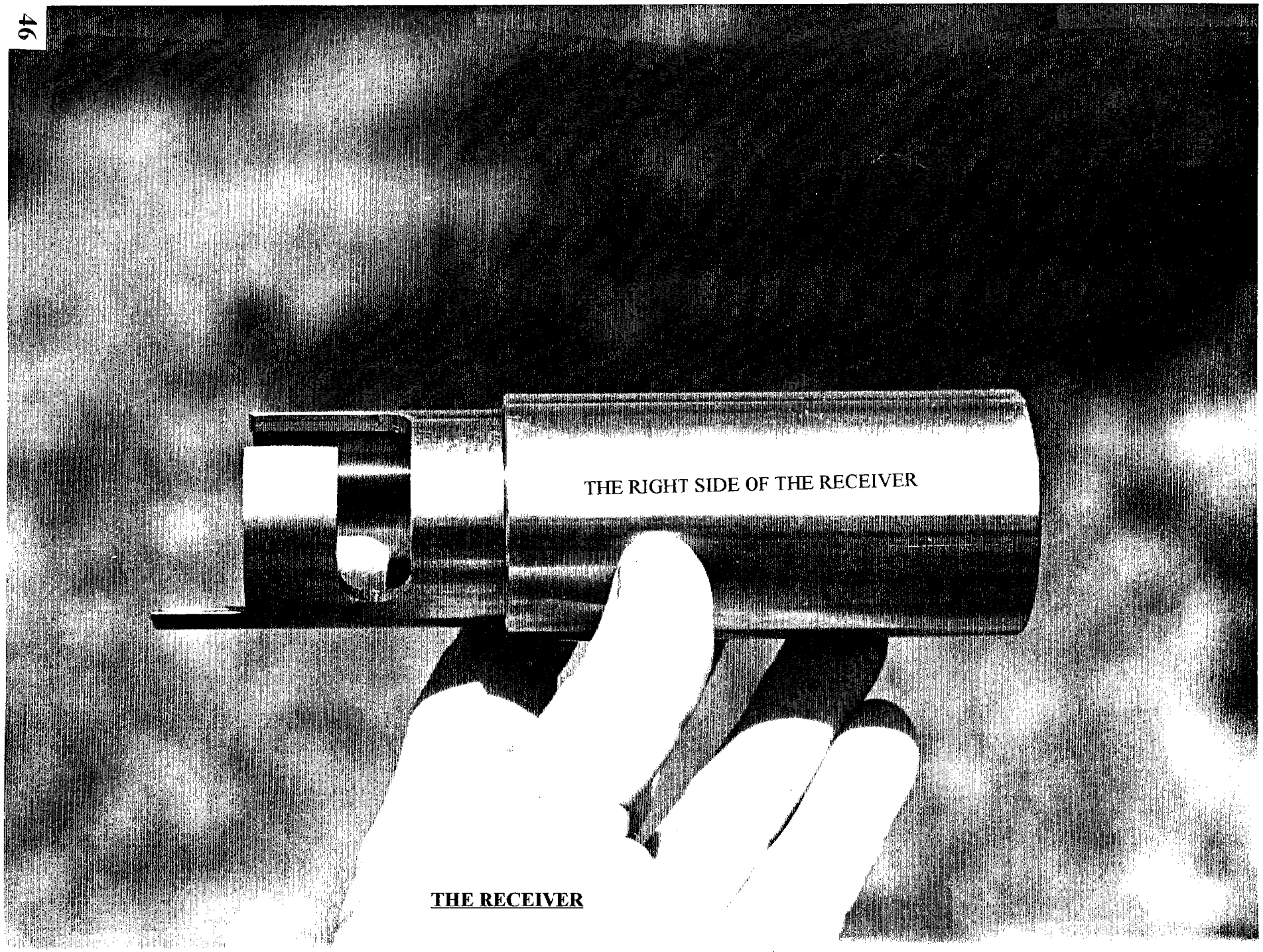


If there is too much difficulty in milling out the "oval" throat of the receiver tube, it is possible to cut the tube in two pieces by cutting at 3.606" from the back. (See the drawing, the line with a star at each end.) Allowance must be made for the blade width, the net result must conform to the drawing. These two pieces can be later rewelded together after the milling is complete. The edges must be beveled, aligned, and then weld together and grind off for a smooth finish.

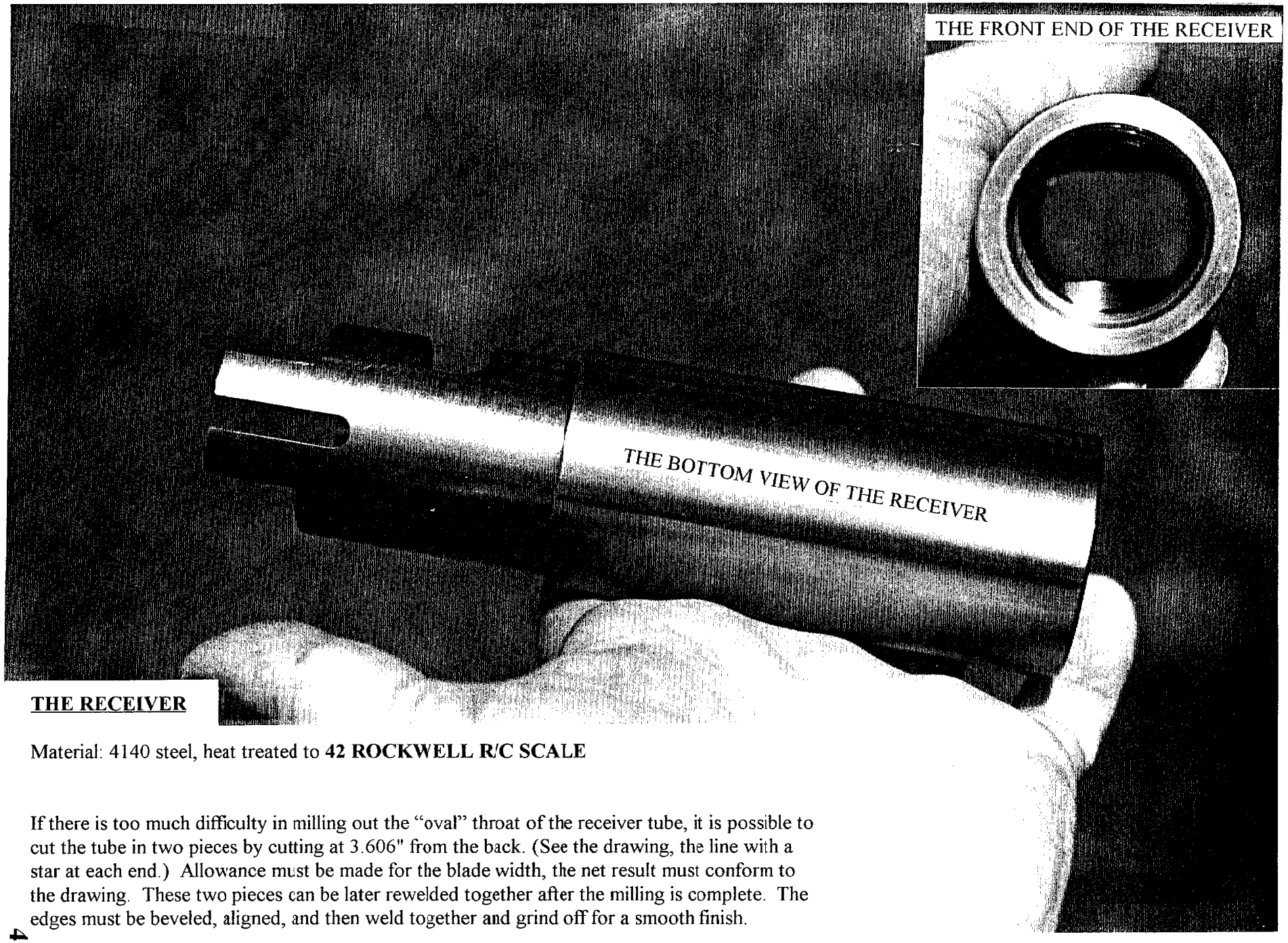
THE RECEIVER







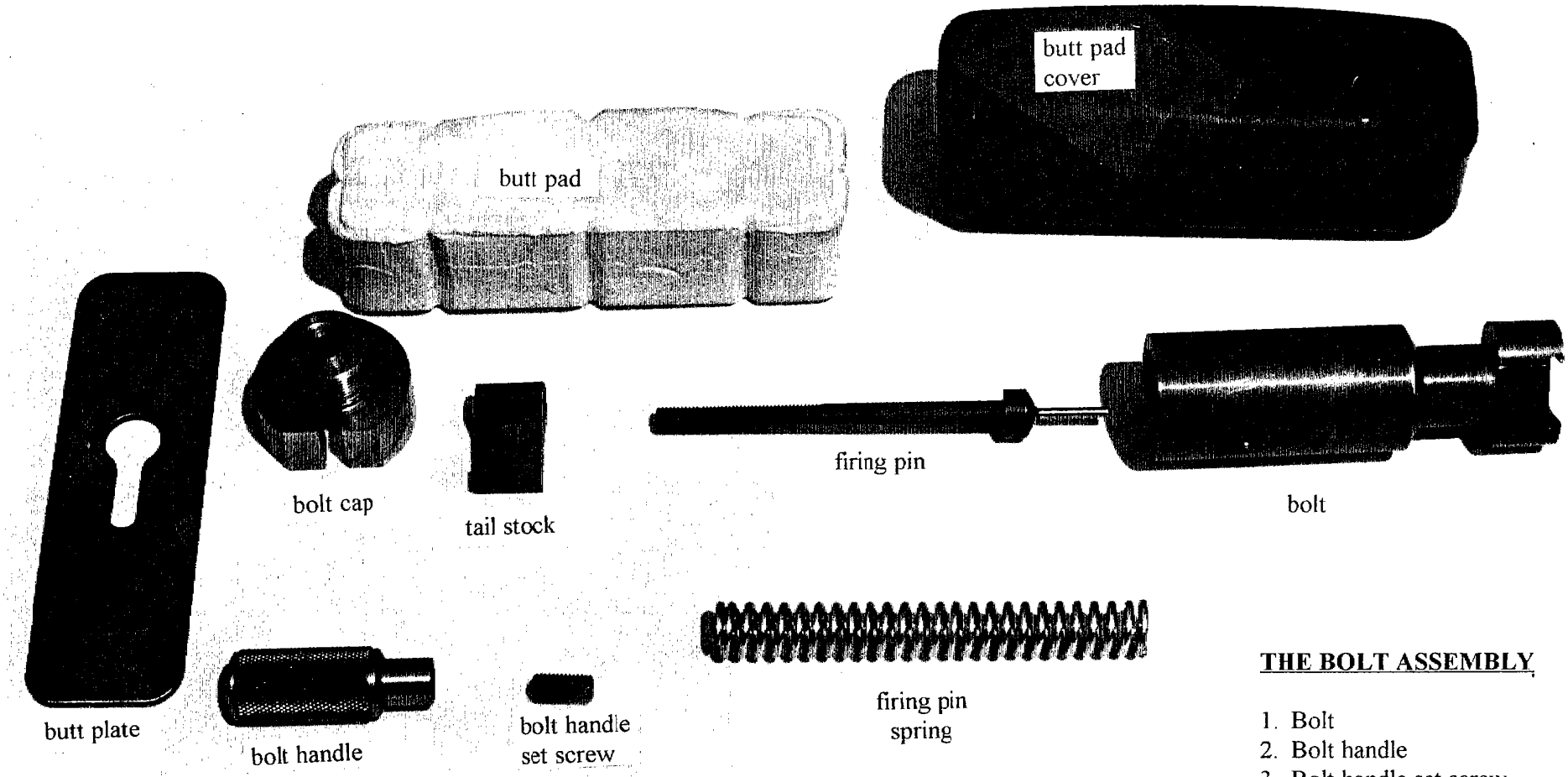
THE RECEIVER



THE RECEIVER

Material: 4140 steel, heat treated to **42 ROCKWELL R/C SCALE**

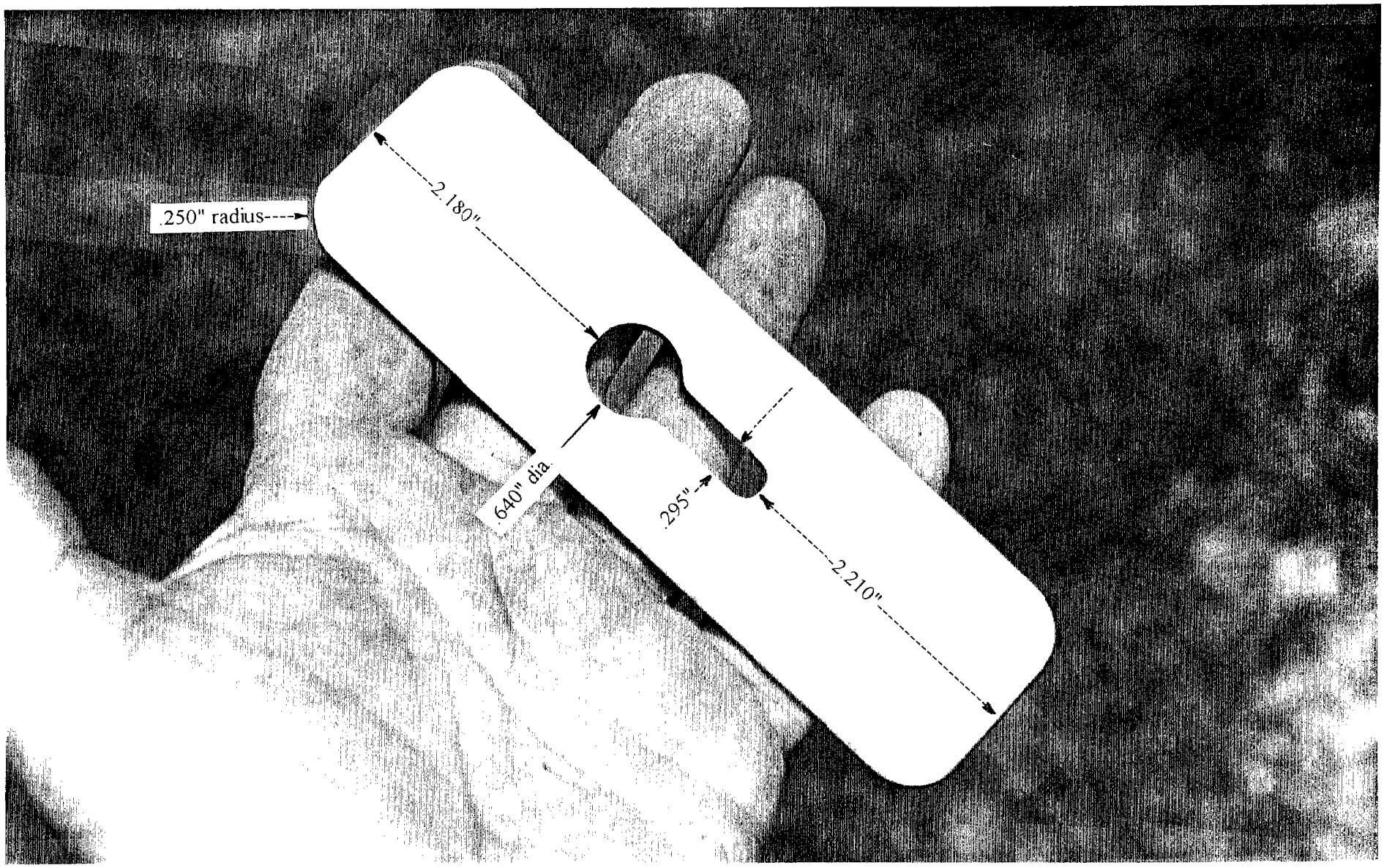
If there is too much difficulty in milling out the "oval" throat of the receiver tube, it is possible to cut the tube in two pieces by cutting at 3.606" from the back. (See the drawing, the line with a star at each end.) Allowance must be made for the blade width, the net result must conform to the drawing. These two pieces can be later rewelded together after the milling is complete. The edges must be beveled, aligned, and then weld together and grind off for a smooth finish.



THE BOLT ASSEMBLY PARTS

THE BOLT ASSEMBLY

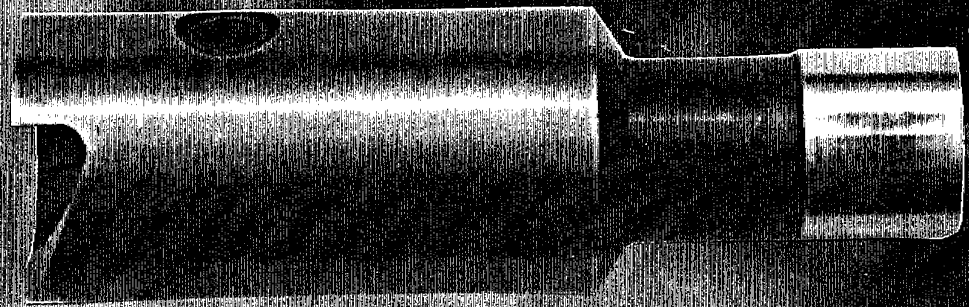
1. Bolt
2. Bolt handle
3. Bolt handle set screw
4. Butt pad
5. Butt pad cover
6. Butt plate
7. Bolt cap
8. Firing pin
9. Firing pin spring
10. Firing pin tail stock

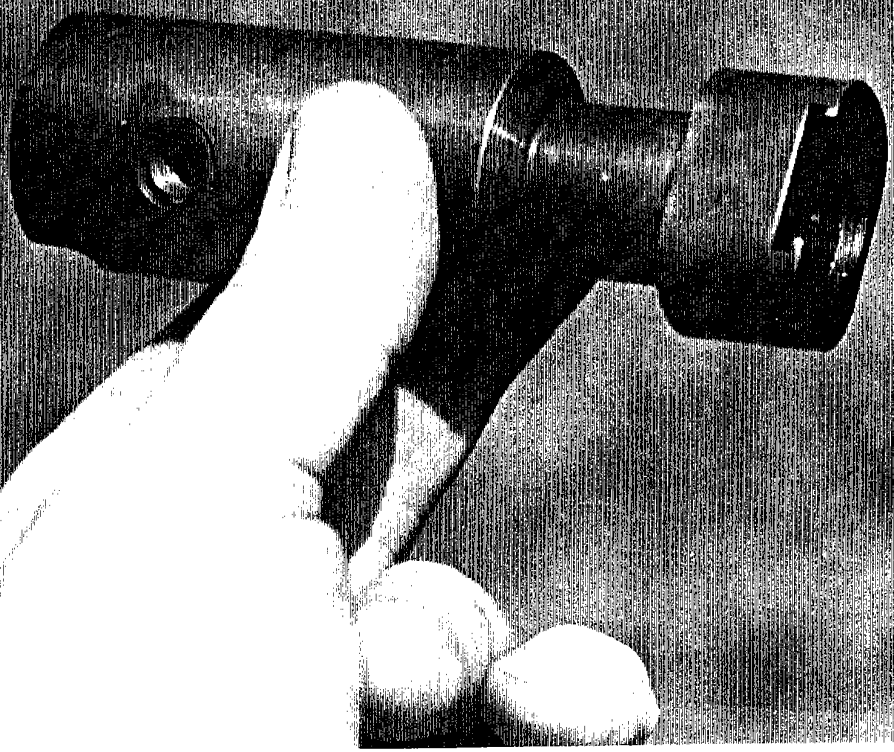


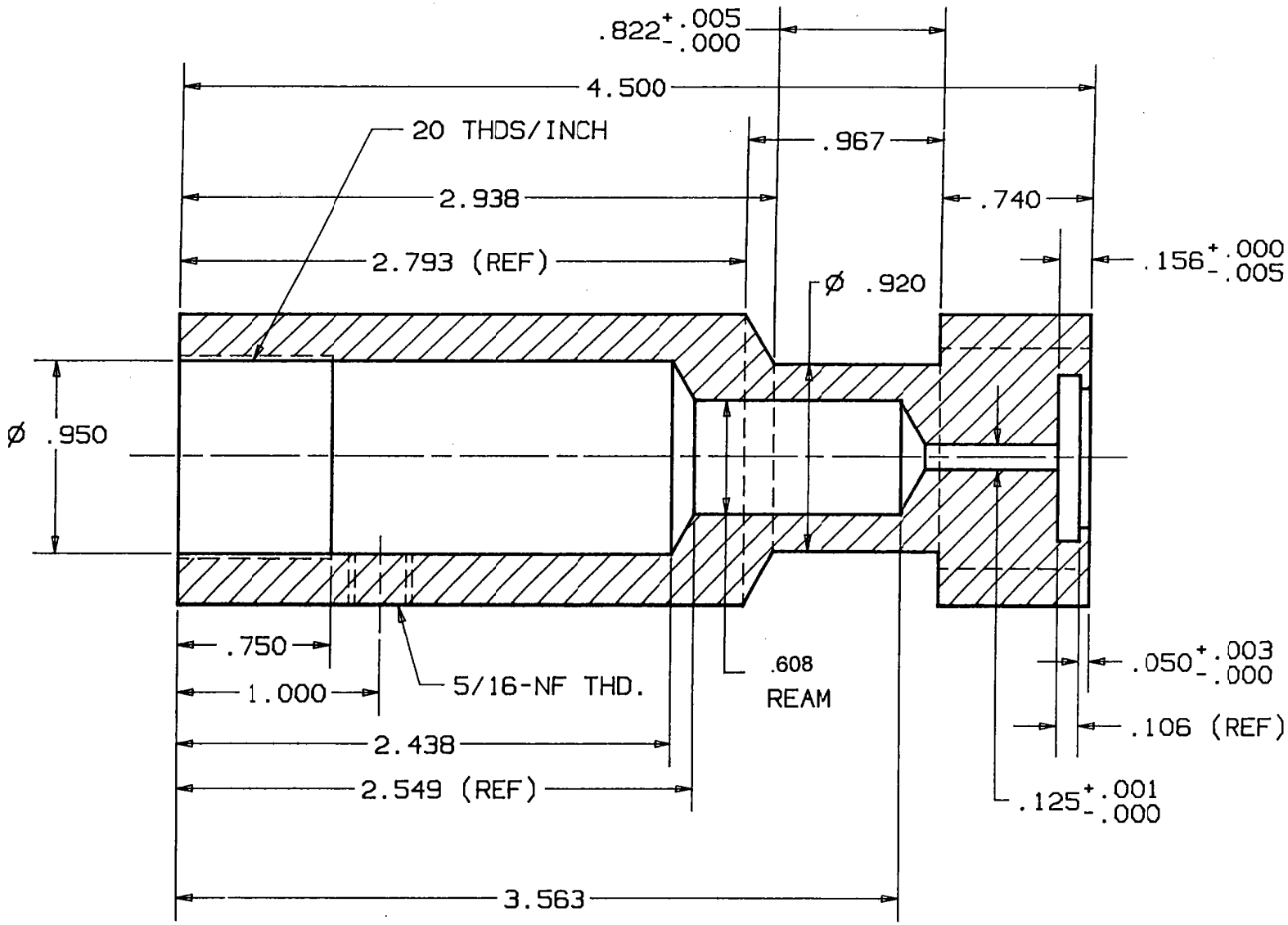
THE BUTT PLATE

Material: Carbon steel, stainless steel or any strong steel, .115" thick, 1.700" width, 5 7/8" long.

The depth of this groove is .375" (.125" radius) and the center is in line with the center of the right side lug of the bolt head.

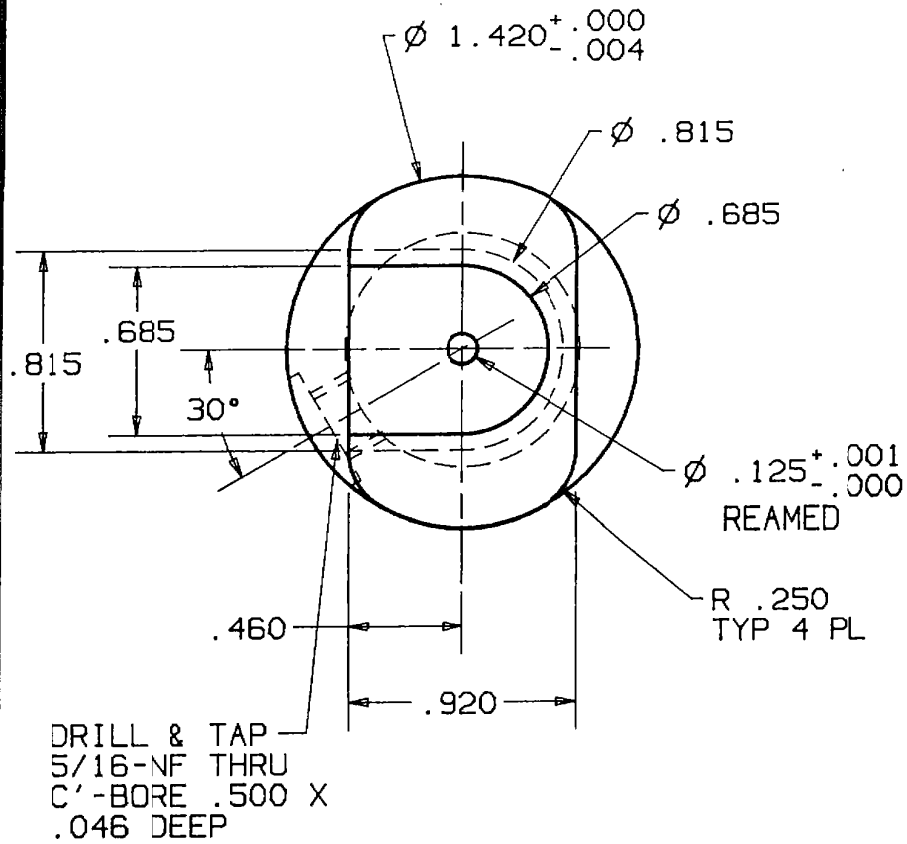




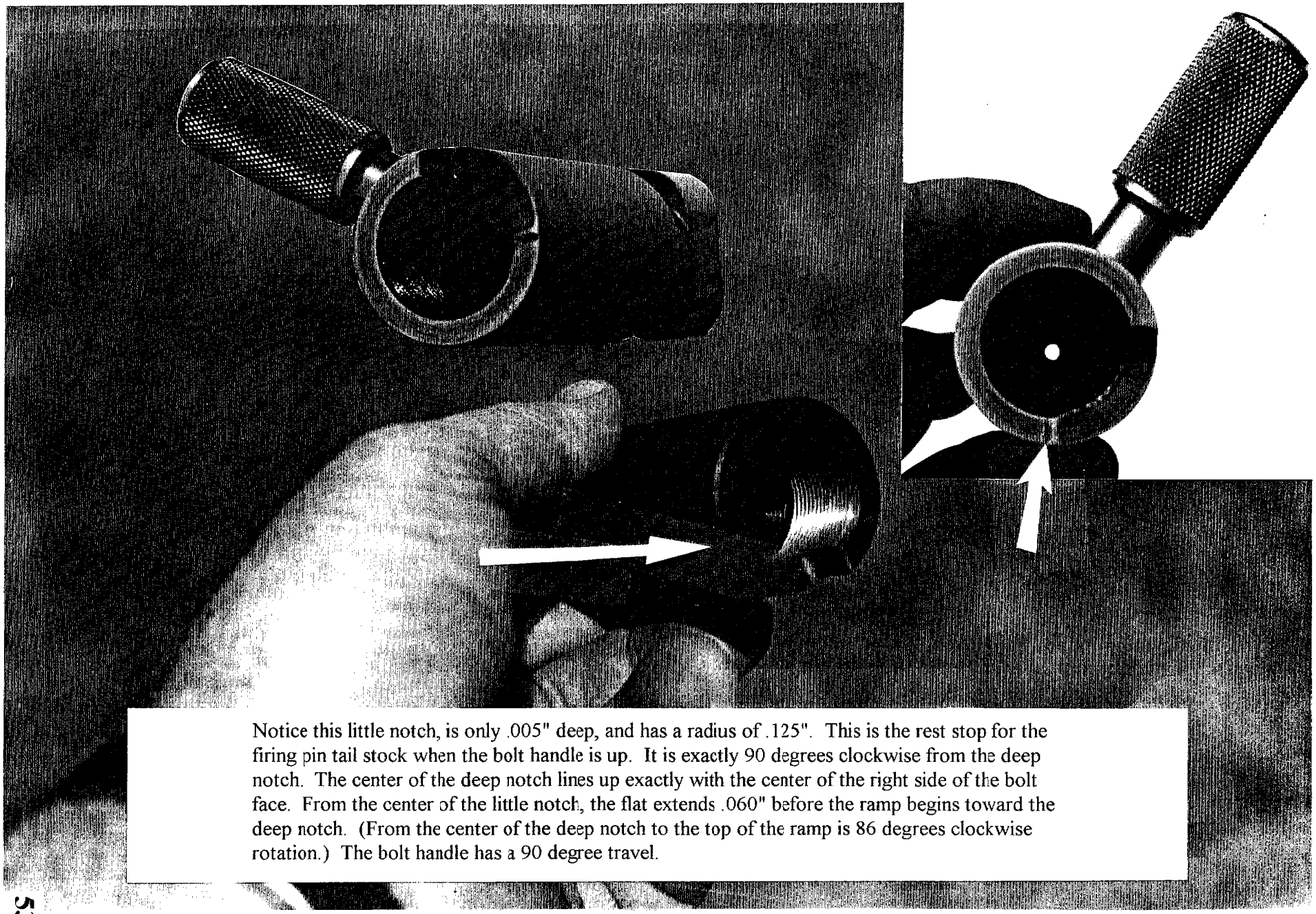


THE BOLT

Material: 4340 Mil.Spec. 5000 steel. (Upon completion of milling, the **BOLT** must be heat treated to **46 ROCKWELL R/C SCALE.**)

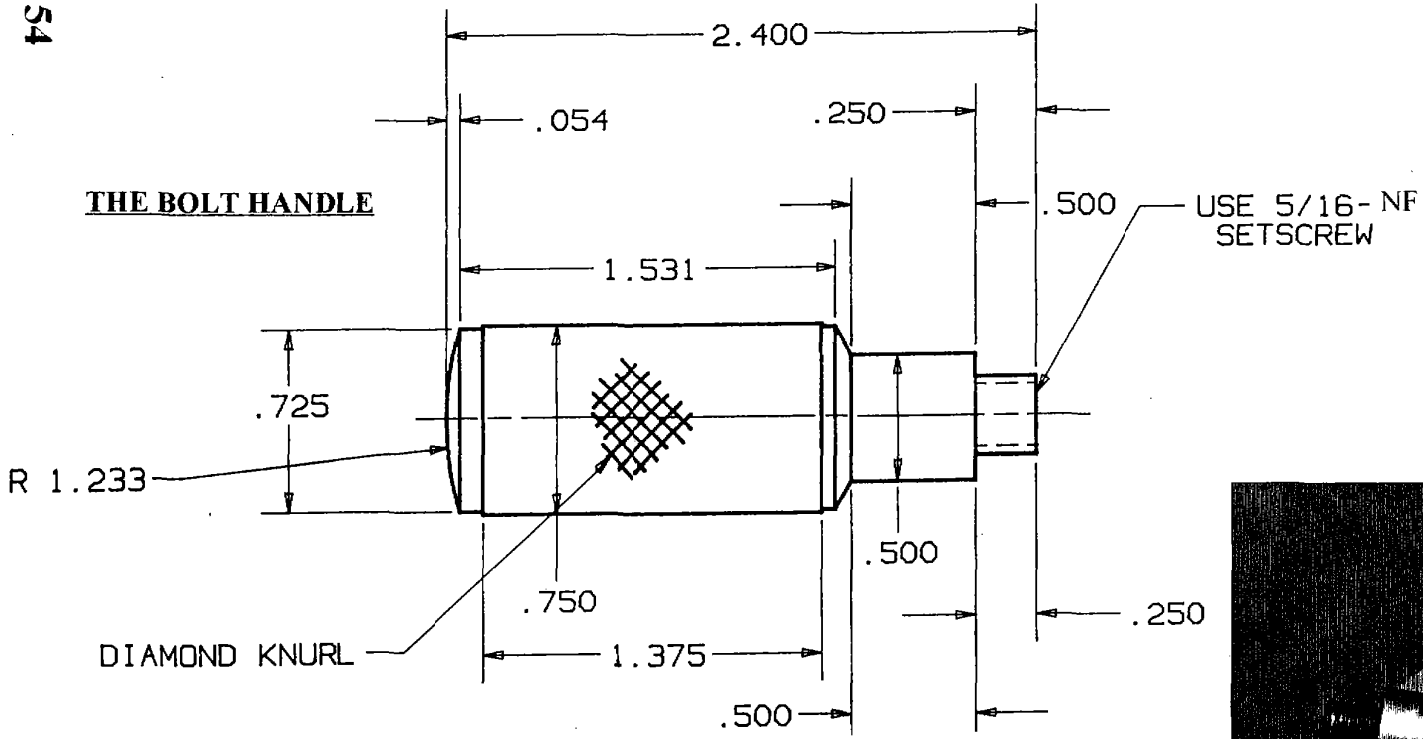

Ø 1.420 +.000 -.004
Ø .815
Ø .685
.815
.685
30°
Ø .125 +.001 -.000
REAMED
R .250
TYP 4 PL
.460
.920
DRILL & TAP
5/16-NF THRU
C'-BORE .500 X
.046 DEEP

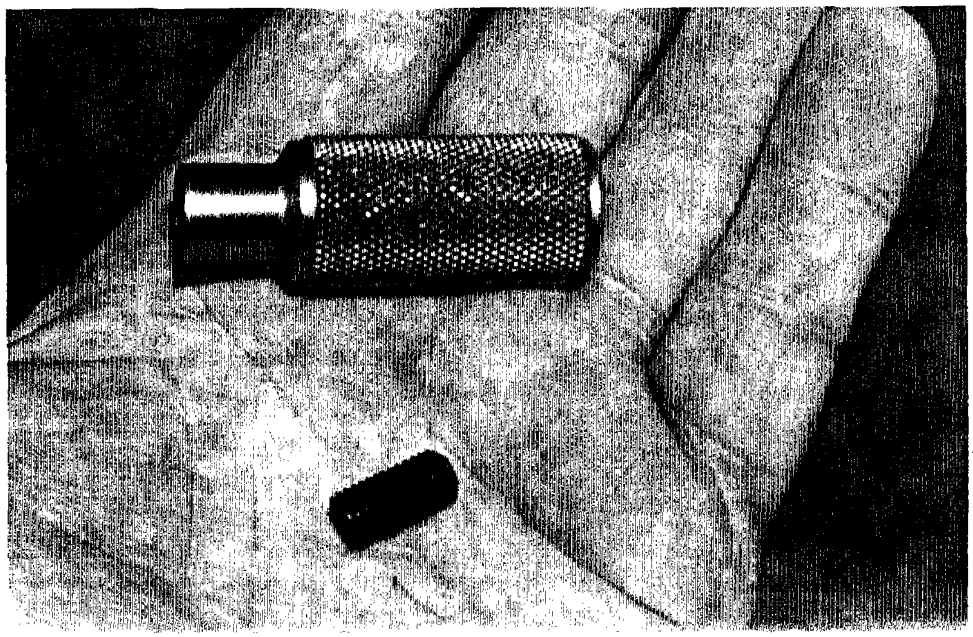
THE BOLT

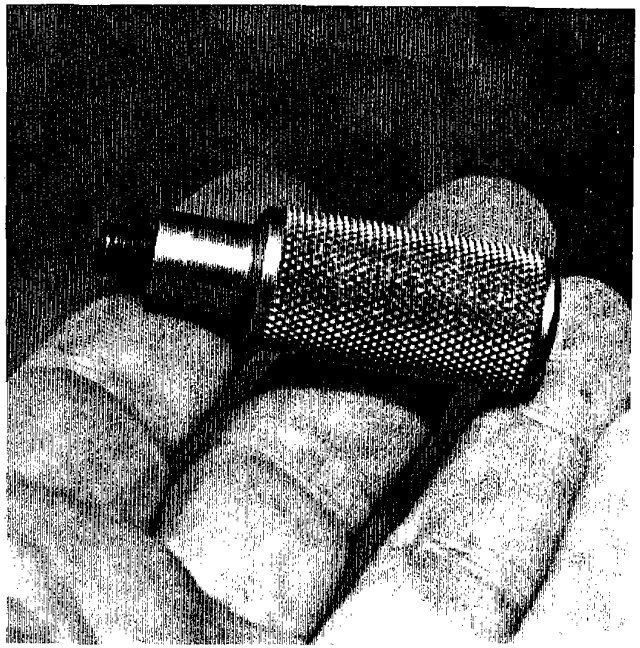


Notice this little notch, is only .005" deep, and has a radius of .125". This is the rest stop for the firing pin tail stock when the bolt handle is up. It is exactly 90 degrees clockwise from the deep notch. The center of the deep notch lines up exactly with the center of the right side of the bolt face. From the center of the little notch, the flat extends .060" before the ramp begins toward the deep notch. (From the center of the deep notch to the top of the ramp is 86 degrees clockwise rotation.) The bolt handle has a 90 degree travel.

THE BOLT HANDLE



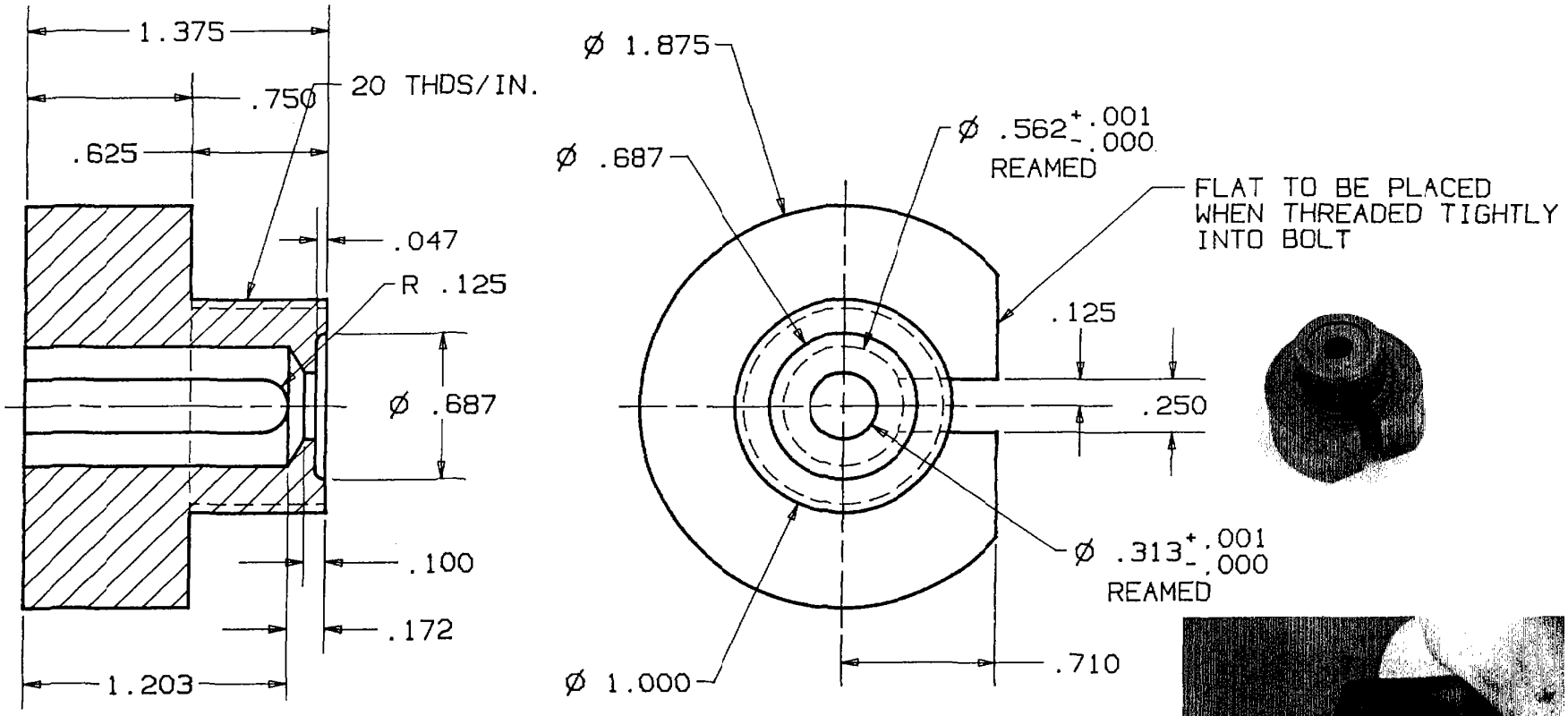


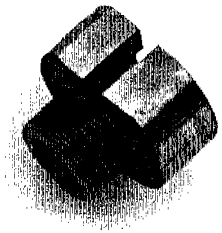


THE BOLT HANDLE

Material: 4140 steel, 417R stainless steel, or just about any durable metal.

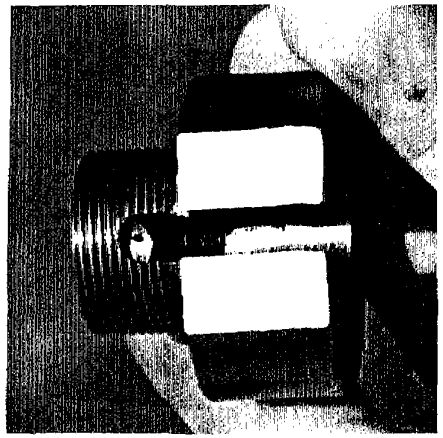
The set screw is a 5/16th NF .630" long. (The handle hole is drilled 1.000" deep and threaded .375" deep.)





BOLT CAP

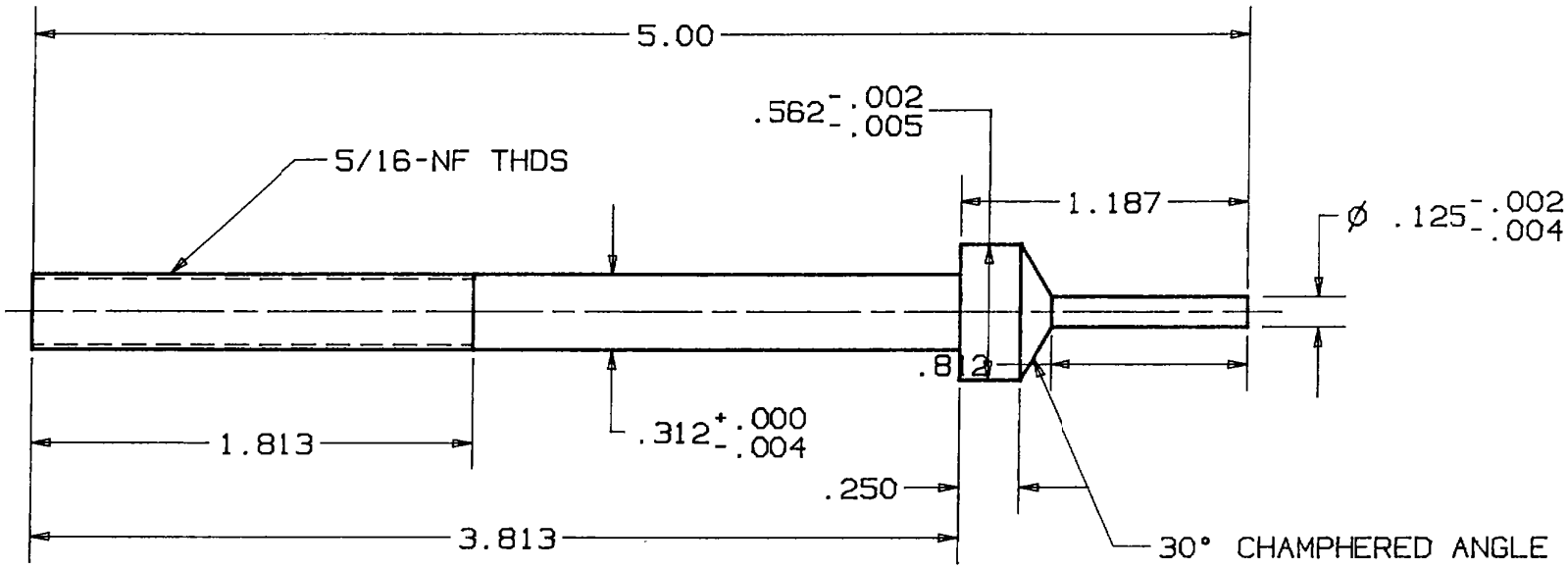
Material: 4140 steel (finished part heat treated to **40 ROCKWELL R/C SCALE**



Do all the machining on the **BOLT CAP** except for milling the flat and the .250" slot. Hold off milling the flat and the .250" slot until the bolt is fully machined. Screw the bolt cap into the back of the bolt until it is snug (not tight) with the minimum gap. With the **BOLT CAP** in the snug position, then mark the area for the flat, and the .250 slot which should line up with the "little notch" on the bolt. (See photo)

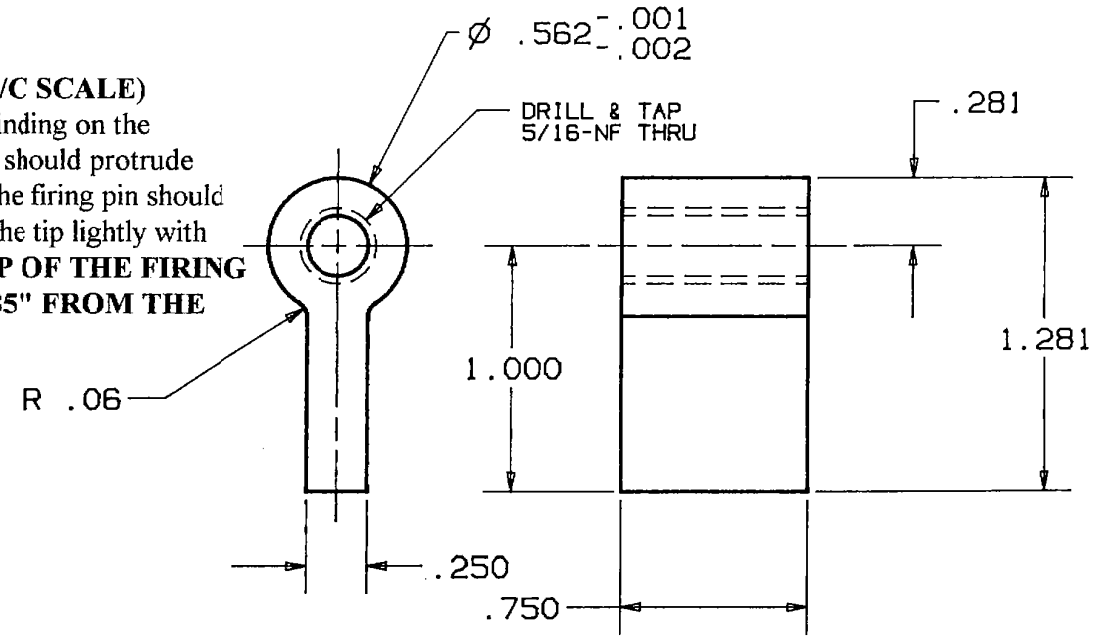
BOLT CAP

BOLT CAP

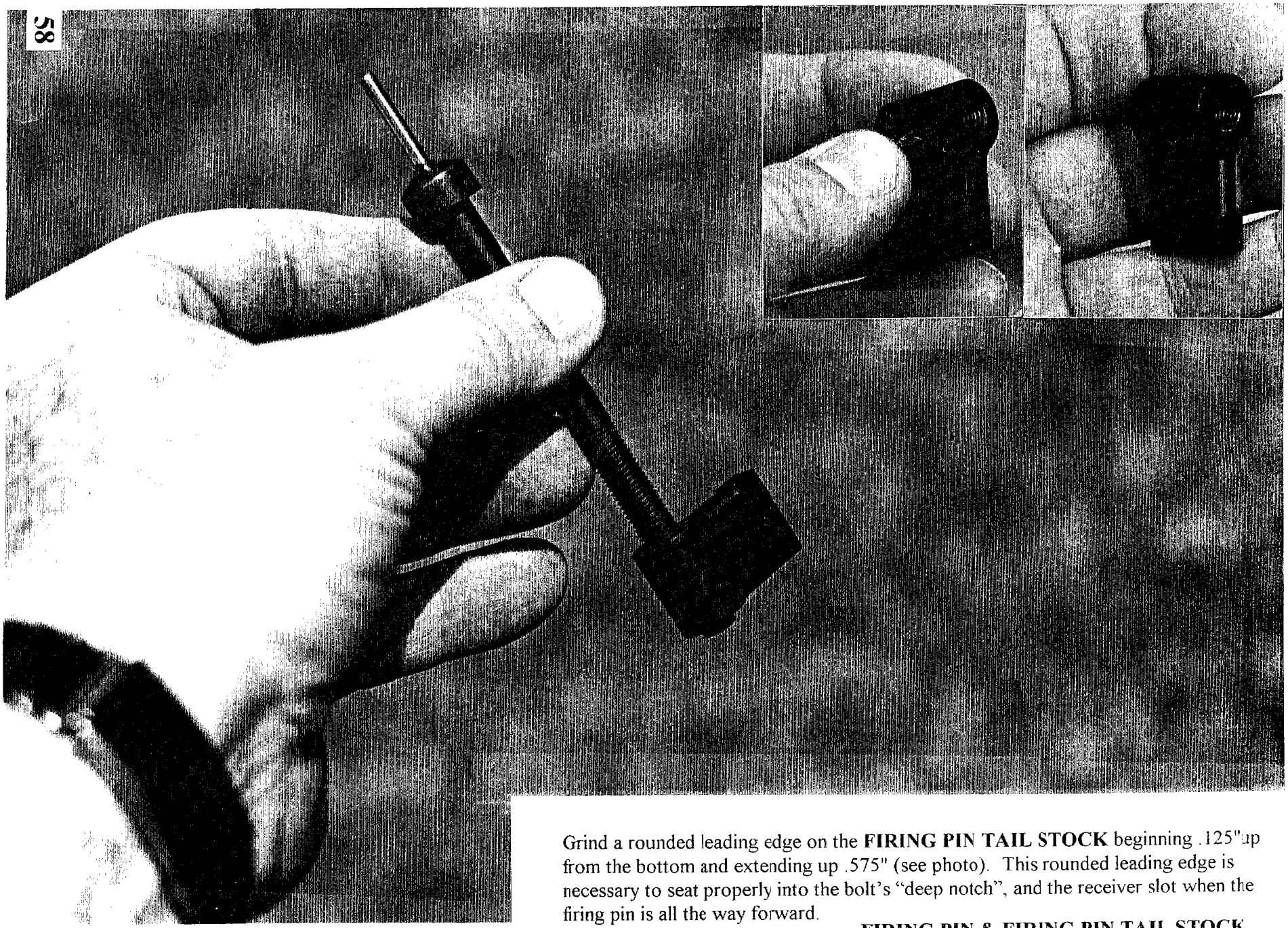


FIRING PIN & FIRING PIN TAIL STOCK

Material: 4140 steel (Both heat treated to **42 ROCKWELL R/C SCALE)** The tip of the firing pin must be rounded. Before doing any grinding on the tip, insert the firing pin inside the bolt. The tip of the firing pin should protrude .065" to .095" from the bolt face. The optimum distance that the firing pin should protrude from the bolt face is **.085"**. You may have to polish the tip lightly with emery cloth to allow smooth operation. **THE ROUNDED TIP OF THE FIRING PIN SHOULD (WHEN INSERTED FULLY) EXTEND .085" FROM THE BOLT FACE.**

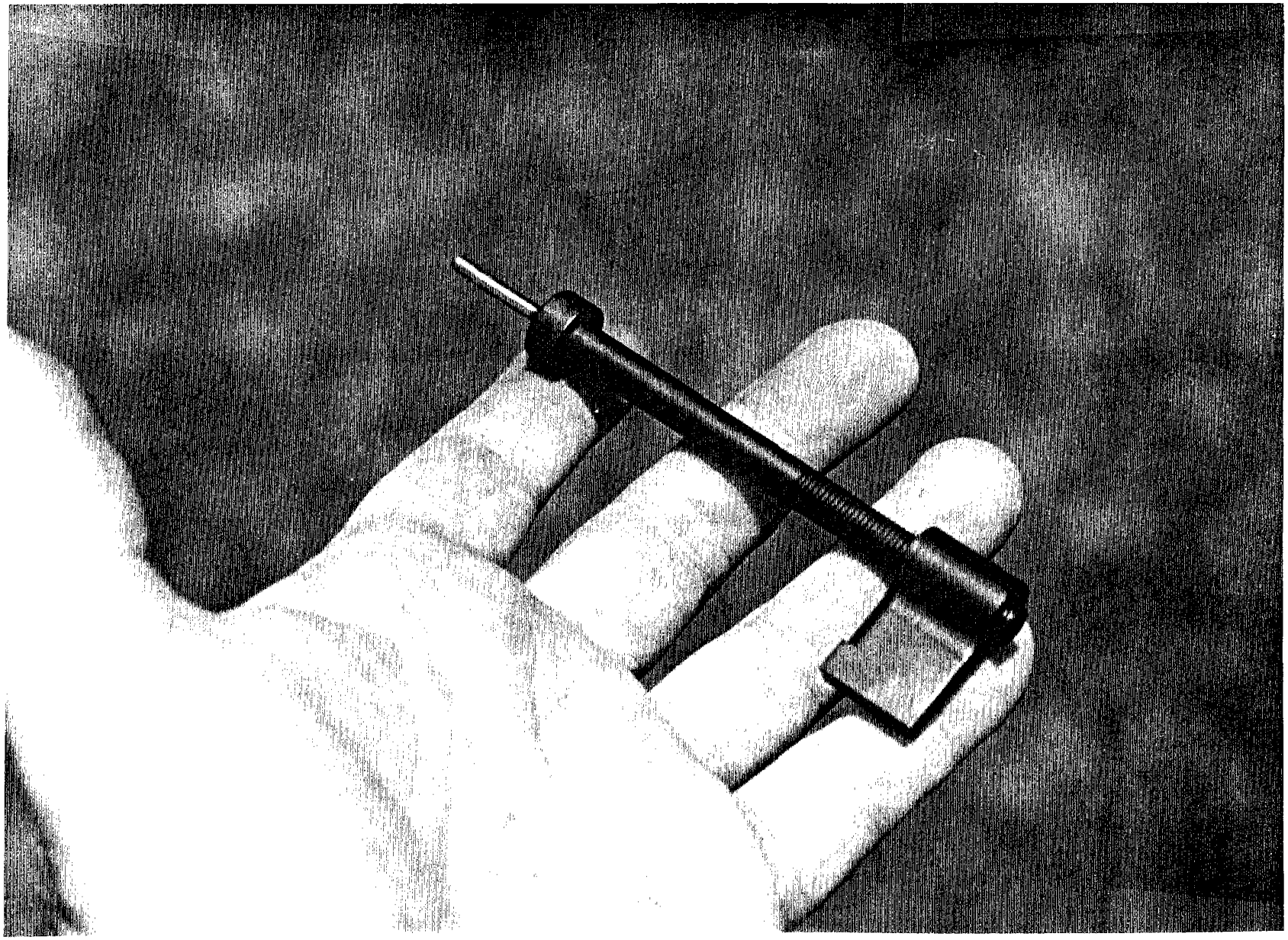


THE FIRING PIN TAIL STOCK



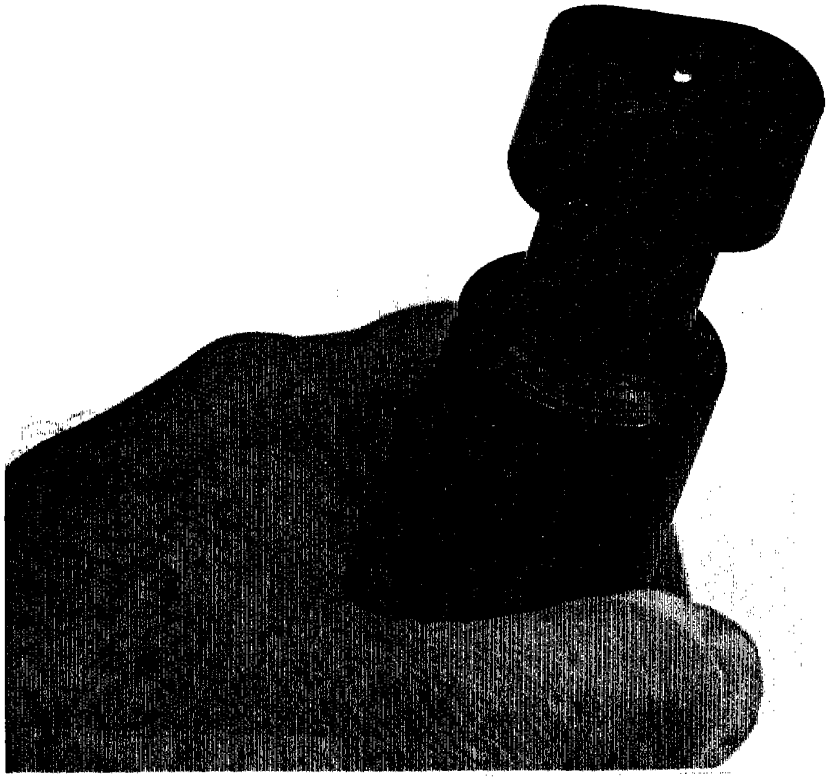
Grind a rounded leading edge on the **FIRING PIN TAIL STOCK** beginning .125" up from the bottom and extending up .575" (see photo). This rounded leading edge is necessary to seat properly into the bolt's "deep notch", and the receiver slot when the firing pin is all the way forward.

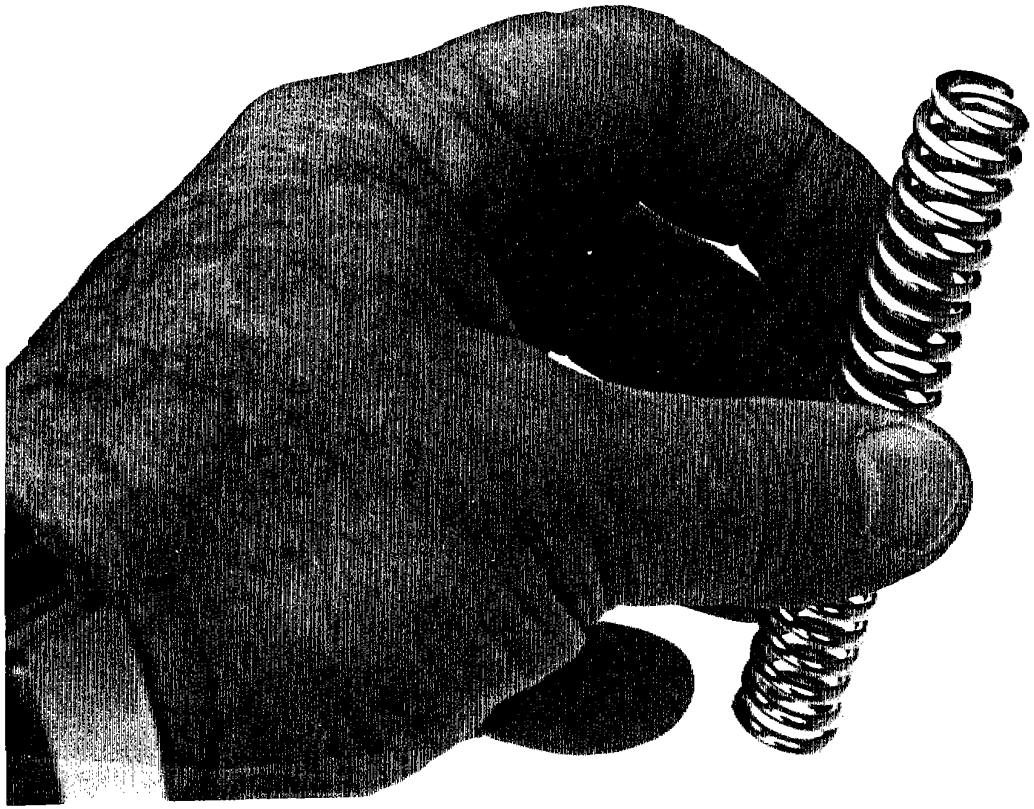
FIRING PIN & FIRING PIN TAIL STOCK



FIRING PIN AND TAIL STOCK

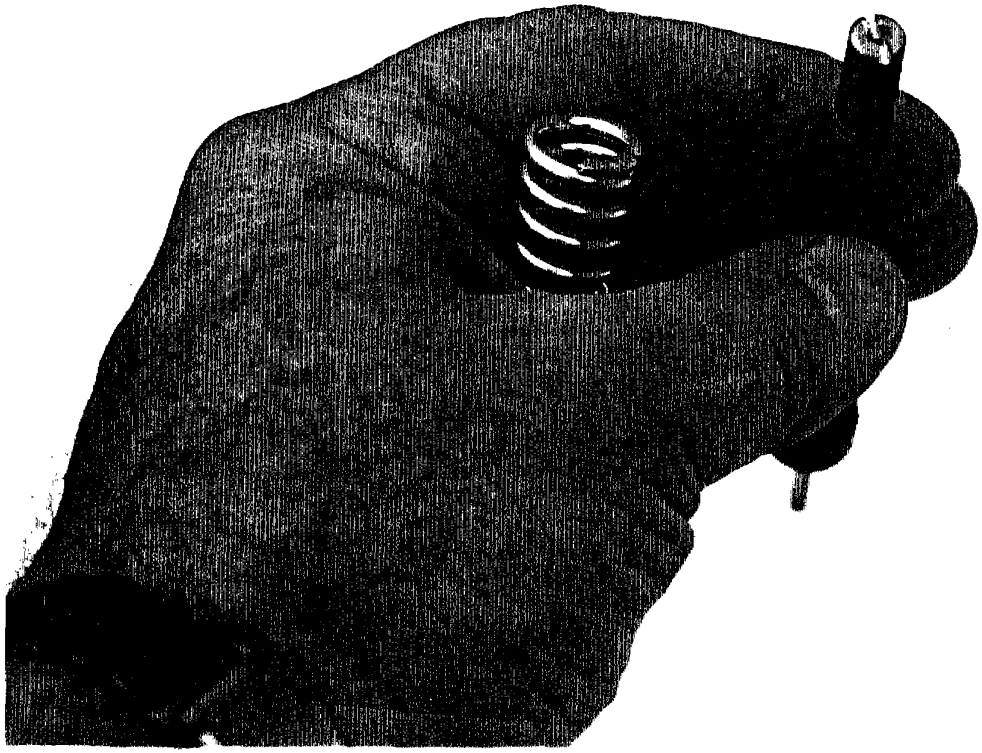
CHECK THE FIRING PIN TIP LENGTH. Insert the firing pin into the bolt all the way, the tip should protrude .085" from the bolt face. (.065" minimum and .095" maximum.)



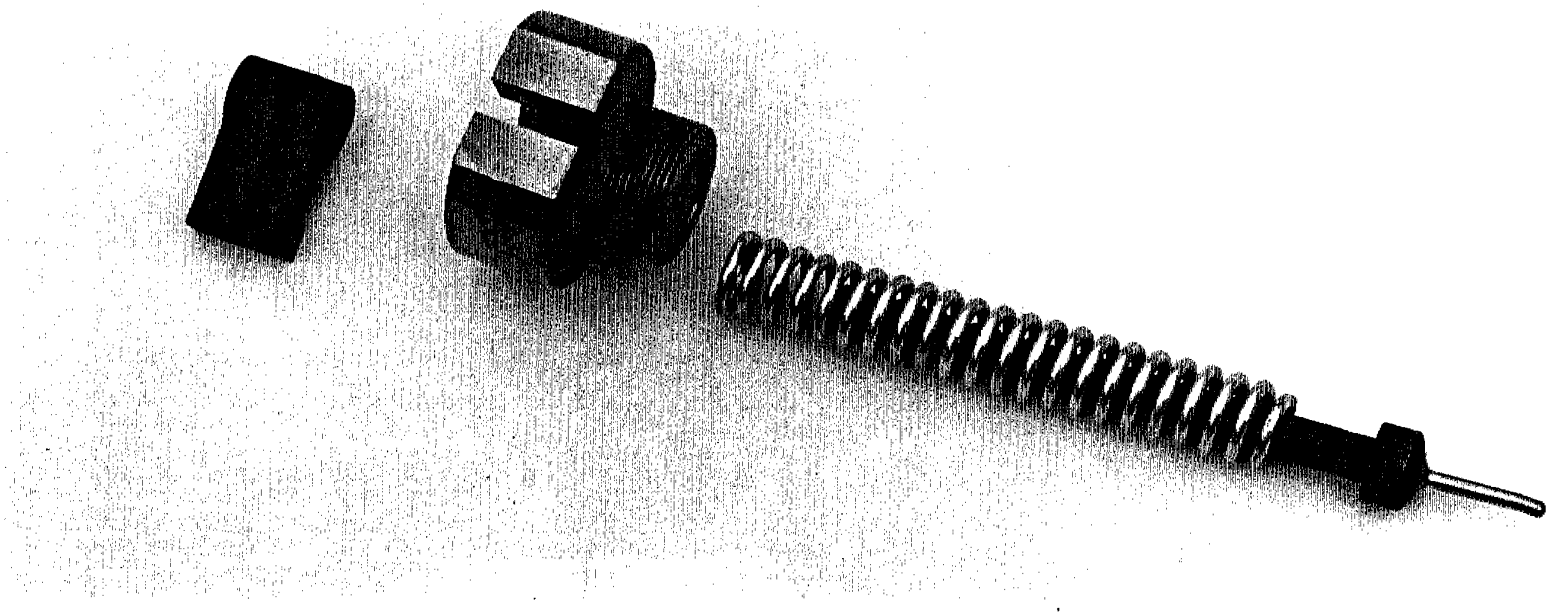


FIRING PIN SPRING

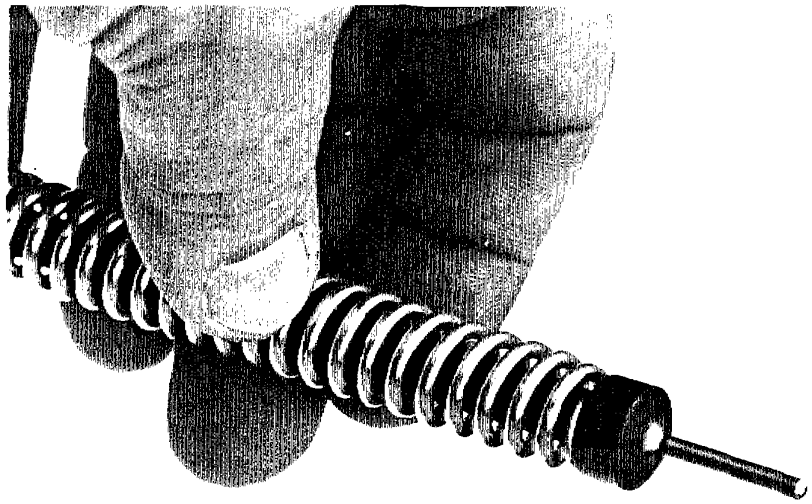
Material: .100" dia. Spring steel rod, coil I.D. .400" coil O.D. .600" (5 ½ coils per inch) 21 ½ coils, 3.850" long. Use a vice to crimp the forward end of the spring to fit the back surface of the firing pin head snug. Springs are available from JNS Supply Co.



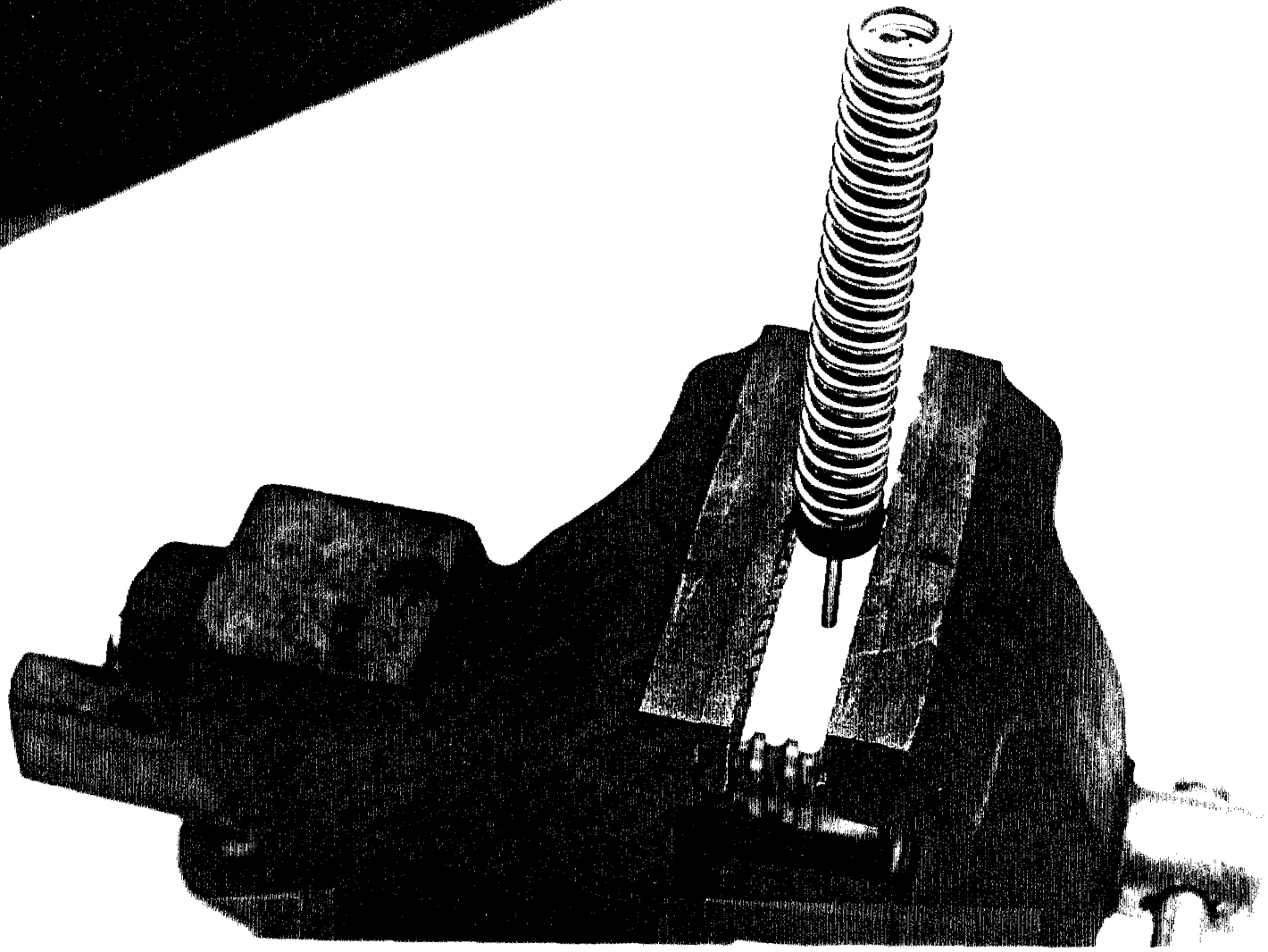
CUT A GROOVE (FOR SCREWDRIVER ADJUSTMENTS) IN THE BACK END OF THE FIRING PIN.



Bolt assembly: The firing pin shaft goes through the spring, then through the bolt cap and screws into the firing pin tail stock.



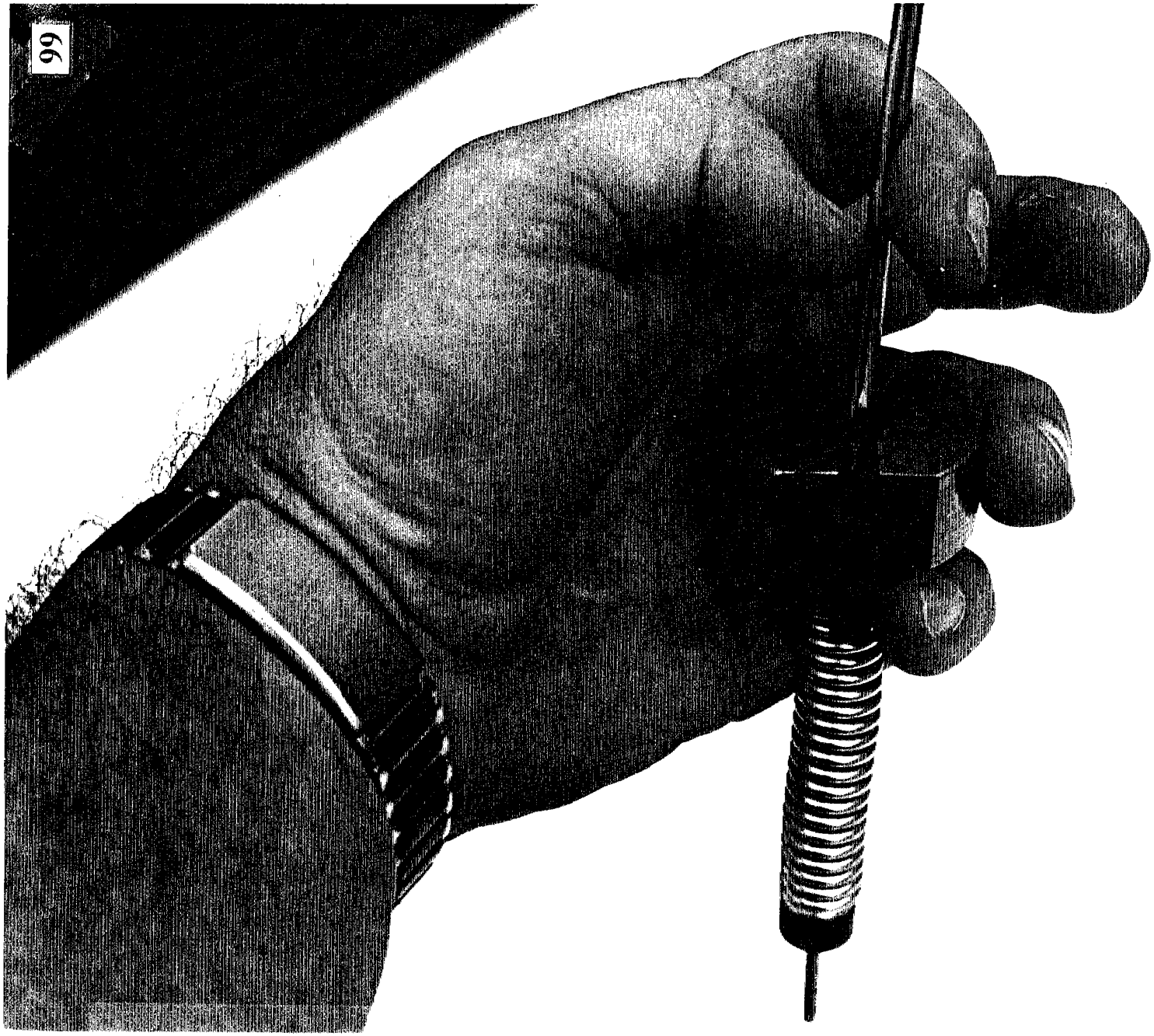
Crimp the forward end of the firing pin spring, using a vice, (you are squeezing the first two coils tighter so that they will seat flush with the back of the firing pin head) and then insert the firing pin as shown.



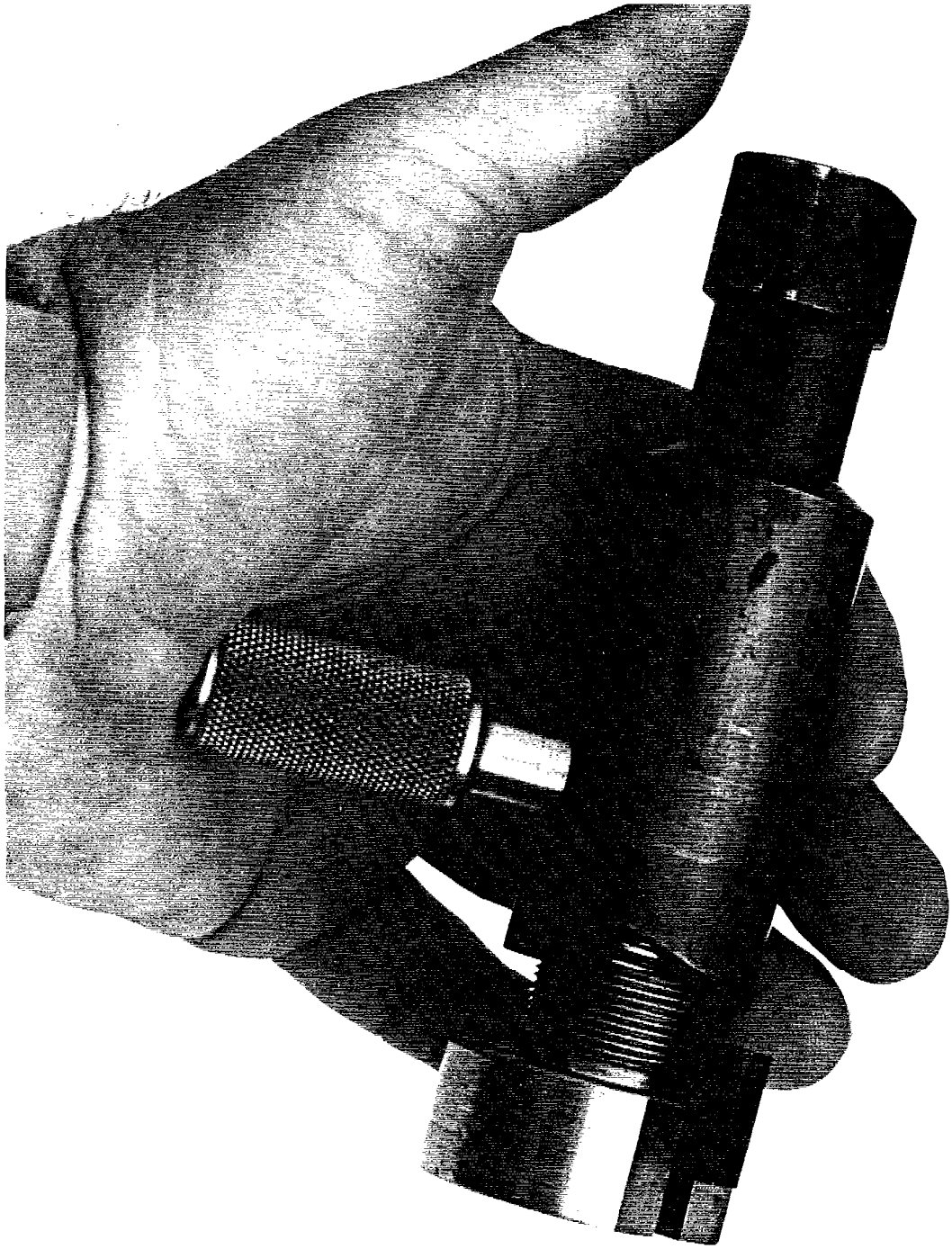
Place the head of the firing pin into a vice, with the spring on like this.

You may use the bolt handle to assist in the assembly. First place the tail stock in the back of the bolt cap, then screw the bolt handle in to the back, two turns.

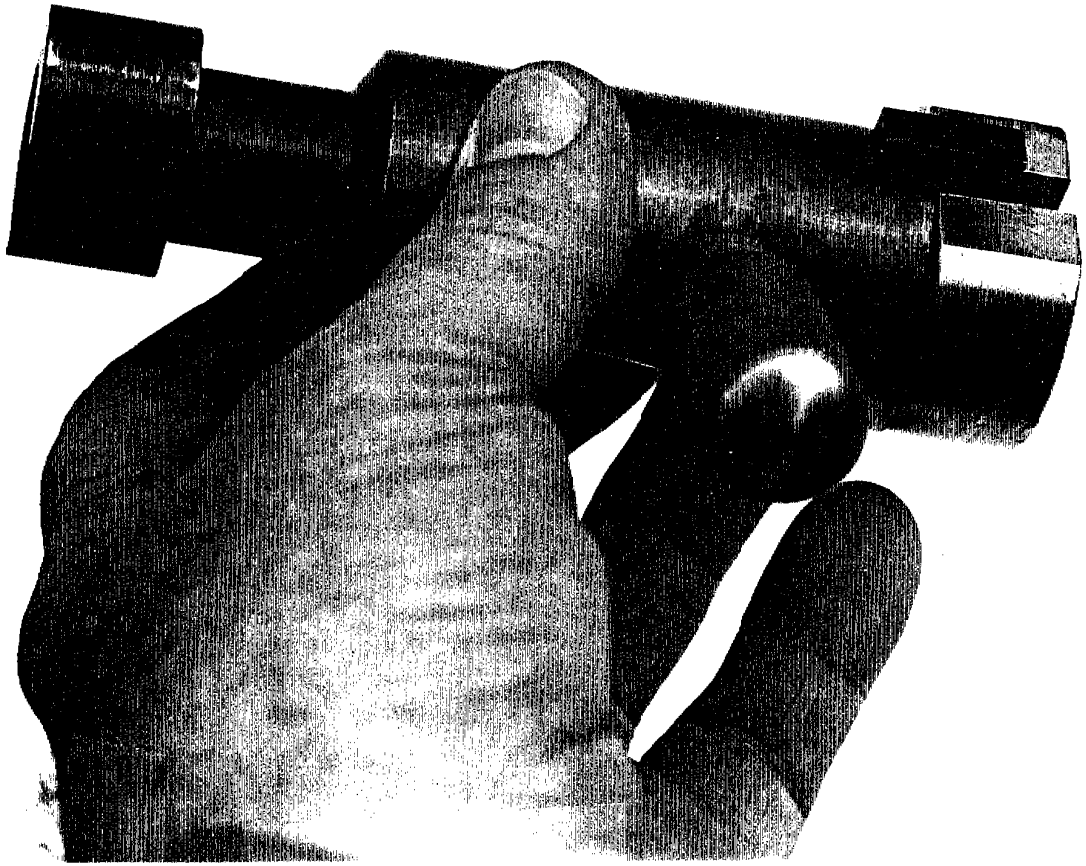
Then place the bolt cap on top of the end of the firing pin, press down and screw tail stock onto the end of the firing pin two turns, then remove the bolt handle, and complete screwing down the tailstock and bolt cap



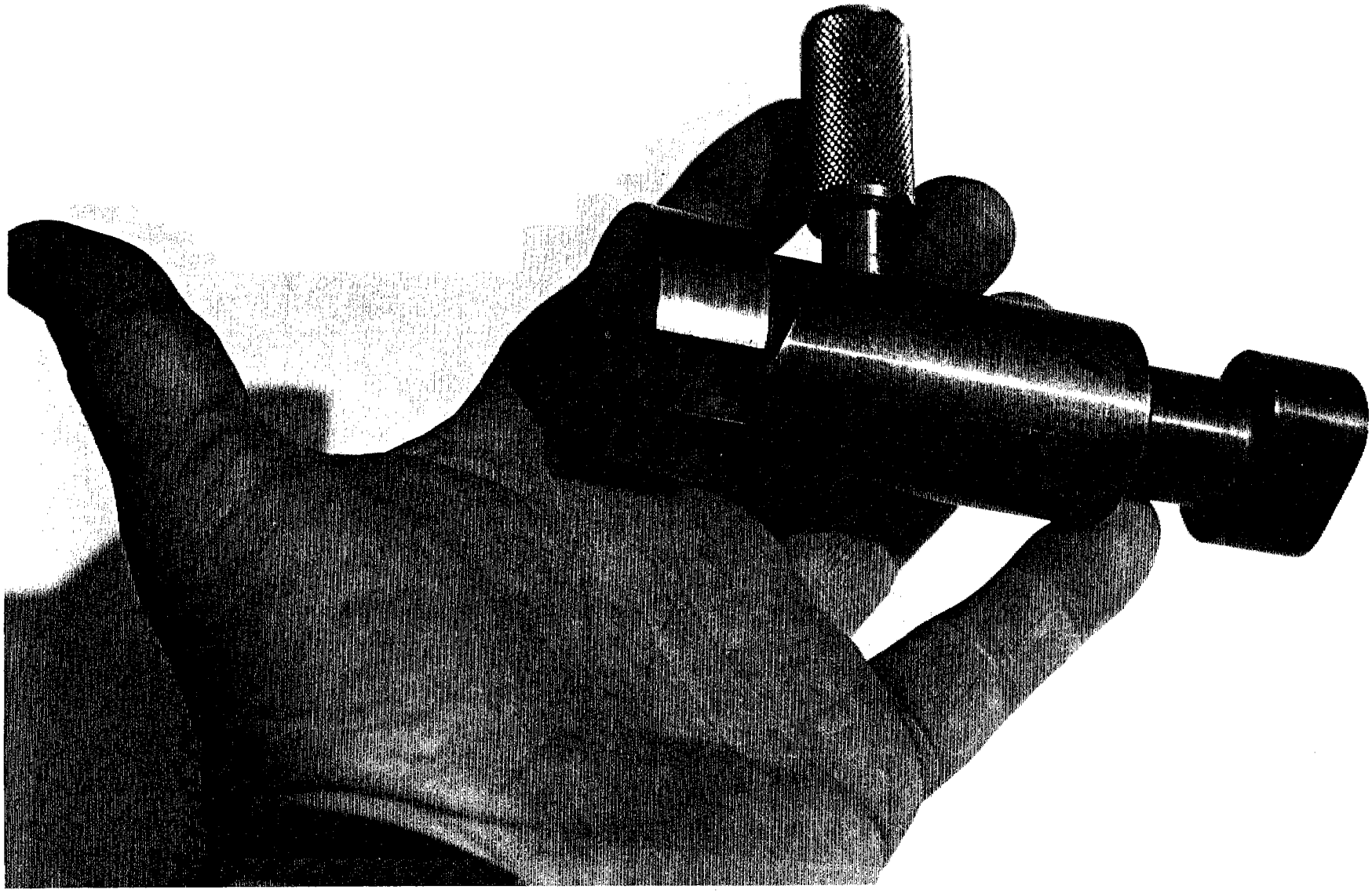
Take a screwdriver and screw the end of the firing pin counterclockwise until three threads are showing



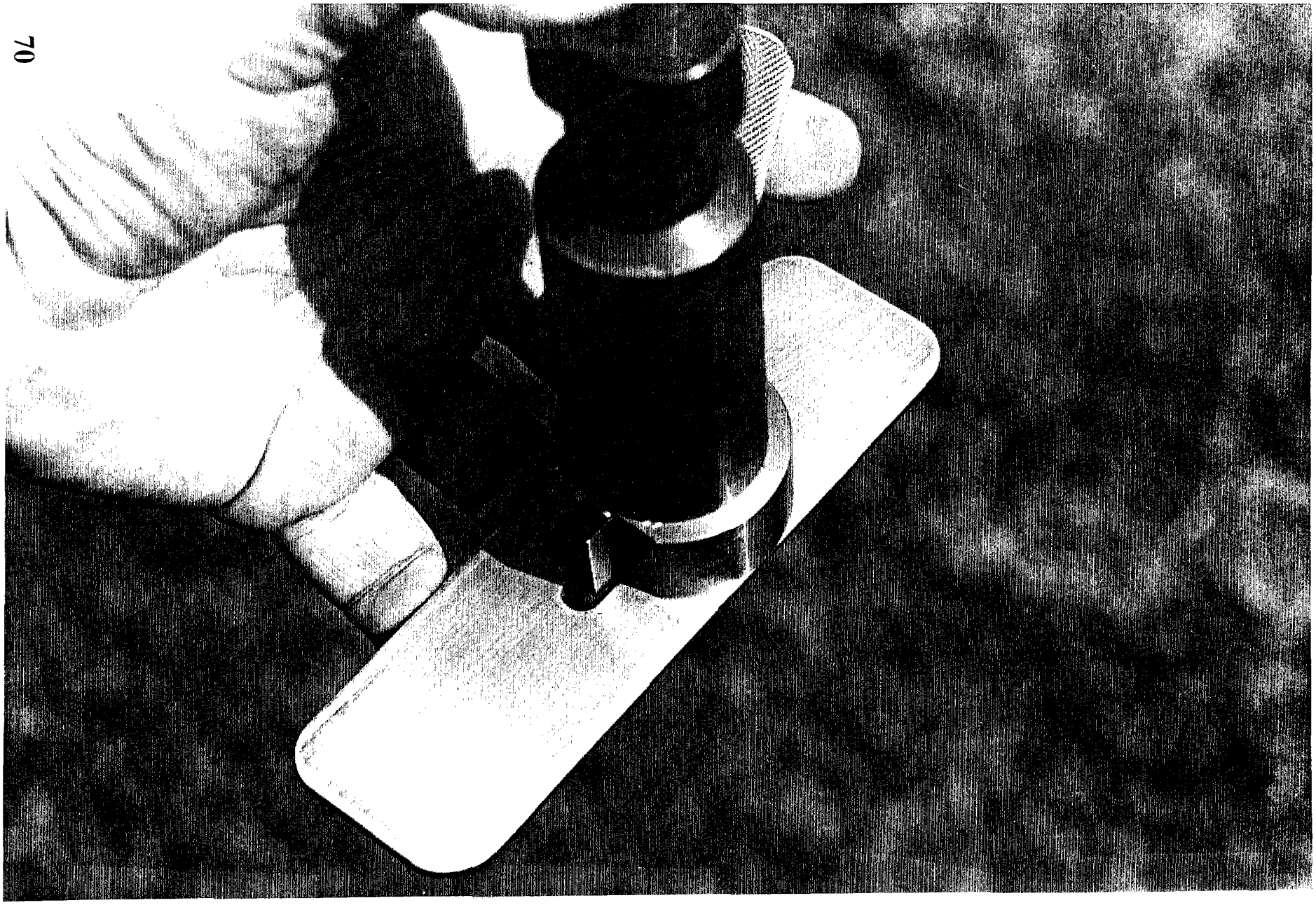
Next, insert the bolt cap, firing pin assembly into the back of the bolt. This will take some force. It is wise to lubricate all the contacting surfaces with a light oil.



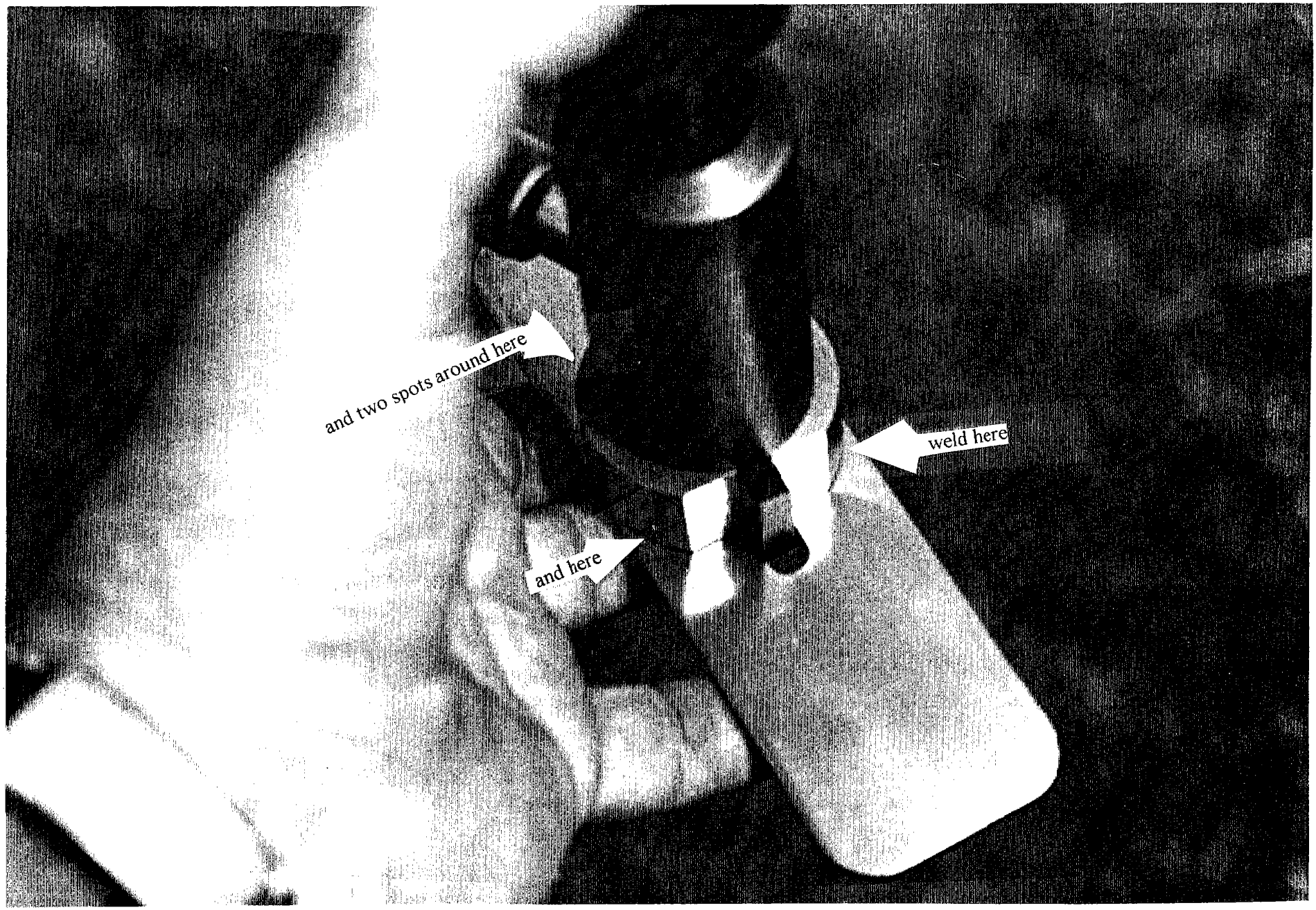
This is the bolt with the firing pin in the forward (battery) position. Adjust the back of the firing pin so that the tail stock is snug against the "deep notch" in the bolt. At the same time, be sure that the firing pin is at its maximum protrusion. The tip of the firing pin should be protruding .085" from the bolt face, in this position. (.065" minimum, .095" maximum) .085" is best.

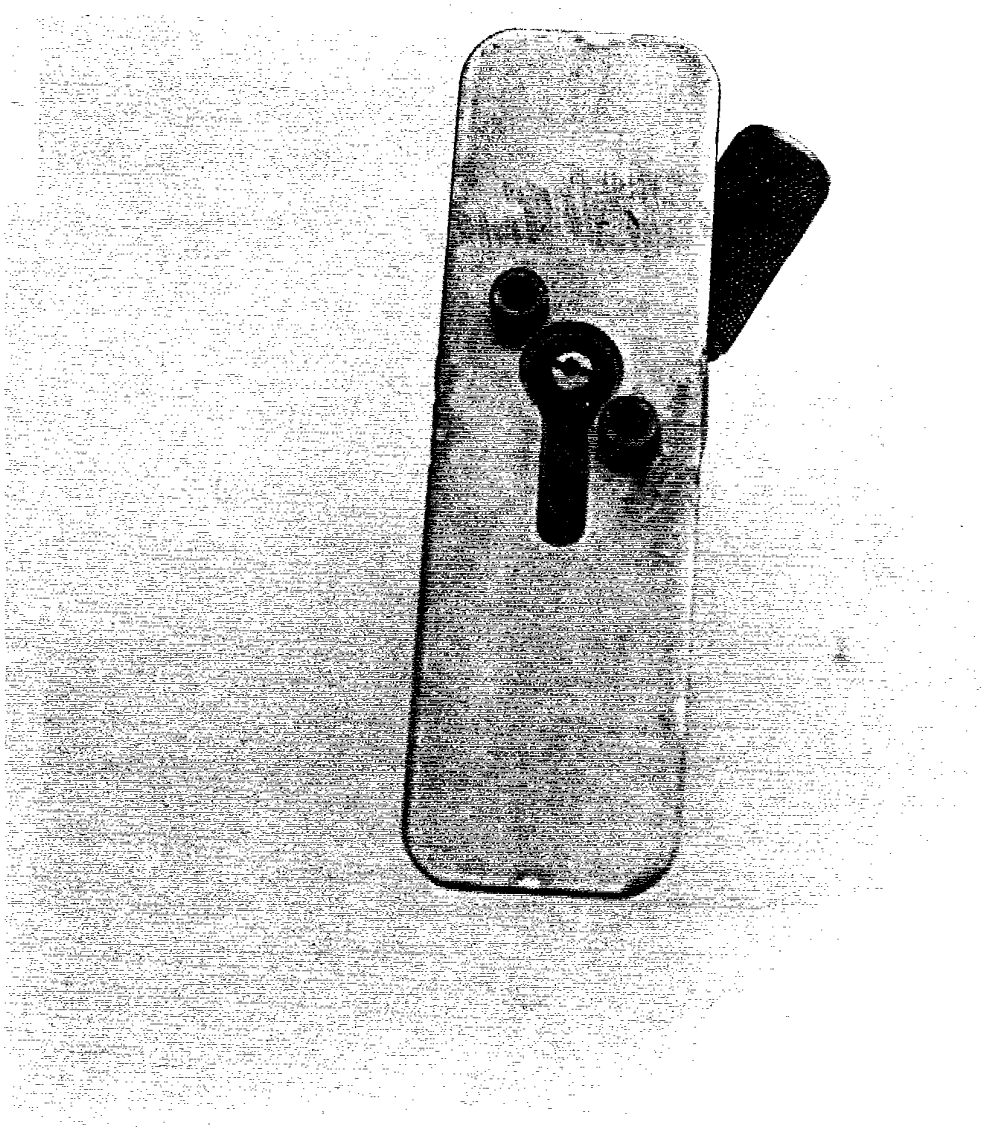


This is the bolt with the firing pin in the rear lock position. The firing pin tail stock is in the "little notch" of the bolt base.



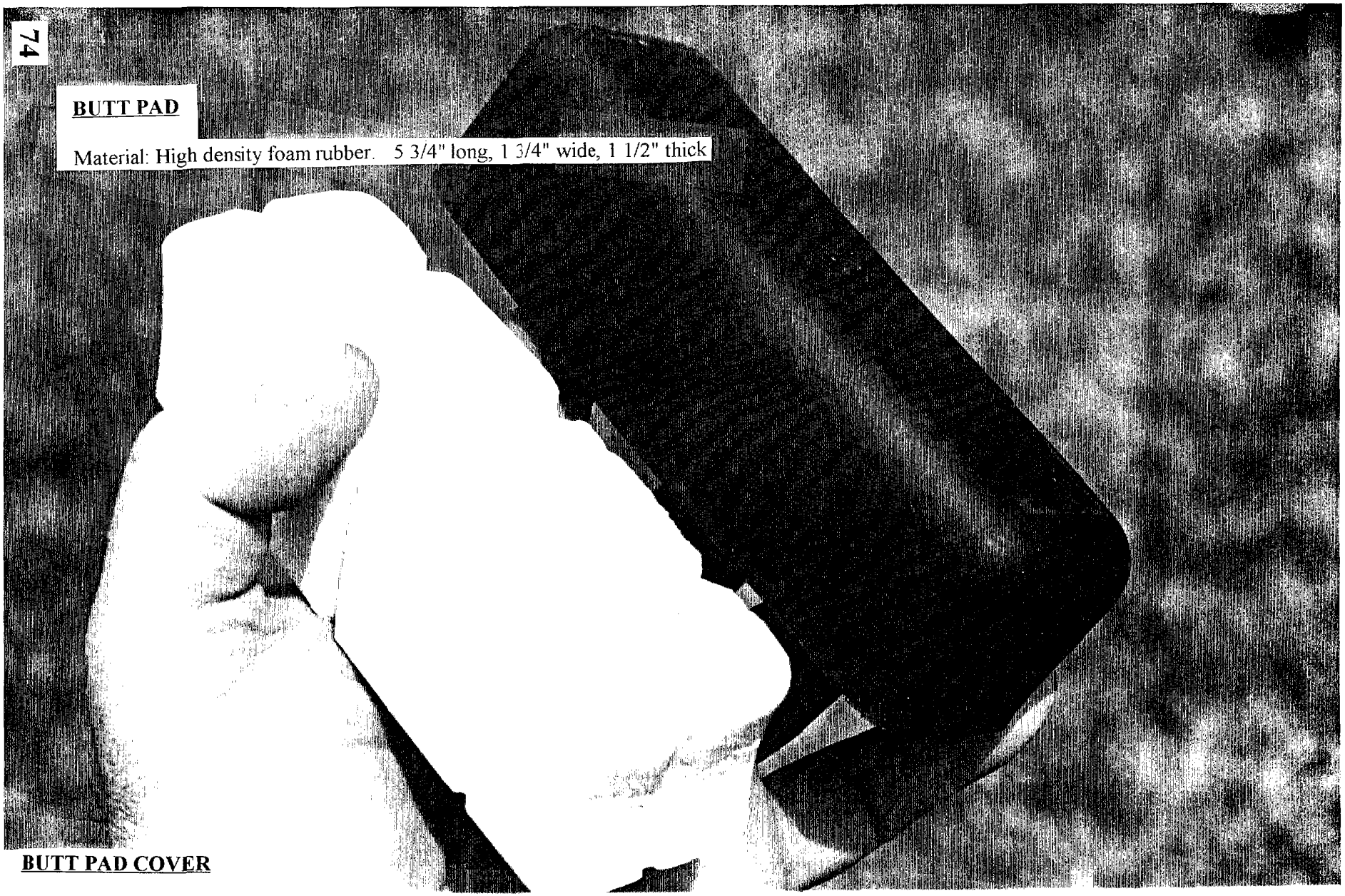
Next, attach the butt plate to the back of the bolt cap. Align the putt plate carefully, and have it tack welded to the bolt cap in three or four places. DO NOT WELD ON THE "FLAT SURFACE OF THE BOLT CAP".


and two spots around here
weld here
and here



Rather than weld the butt plate on the back of the bolt cap, you may choose to drill and tap two holes 5/8 inch deep and use two allen wrench head bolts to attach the butt plate. Both ways will work. Be sure that the butt plate is aligned so that the firing pin tail stock can be easily removed if necessary.

This is the bolt assembly without the pad and cover. Check the firing pin seating and length by putting the bolt handle in the down position. The firing pin should protrude out from the bolt face .085". A light coat of gun grease will ease the movement of the firing pin tail stock against the back of the bolt.

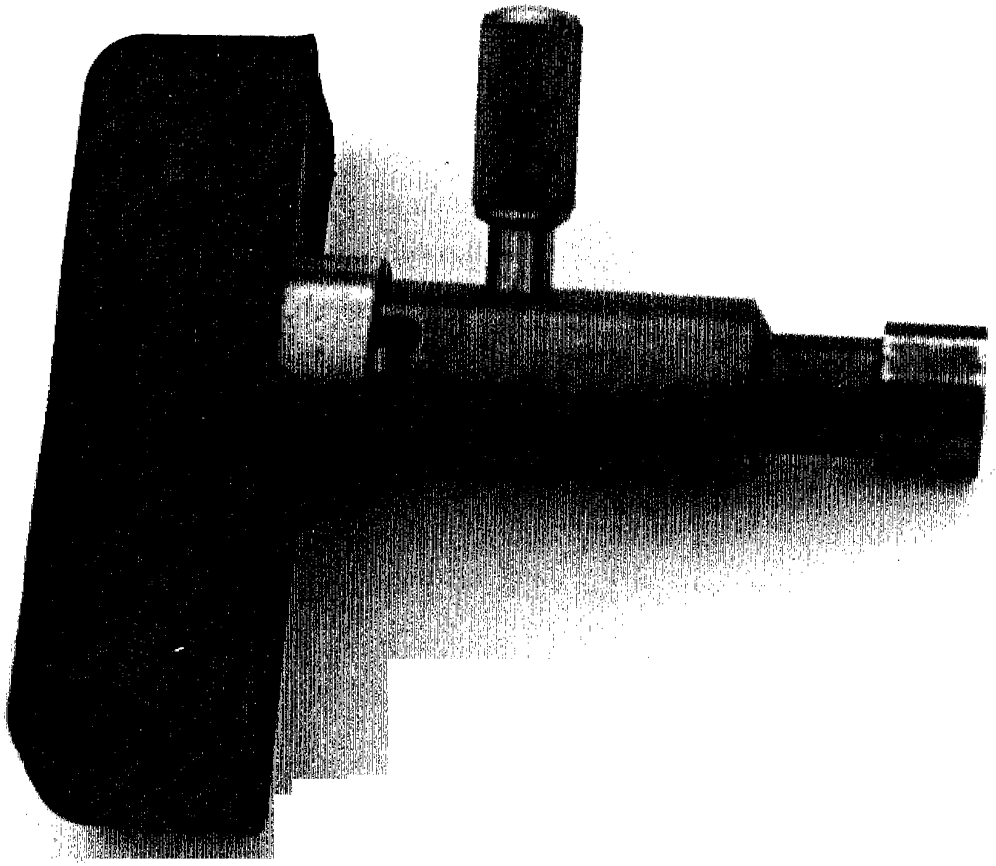


BUTT PAD

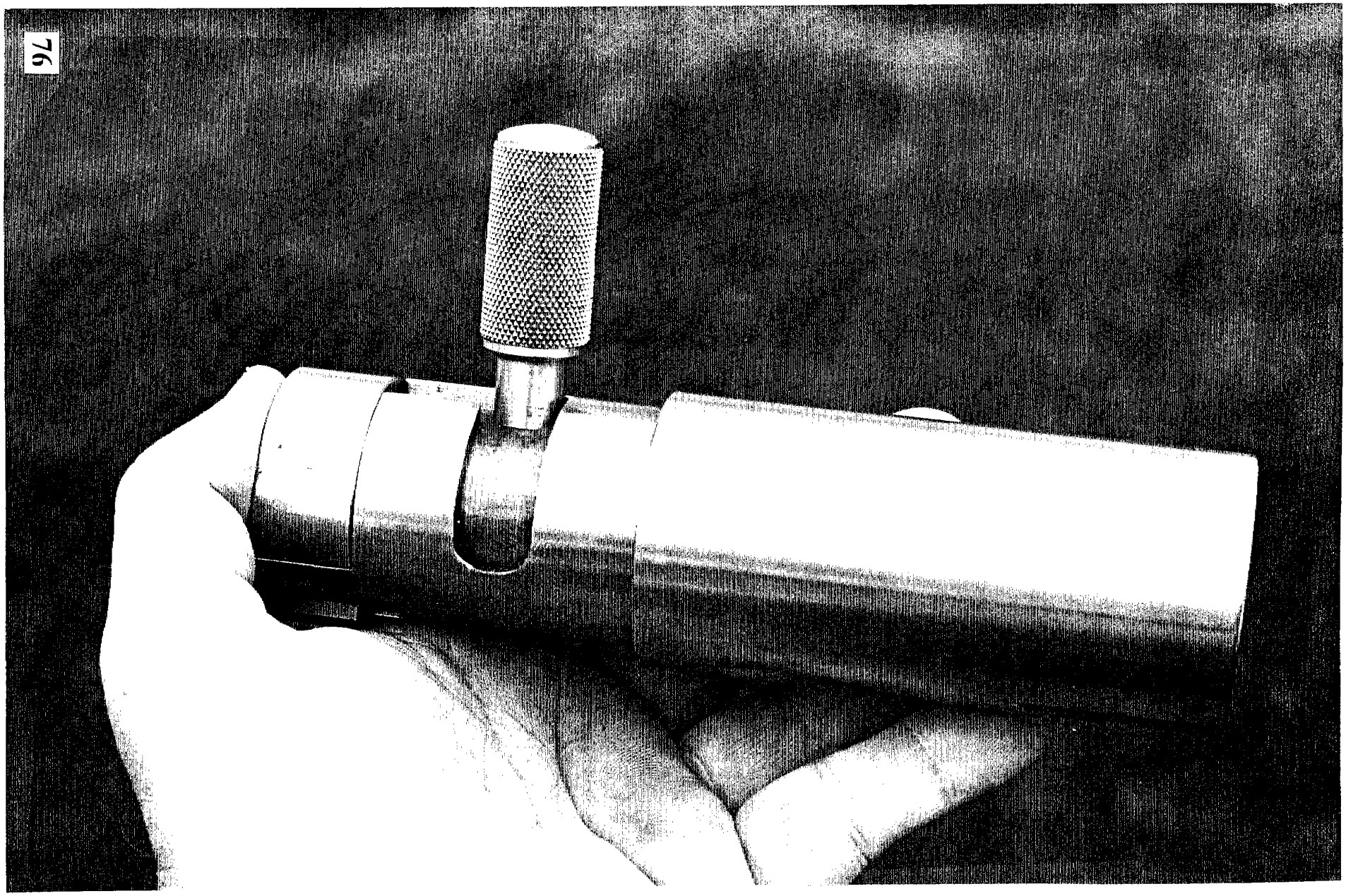
Material: High density foam rubber. 5 3/4" long, 1 3/4" wide, 1 1/2" thick

BUTT PAD COVER

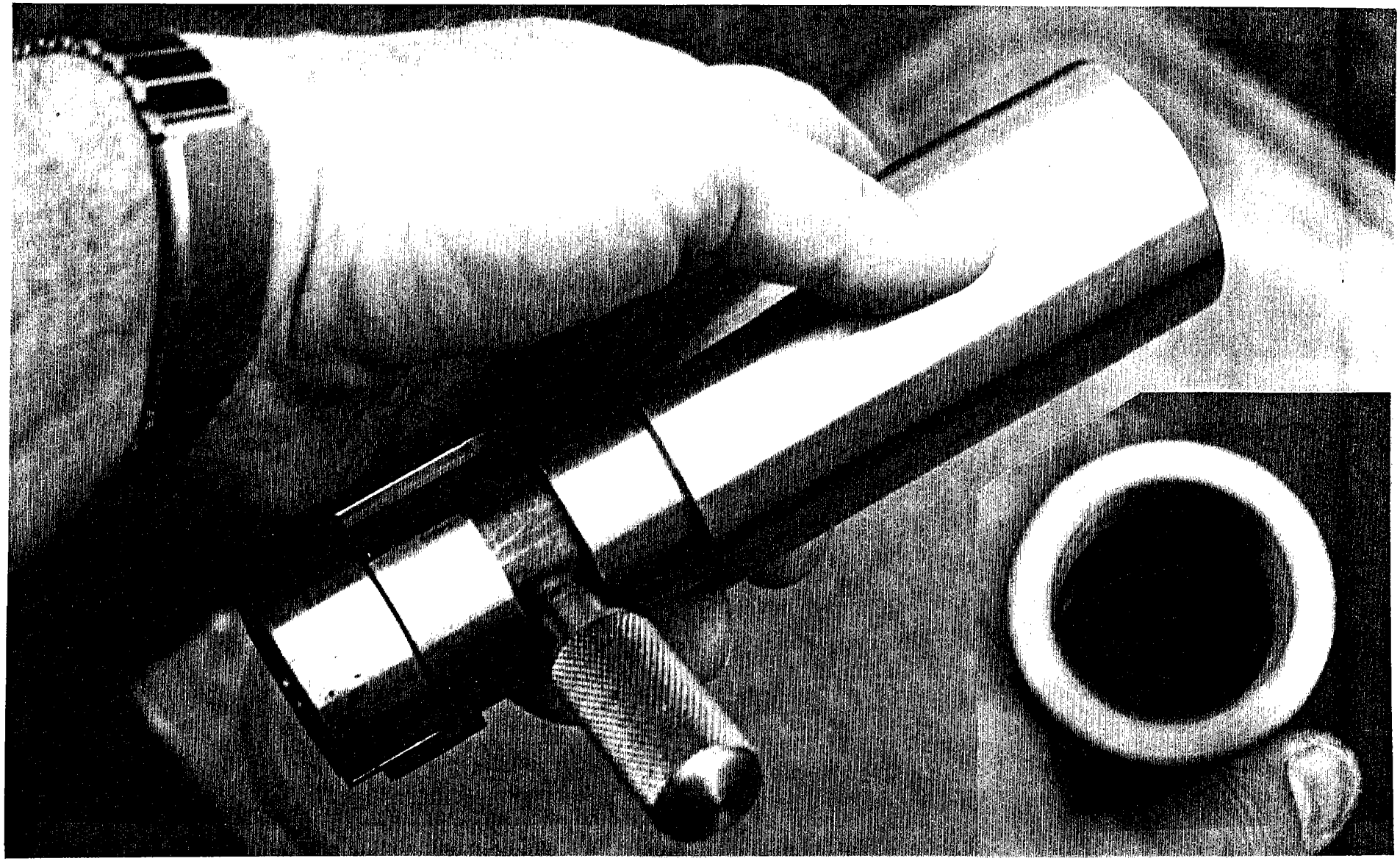
Material: We have a special 62 durometer plastic cover, (feels like rubber) that measures 6 1/8" long, 2" wide, and 1 3/4" deep. Any material such as leather, plastic, fur, can be used and attached to the butt plate in a conventional manner. (Both pad and cover may be purchased from Maadi-Griffin's JNS Supply Co.)



THE COMPLETE BOLT ASSEMBLY

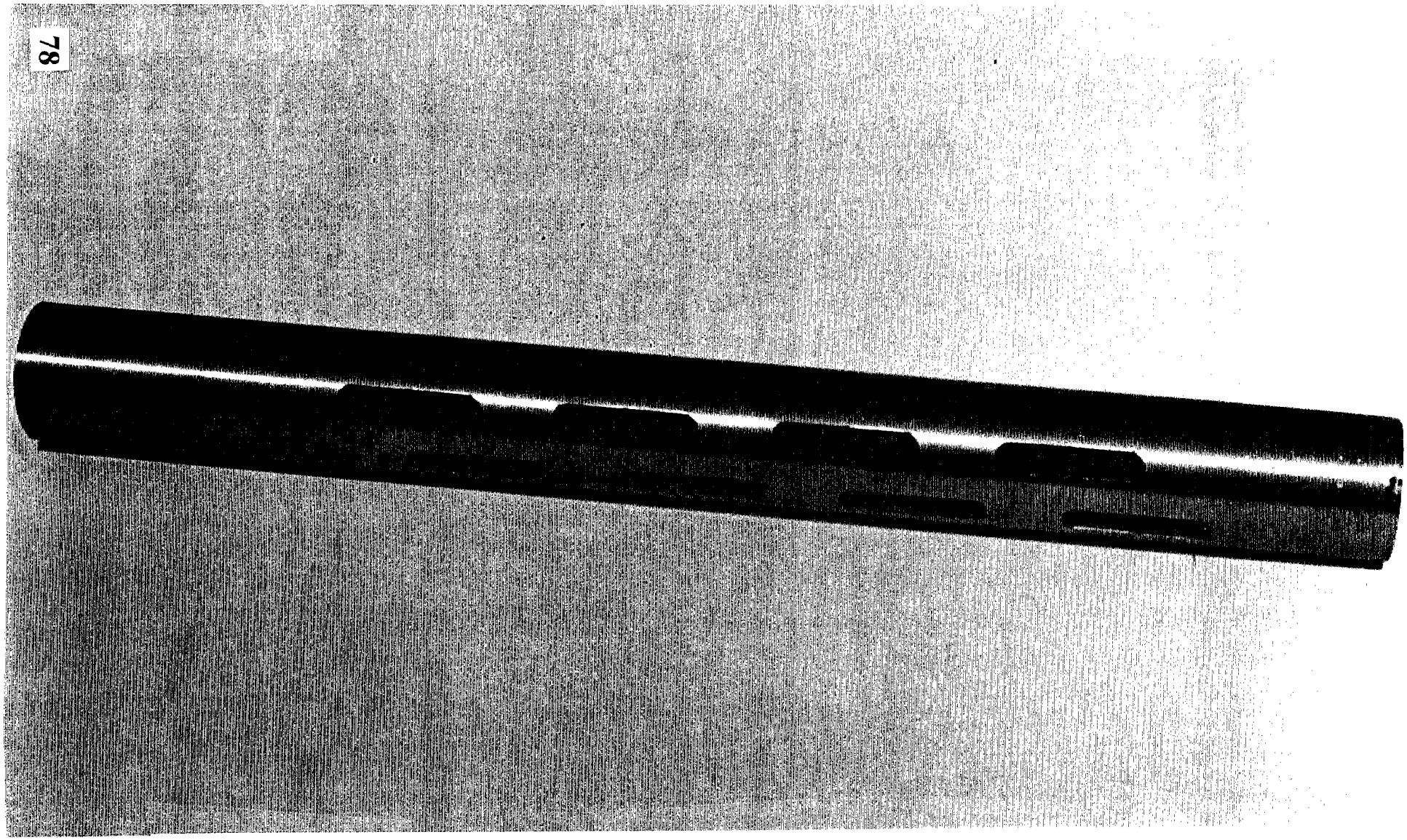


This is the complete receiver assembly (minus the butt plate, pad and cover), right side view with the bolt handle up and the firing pin back.



With the bolt handle down, and the firing pin forward, check the bolt face to see that the firing pin protrudes out from the bolt face .085" IF IT DOES NOT, CHECK THE TAIL STOCK AND SEE IF IT IS SEATED ALL THE WAY FORWARD. BE SURE THAT THE LEADING EDGE OF THE TAIL STOCK IS ROUNDED WHERE IT CONTACTS THE BOTTOM OF THE RECEIVER.

THIS CHECK MUST BE DONE BEFORE HEADSPACING.

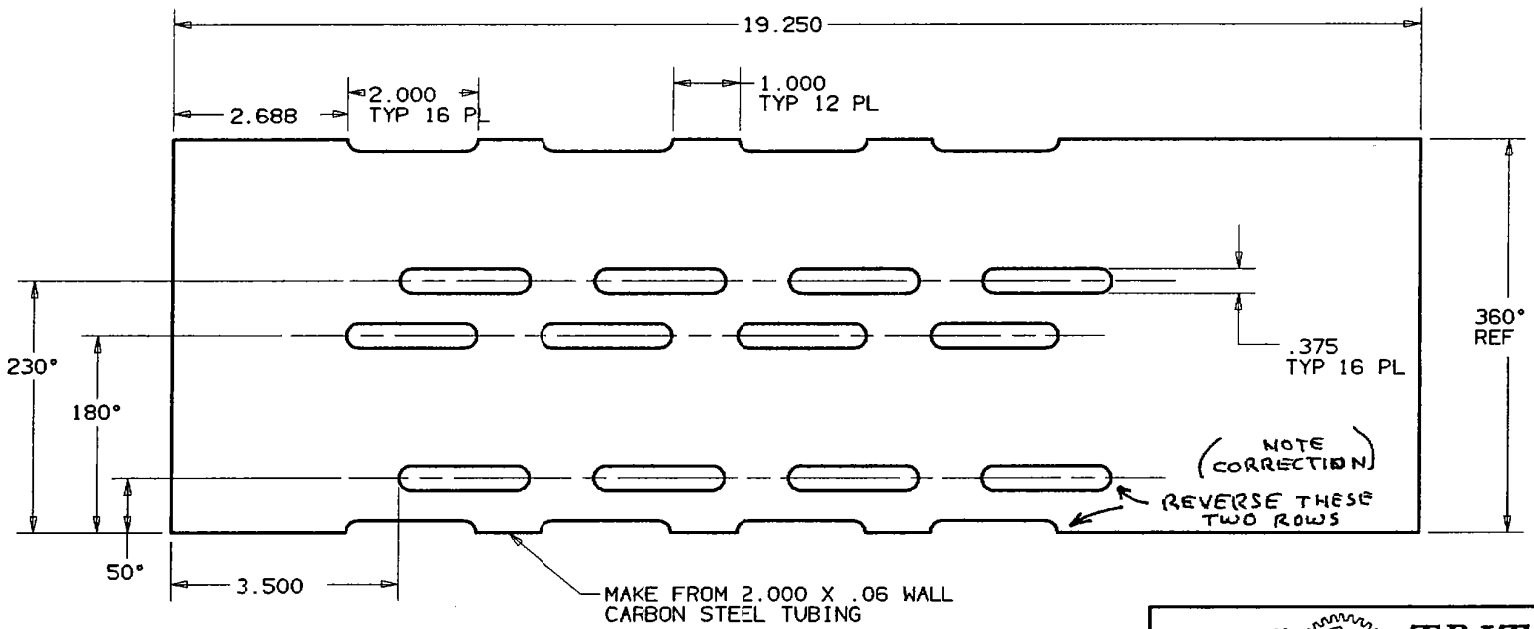


THE SHROUD

Material: carbon steel, or stainless steel tube, 2.000" OD, .060" wall thickness, 19 1/4" long.

The shroud may have any design of holes or slots as long as allowance is made for scope mount base, lower locking lug, and bipod lug installation.

REVISIONS						
ECO NO	REV	ZONE	LTR	DESCRIPTION	DATE	CHK



UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN INCHES AND ARE AFTER PLATING TOLERANCES

DECIMALS
.X ±.030
.XX ±.010
.XXX ±.005
.XXXX ±.0005
ANGLES ± ½°

THIRD ANGLE PROJECTION

MACHINE FINISHES: 75√

FILLET: RADII

BREAK SHARP EDGES AND REMOVE ALL BURRS

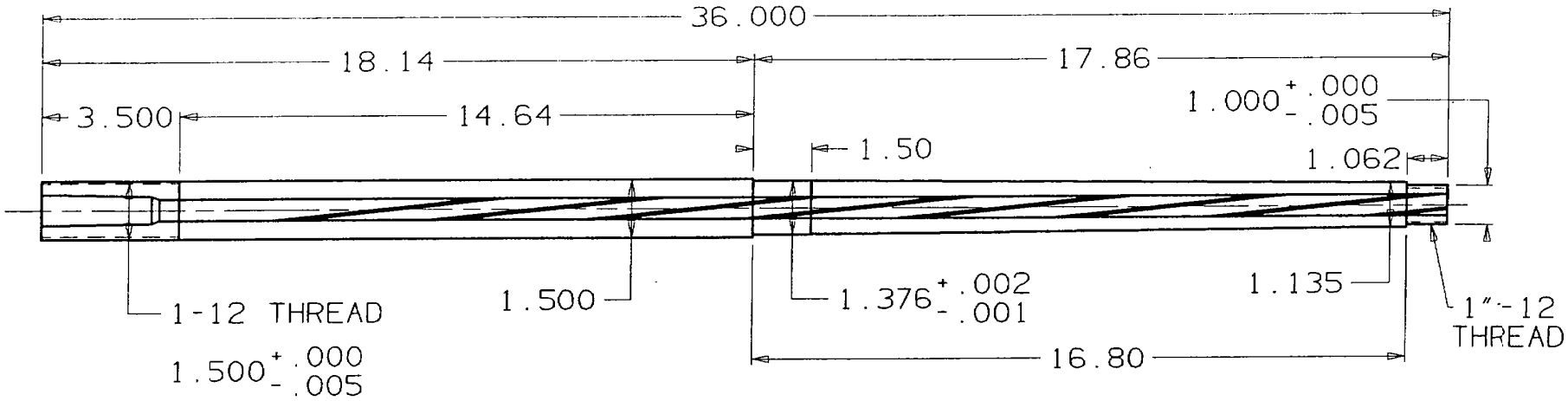
DR BY	DKF	8-2-92
CHK BY	RWS	8-3-92
ENGR		
NEXT ASSEMBLY	CAD PREFIX	
MATERIAL	STEEL TUBING	
REF LAYOUT		

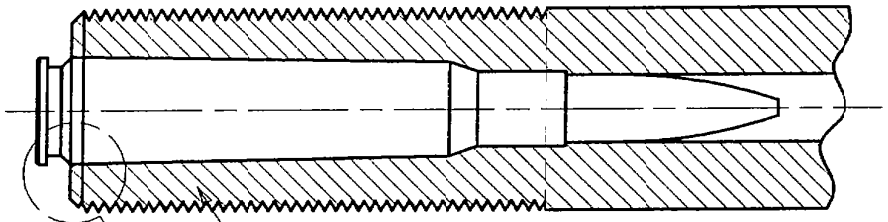
DIMENSION AND TOLERANCING PER MIL STD-100 AND ANSI Y14.5M-1982

TRITEK Enterprises

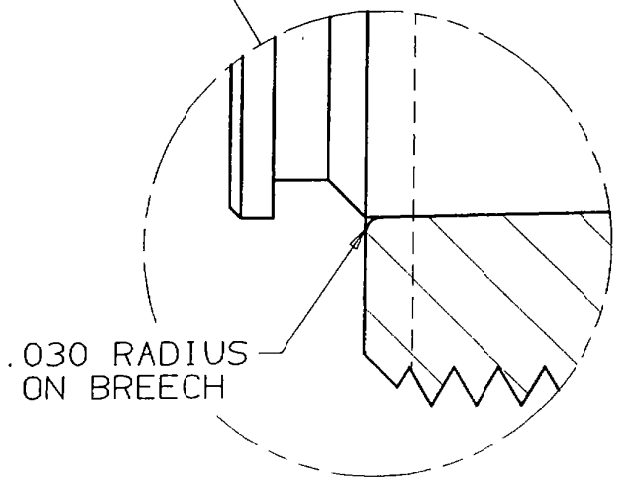
MAADI GRIFFIN
50 CALIBER
COOLING SHROUD

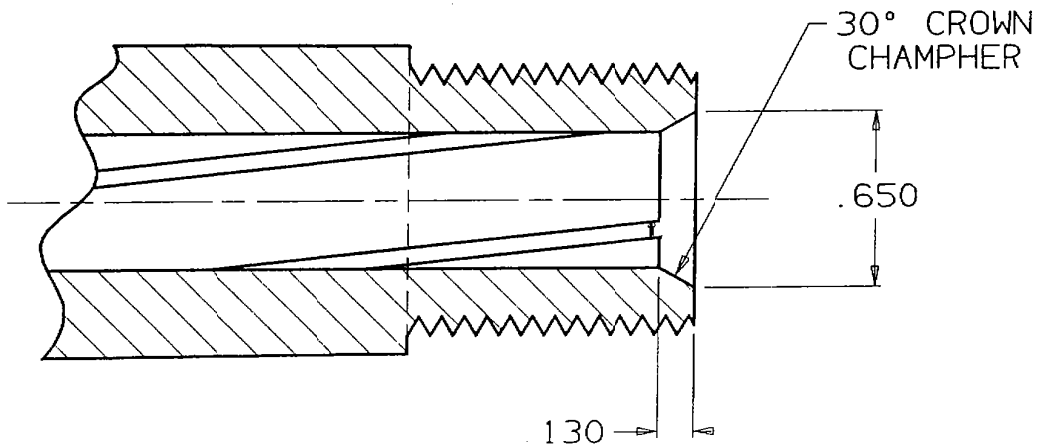
CODE NO.	SIZE	DRAWING NO.	REV
	B	0013	0
SCALE .6	W.O. NO.		SHEET



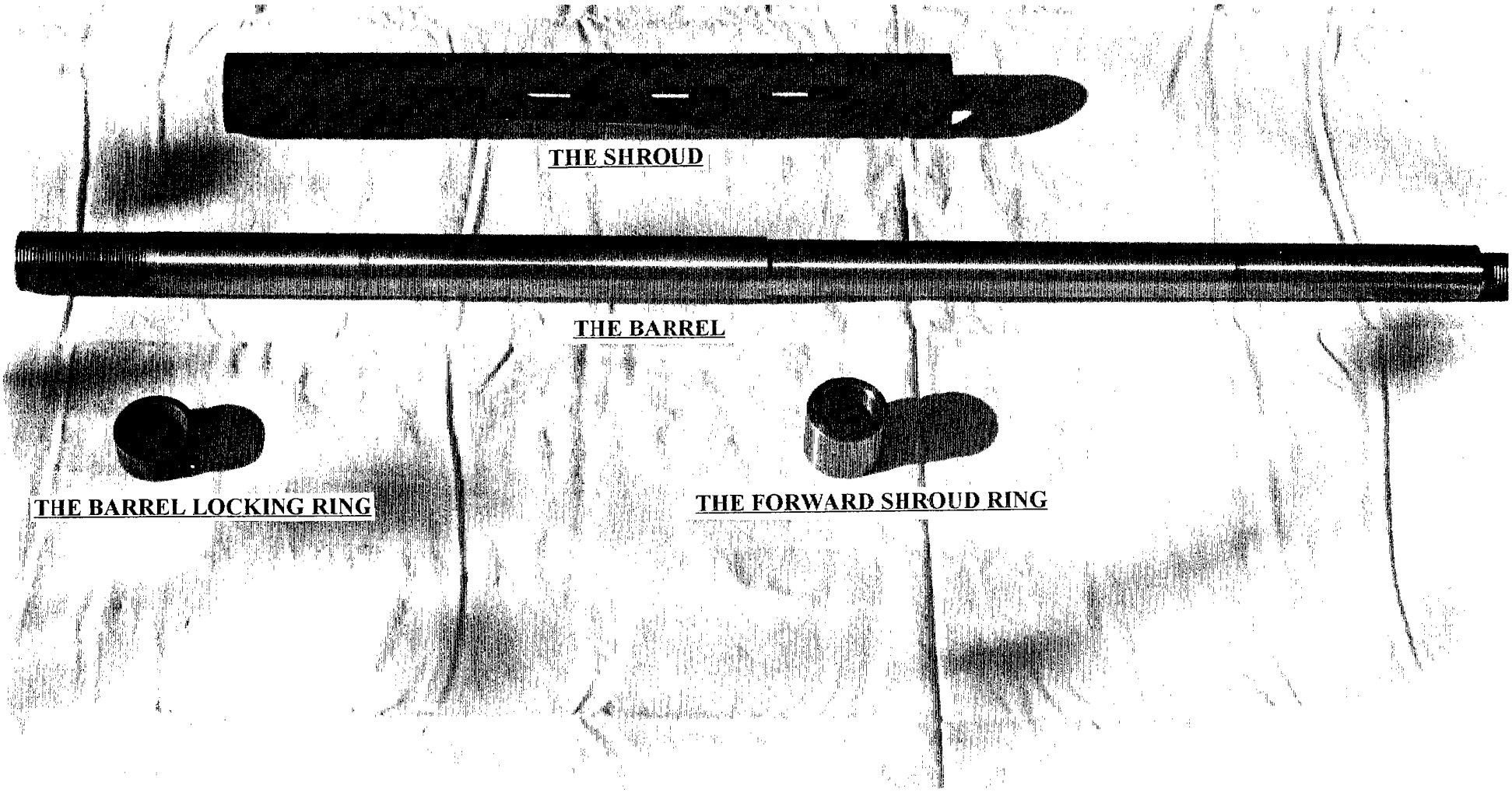


MAADI-GRIFFIN
50 CALIBER
RIFLE BARREL



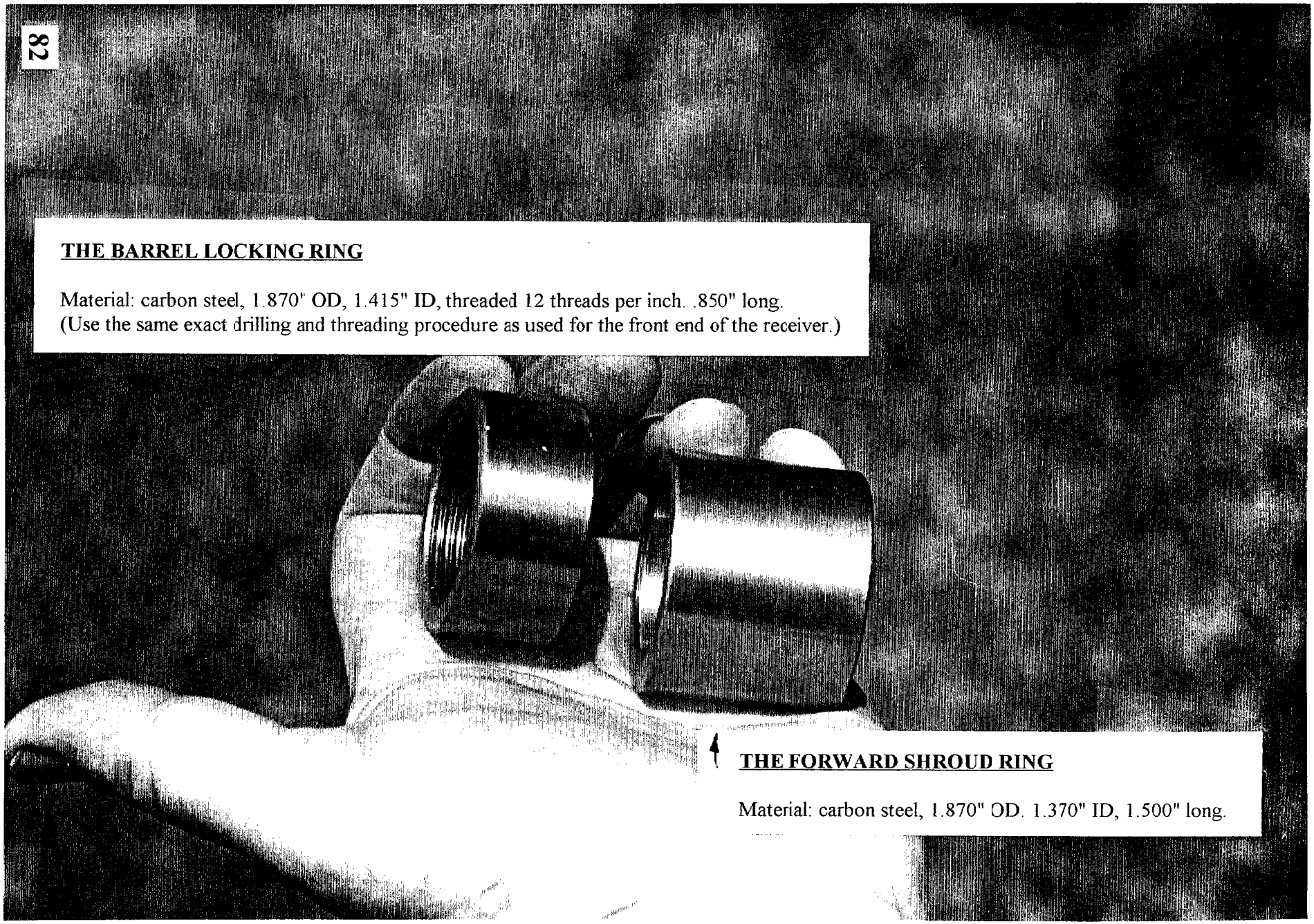


THE BARREL



THE BARREL

Material: 4140, or 4150 steel. GUN BARREL STEEL ONLY. Bored, reamed and rifled to Mil. Spec. 50 Cal BMG. See suppliers list. Barrel length 36inches. 1.500" at the breech. See drawings for dimensions.

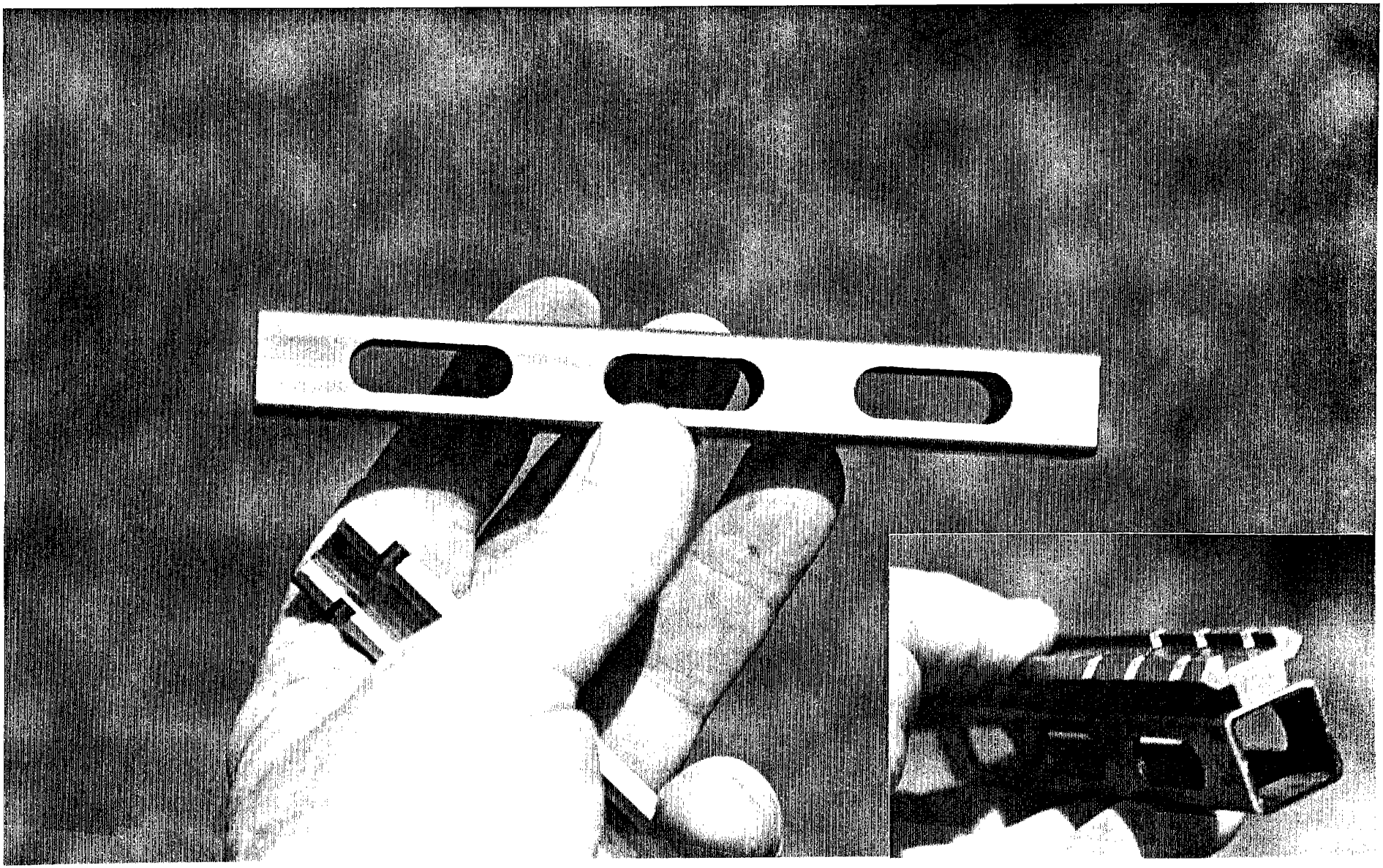


THE BARREL LOCKING RING

Material: carbon steel, 1.870" OD, 1.415" ID, threaded 12 threads per inch. .850" long.
(Use the same exact drilling and threading procedure as used for the front end of the receiver.)

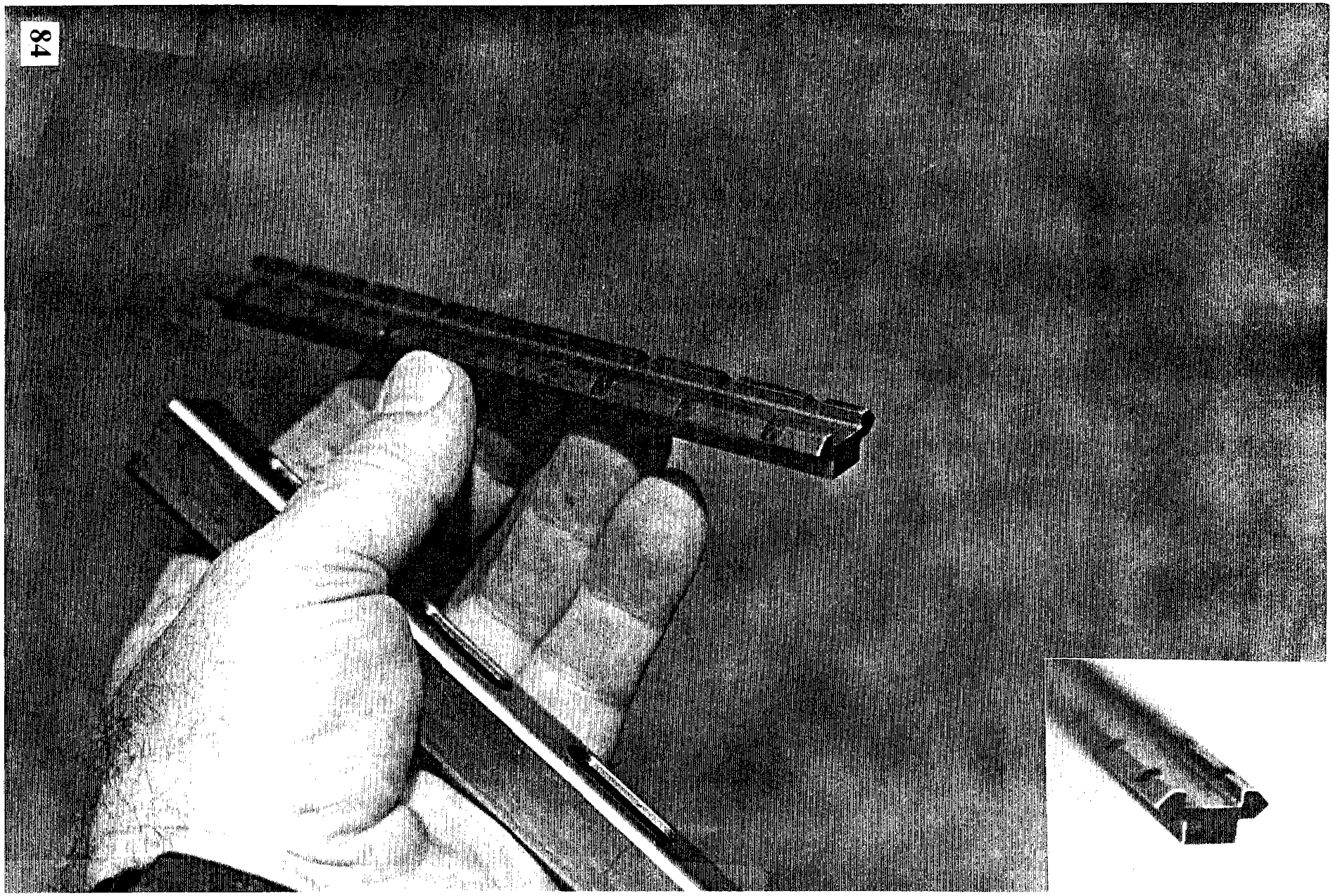
THE FORWARD SHROUD RING

Material: carbon steel, 1.870" OD. 1.370" ID, 1.500" long.



BASE TUBE

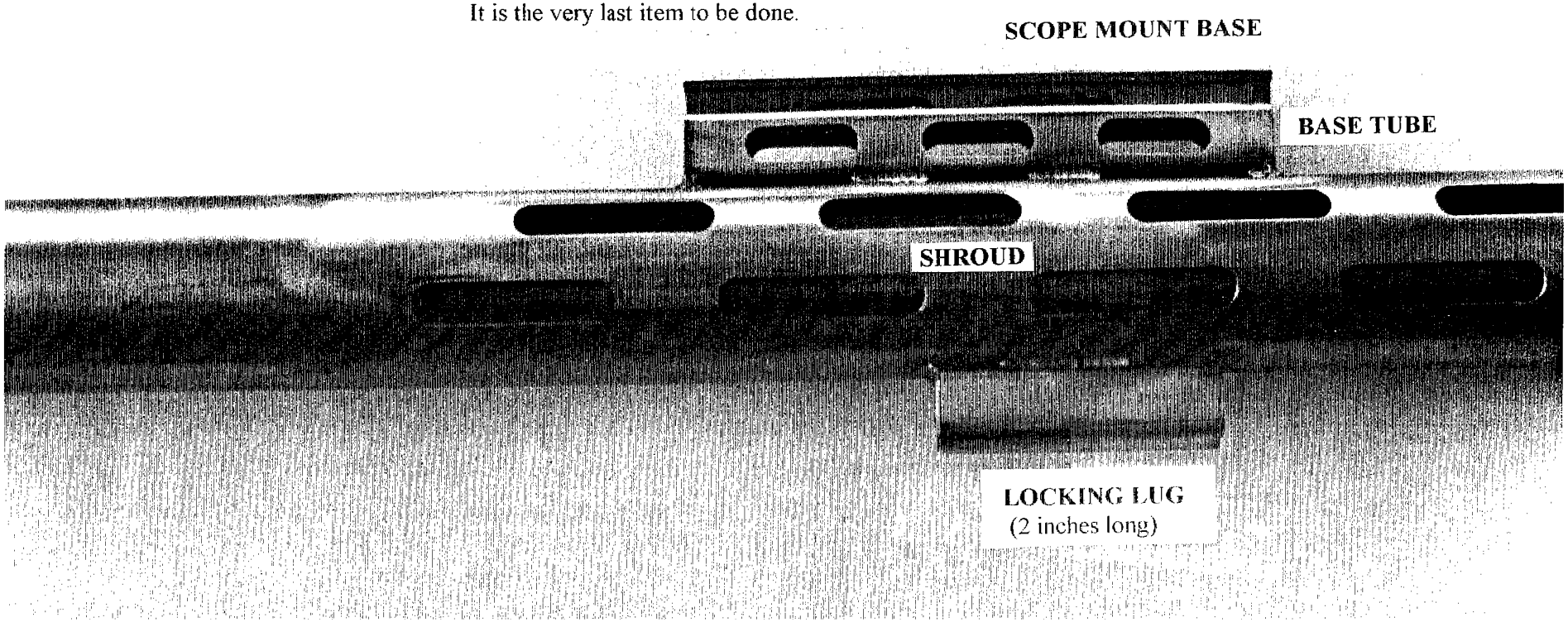
Material: carbon steel. 3/4" square tubing, 5 7/8" long. Three slots on each side .380" wide, 1.115" long, spaced .635" apart, .632 from each end. This base is welded on the shroud. The scope mount base is welded on top of the base tube. But that is done last. It must be aligned with a scope. See scope mount base alignment procedure.

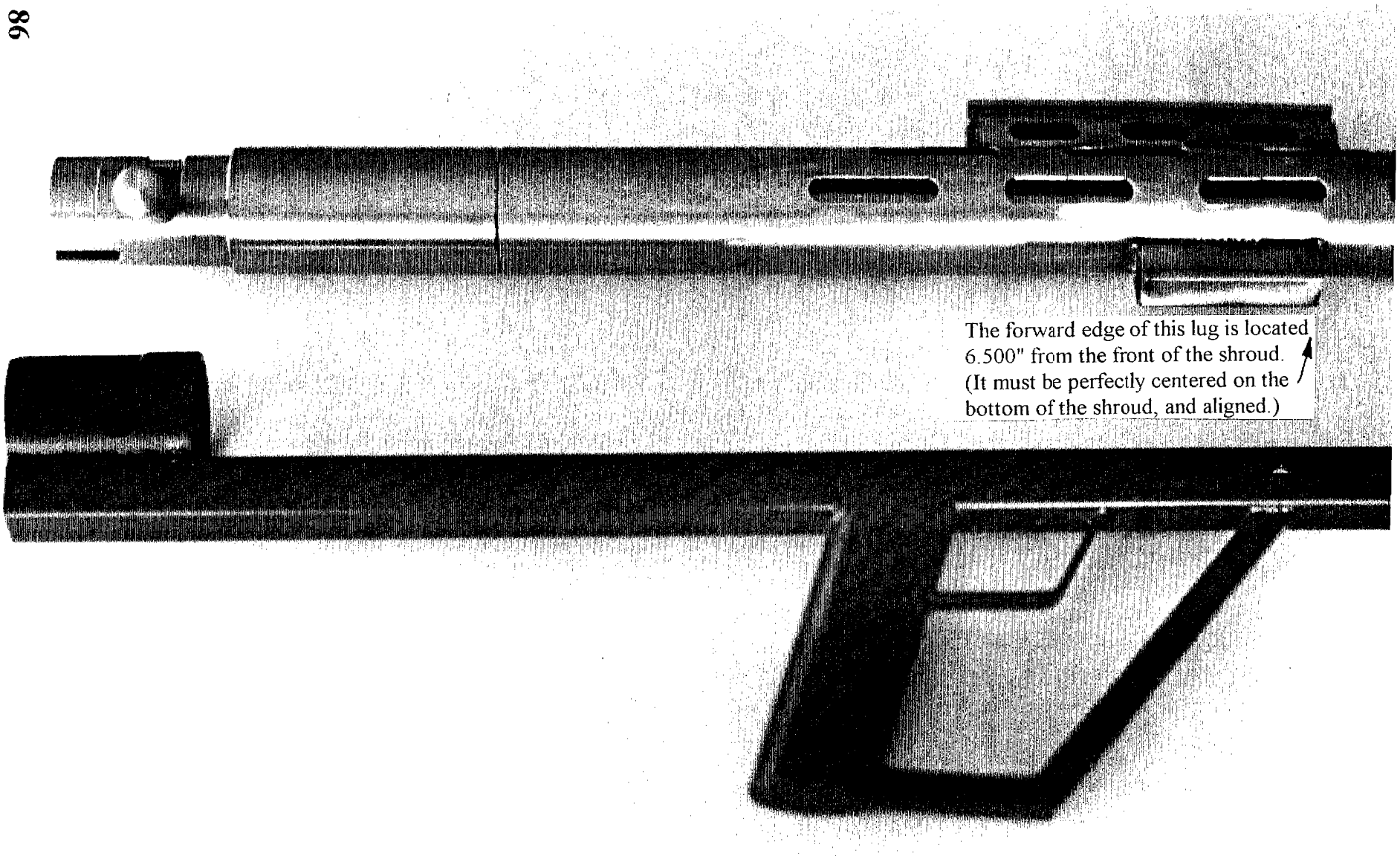


SCOPE MOUNT BASE

Material: carbon steel. This is patterned after the NATO style weaver type base. Store bought weaver type base may be used, and drilled and screwed on base tube.

Do not put the SCOPE MOUNT BASE on until the rest of the rifle is completed. It is the very last item to be done.




The forward edge of this lug is located
6.500" from the front of the shroud.
(It must be perfectly centered on the
bottom of the shroud, and aligned.)

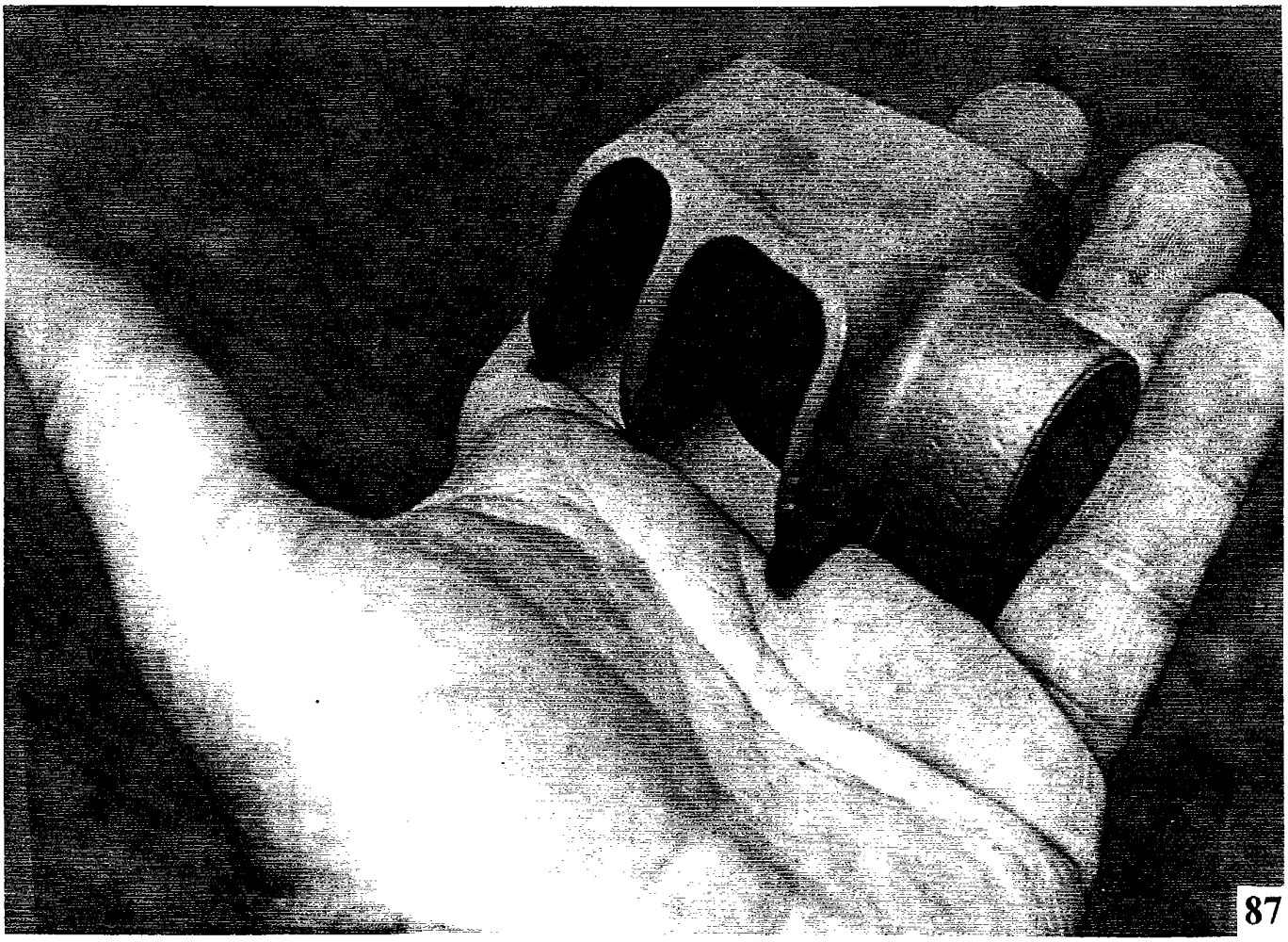
MUZZLE BRAKE

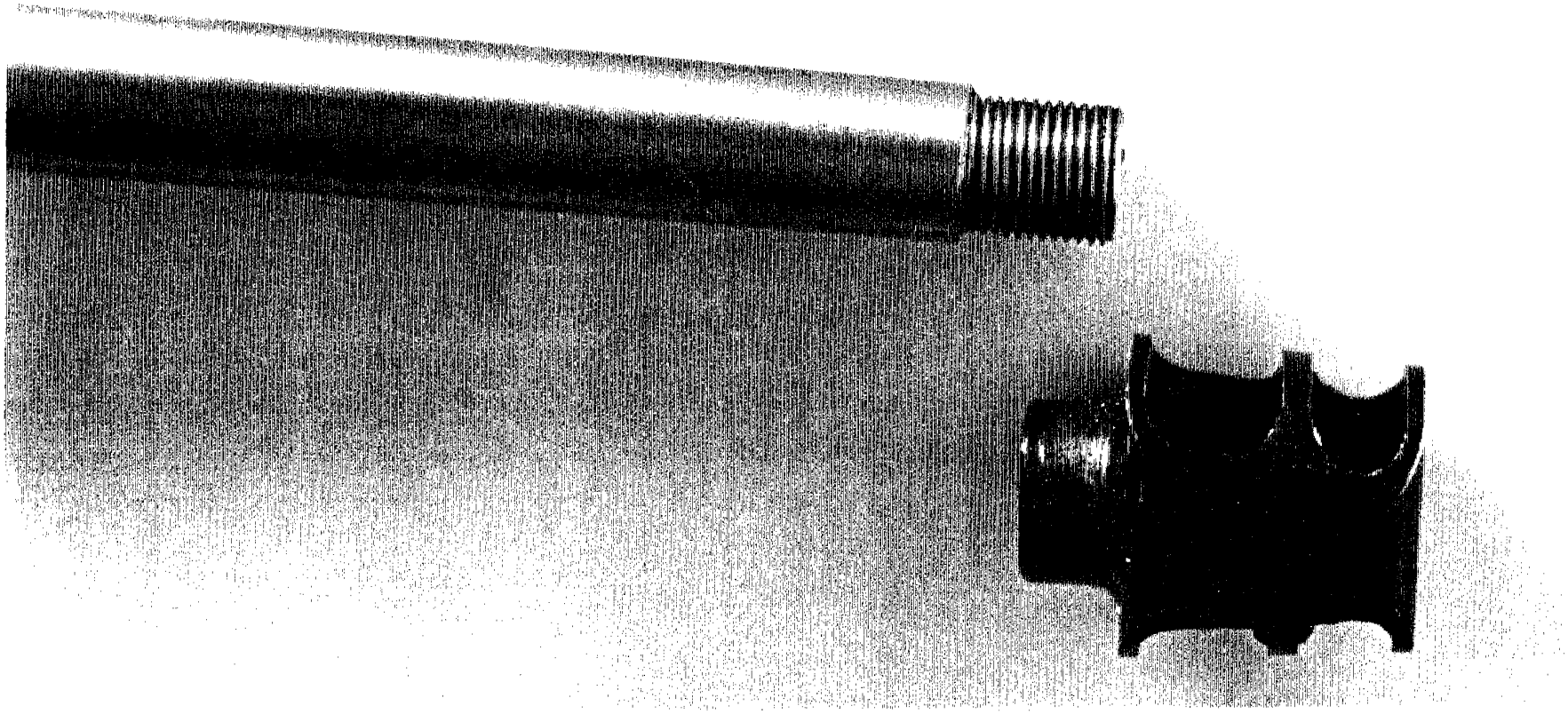
Construction of the MUZZLE BRAKE can be made from 2.000" square tubing, with a wall thickness from .125" to .200" and 2.500" in length. A center baffle is advisable, but not essential. The center baffle should be .185" thick and welded approx. .950" from the back plate. Fabricate a 1.130" long collar, from a piece of round stock turned down to 1.340" and drill and thread to accommodate the end of the barrel. (The tip of the barrel should be turned to 1.000" OD and threaded 12 threads per inch for one inch (+1/16").

IMPORTANT: THE BACK PLATE OF THE MUZZLE BRAKE MUST BE DRILLED AND THREADED SO AS TO ALLOW THE TIP END OF THE BARREL TO BE FLUSH WITH THE BACK PLATE.

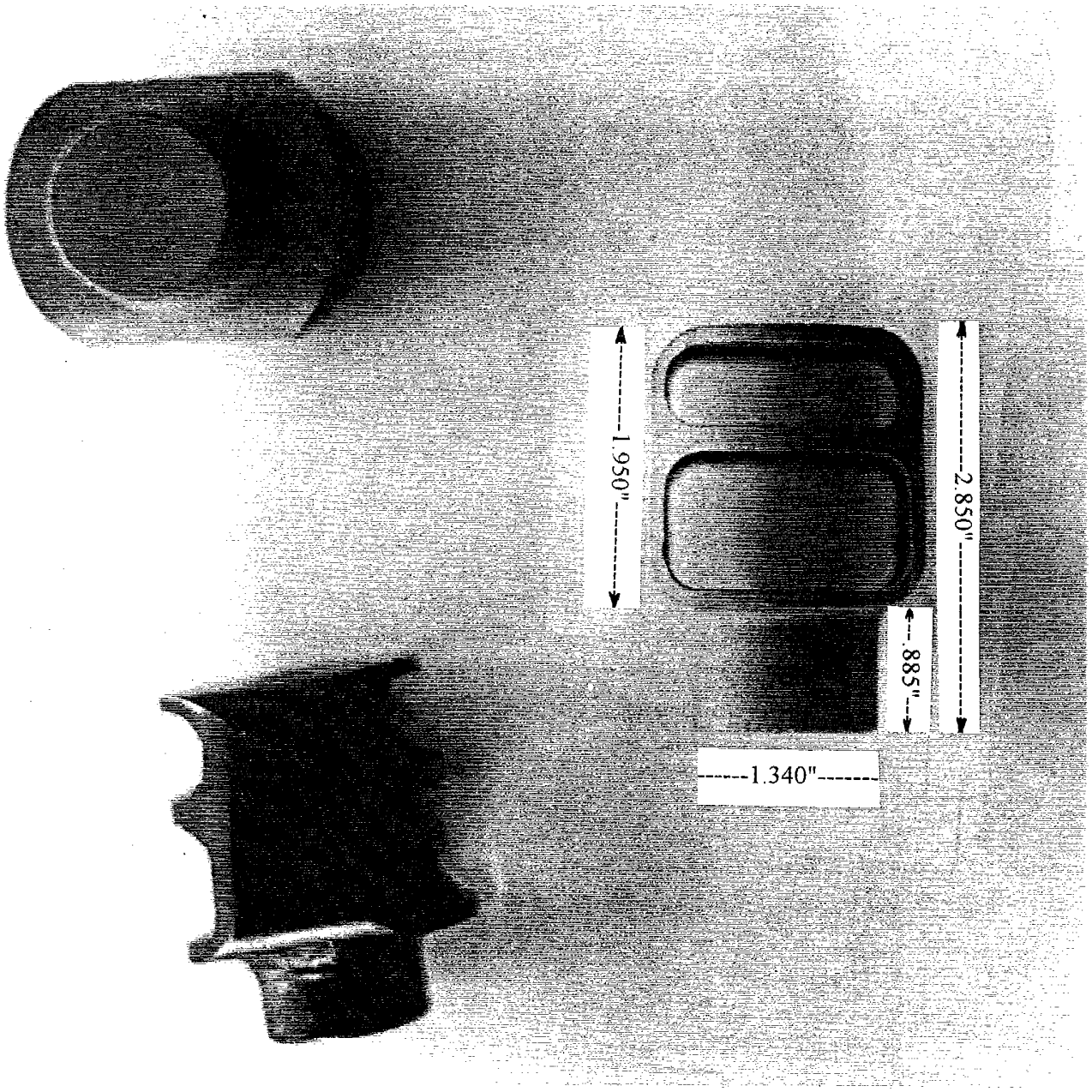
Construct the collar so that it can be inserted into the back plate of the brake. Align and tack weld. It is advisable to make a one inch dia. 12 threads per inch mandril, about 6 inches long. Put it into the lathe, screw on the brake, drill the .600" holes through the two plates and they should be in perfect alignment when finished. Weld up the collar, and trim as desired.

When installing the muzzle brake on the barrel, red Locktite can be used. Be sure that the tip end of the barrel is flat flush with the inside of the rear baffle plate.





MUZZLE BRAKE

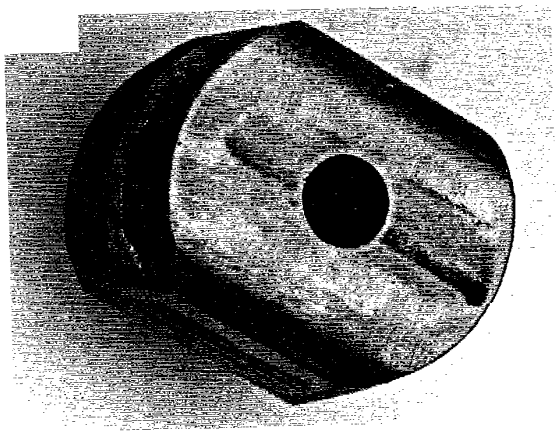


THE MUZZLE BRAKE

Material: 4140 steel, or carbon steel, 2" square tubing, .125" wall thickness. Center plate is .185" thickness. Distance between center plate and back plate .955". Distance Between center plate and front plate is .588". (Cast 4140 steel blanks are available from JNS Supply co.)

First, drill a .600" hole through the entire casting. Then drill a .850" diameter hole in the collar and thread it 12 threads per inch, and fit it to a 1.000" diameter, 12 threads per inch mandril. Or to the muzzle end of the barrel.

THE MUZZLE BRAKE



The hole in the muzzle brake is .600" in diameter. (.600 to .615" is acceptable)

HEAD SPACING

Using the headspace gages, proceed by placing the receiver into the padded vice, securely, place the GO GAGE into the bolt face, and place the bolt and gage into the receiver and lock the handle down. Practice, by screwing the lock ring on the barrel all the way on, then screw the barrel into the receiver until it stops, then run the lock ring snug to the receiver. Then lift up the bolt handle, remove the GO GAGE, AND INSERT THE NO-GO GAGE INTO THE BOLT FACE, then insert them into the receiver and try to put the bolt handle down, if it goes down, the barrel is not in far enough, if the bolt handle does not go down, then (that is good) remove the NO-GO GAGE and insert the GO-GAGE to check if it the bolt handle will go down. If the bolt handle goes down, that is good. Properly headspaced, the NO-GO GAGE will not let the bolt handle go down. Now, insert the GO-GAGE, into the receiver, lock the handle down, back off the barrel lock ring, remove the barrel, and apply RED LOCKTITE to the threads of the barrel only, not too much. (Be sure the locking ring is all the way forward.) Screw the barrel into the receiver until it "stops" (do not use force) just hand snug, then screw the lock ring to the receiver, while checking the bolt handle, when the lock ring is snug, quickly remove the GO-GAGE and replace it with the NO-GO GAGE and the handle should not go down. Replace the NO-GO GAGE with the GO-GAGE and insure that the bolt handle goes down, then tighten the lock ring with the pipe wrench using about 50 pounds force on the handle. Wipe off excess locktite, remove the GO-GAGE.

Head spacing this rifle must be done by a competent gunsmith. If you have expertise in this, and have the proper head spacing gages, then proceed. The information is given herein to accomplish head spacing.

Review of the head spacing procedure:

1. Secure receiver in a padded vice.
2. Insert bolt with GO-GAGE into receiver, bolt handle down.
3. Screw barrel lock ring onto barrel (all the way on).
4. Put red Locktite on barrel threads, (not too much).
5. Screw barrel into receiver by hand until "snug", not tight, but snug against GO-GAGE.
6. Make sure that the bolt handle goes up and down easily.
7. Remove the GO-GAGE and install the NO GO-GAGE into the bolt, into the receiver. (The bolt handle should not be able to go down.)
8. Replace the NO GO-GAGE with the GO-GAGE once more, put bolt handle down.
9. Carefully tighten the locking ring against the receiver, use pipewrench to tighten ring, making sure that the barrel does not turn, apply about 50 pounds pressure.
   That is it. Wipe off excess Locktite, remove bolt, and let barrel stand for 3 hours.

Note: Some marks may be left by the pipewrench, they will be hidden by the shroud. Grind off the marks that stand up.

HEAD SPACING

HEAD SPACING (PUTTING THE RECEIVER AND BARREL TOGETHER)

Two methods of head spacing. With headspace gages, and without headspace gages.

Without headspace gages:

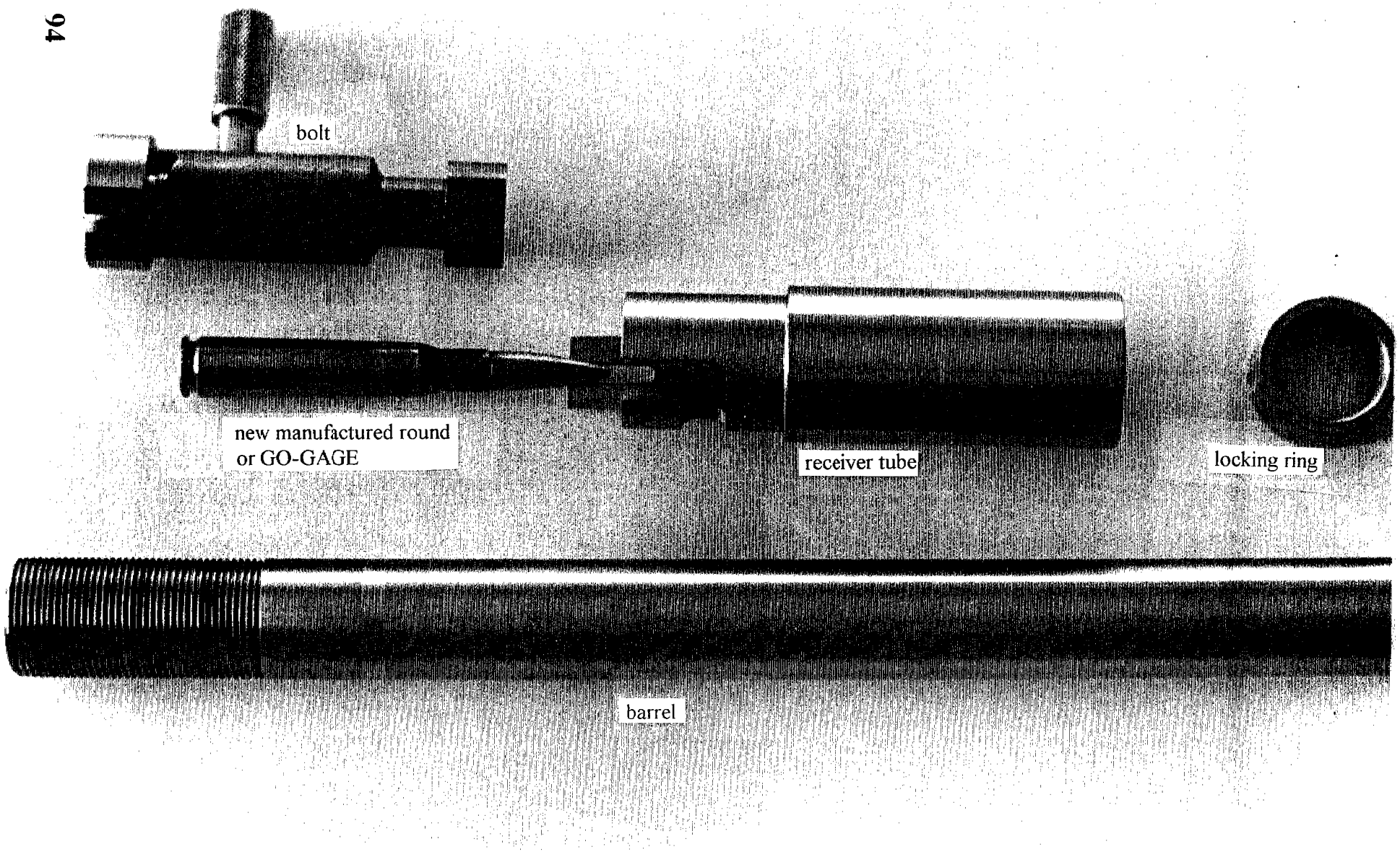
First, put the receiver in a bench vice, (wrapped in denim cloth to keep off vice marks) situate the receiver so that the bolt handle can be moved freely. Remove the bolt, remove the firing pin from the bolt. Put the bolt cap back on the bolt, and take a new manufactured (not reloaded) live 50 cal round and insert it into the boltface shell holder, and insert the bolt into the receiver and push the bolt handle down.

Next will be a practice run. Screw the locking ring up on the barrel, screw the barrel into the receiver until it is just snug tight against the 50 cal. round in the bolt (with bolt handle down) then screw the locking ring snug against the receiver. Remove the round, loosen the lock ring, and screw the barrel in 1/36th turn, try to insert the round again, this is a check, and the round should not chamber. Back off the barrel 1/36th turn, snug the lock ring against the receiver.

Now, lift the bolt handle and remove the 50 cal unfired round. Put the round back in and lock down the handle, if it is too tight, loosen the lock ring and back off the barrel just a crack. To properly head space the receiver, try several different new manufactured rounds. (Not the cheap imported yellow tipped ones, do not use those.) The bolt handle should go down with just the slightest resistance with the round inserted.

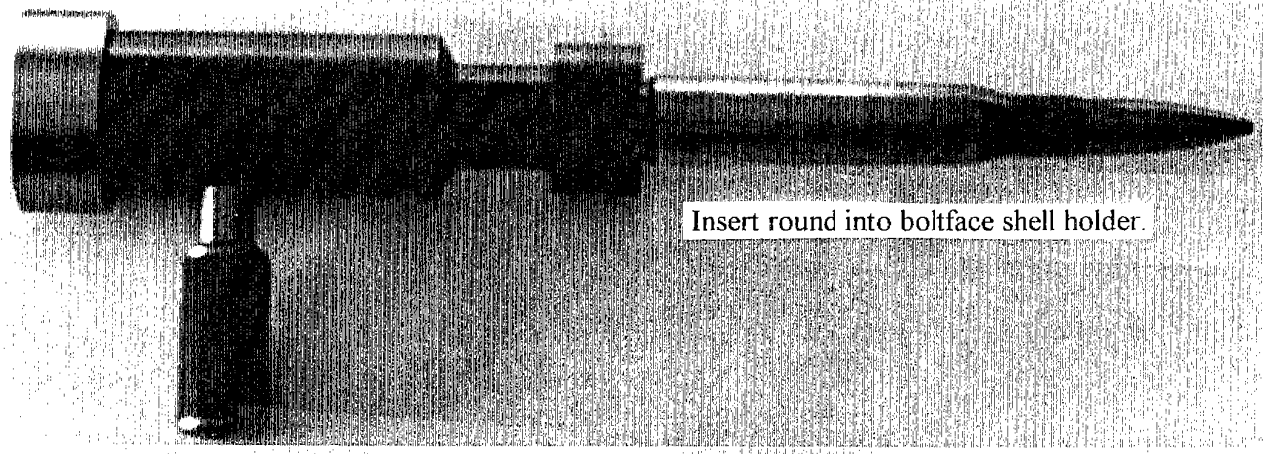
After practicing several times, you will need two more items, some **RED LOCKTITE,** and a good **PIPEWRENCH.** Unscrew the barrel, remove the bolt, keep the round in the boltface. Back off the locking ring all the way forward on the barrel. With the receiver in the vice, put locktite on the threads of the barrel only, not too much. Then put the bolt, with the round in the receiver and lock the handle down. Screw in the barrel until that "snug" feel, not tight, but snug, as the barrel contacts the round. Check the bolt handle, up and down for that slight "feel" of resistance. Then screw the barrel locking ring to contact the receiver, checking the bolt for that "feel" tighten the locking ring with the pipe wrench. (It will put marks on the ring, that is ok, they can be sanded off later) As the locking ring is being tightened, be sure that the barrel does not move or tighten any more. Checking the bold handle through out, tighten the ring with about a 50 pound force. Wipe off the excess locktite. Remove the bolt, insert several other newly manufactured rounds and check for that slight "feel" of very slight resistance of the bolt handle going down. Locktite sets up quickly, if you make a mistake, applying heat (with a torch) can enable the removal of the receiver from the barrel.

HEAD SPACING

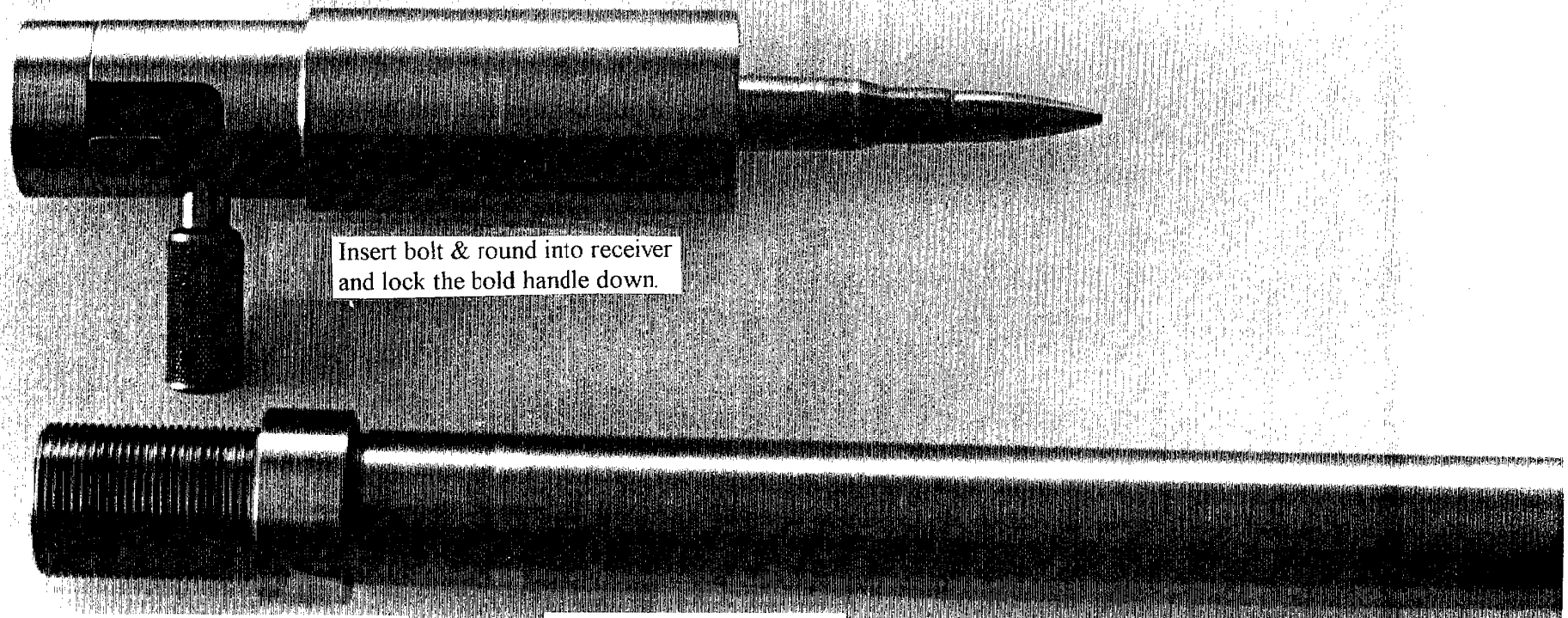


HEAD SPACING

Remove the firing pin from bolt.



Insert round into boltface shell holder.

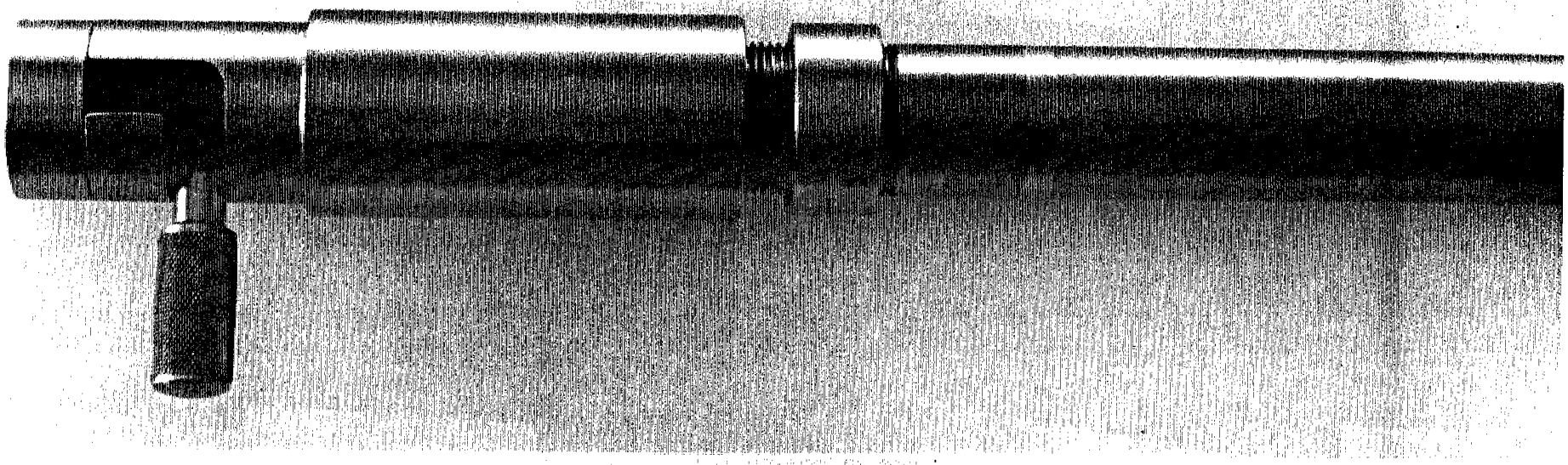


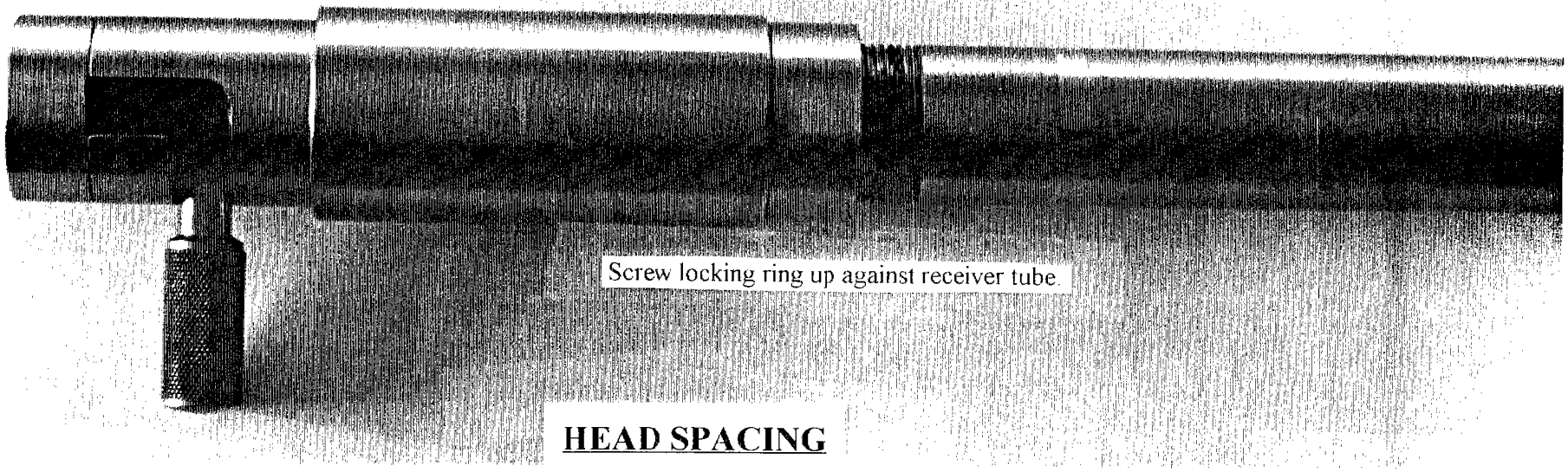
Insert bolt & round into receiver and lock the bold handle down.

Run the locking ring all the way up to here.

HEAD SPACING

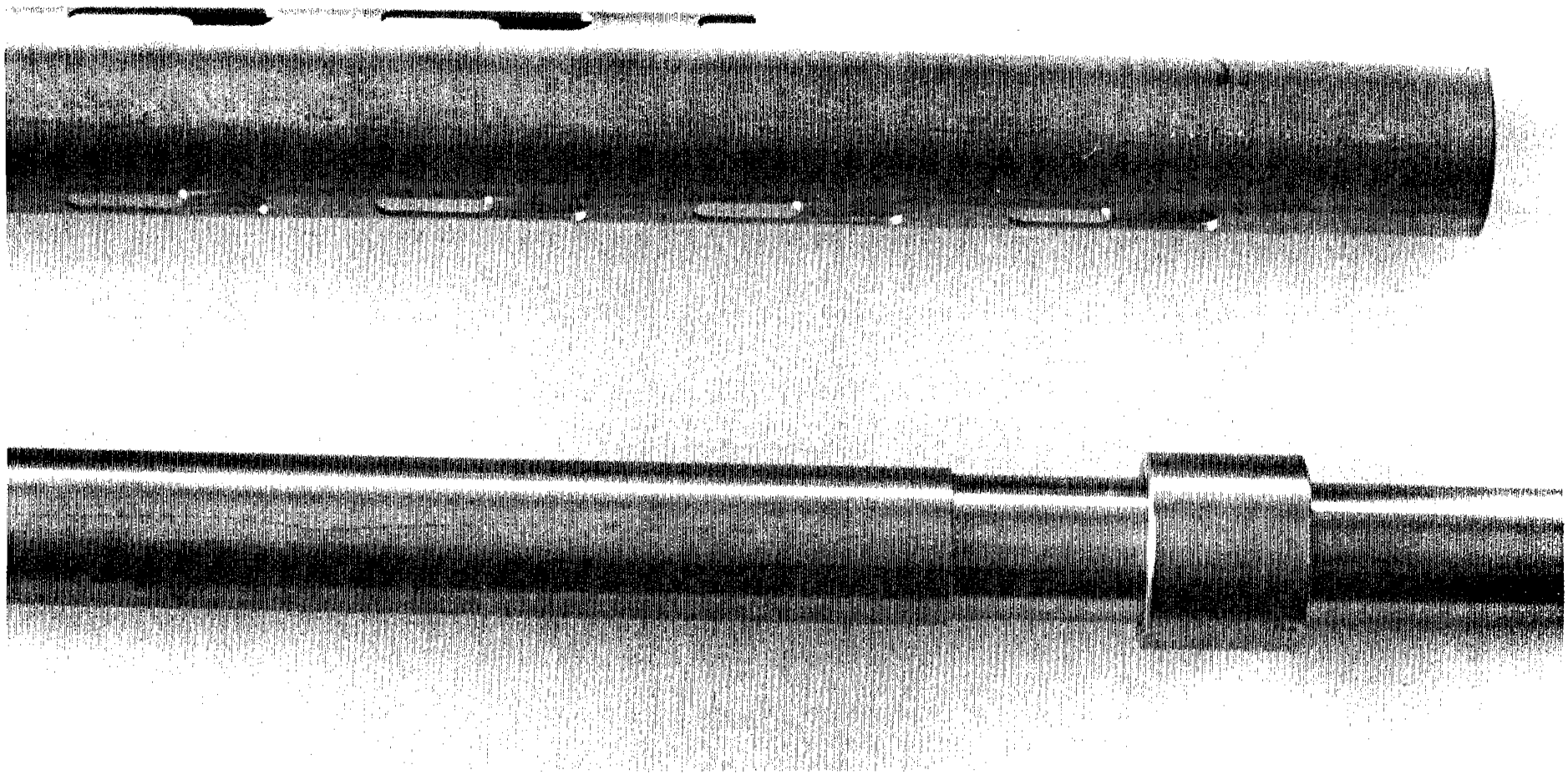
Screw the barrel into the receiver tube until snug against the round. (Not tight)





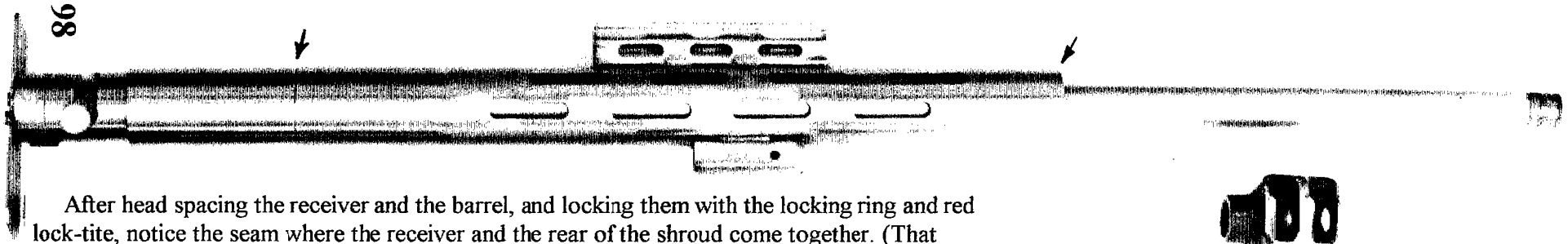
Screw locking ring up against receiver tube.

HEAD SPACING



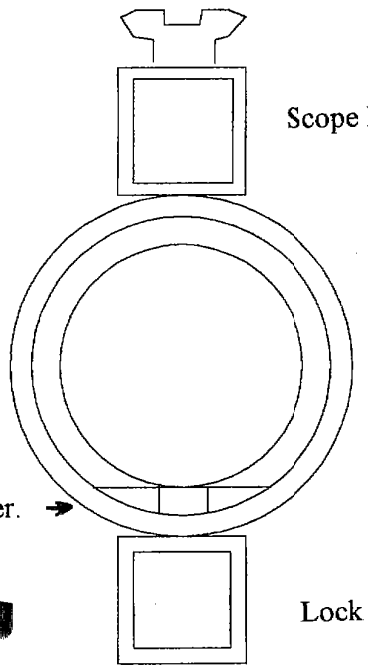
THE BARREL ASSEMBLY

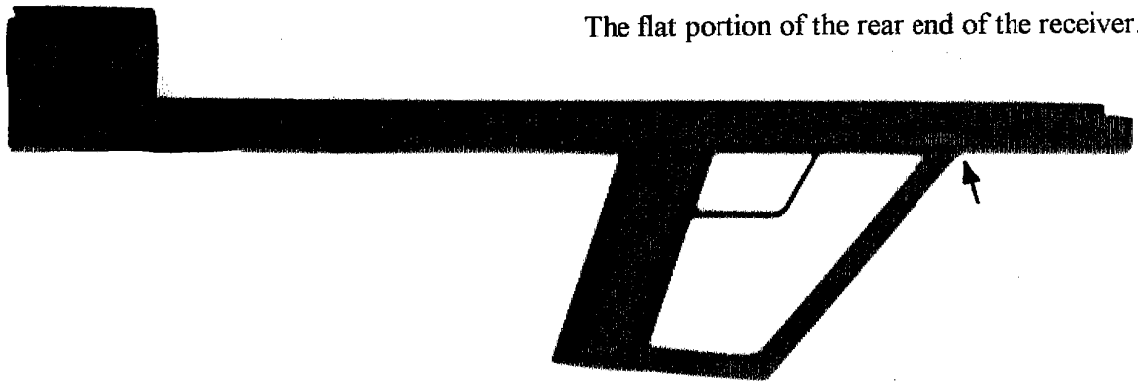
To install the shroud ring, it is engineered to be heated to 475 degrees F. before it will fit on the barrel's 1.376" section. The inside diameter of the ring should be machined to 1.370"-1.374". The heat will expand the ring and it will slip over the barrel easily (475 deg.F.), when the ring is seated on the barrel, cool it immediately with water. (Do not heat the barrel, just the ring.)



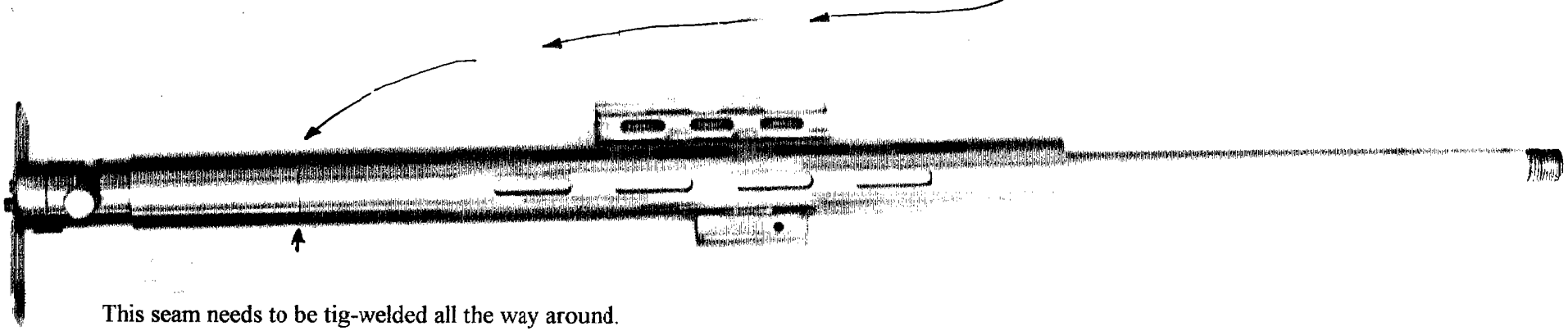
After head spacing the receiver and the barrel, and locking them with the locking ring and red lock-tite, notice the seam where the receiver and the rear of the shroud come together. (That seam needs to be welded all the way around, by a tig-welder). Put the locking lug in a vice and align the receiver and the shroud together. The back flat of the receiver should be parallel to the deck, the base tube and the locking lug should be located exactly opposite each other vertically on the shroud. As soon as you are satisfied that the alignment is perfect, tack weld (with a tig-welder) a spot where the shroud and the receiver meet. Then tack weld three places where the front edge of the shroud and the forward shroud ring meet. Then weld the complete ring around the receiver/shroud junction, the complete ring around the forward end of the shroud and the forward shroud ring meet.

After the barrel assembly has been welded together, you are ready to drill the locking lug hole. Remove the bolt, insert the trigger bar into the handle frame, and pin it, then insert the barrel assembly into the handle frame and align it so that it seats snug against the collar. Insert the bolt and push the bolt handle down. (If you have trouble at any stage of construction, call the Hot-Line for assistance.) Strap the forward end of the shroud to the forward end of the handle frame and drill a 1/4" hole near the center of where the hand guard meets the frame as shown in the photo. Be sure that the receiver end of the barrel assembly is snug with the collar on the handle frame and tight against the frame both front and rear before you drill the hole. Drill the hole and insert the forward locking quick pin.





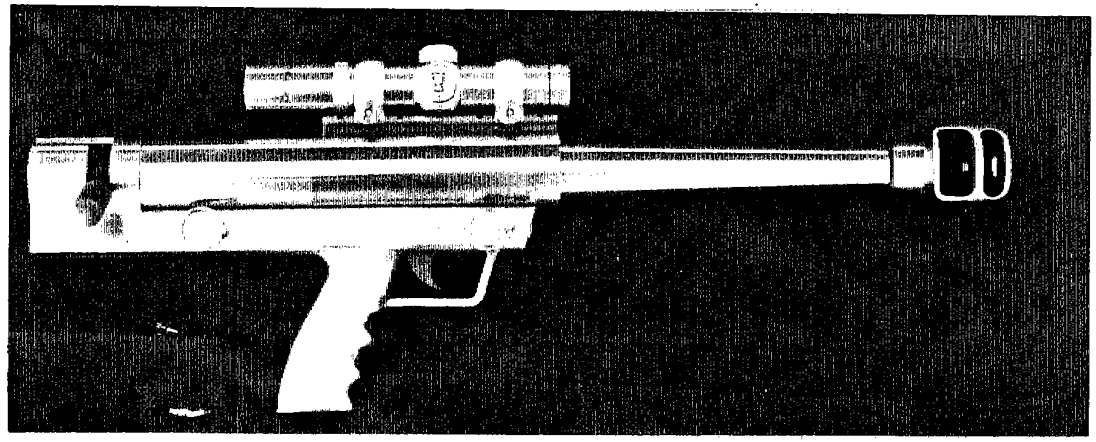
Be sure to align the receiver with the shroud in this manner. The flat of the rear end of the receiver must be horizontal and the base tube and the lock lug must align vertically as shown. Only when this is in perfect alignment, and the receiver is snug to the handle frame collar, and the shroud is snug with the front end of the receiver, then tig-weld a tack here.



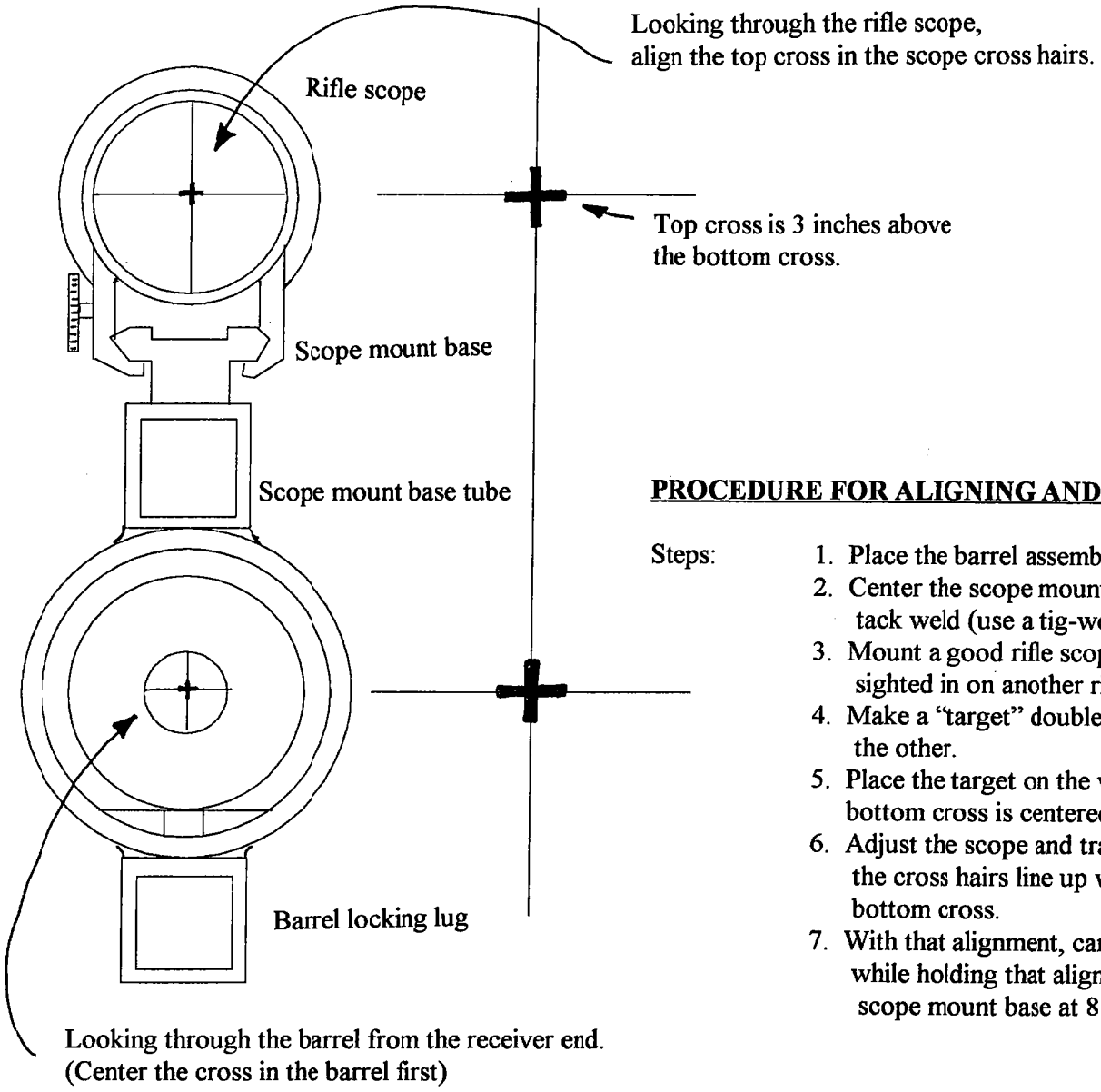
This seam needs to be tig-welded all the way around.

Then check for alignment again. If you are satisfied that the alignment is perfect, then tig-weld the front end of the shroud to the front collar. (All the way around.) Then do the same to the joint between the receiver and the shroud. Afterward, grind down the weld cosmetically and polish smooth. This will cause the receiver, the barrel, and the shroud to become one welded unit. If future barrel replacement is necessary, the shroud will have to be cut away. This method is necessary to provide the super strength and reliability designed into this rifle. Your barrel should last a lifetime, with proper care, **and remember that shooting solid copper/bronze bullets in your rifle, will shorten the life of your barrel to 500 ROUNDS.** Maadi-Griffin does not recommend using solid copper/bronze projectiles, unless you understand how destructive they are to your barrel.

When aligned, this seam needs to be tig-welded all the way around, and then ground down and polished smooth. (Also the forward end of the shroud, weld to the ring collar.)



Maadi-Griffin .50 Cal. Pistol



PROCEDURE FOR ALIGNING AND ATTACHING THE SCOPE MOUNT BASE.

Steps:

1. Place the barrel assembly forward lock lug in a vice, and remove the bolt.
2. Center the scope mount base track on the mount base tube and tack weld (use a tig-welder) the front end to the base tube.
3. Mount a good rifle scope onto the scope track. (A scope that has been sighted in on another rifle)
4. Make a "target" double cross as shown three inches apart, one directly over the other.
5. Place the target on the wall 15 to 25 feet away and position it so that the bottom cross is centered as you look through the bore.
6. Adjust the scope and track (as one unit, do not adjust scope knobs) until the cross hairs line up with the top cross, exactly three inches above the bottom cross.
7. With that alignment, carefully tack weld the back of the scope mount base while holding that alignment. Remove the scope. Carefully tig-weld the scope mount base at 8 locations, welds should not exceed 1/4" in length.

Maadi-Griffin Parts Price List
October 19, 1999

TRIGGER BAR ASSEMBLY

Part # 1	Trigger Bar	$30.00
# 2	Sear	34.00
# 3	Sear Spring	5.00
# 4	Sear Pin	1.00
# 5	Sear Link	24.00
# 6	Sear Link Spacer Spring	5.00
# 7	Sear Link Pin	1.00
# 8	Trigger	29.00
# 9	Trigger Spring	5.00
#10	Trigger Pin	1.00
#11	Actuator Rod	15.00
Sub Total		**$150.00**

BOLT ASSEMBLY

Part #12	Bolt	$115.00
#13	Bolt Handle	25.00
#14	Bolt Handle Set Screw	2.00
#15	Firing Pin	45.00
#16	Firing Pin Tail Stock	40.00
#17	Firing Pin Spring	12.00
#18	Bolt Cap	68.00
#19	Butt Plate	20.00
#20	Butt Pad	5.00
#21	Butt Pad Cover	8.00
Sub Total		**$340.00**

BARRELED RECEIVER ASSEMBLY

Part #22	36" Barrel	$425.00	
	44" Barrel		$475.00
	36" Stainless Steel Barrel		$625.00
#23	Muzzle Brake	145.00	
#24	Forward Shroud Ring	22.00	
#25	Barrel Lock Ring	24.00	
#26	Shroud	70.00	
#27	Non-FFL Receiver Tube		$235.00
	Fully Finished Receiver Tube (requires FFL)		$410.00
#28	Locking Lug	3.00	
#29	Scope Mount Base	60.00	
#30	Base Tube	15.00	
Sub Total		**$764.00**	
#31	Bipod Mount Lug		$15.00 (optional)

Shroud Assembly Assembled & Tig Welded $195.00 (optional)
(includes a 1.5° down angle on the Scope Mount Base)
(includes Shroud, Locking Lug, Scope Mount Base, Base Tube, and Bipod Mount Lug)

HANDLE FRAME

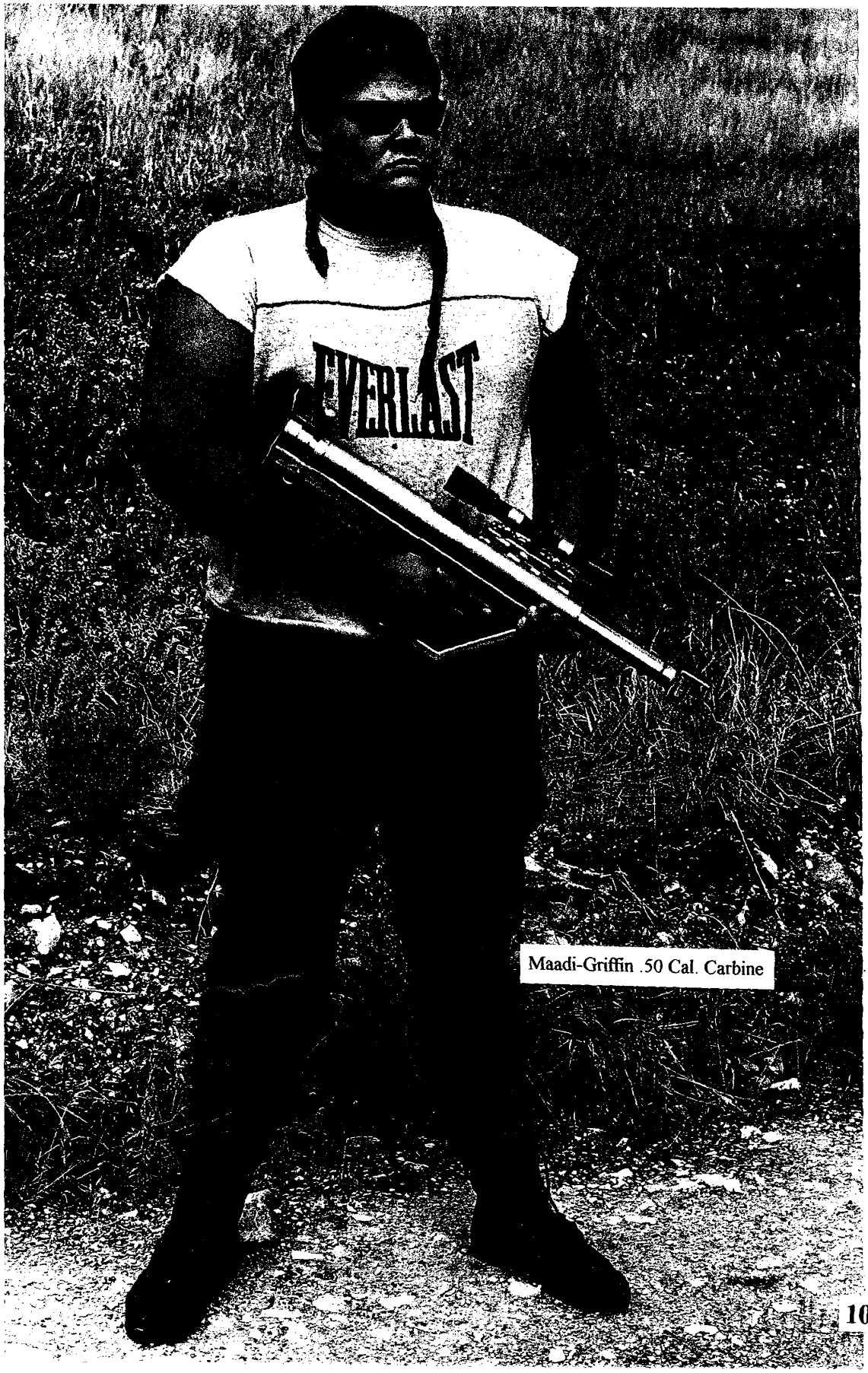
Part #32	Handle Frame	$295.00
#33	Quick Pins (2)	5.00
Sub Total		**$300.00**

TOTAL for Parts (Not Assembled) **$1,554.00** + $35.00 shipping & handling
+ Non-FFL or FFL Receiver (see price above)

Prices Subject to Change without Notice — Call for Availability

INDEX

Actuator Rod 11
Barrel 80-81
Barrel Assembly 92-99
Barrel Lock Ring 81-82, 94-96
Base Tube 83-85
Bipod Mount Lug ..... not shown
Bolt 48,50-53,67-73, 75,77,94-95
Bolt Assembly 48-75
Bolt Cap 48,55,56,63,65-67
Bolt Handle 48, 54
Bolt Handle Set Screw 48, 54
Butt Pad 48, 74
Butt Pad Cover 48, 74
Butt Plate 48, 49, 70-73
Firing Pin 48, 57-60, 62-66, 73, 77
Firing Pin Spring 48, 61-66
Firing Pin Tail Stock 48, 57-59, 63
Forward Shroud Ring 82, 97, 98, 99
Handle Frame 36-41, 43, 98
Harris Bipod ..... not shown
Head Spacing 92-96
Hot Line 2
Introduction 1
Locking Lug 85, 86, 98, 99
Muzzle Brake 87-91
Part's List 5, 102
Quick-Pins 42
Receiver Tube 44-47, 76, 77, 94-96, 100
Scope Mount Base 83-85, 101
Scope Track Mounting 101
Sear 8, 23, 24, 26-30
Sear Link 8, 26-27, 31-32
Sear Link Pin 31-32, 35
Sear Link Spacer Spring 22, 27, 31, 32
Sear Pin 26-31, 35
Sear Spring 23-24, 28-30
Shroud 78-79, 81, 85, 97-100
Supplier's List 6
Trigger 9-10, 19-20, 26, 27, 33-35
Trigger Bar 7, 12-16, 25-36, 40-41
Trigger Bar Assembly 25-36
Trigger Pin 26, 33-36
Trigger Spring 17-21, 33-34



Maadi-Griffin .50 Cal. Carbine