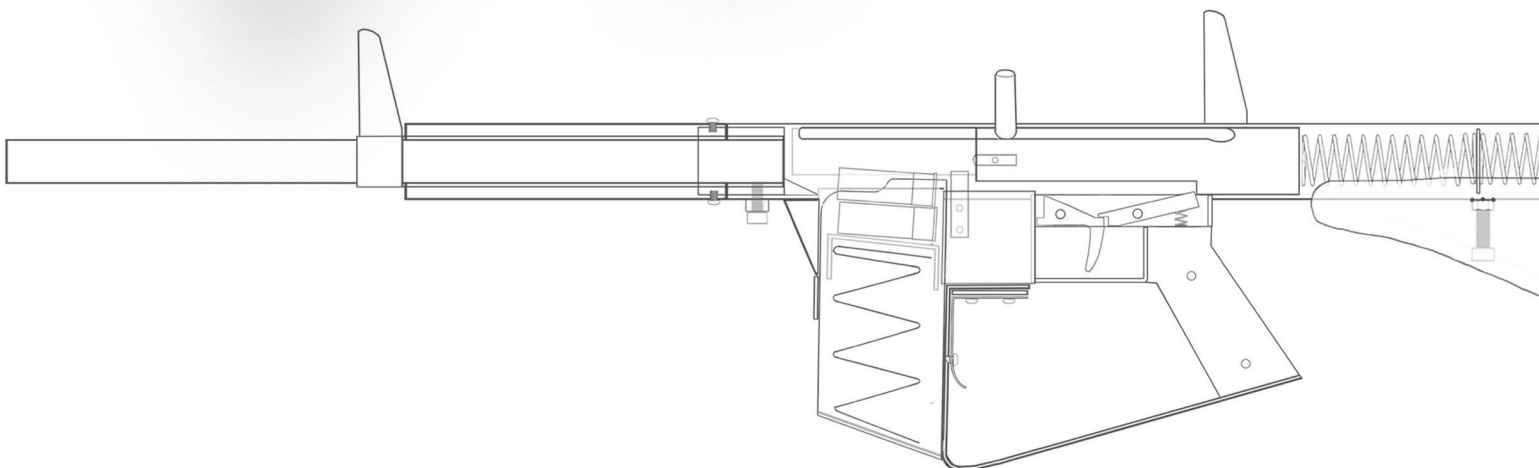
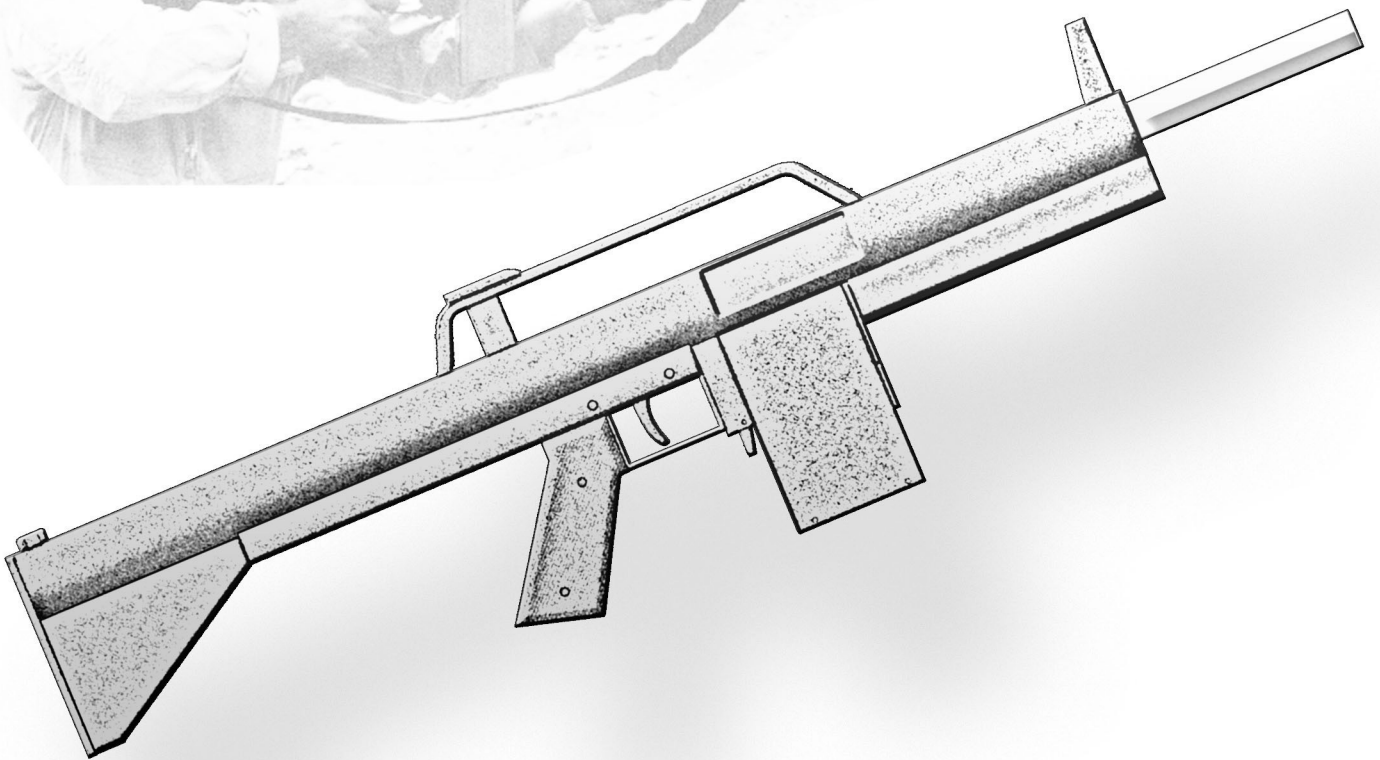


DO-IT-YOURSELF

FULL AUTO ASSAULT SHOTGUN

CONSTRUCTION PLANS



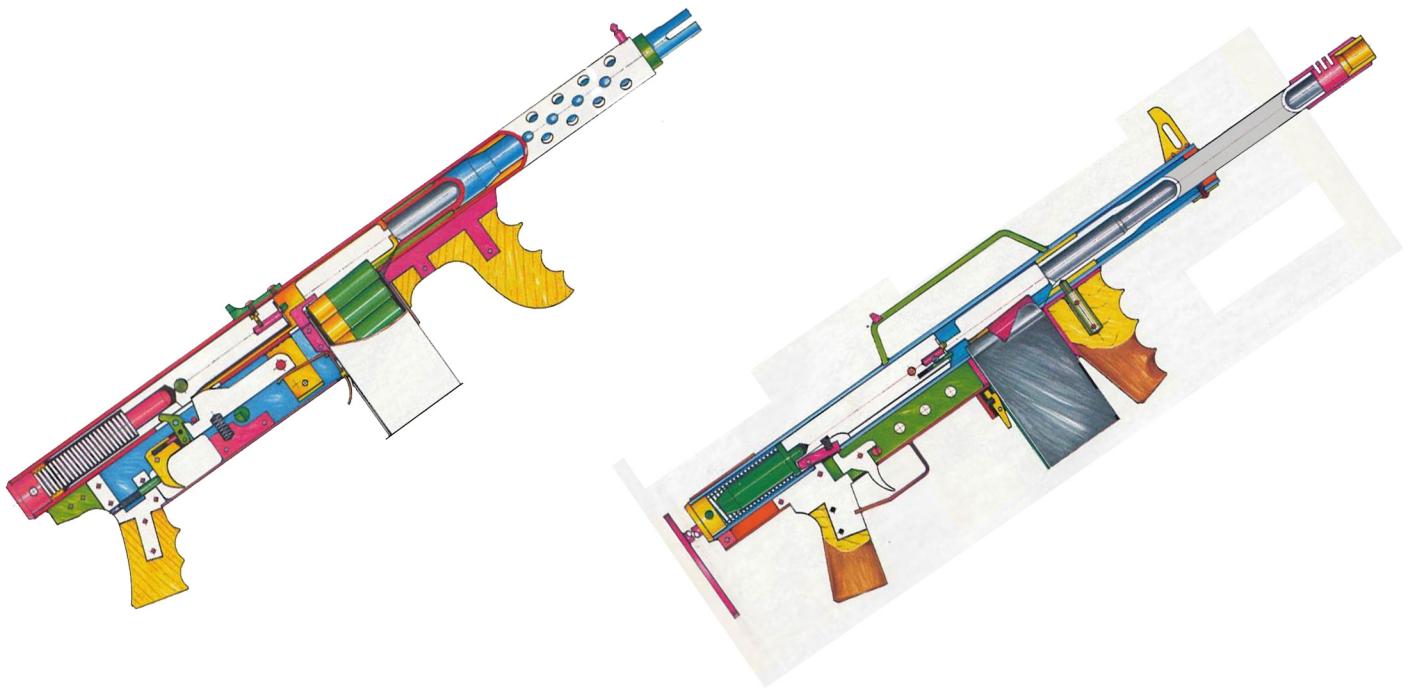
PROFESSOR PARABELLUM

Introduction

Due to widespread availability of ammunition and ease of sourcing materials for improvised barrels, the 12 gauge shotgun remains the go-to homemade firearm. Introduce 10 to 20 rounds of highly controllable automatic fire and you have perhaps the deadliest, most effective home defense weapon you could ever wish to get your hands upon. This type of DIY weapon is truly a game changer. By following the plans contained herein the average weekend garage tinkerer can put together what is essentially a weapon on par with an AA-12 with just a trip to a decent metal stockist. As the barrel is made from readily available tubing and ammunition is good old 12 gauge, it can be made under almost any conditions while living under regimes which may not be partial to the idea of citizens owning firearms. As far as firepower goes, it is quite simply unbeatable.

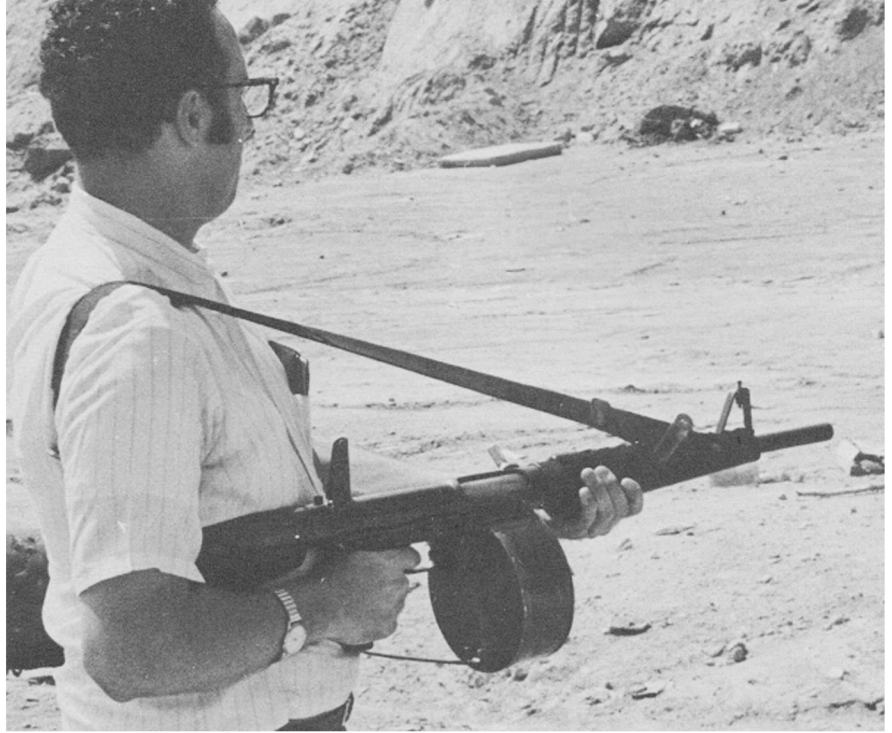
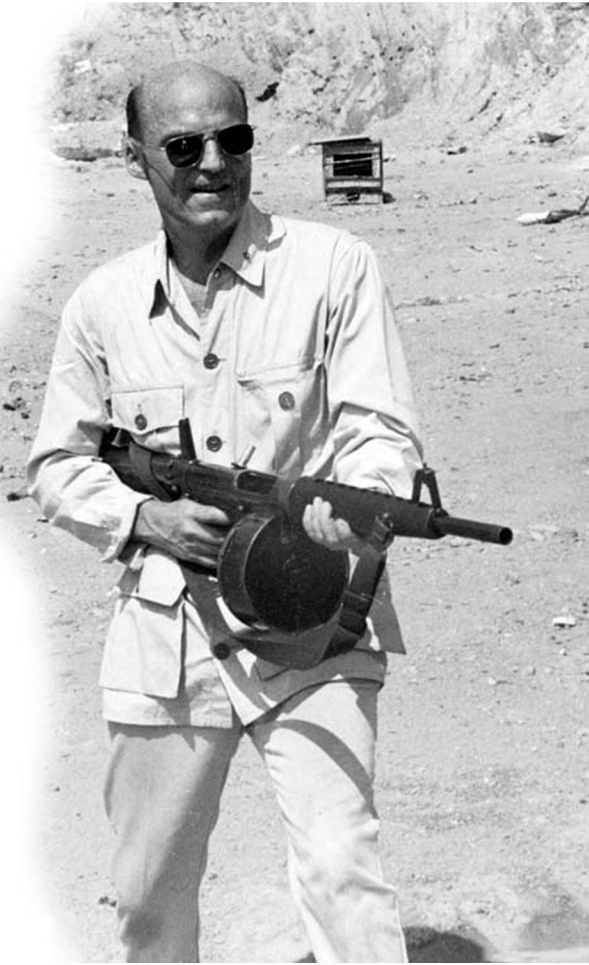
The Legendary Filipino Fully Automatic Battle Shotguns

This type of shotgun is by no means new. In the Philippines during the years before the declaration of martial law in 1972, local gunsmiths in Ilocos and Cebu had been building identical weapons which were said to have often been special ordered by local politicians to equip their bodyguards. These 12 and 20 gauge shotguns were made in conventional submachine gun formats and were straight blowback, firing from an open bolt. They utilized large bolts and heavy duty recoil springs to dampen the fierce recoil. One example was noted by an acquaintance as being extremely simple, for example having no extractor yet functioning flawlessly through a box of shells. Variations made by gunsmiths who supplied rebels in Mindanao were full sized battle guns suited for jungle fighting, capable of unleashing tremendous firepower at increased ranges. It was common for these to use two SLR or Browning BAR magazines brazed together to hold 8 to 10 rounds of 12 gauge. A copy of the Thompson muzzle break was often brazed on to the end of the barrel.



Locally made open bolt fully automatic shotguns; Ilocos made (Left) and Mindanao made (Right). (J.M Ramos)

The Atchisson Assault Shotgun



The Atchisson Assault Shotgun prototype was built in 1972 by designer Maxwell Atchisson, who would later redesign the weapon to eventually become the infamous AA-12. This early prototype shotgun was a simple straight-blowback operated weapon which fired from the open-bolt position. Its long tubular receiver housed a heavy 3 pound (1.4 kg) bolt and firing pin assembly which was designed to fire out-of-battery using advance primer ignition through the use of an internal pivoting hammer within the bolt. The extended receiver length and massive recoil spring prevented the bolt from ever bottoming out along its 9" rearward journey, absorbing almost all felt recoil and resulting in a slow, controllable rate of fire of 360 rounds per minute. A trigger unit from a Browning BAR was used along with a Thompson M1A1 pistol grip and handguard from an M16. Modified BAR magazines were used to house 5 rounds of 12 gauge ammunition while a patented 20 round drum magazine was also designed and would later go on to be a key feature of the AA-12.



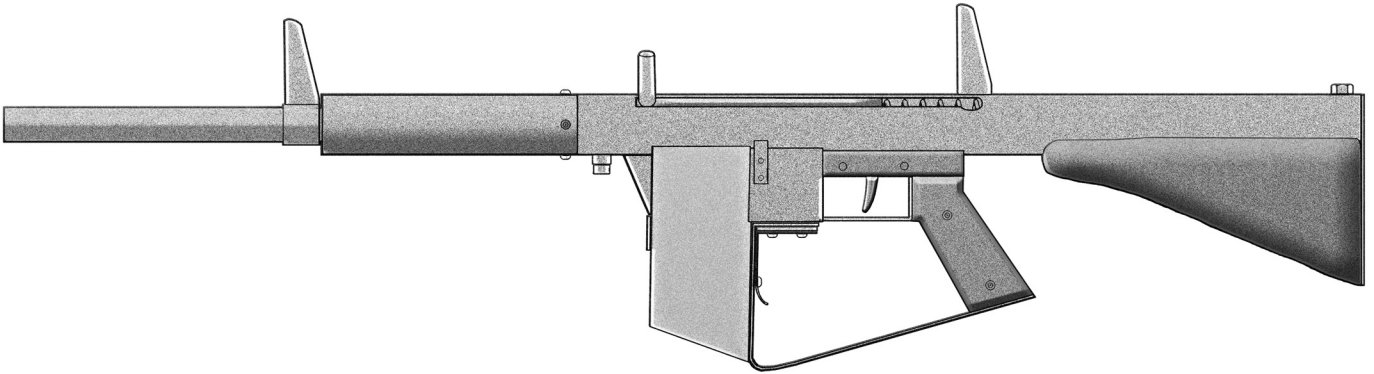
The AA-12 - The current incarnation of the Atchisson's design

The Atchisson Assault Shotgun (1972 prototype)



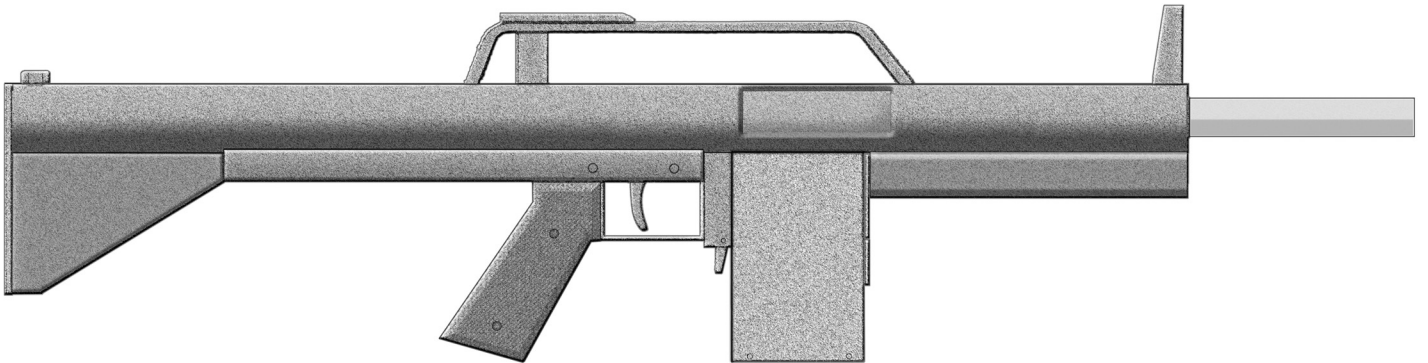
DIY OPEN BOLT AUTOMATIC SHOTGUN

OBAS-12



MK-1

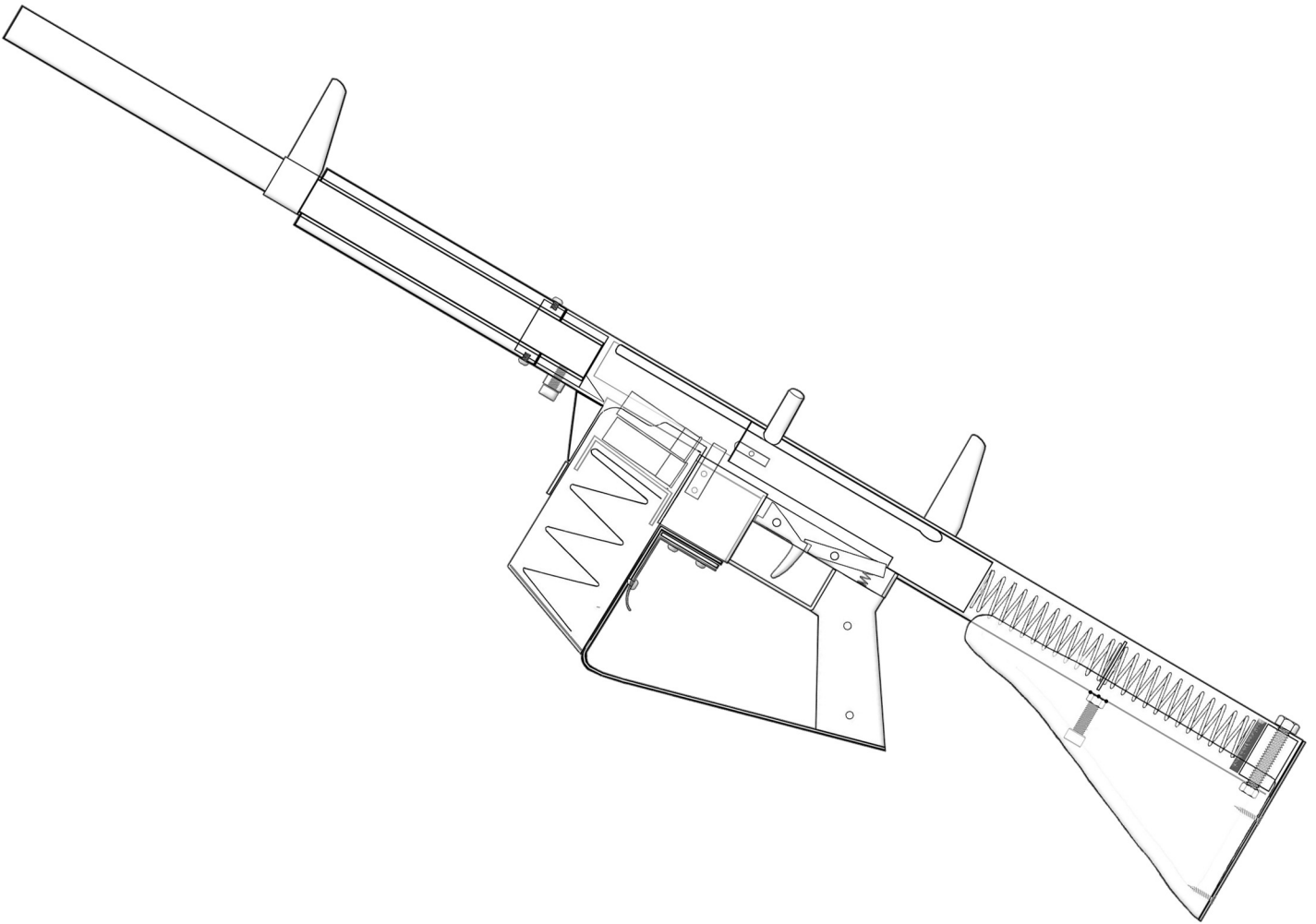
Overall length: 39"
Barrel length: 18"
Caliber: 12 gauge



MK-2

Overall length: 31"
Barrel length: 11.5"
Caliber: 12 gauge

Open-Bolt Automatic Shotgun MK-1



Materials:

Receiver tube: 45mm x 2mm wall mild steel round tube, 579mm long.

Bolt: 40mm dia mild steel bar, 7.5" long.

Barrel collar: 40mm x 5mm wall steel tube.

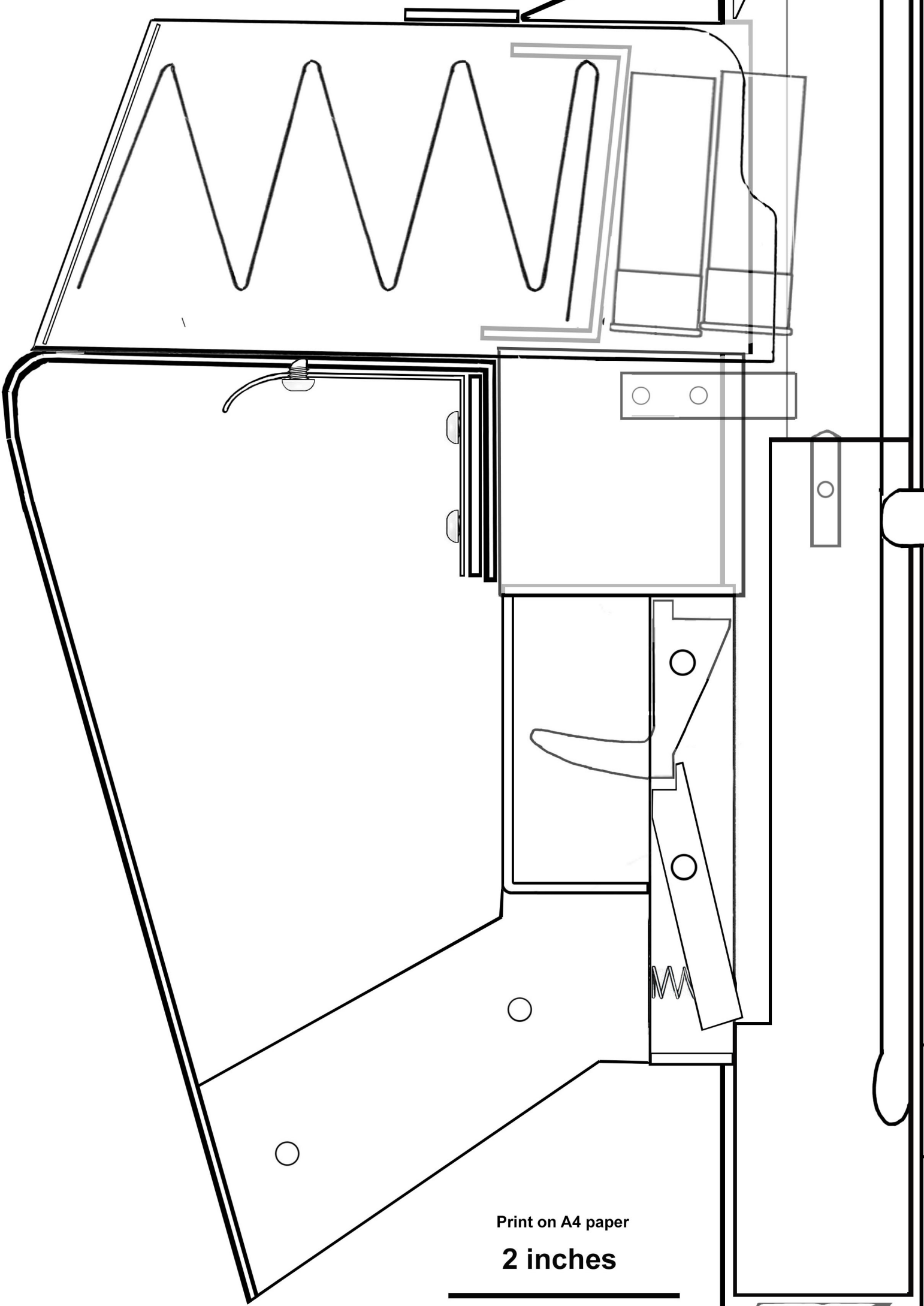
Feed ramp: 10mm thick steel shape.

Barrel: 25mm (1") x 3mm steel tubing sleeved with 30mm x 2mm tube. 18" long.

Trigger group: 10mm steel plate.

Recoil spring: x2 grease applicator gun springs.

Magazine: Bent from 20 gauge (1mm) steel sheet. Alternatively modified from FAL, G3, BAR mags or adapted to accept Saiga-12 mags.



Print on A4 paper

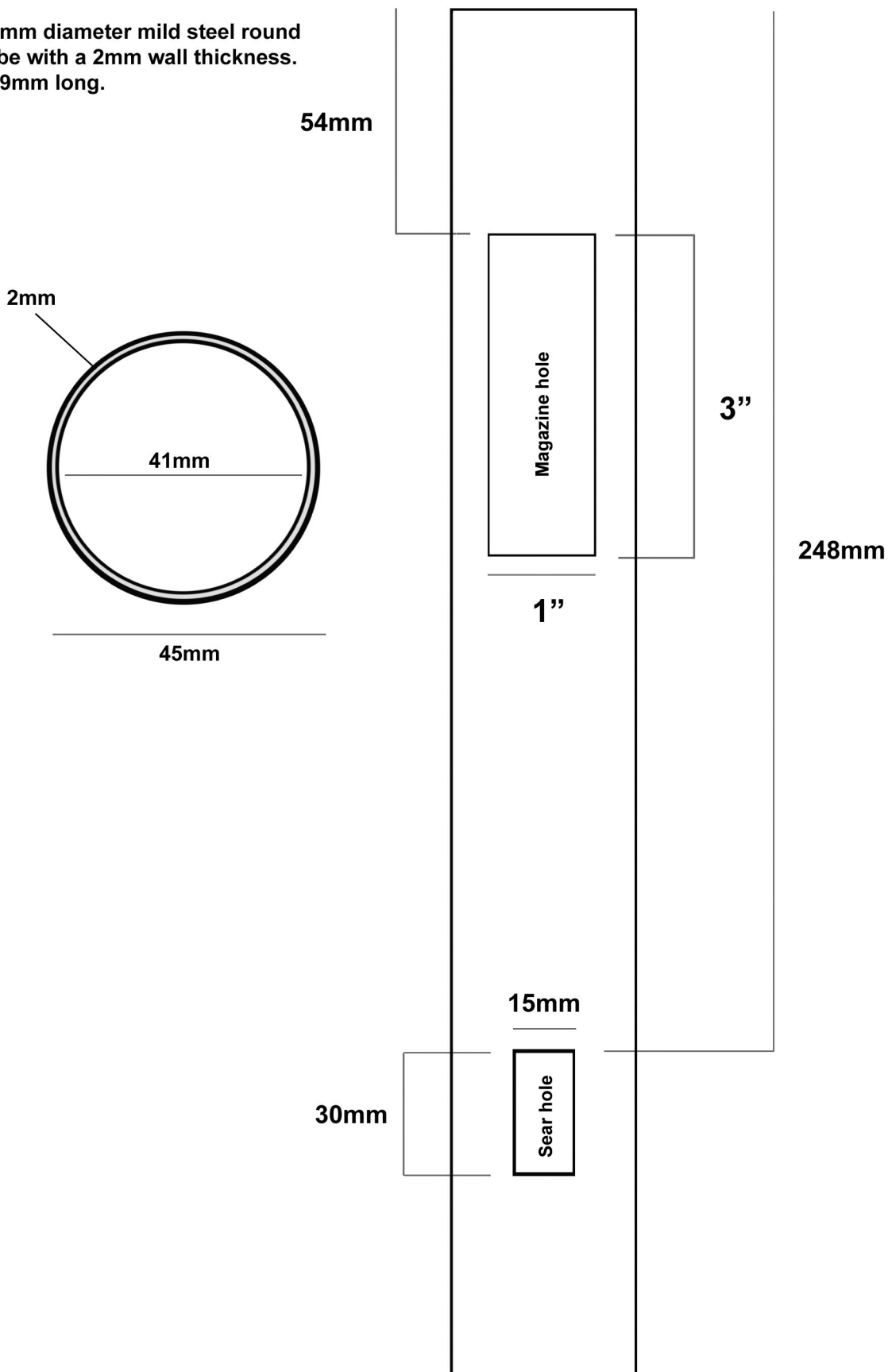
2 inches



Receiver

(Bottom - Front end)

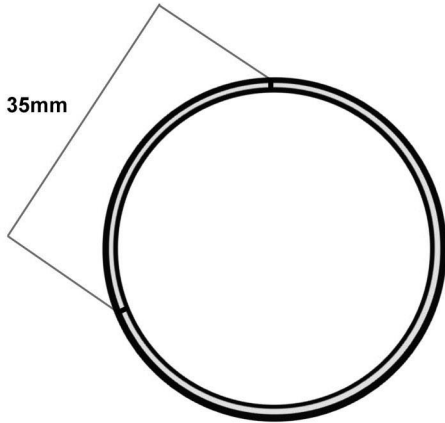
45mm diameter mild steel round tube with a 2mm wall thickness. 579mm long.



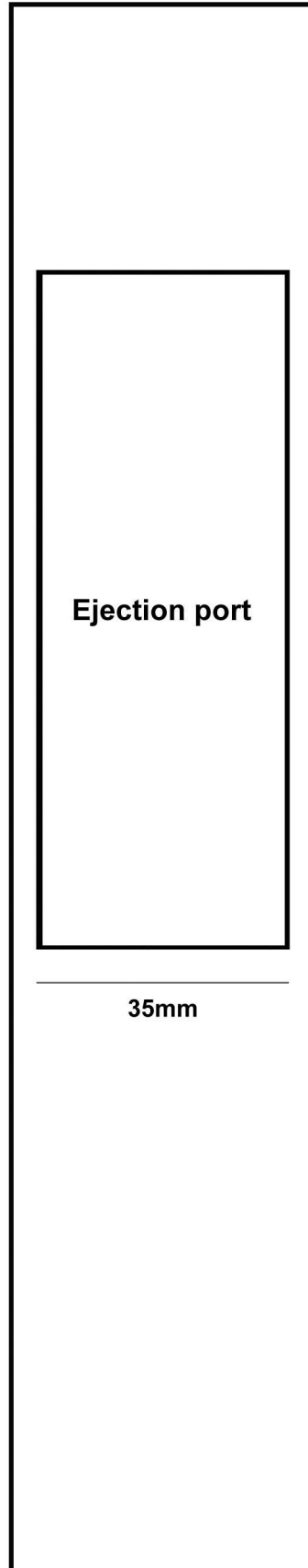
Print on A4 paper

2 inches

Receiver (Ejection port)



1.5"



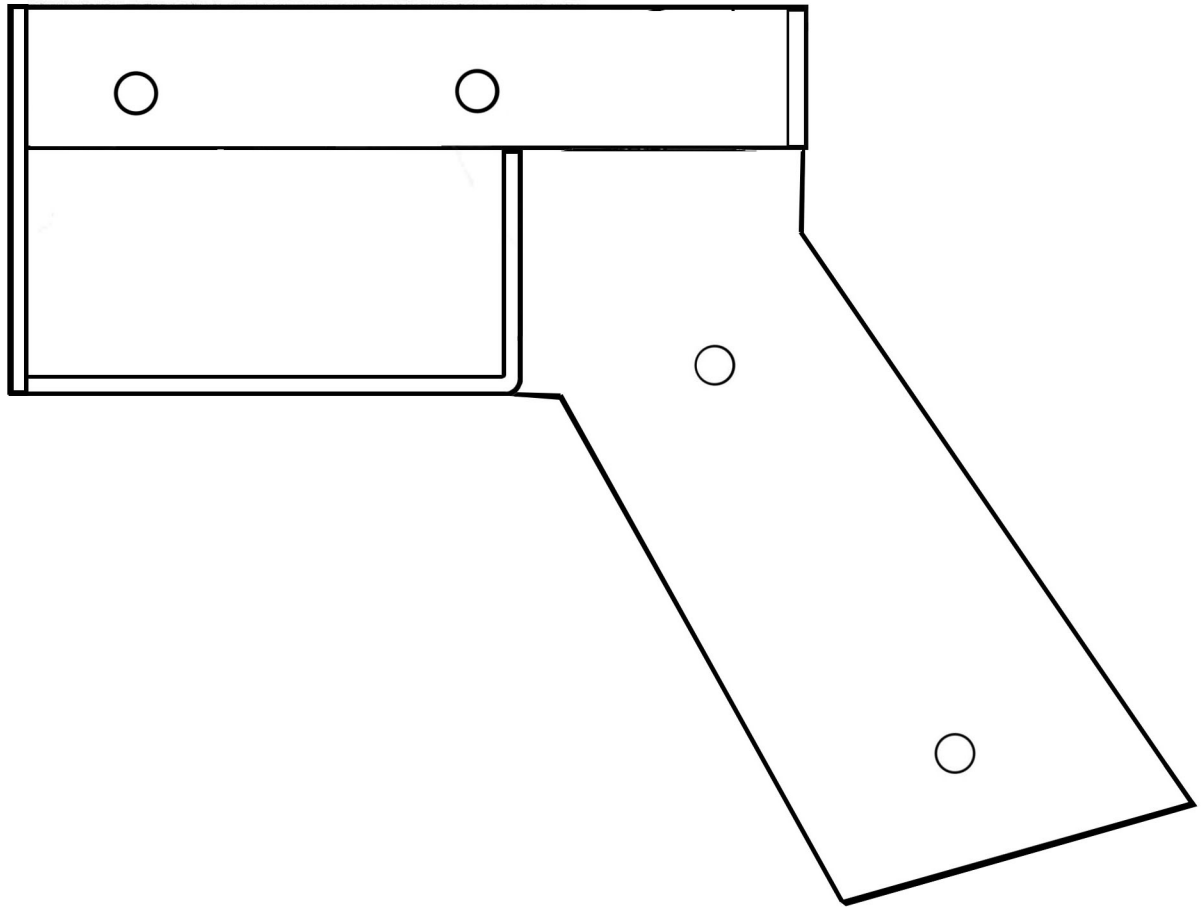
Ejection port

108mm

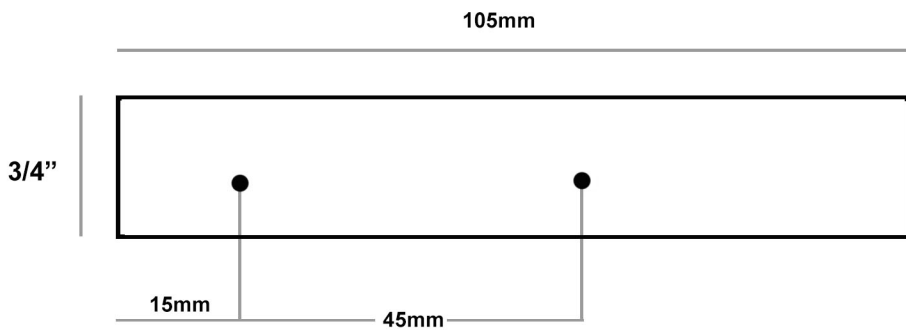
35mm

Trigger frame

Magazine tab spacer
1" wide, 2" long



Side plates x2



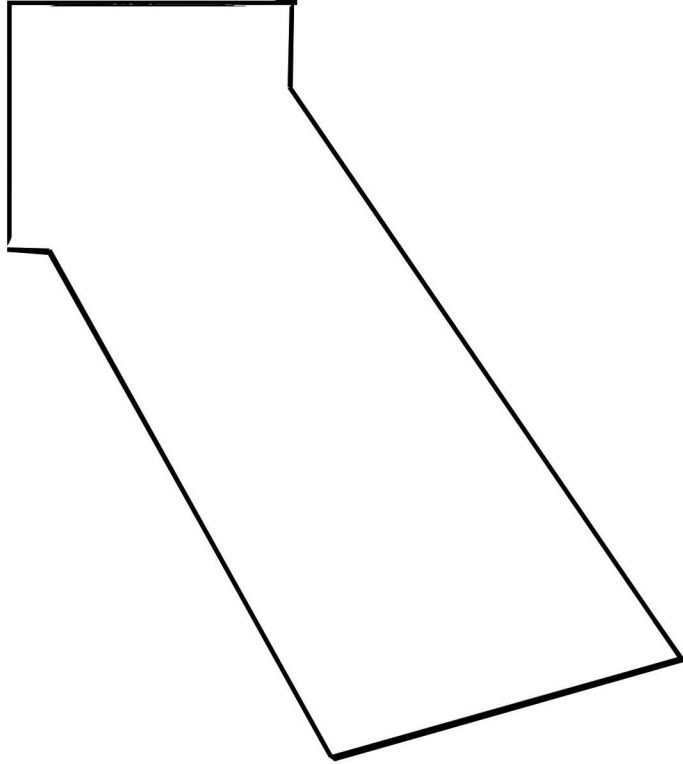
Print on A4 paper

2 inches



Grip frame

Cut from 4mm to 6mm (1/4") steel plate



Trigger guard

Bend from a 95mm length of 5/8" wide, 2mm thick steel strip



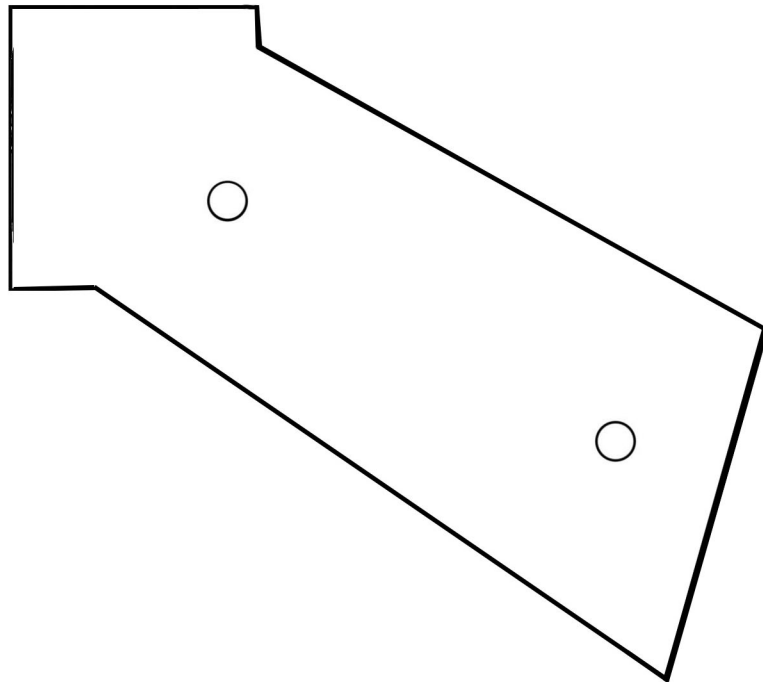
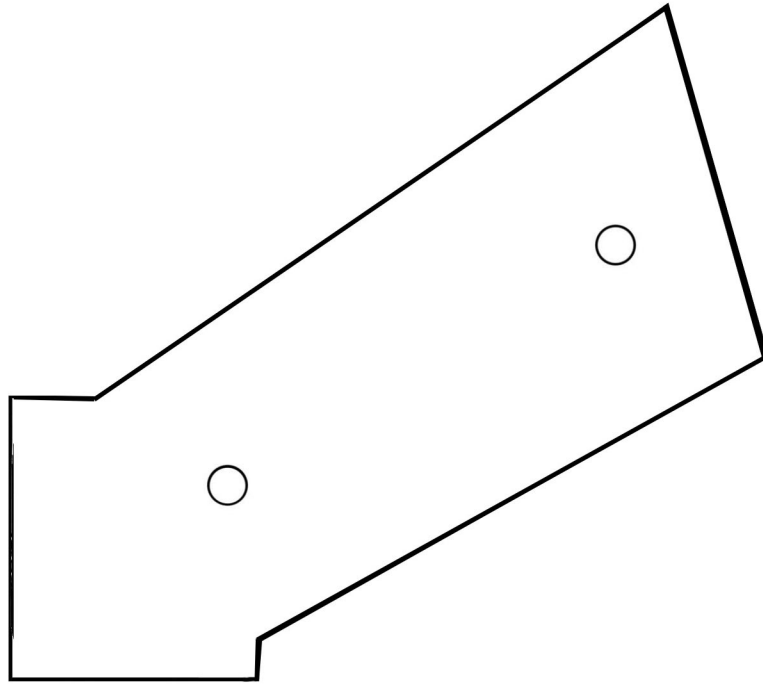
Print on A4 paper

2 inches

Grip panels

1/2" thick hardwood or plastic.

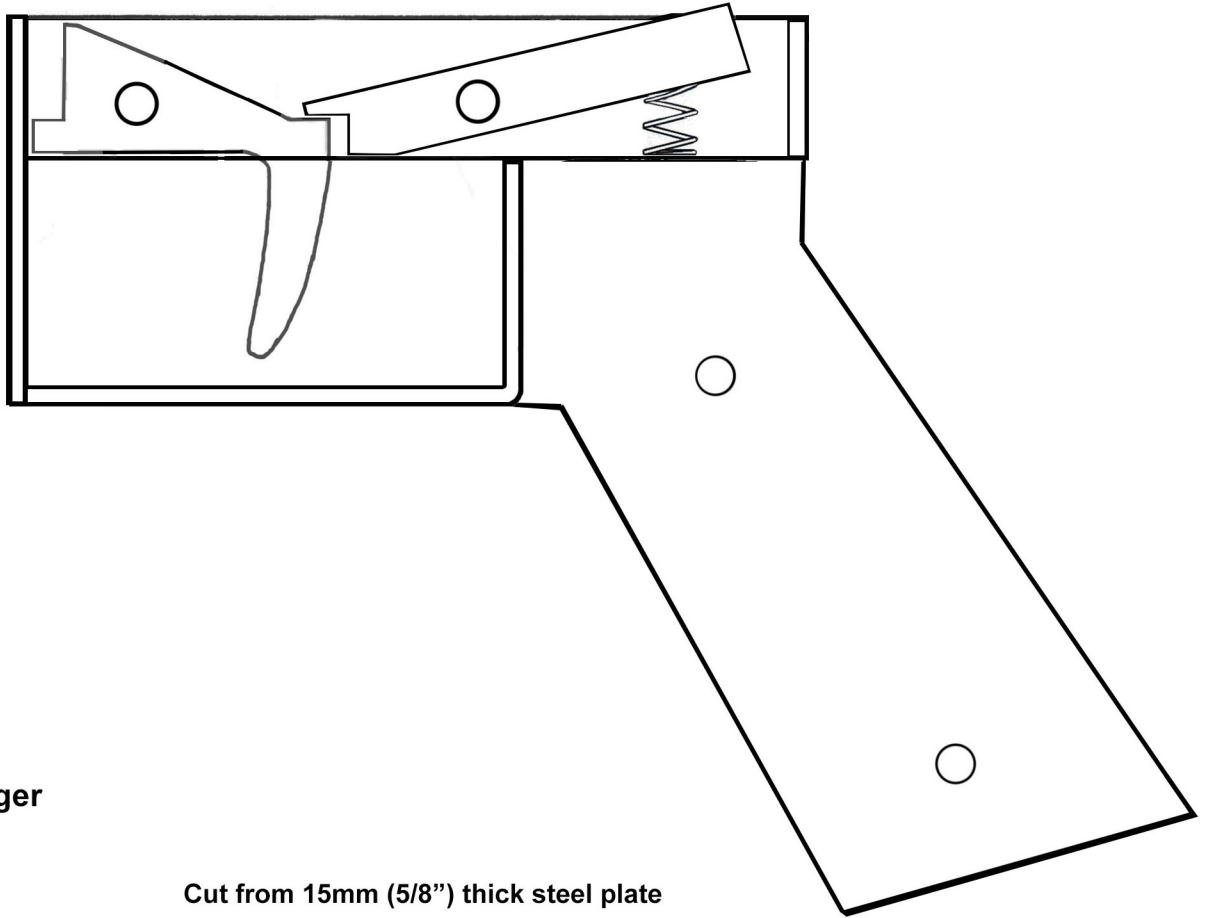
Epoxy two nuts into holes in one panel and secure to frame using two 30mm long m6 bolts.



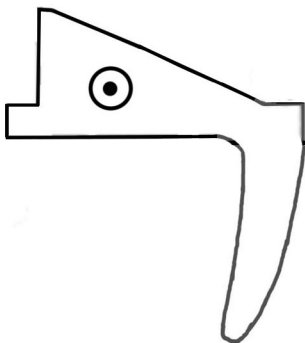
Print on A4 paper

2 inches

Trigger mechanism



Trigger



Cut from 15mm (5/8") thick steel plate

Sear
Harden



Secure each to frame using x2 6mm dia steel pins

Compression spring

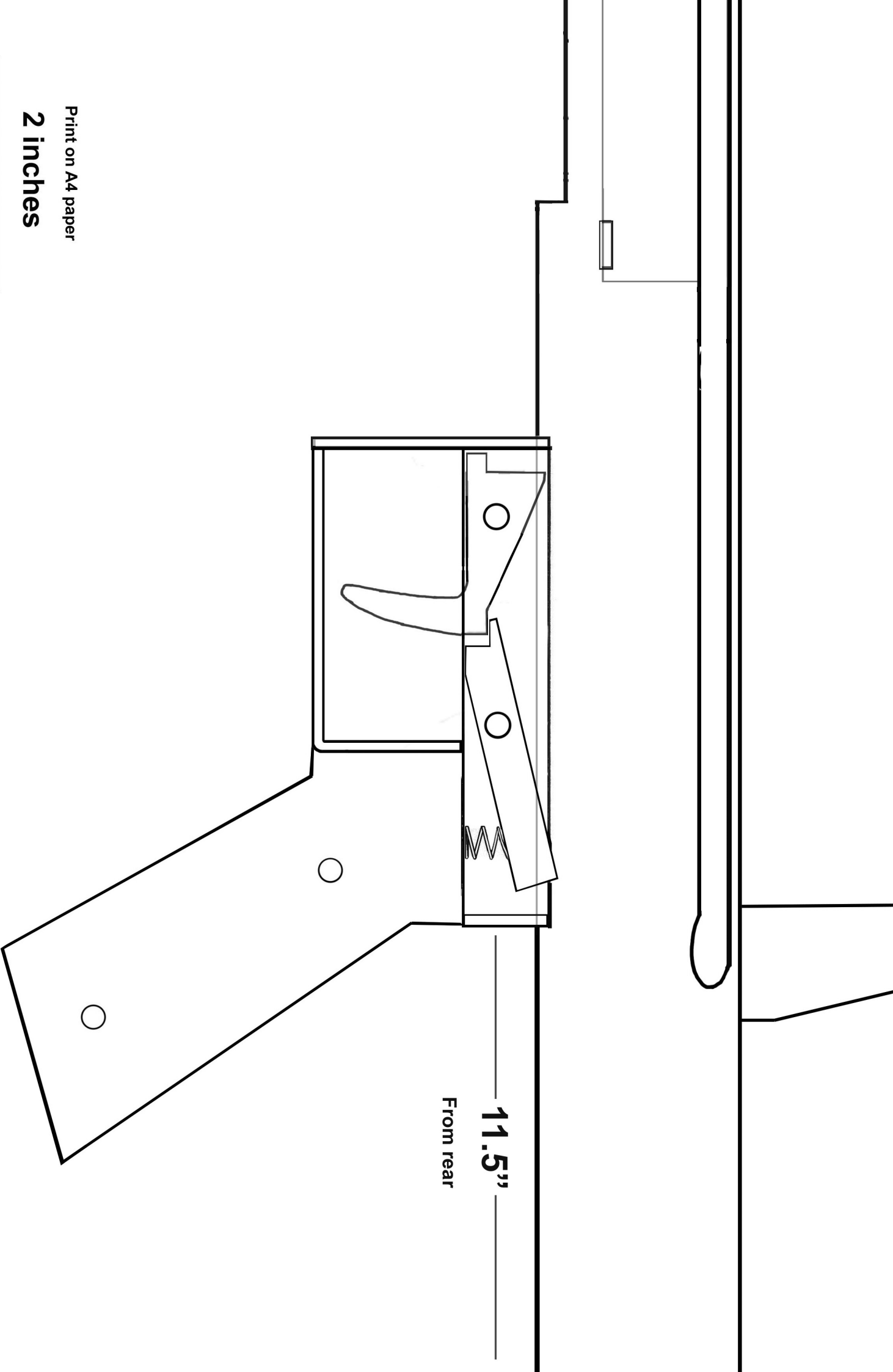
1/4" wide, 1/2" long



(Can be taken from a hand sanitizer bottle)

Print on A4 paper

2 inches



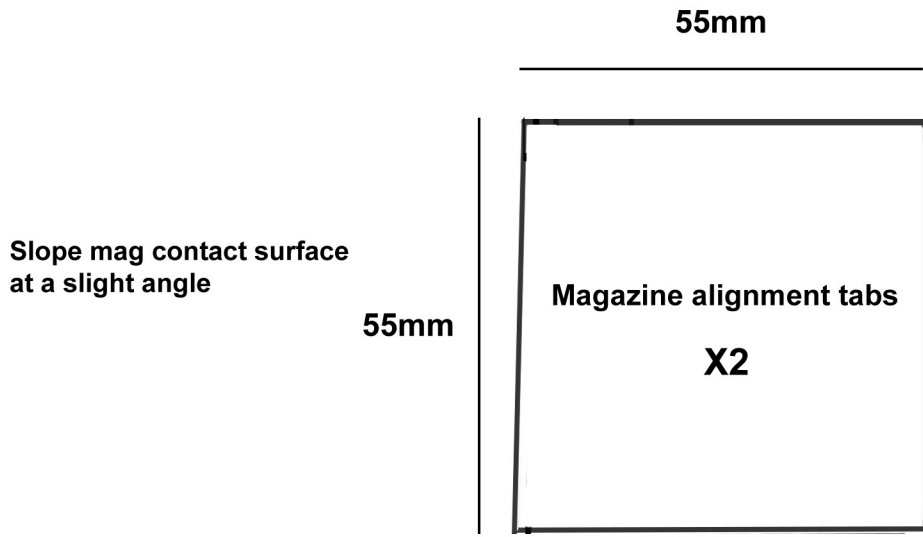
11.5"

From rear

Print on A4 paper

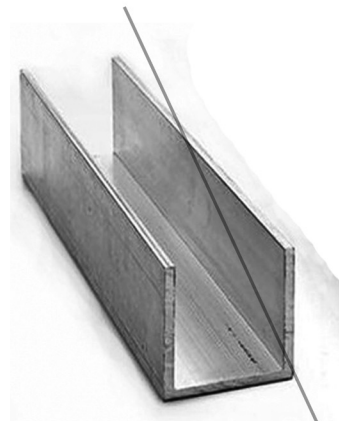
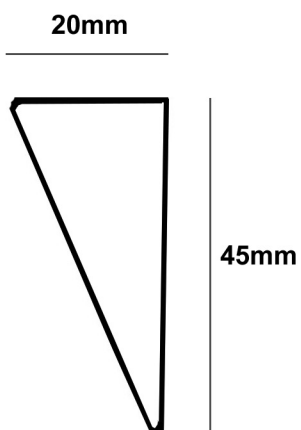
2 inches

Magazine support tabs



Front support tab

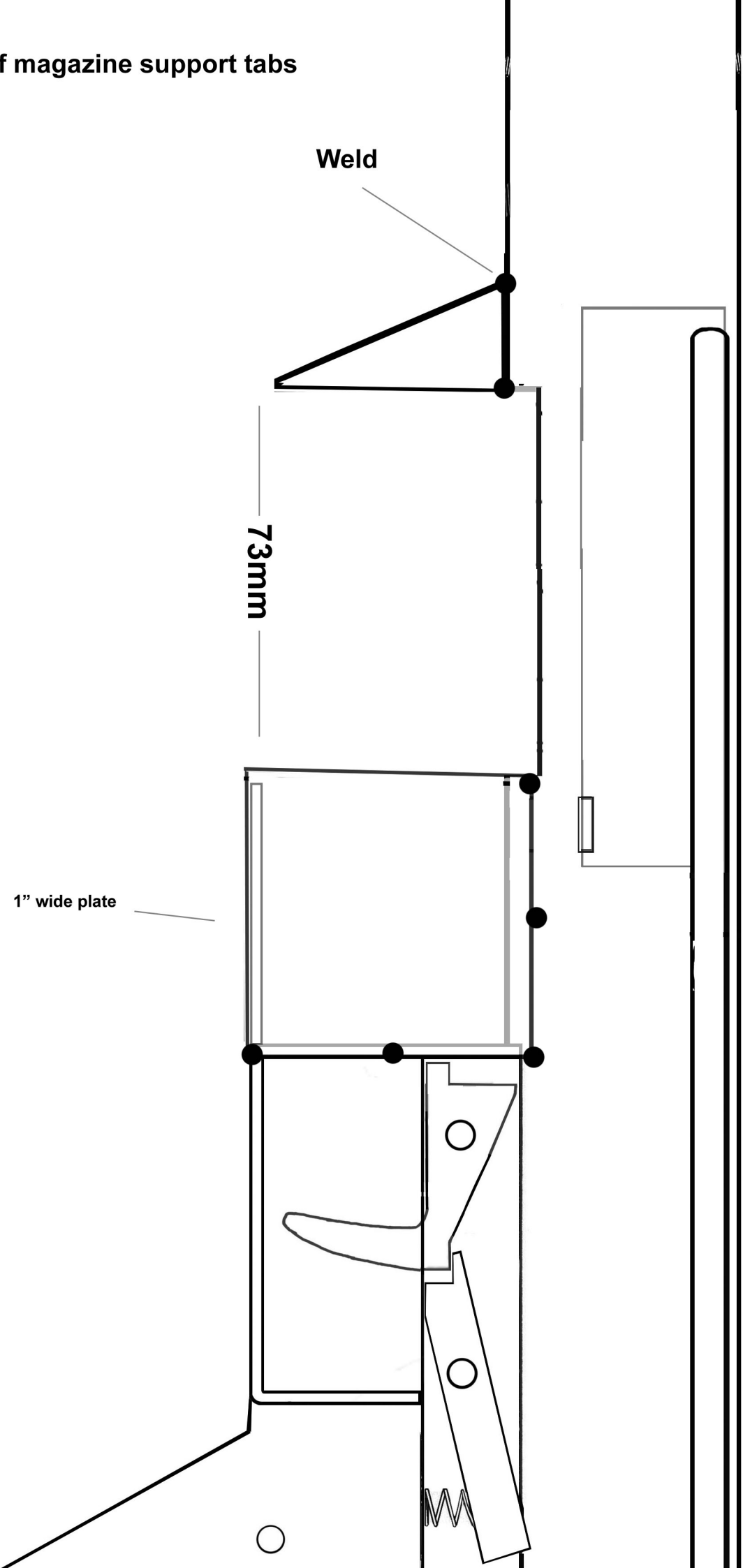
Bend and cut to shape from 2mm or 3mm mild steel sheet



Print on A4 paper

2 inches

Positioning of magazine support tabs



1" wide plate

73mm

Weld

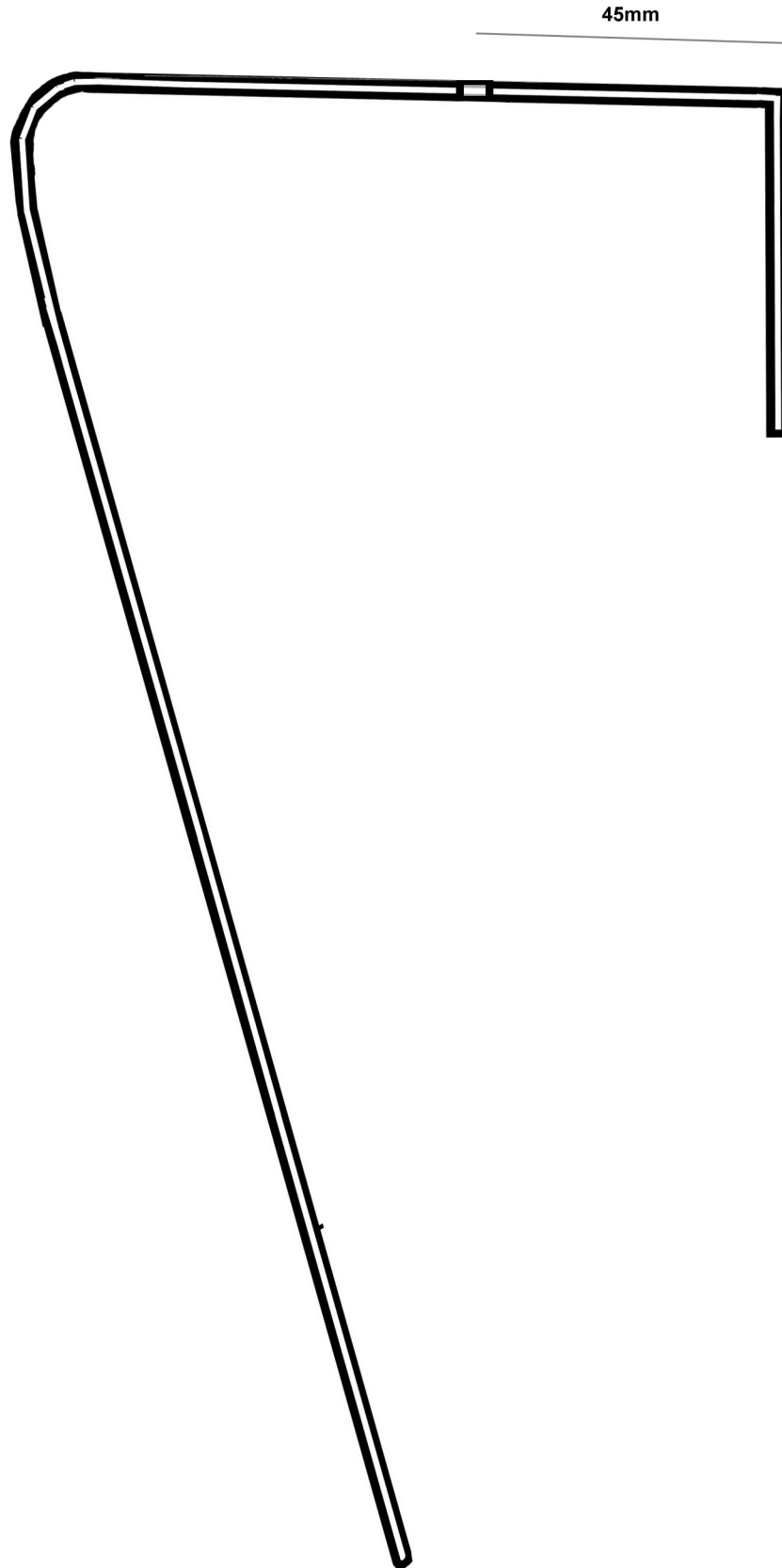
Print on A4 paper

2 inches

Magazine support bracket

Bend to profile from 1/2" wide, 2mm thick mild steel strap

Drill mag catch hole before bending



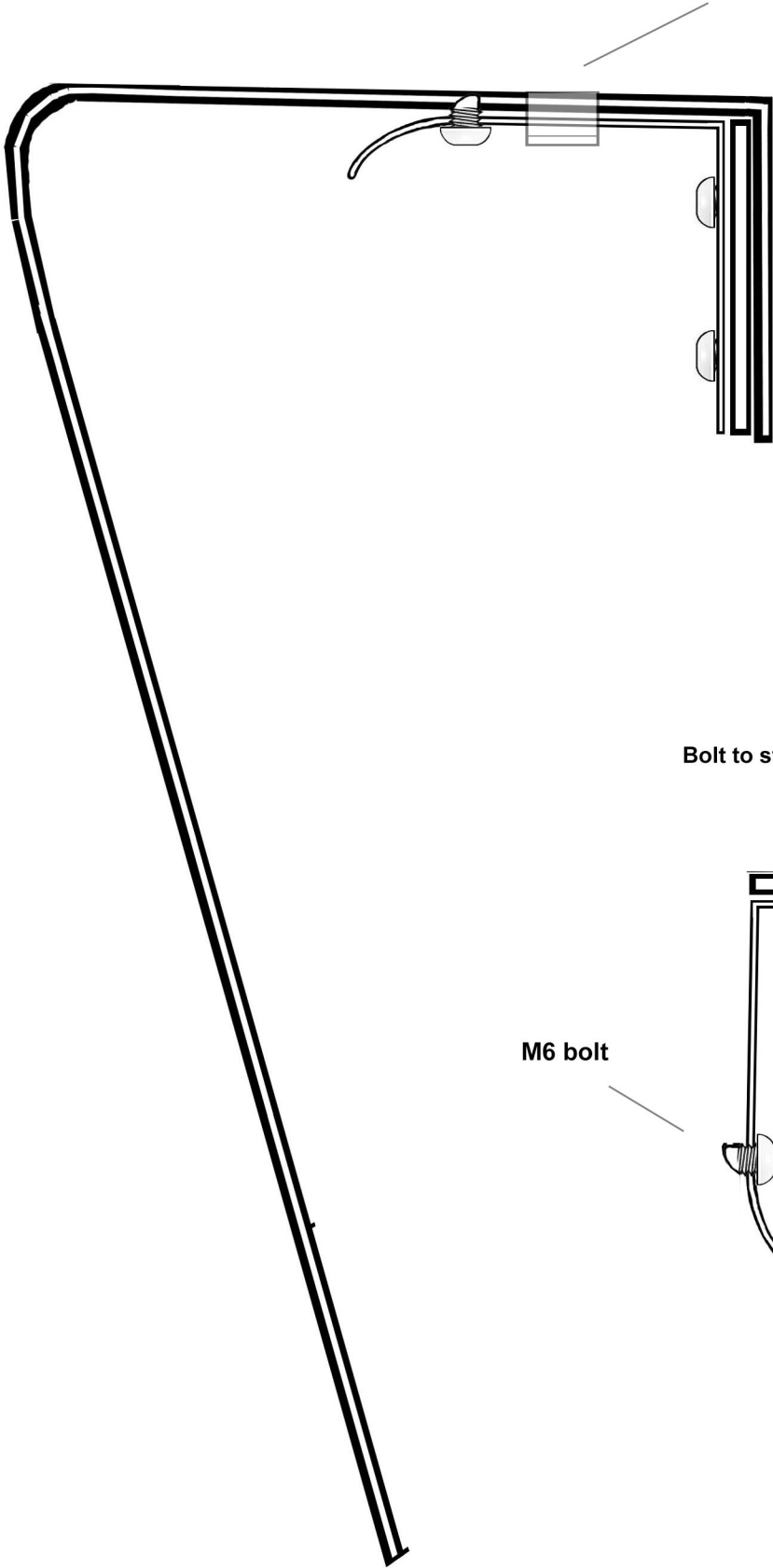
Print on A4 paper

2 inches



Magazine catch

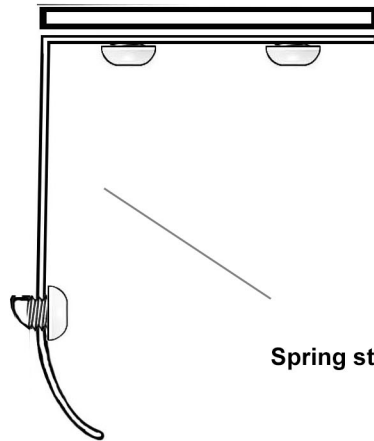
Folded steel tab brazed in place to limit rearward movement



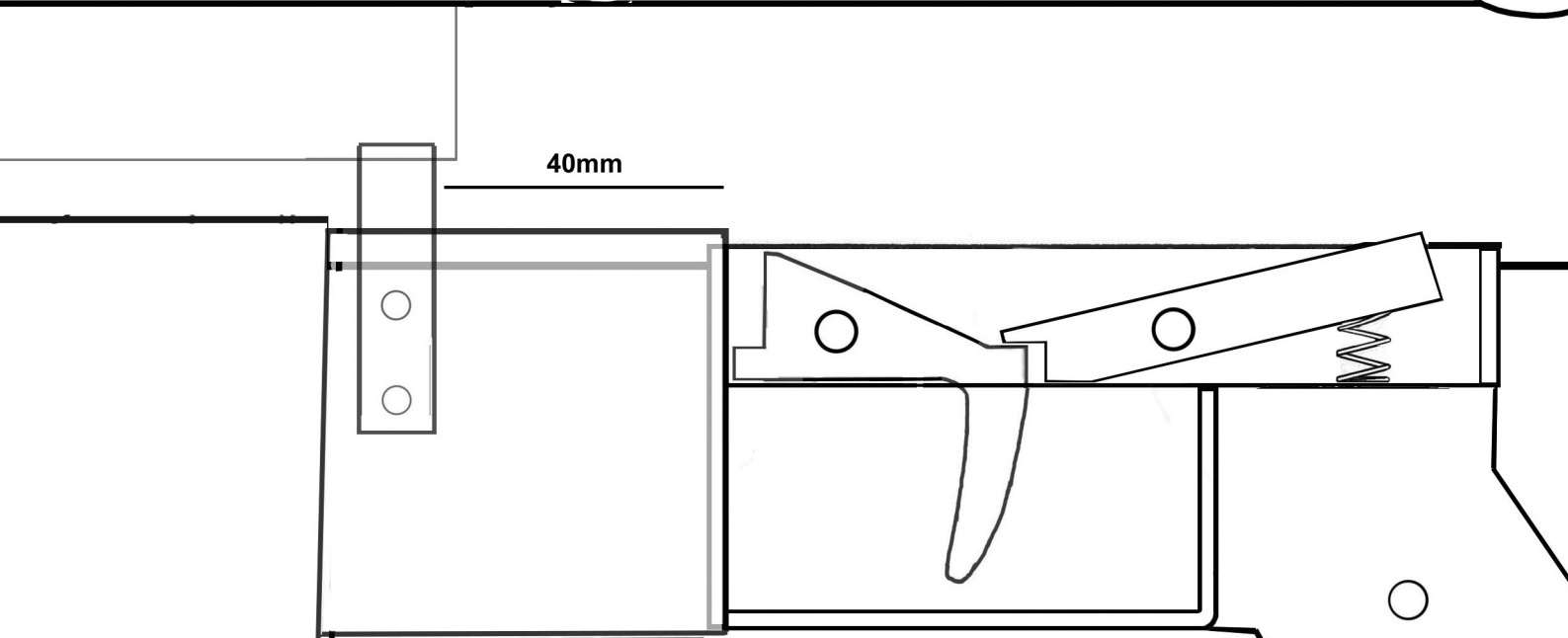
Bolt to steel spacer and weld to bracket

M6 bolt

Spring steel strip, 100mm long

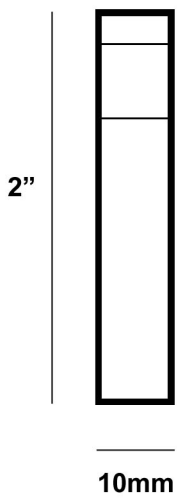


Ejector

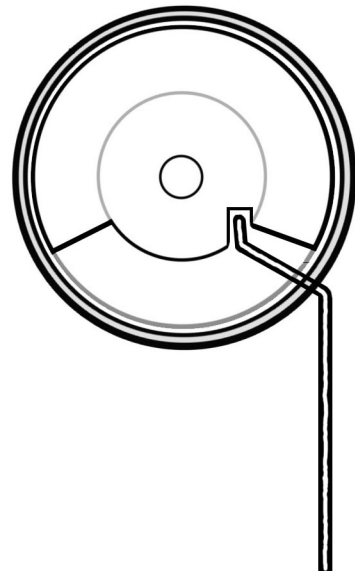


Cut from 10mm or 1/2" wide steel strap, 3mm thick. Harden.

Bend to profile.



View from front of receiver

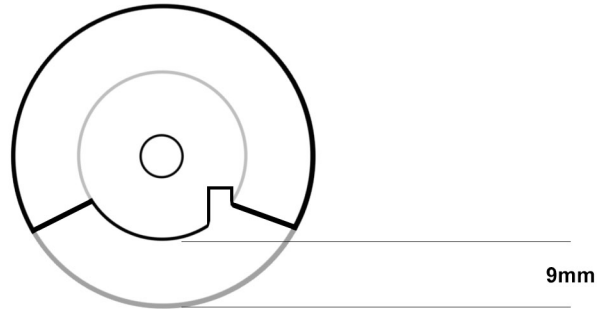


Weld or bolt in place

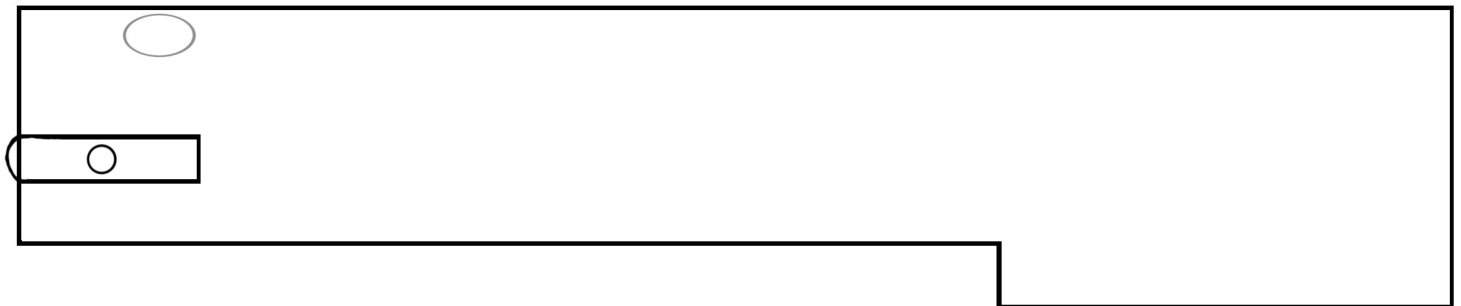
Bolt

40mm dia round steel bar, 7.5" long

Start by marking a 22mm dia circle in the center of the bar. Remove material below the inner circle by 'chain drilling' several 130mm deep holes combined with using an angle grinder fitted with a 1mm slitting disc to cut away excess material. Use a sanding disc to follow the lower contour of the inner circle which will allow for the bolt to clear the magazine feed lips and feed a cartridge. The ejector slot should be 4.5" long and can be cut using a 2mm grinding disc.



7.5"

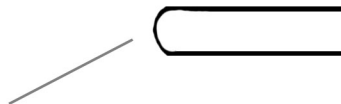


130mm

Sear engagement surface

Firing pin

6mm (1/4") dia steel bar, 1" long



Ensure tip is rounded enough to allow a cartridge to glide over pin when feeding. Secure with a grub screw through bolt.

Print on A4 paper

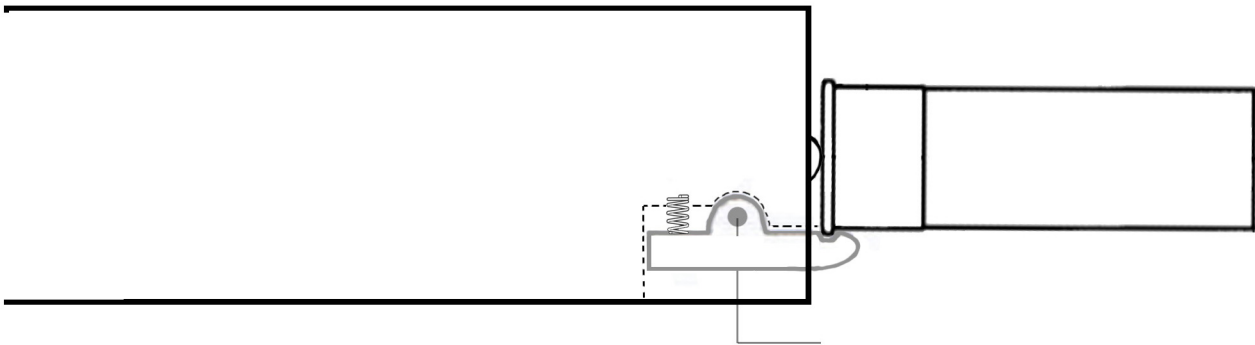
2 inches

Extractor

(Optional)

Cut from 3mm thick steel. Old circular saw blades can provide a good source of material.

Template:



Cut a procket in the bolt and drill 11mm from front / 11mm from side to accept a 3mm selloc pin.

Drill a hole to accept a 4mm dia compression spring.

When adding an extractor a relief will need to be cut into the barrel at the exact position the extractor meets.

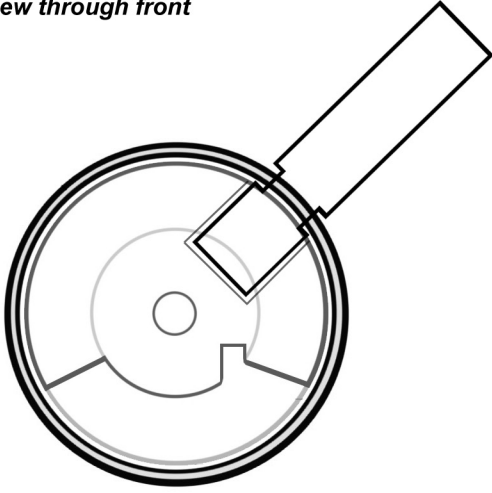
Print on A4 paper

2 inches

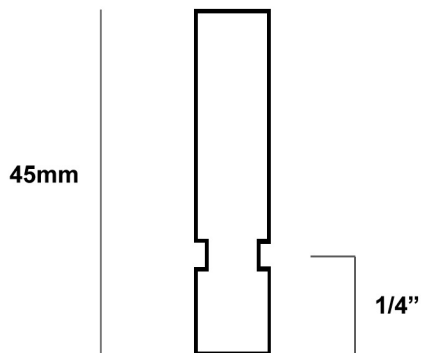
Charging handle

Align bolt with magazine and mark 3/4" from the front of the bolt. Drill a blind hole, 10mm dia, 1/4" deep.

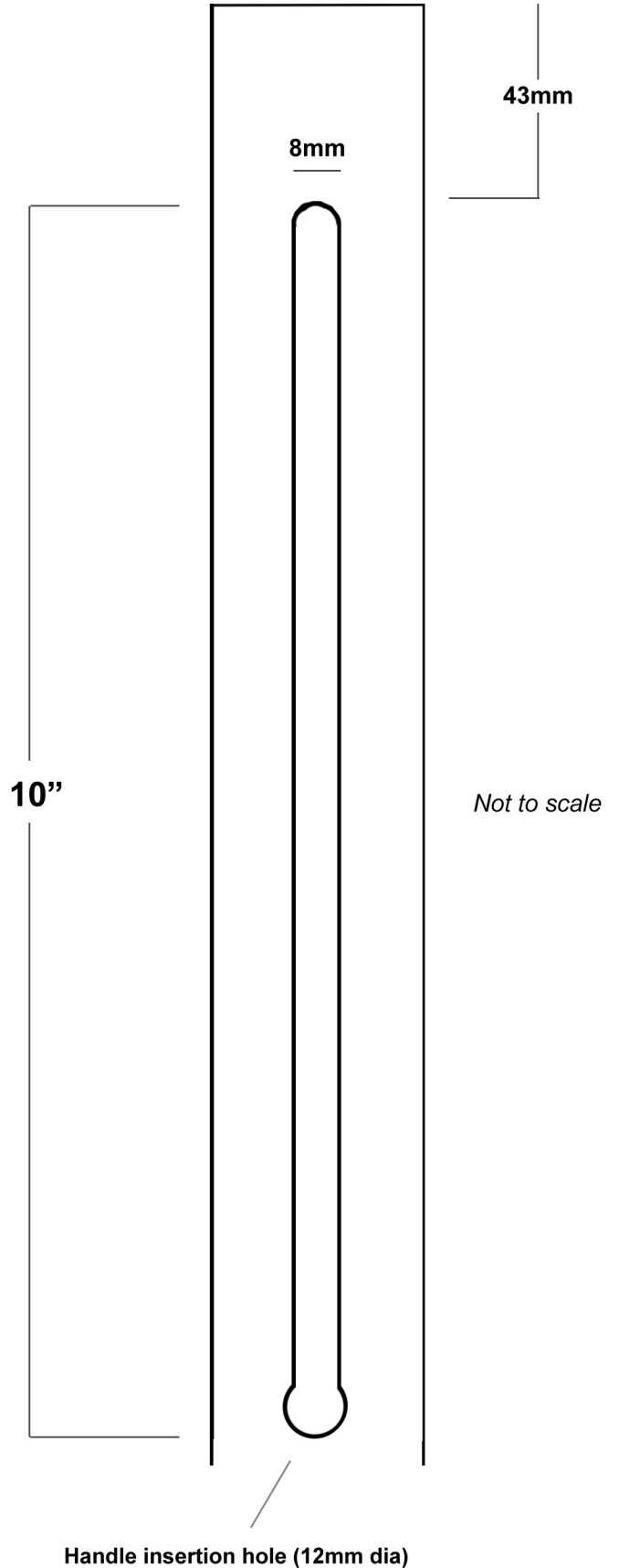
View through front



10mm steel round bar



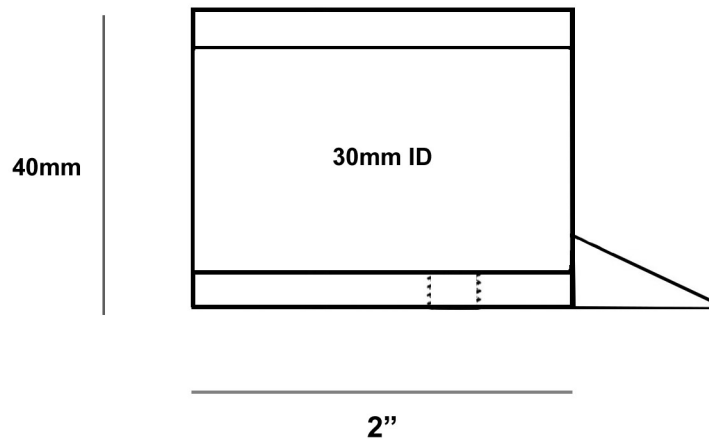
Use a thin hand file to create two parallel slots to enable retention and free operation along charging handle slot.



Handle insertion hole (12mm dia)

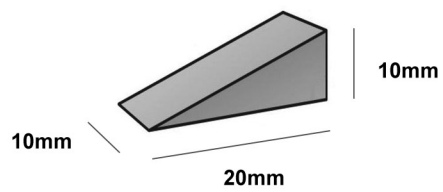
Barrel collar

40mm x 5mm thick wall steel tube



Feed ramp

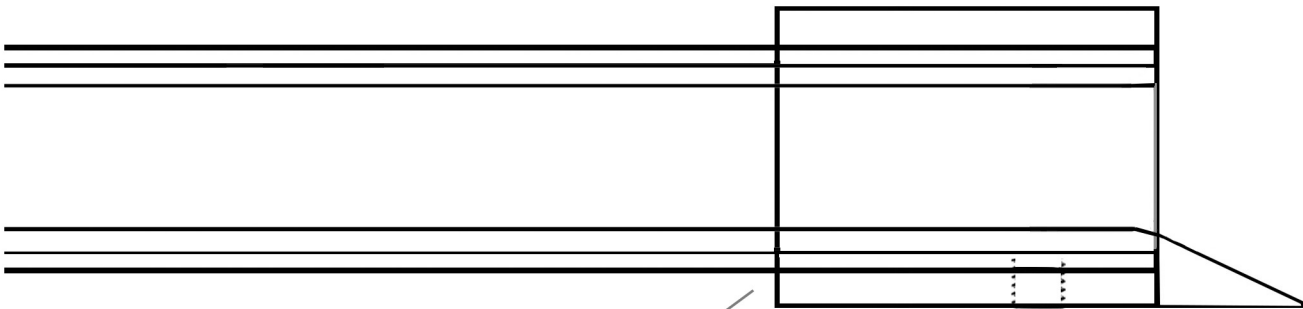
Cut from 10mm thick steel plate. Weld in place.



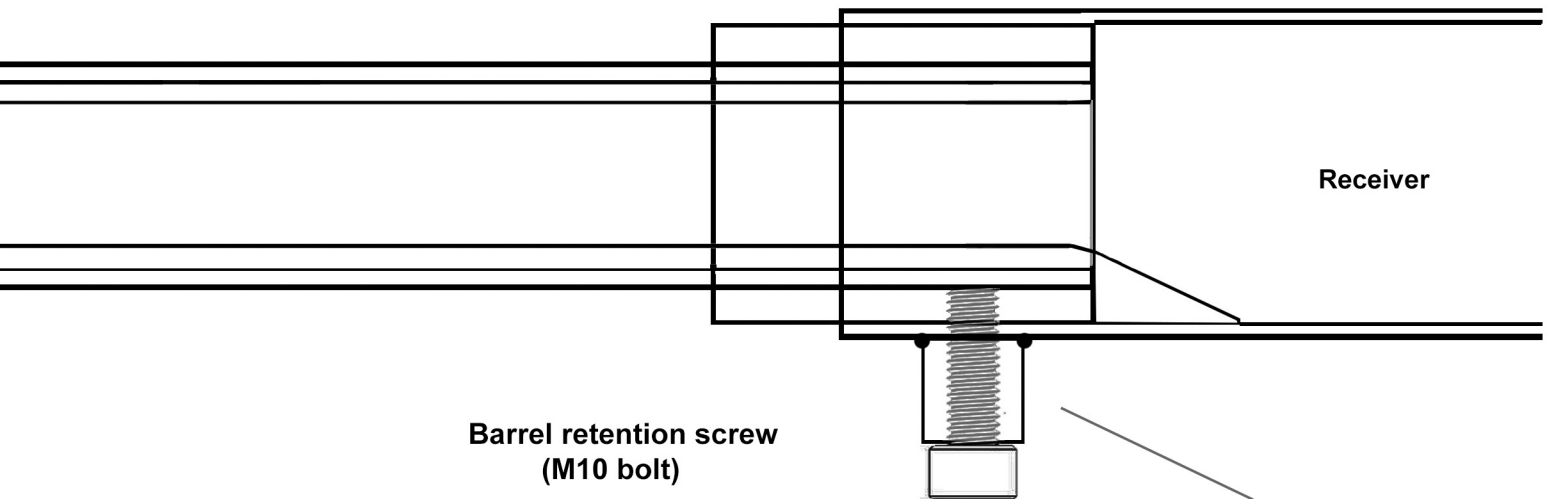
Barrel

The barrel is made from two lengths of seamless steel tubing sleeved together for maximum strength and to enable retention in the barrel collar. The inner barrel is a 18" length of 25mm x 3mm tube (3/4" ID, 1" OD) and is sleeved into a 8 3/4" length of 30mm x 2mm tube (3/4" ID).

18"



Weld around circumference



Receiver

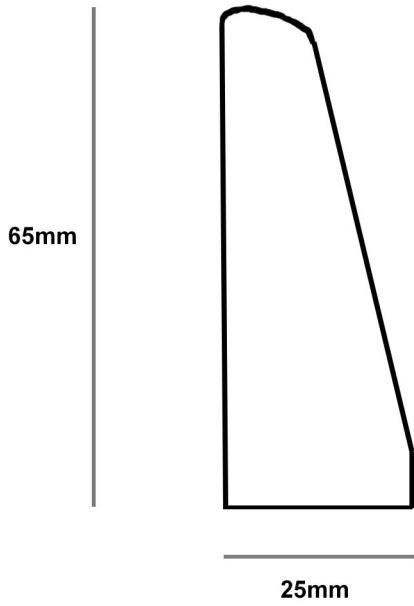
Barrel retention screw
(M10 bolt)

Weld in place a studding
connector or nut

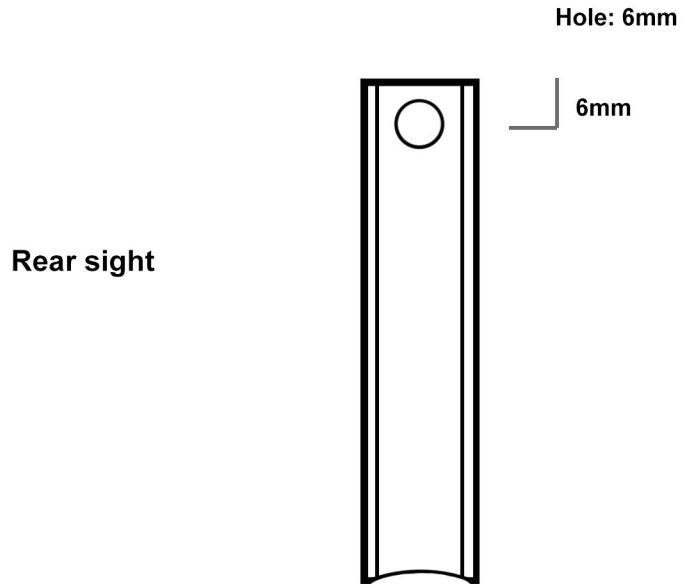
Sights

Modify from 15mm x 30mm steel rectangular box tubing

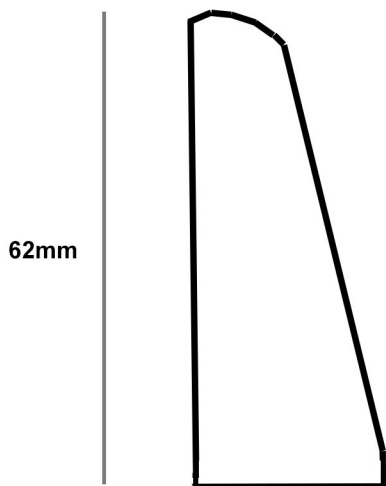
Side



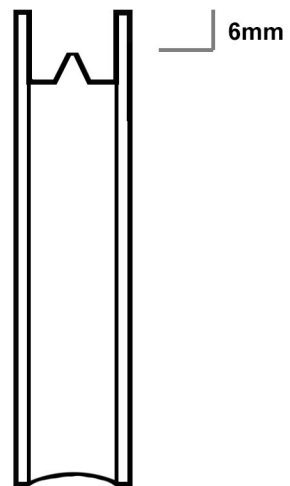
Rear



Use a small hand file to form triangular bead from tubing wall



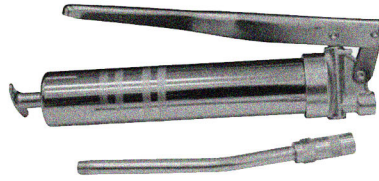
Rear sight



Weld front sight onto a steel collar (1" length of 30mm x 2mm steel tube)

Recoil spring

Two compression springs taken from a grease applicator gun may be used to create the extra long recoil spring required. Each will contain a heavy duty large dia compression spring suitable for use in this design.



6.5"



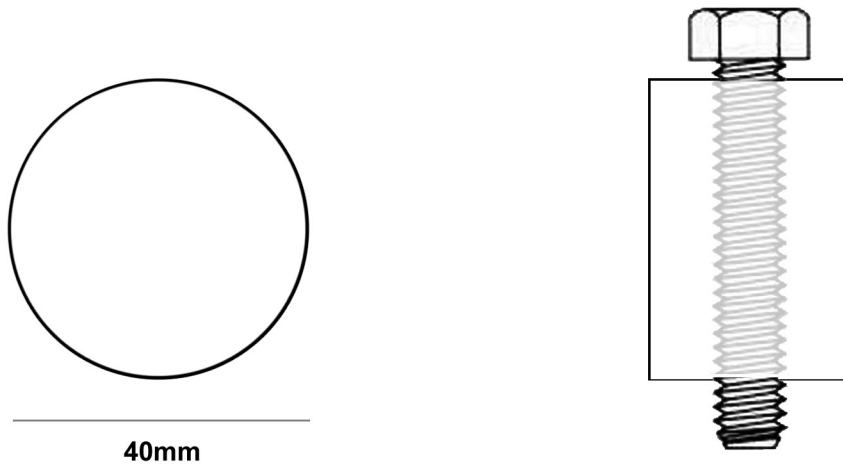
13" free length overall



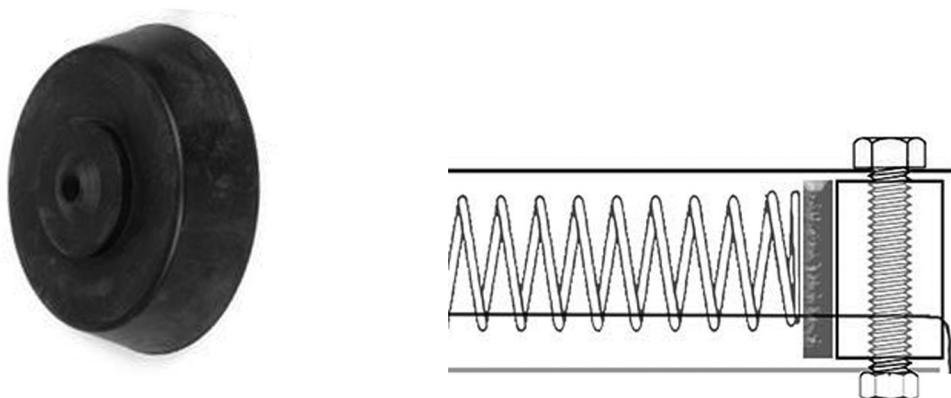
1.5" dia steel washer

Rear plug

1" length of 40mm dia round bar or 40mm x 5mm tubing. Drill an 8mm dia hole through both the end of the receiver tube and plug to accept a 2" long m8 bolt.



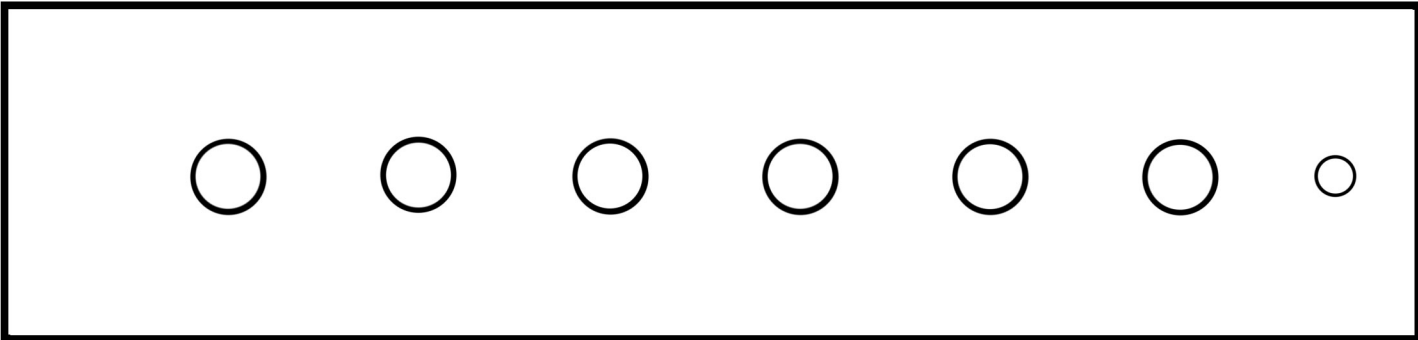
Aside from a suitable compression spring, the grease applicator gun will also contain a thick rubber plunger seal which will work nicely as a recoil buffer pad.



Barrel shroud

45mm x 2mm steel or aluminum tube (40mm ID). Retain using four m6 bolts drilled and tapped into barrel collar extension.

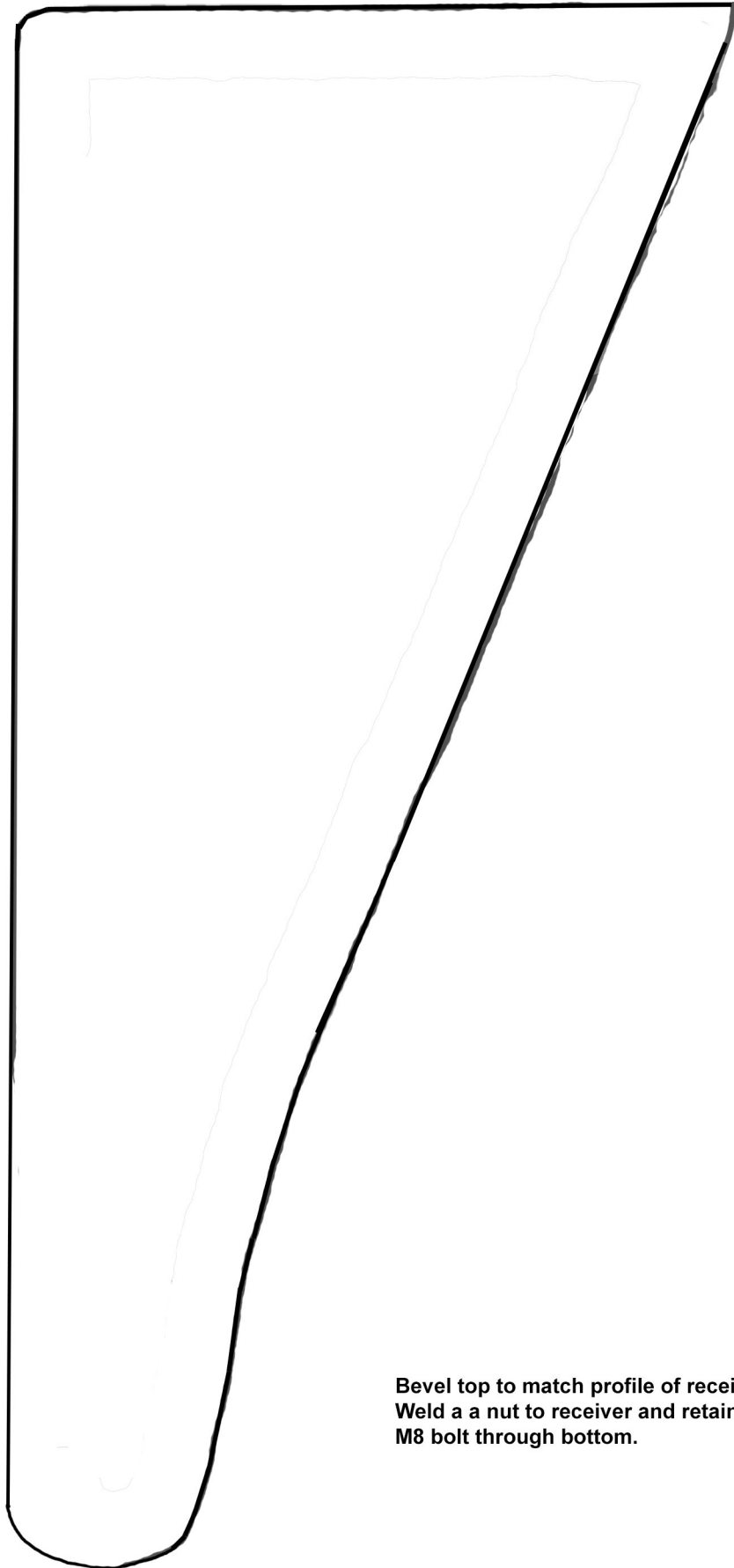
188mm



Six 10mm dia holes drilled through both top and bottom, each spaced 1" apart.

Stock

1.5" thick hardwood or plastic



Bevel top to match profile of receiver tube.
Weld a a nut to receiver and retain stock with
M8 bolt through bottom.

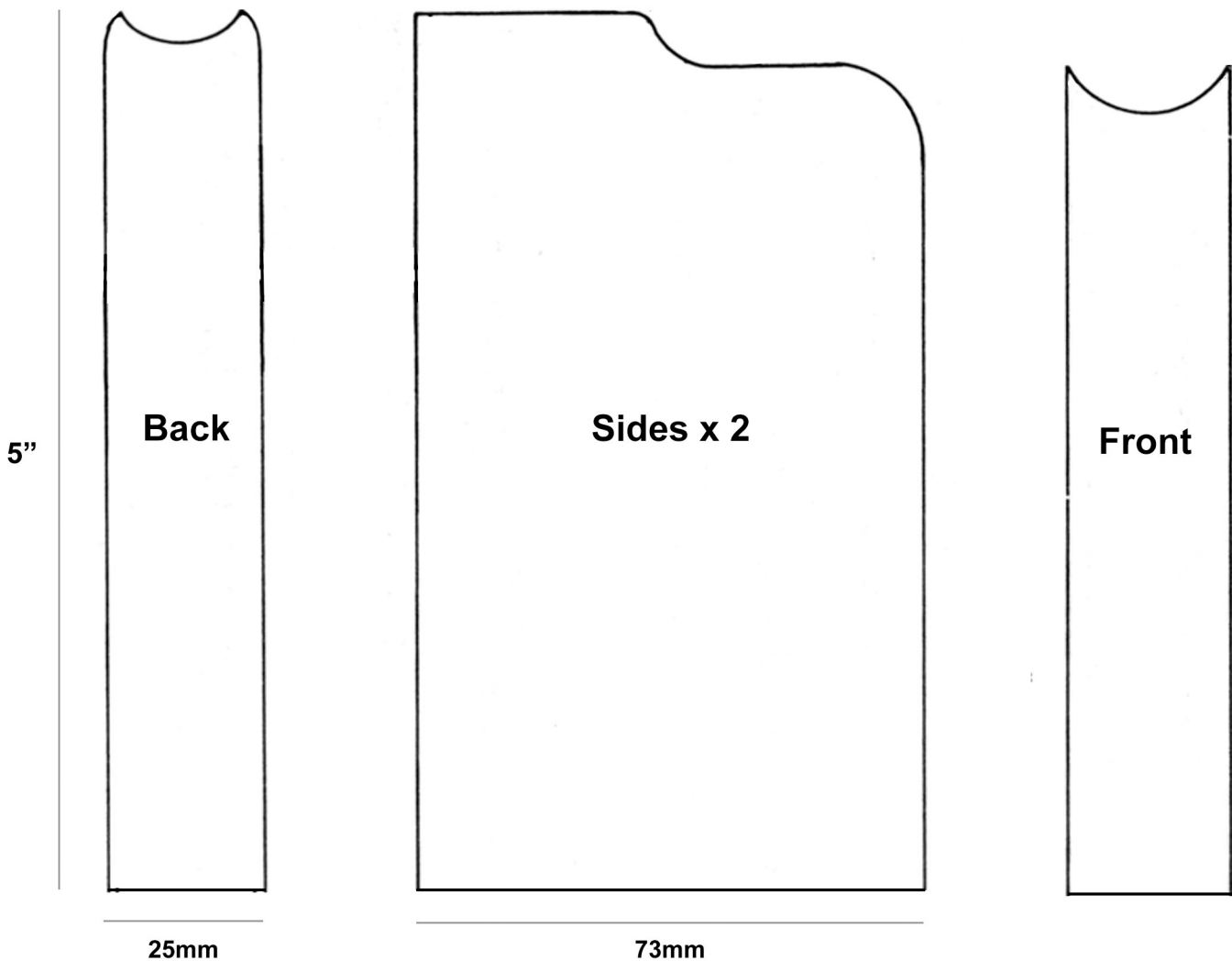
Print on A4 paper

2 inches

5 round magazine (Body)

Weld or braze together from 4 pieces of 20 gauge (1mm thick) mild steel sheet.

(Alternatively fold from a single sheet)



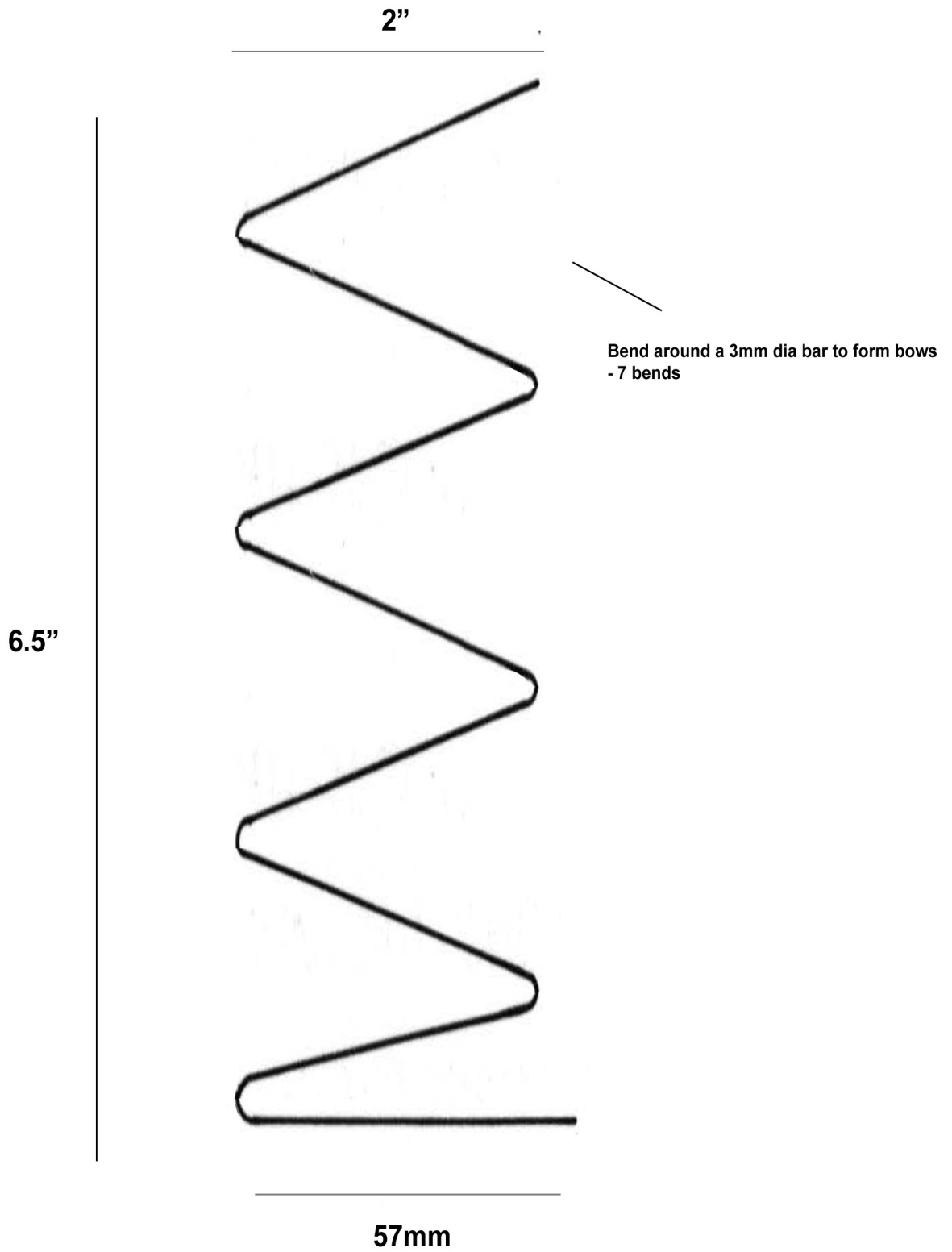
Can also be made by modifying a length of 1" x 2.5" or 1" x 3" rectangular steel or aluminum box section tubing with a wall thickness of 1.5mm. Alternatively FAL, SLR, BAR or G3 magazines may be modified to accept and feed 12 gauge shells.

Print on A4 paper

2 inches

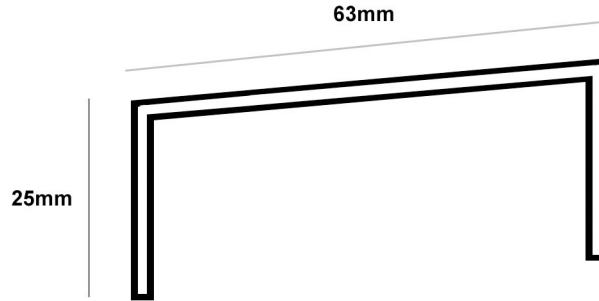
5 round magazine spring

Form from .025 flat spring steel strip, 3/4" wide

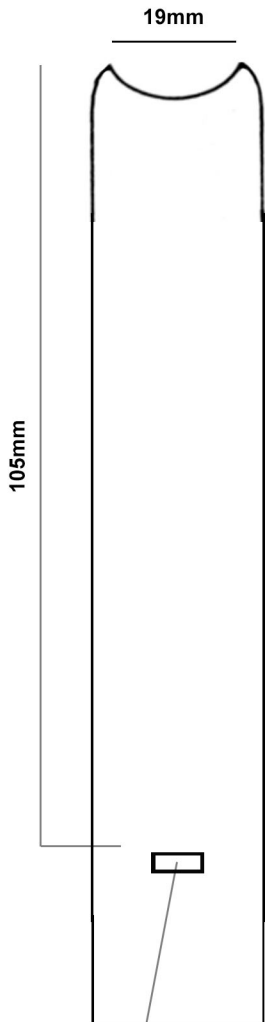


Magazine follower & assembly

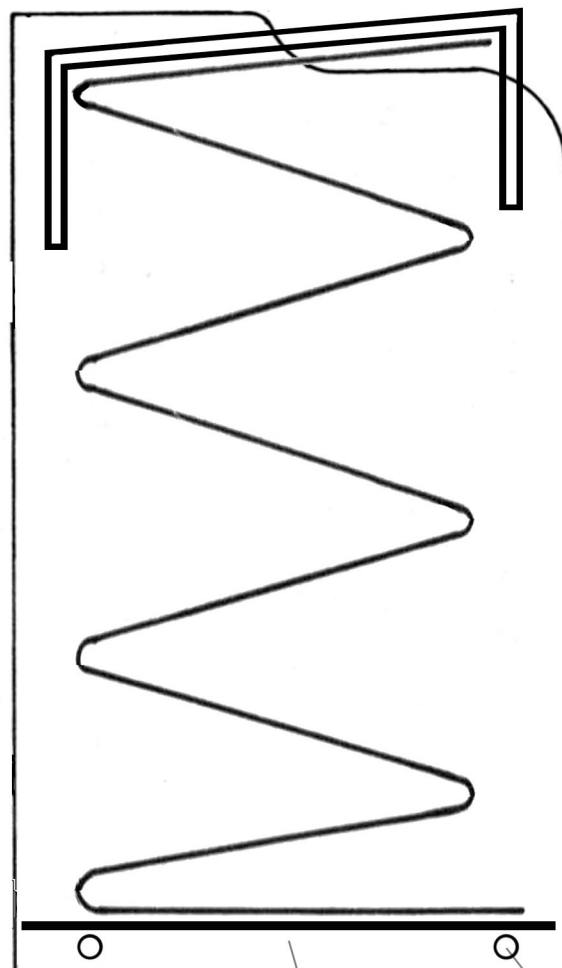
Bend from 3mm thick, 20mm wide steel strip



Bend lips inwards



Cut a slot using a 4mm drill bit + needle file



Braze in place a 25mm x 20mm piece of 3mm thick plate

25mm

45mm

3/4" wide steel strip

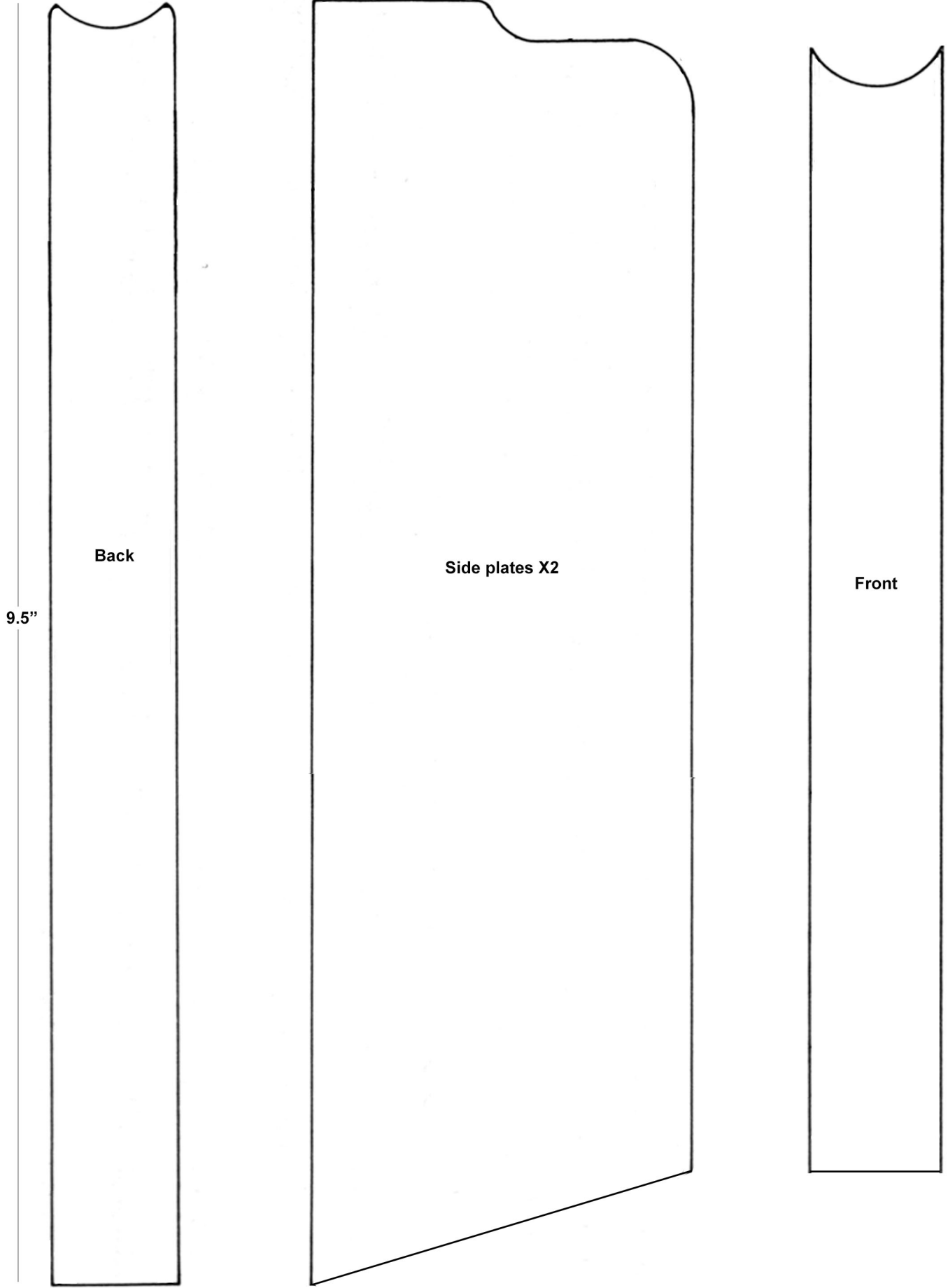
X2 4mm steel pins

Print on A4 paper

2 inches

10 round magazine (Body)

Weld together from 4 pieces



9.5"

Back

Side plates X2

Front

23mm

73mm

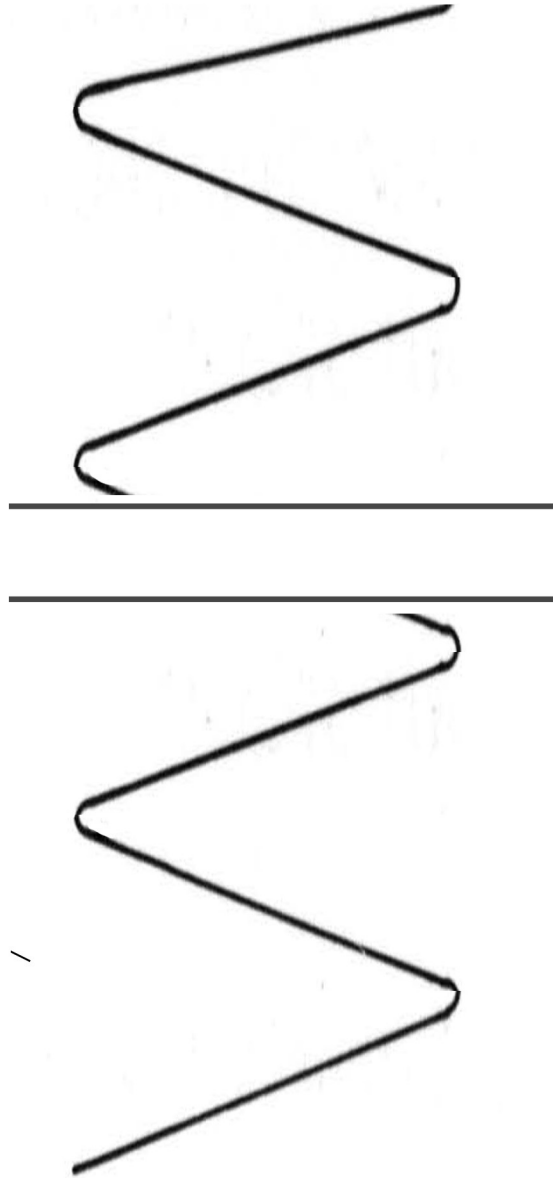
Print on A4 paper

2 inches

10 round magazine spring

Form from .025 flat spring steel strip, 3/4" wide

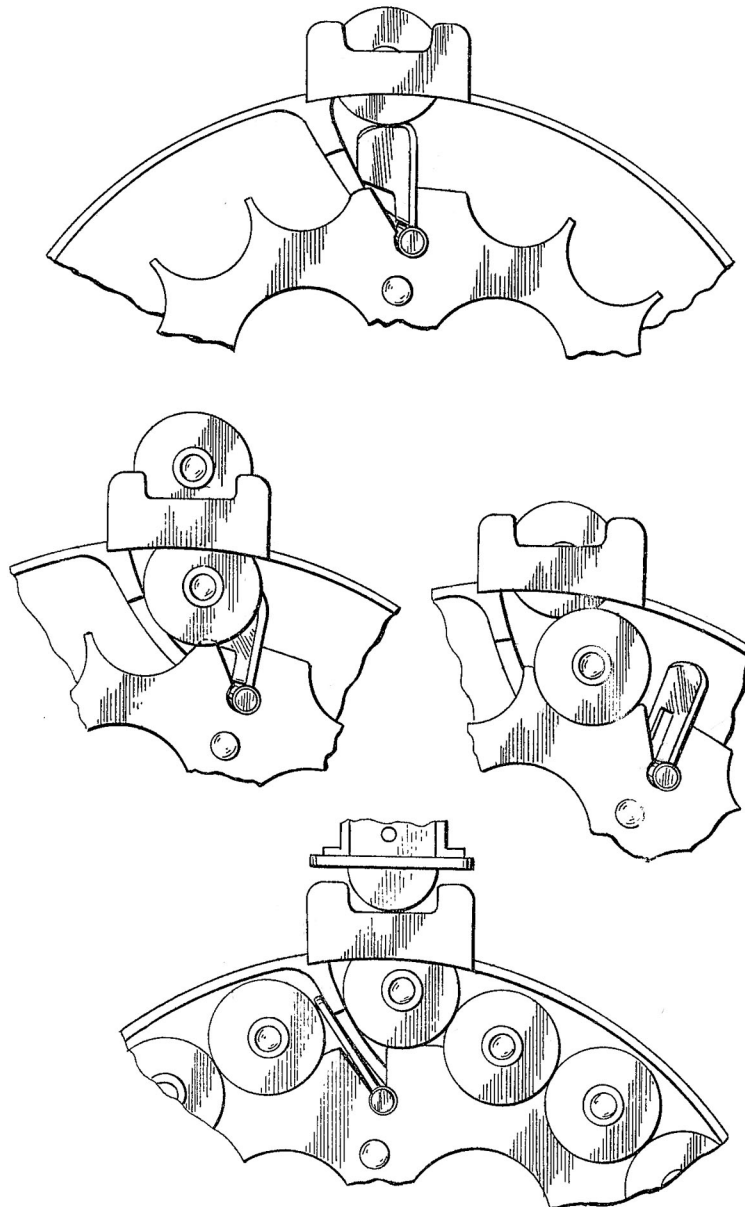
12" long

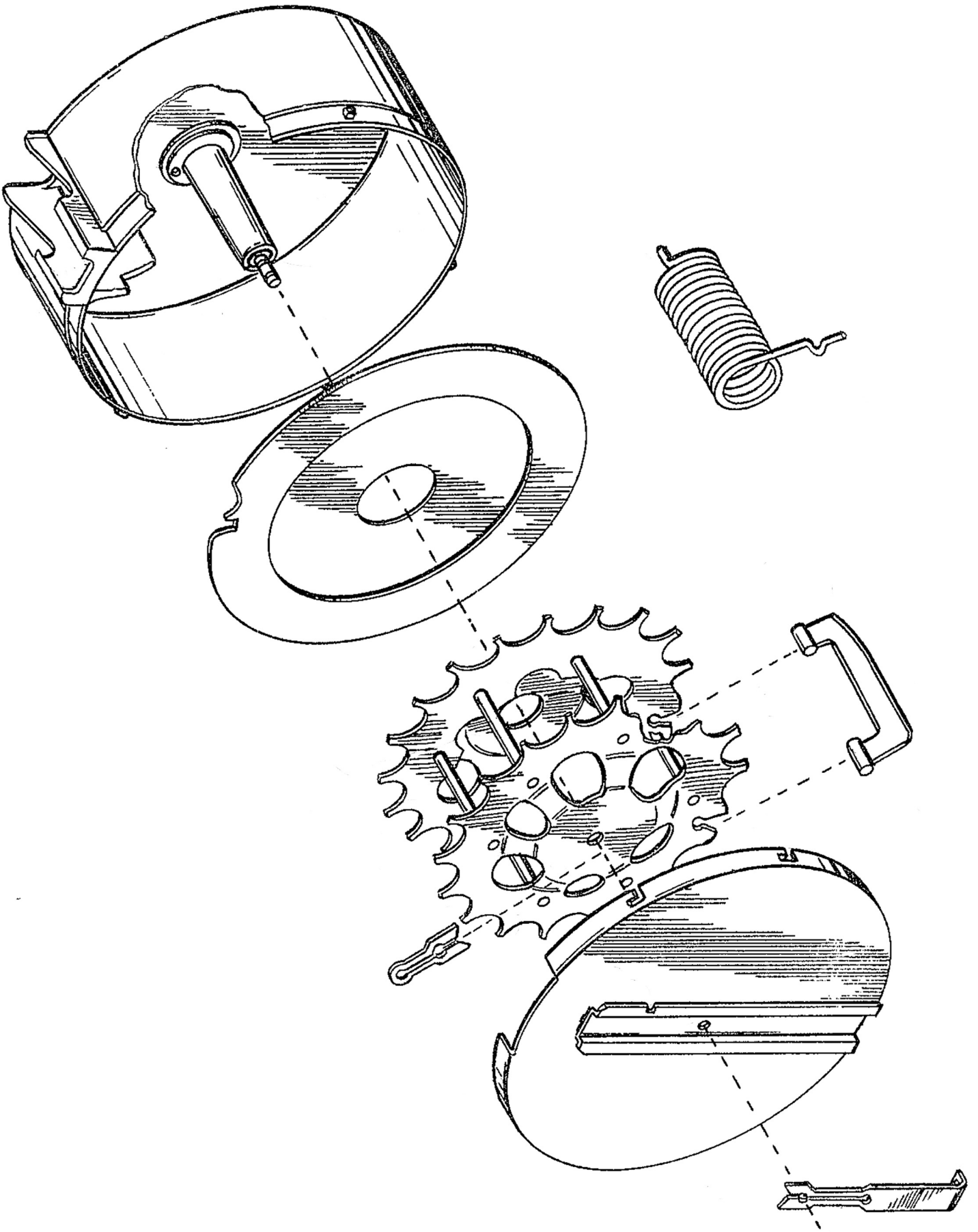


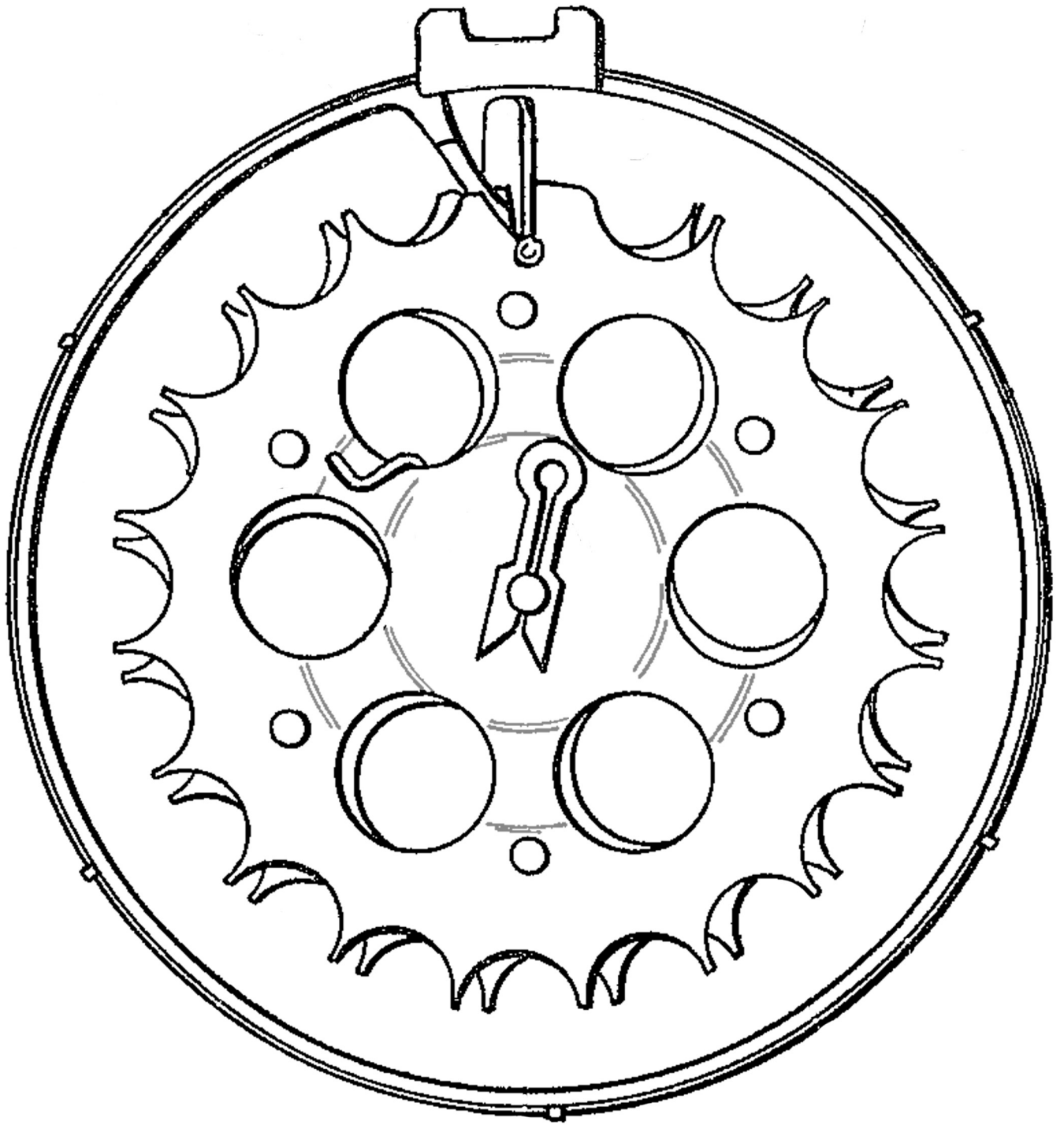
20 Round Drum Magazine

Differing from a conventional drum magazine, Atchisson's design features a torsion spring to power the magazine sprockets, instead of a more common flat, clock-type spring more typically seen. The drum housing is a flat cylindrical can with a cover attached by four studs captured in offset grooves. A set of feed lips is located on top of the drum. The left lip has a cam plate attached at an angle to cam a shell from the sprocket plates into the feed lips each time the lips are uncovered by the bolt. Internally the magazine contains twin sprocket plates with semi-circular recesses cut into their peripheries to accept twenty shells, each shell recess being slightly offset to position a round so that the cam plate can locate it properly in the feed lips. The sprocket plates are joined by several rods to form a skeleton-type sprocket cage. The Spiral torsion spring is located in the center of the cage around a shaft, with one spring leg anchored to the magazine body, while the other powers the sprocket cage. A plastic circular filler plate matching the internal diameter and located in the front of the drum can be added or removed to allow for the feeding of different lengths of shell. When fully loaded, the drum weighs around 4.7 pounds (2.1kg). Consequently a magazine support bracket was attached to the frame and pistol grip to eliminate alignment issues which may be experienced during periods of extended firing.

The following drawings adapted from the original patent have been scaled to size allowing measurements to be taken and a basic copy constructed. Like the original prototype, certain features may be simplified. for example the sprocket plates may be cut from flat steel and the torsion spring modified. Alternatively a model can be made in a CAD program afterwhich a 3D printer may be used to create many of the components from plastic.





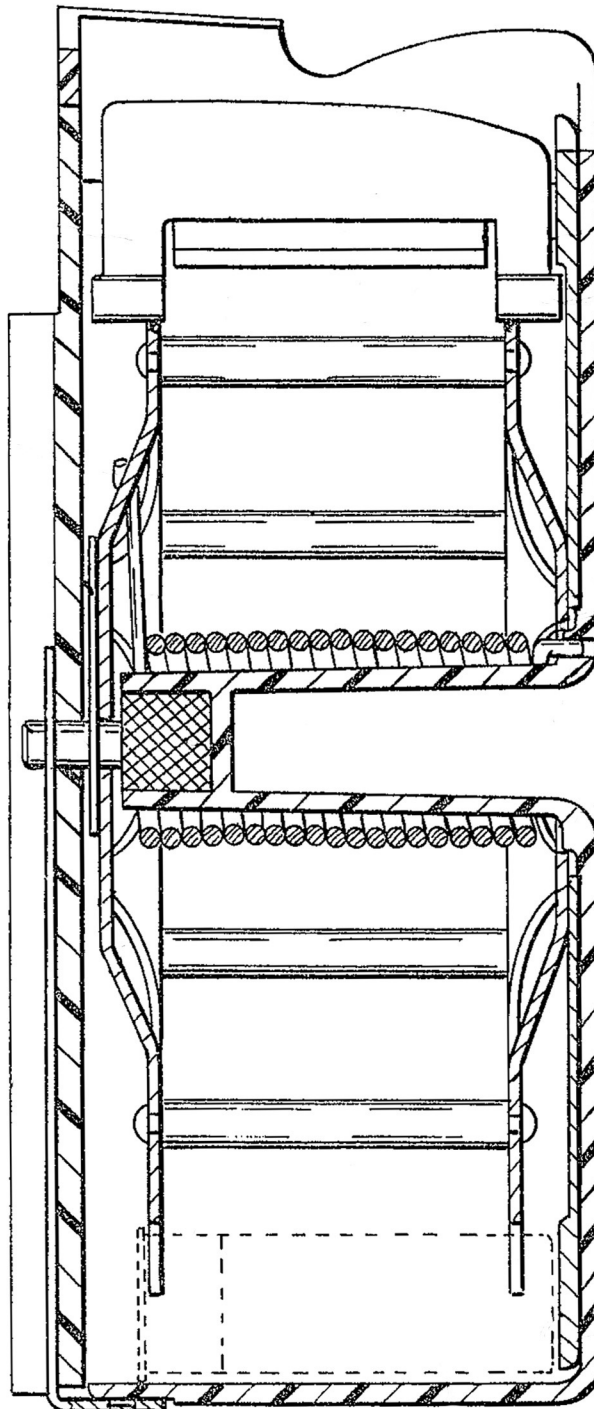


Internal diameter: 6.5"

Print on A4 paper

2 inches

20 round drum magazine (Side view)

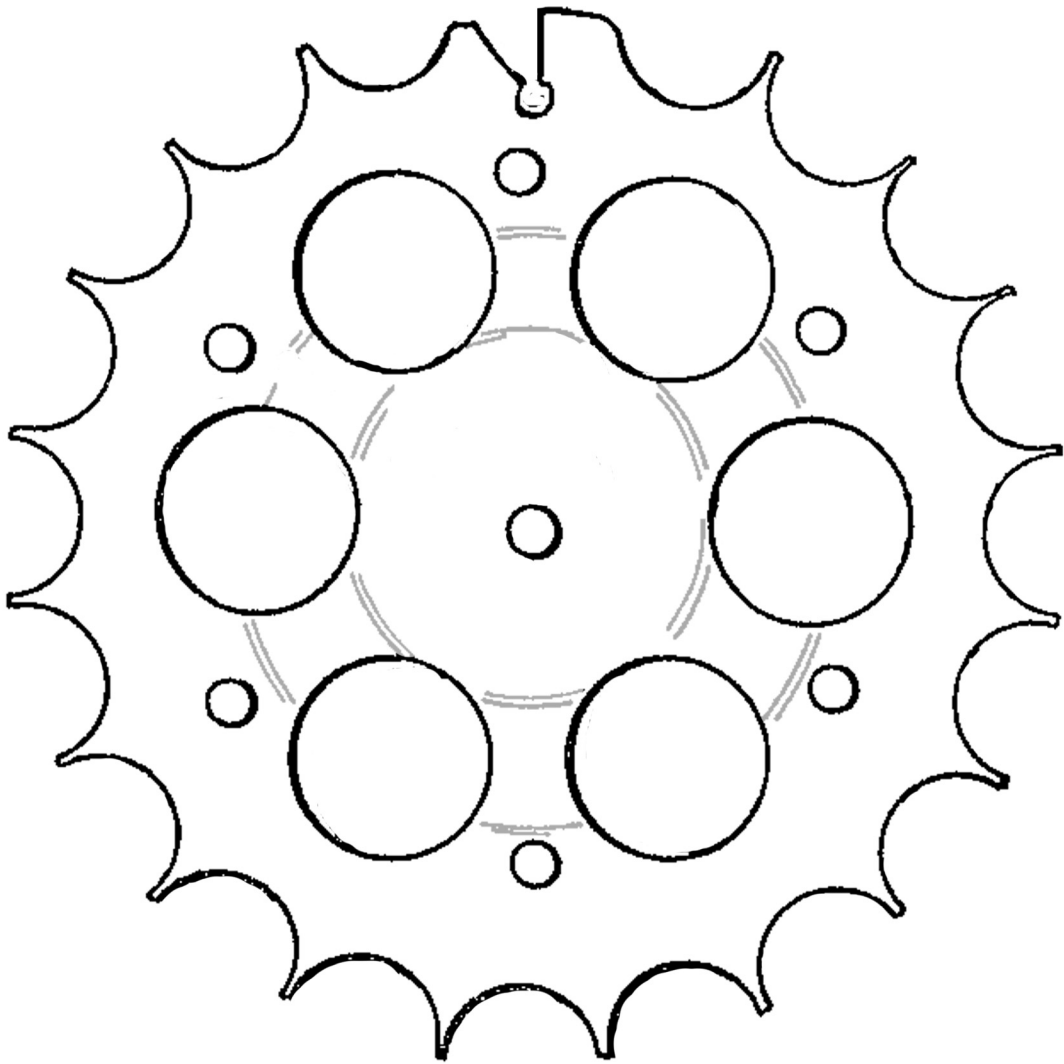


Print on A4 paper

2 inches

Sprocket plates

x2



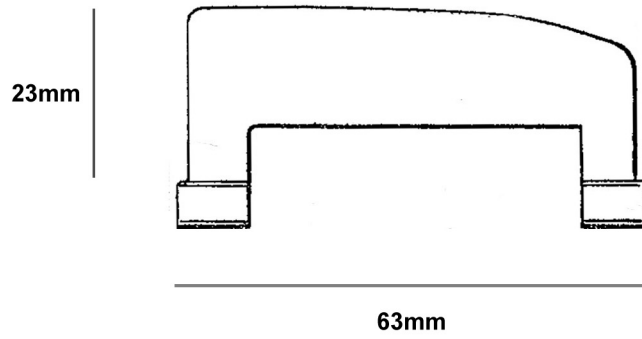
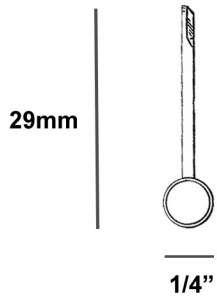
Print on A4 paper

2 inches

5.5" diameter

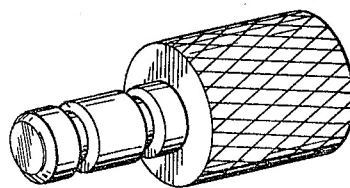
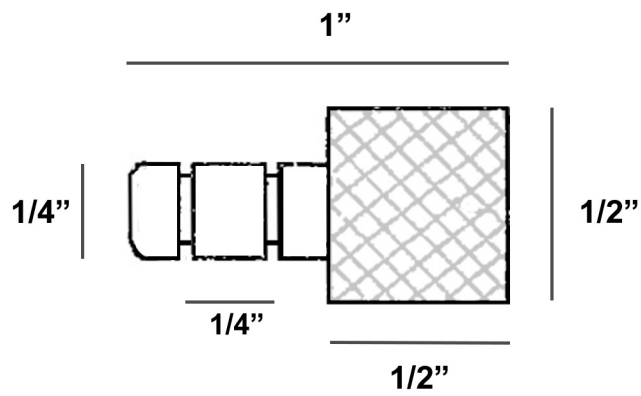
Follower

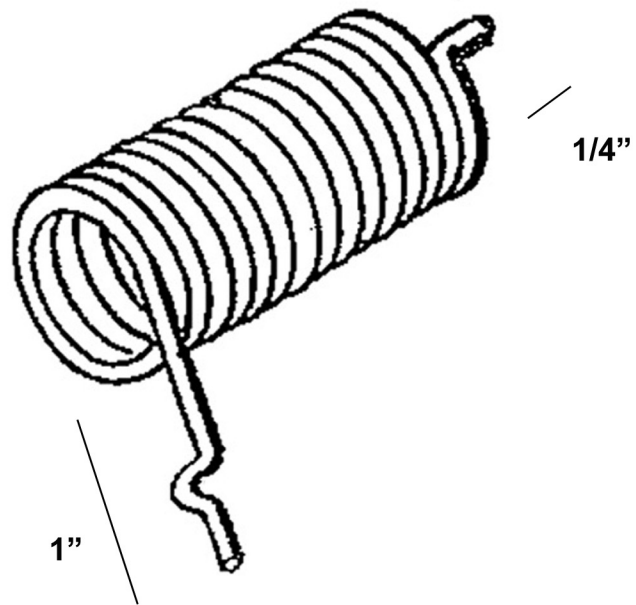
To scale



Sprocket axel

Not to scale

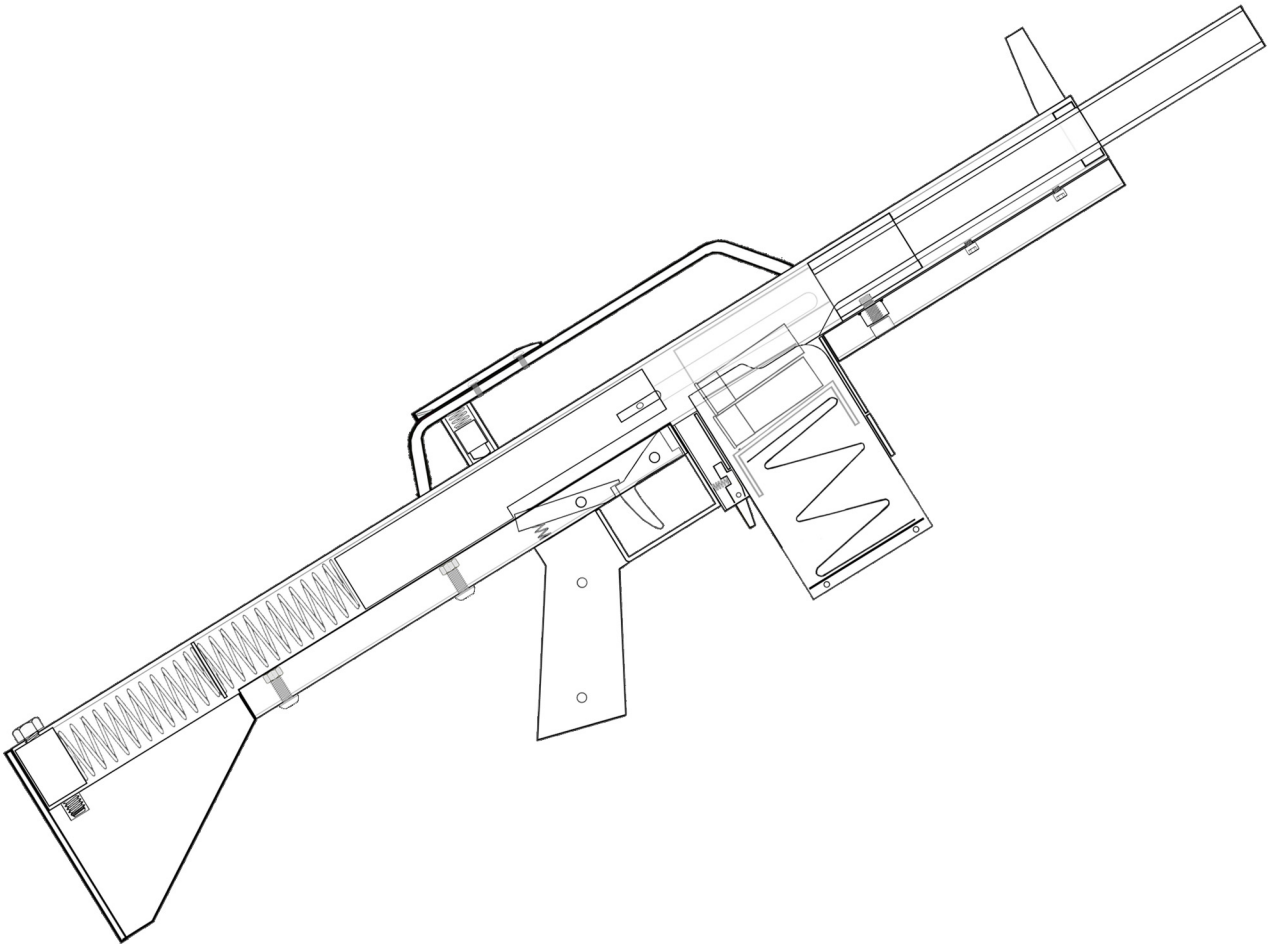




Torsion spring

Left hand wind
15 active coils
Body length: 55mm
0.102 / 10 gauge wire

Open-Bolt Automatic Shotgun MK-2



Materials:

Receiver tube: 40mm x 2mm wall mild steel round tube, 657mm long.

Bolt: 35mm (1 3/8") dia mild steel bar, 7.5" long.

Barrel collar: 35mm x 5mm wall steel tube.

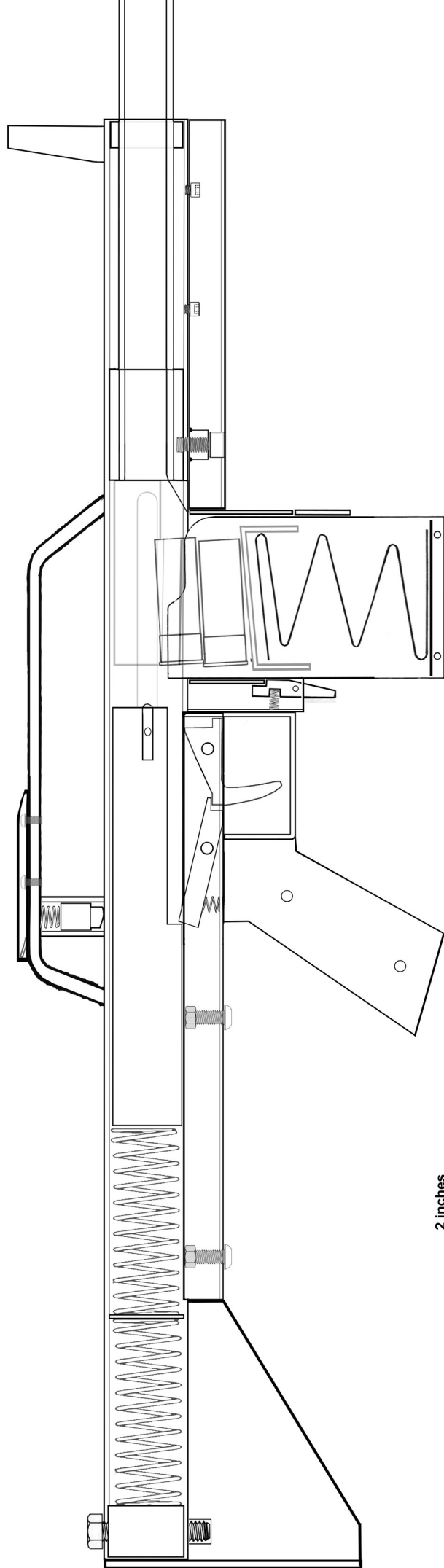
Feed ramp: 10mm thick steel.

Barrel: 25mm (1") OD x 3mm (3/4" ID) steel tube, 11" to 19" long.

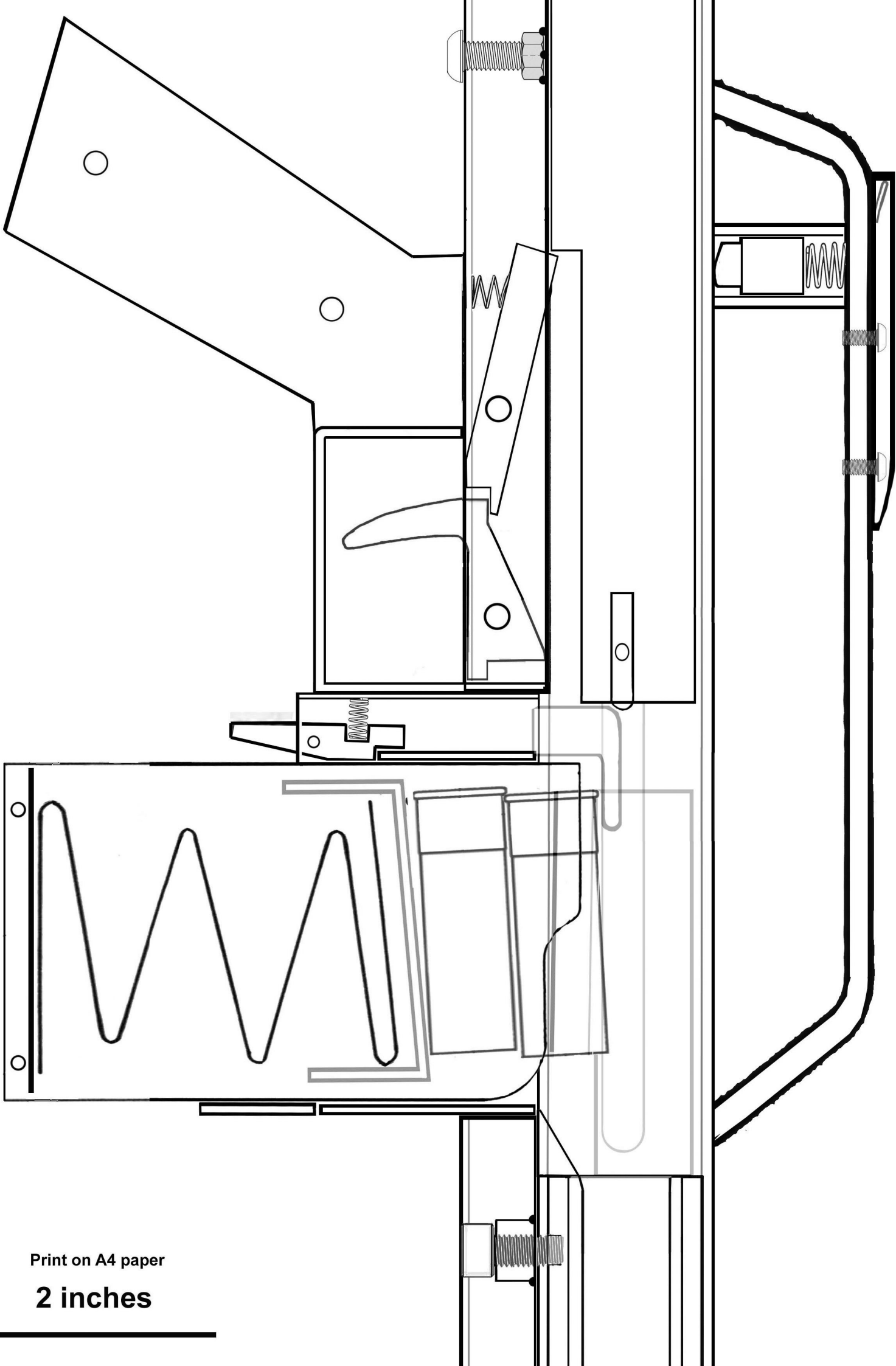
Trigger group: 10mm steel plate.

Recoil spring: x2 grease gun applicator springs.

Magazine: Bent from 20 gauge (1mm) steel sheet. Alternatively modified from FAL, G3, BAR mags or adapted to accept Saiga-12 mags.



2 inches



Print on A4 paper

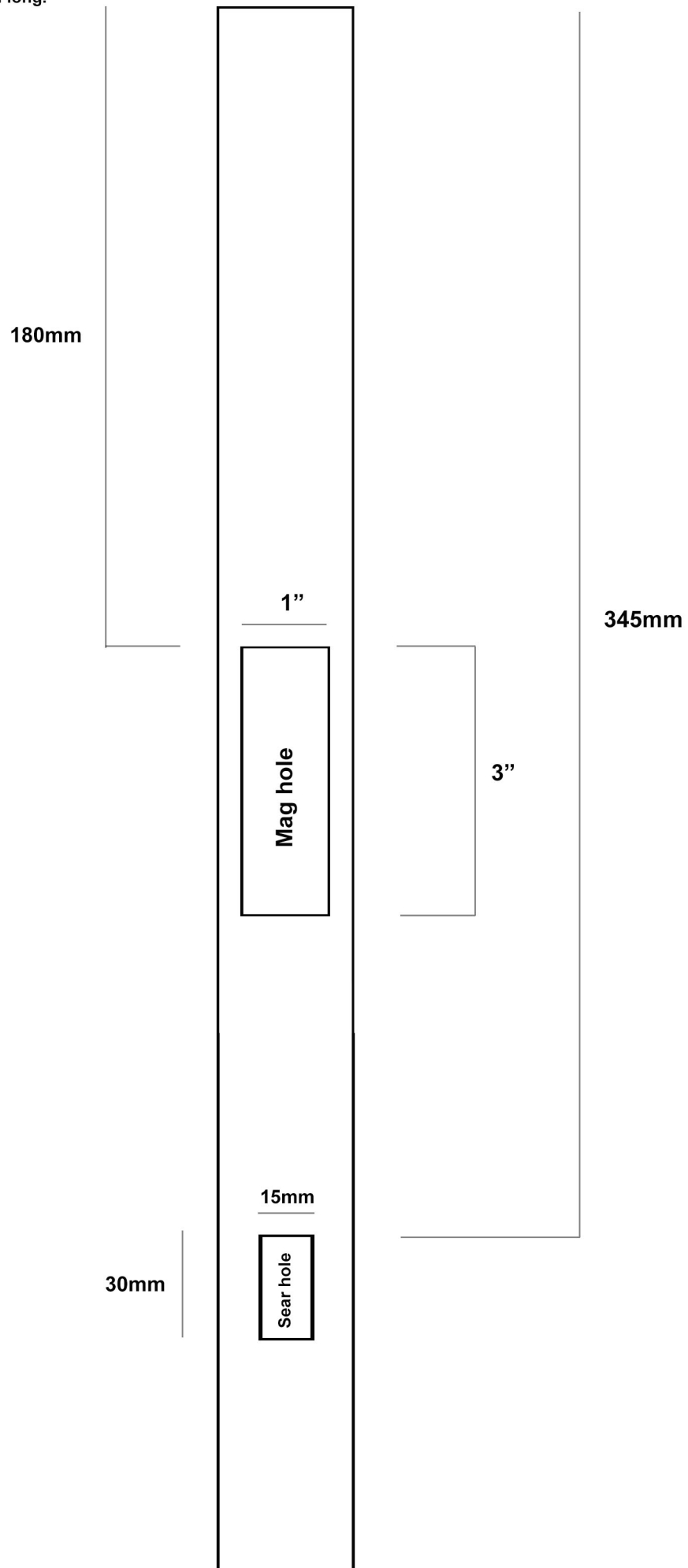
2 inches



Receiver

(Bottom - Front End)

40mm diameter mild steel round tube
with a 2mm wall thickness. 657mm long.



Right side

Left side

6.5"

170mm

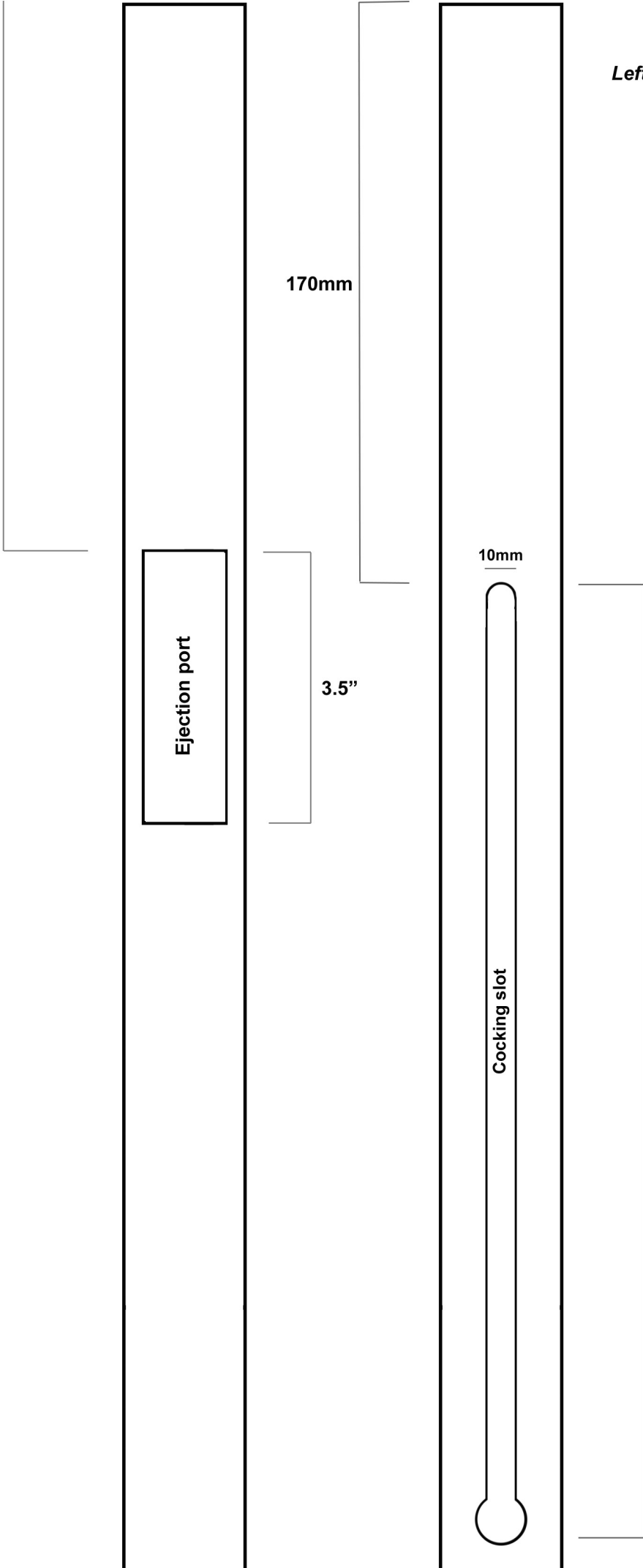
Ejection port

3.5"

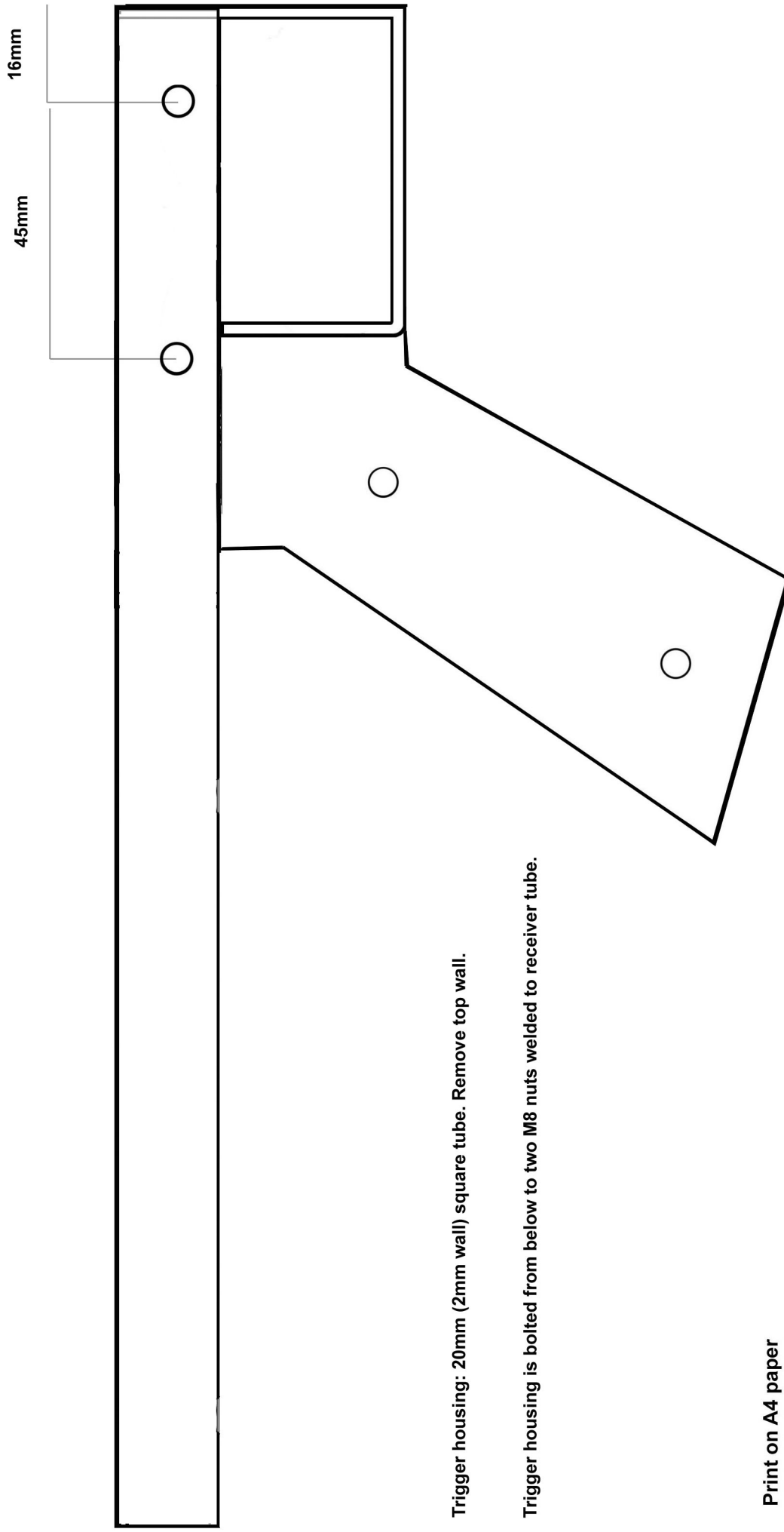
10mm

Cocking slot

11"



10.5"



Trigger housing: 20mm (2mm wall) square tube. Remove top wall.

Trigger housing is bolted from below to two M8 nuts welded to receiver tube.

Print on A4 paper

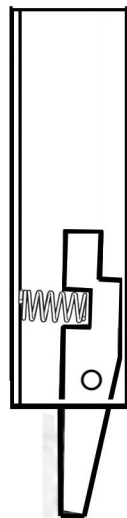
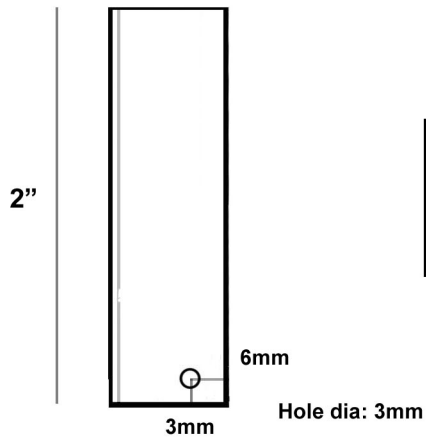
2 inches

Magazine catch

15mm steel or aluminium plate

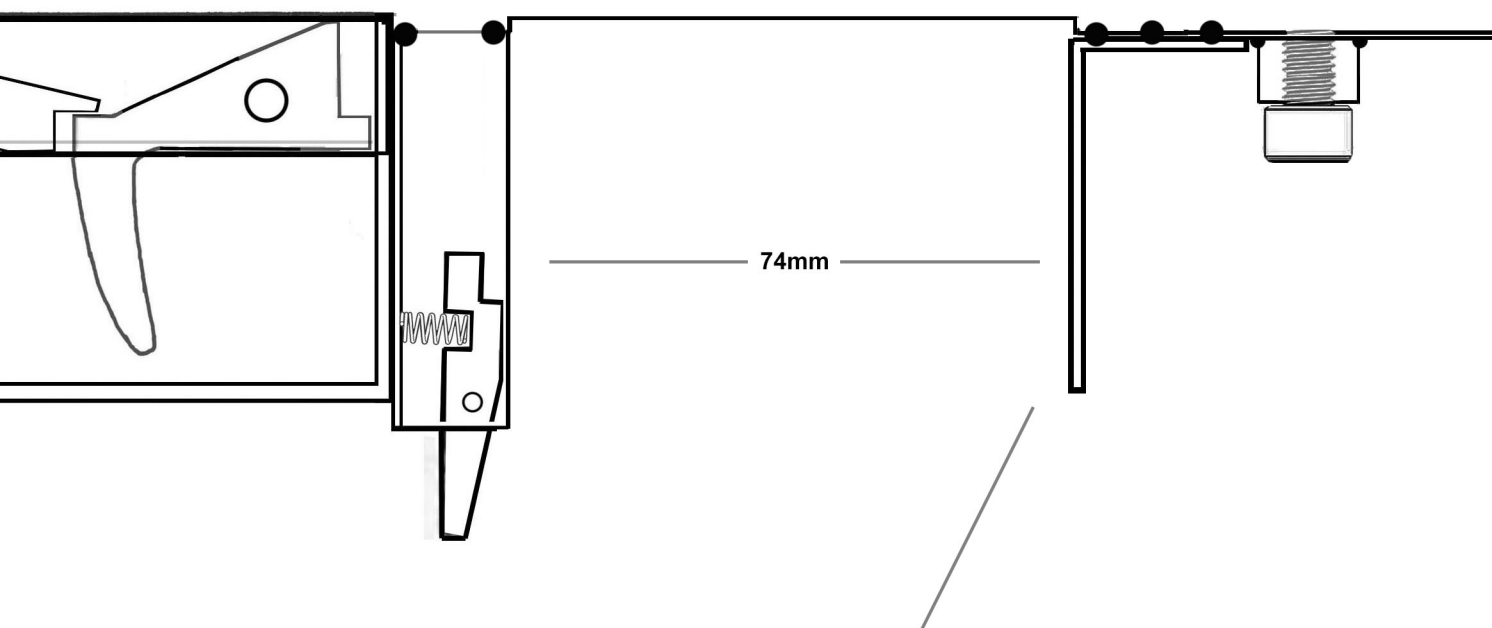
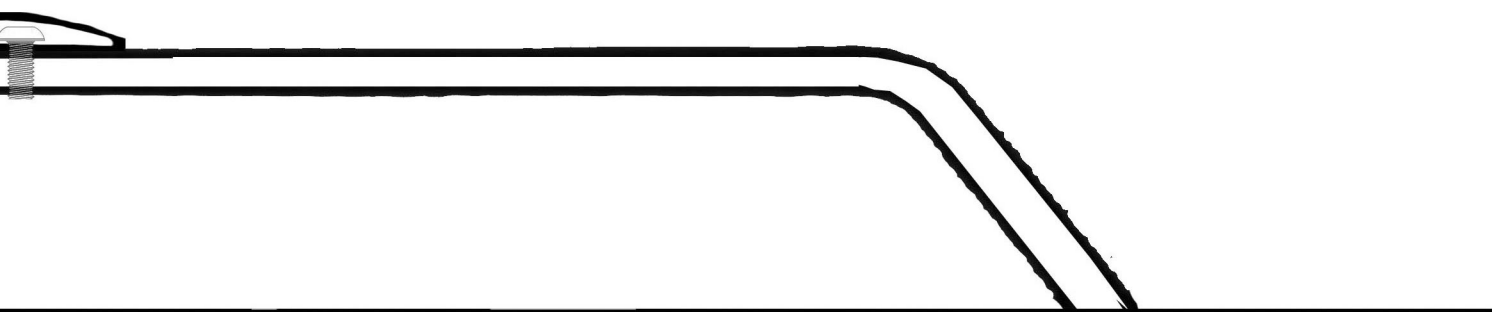


Catch housing: 20mm square tubing



Print on A4 paper

2 inches



Front support bracket (3mm thick, 25mm wide steel strap, 60mm long)

Weld in place.

Print on A4 paper

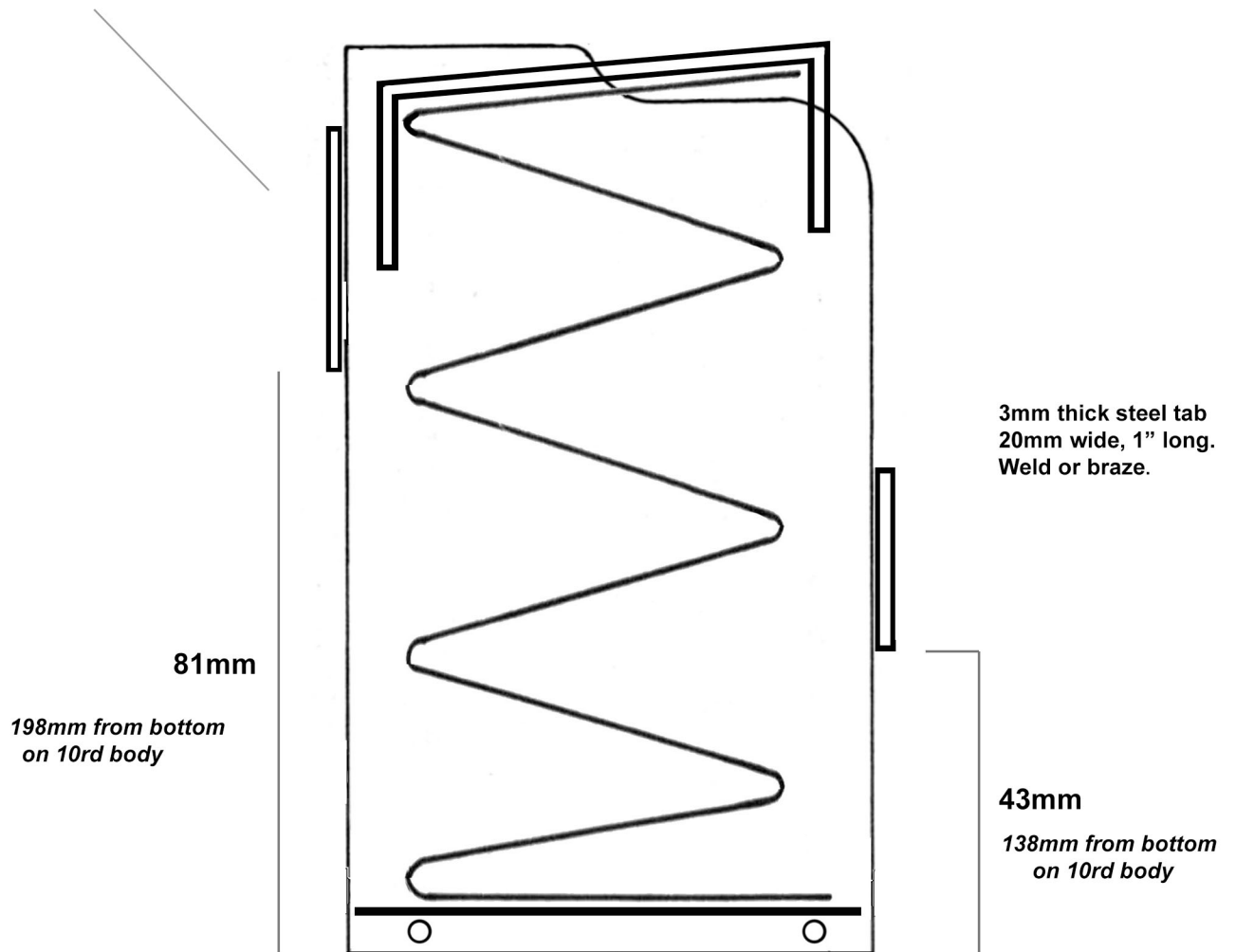
2 inches



Magazine

Uses a slightly modified version of the MK1 5rd & 10rd magazine.

3mm thick steel tab (Slots into mag latch housing).
16mm wide, 34mm long. Weld or braze.

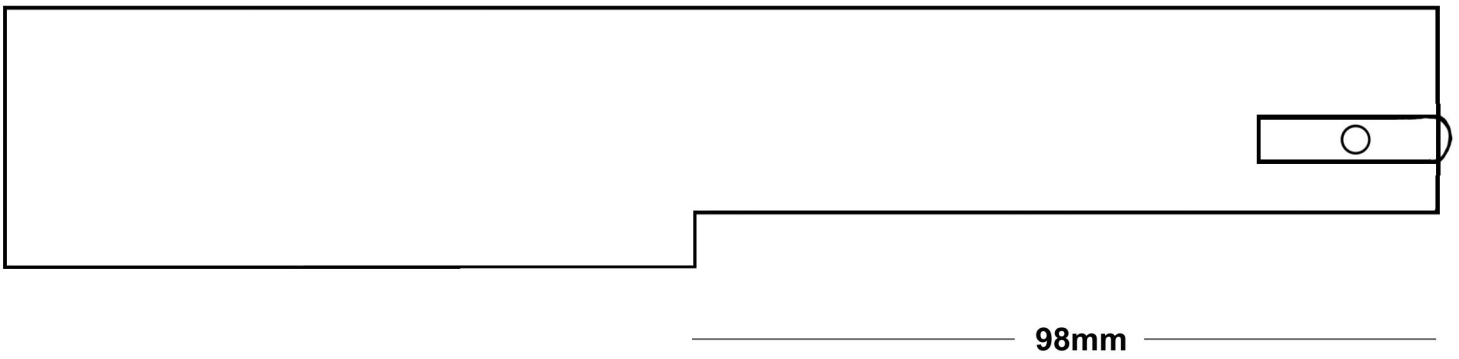
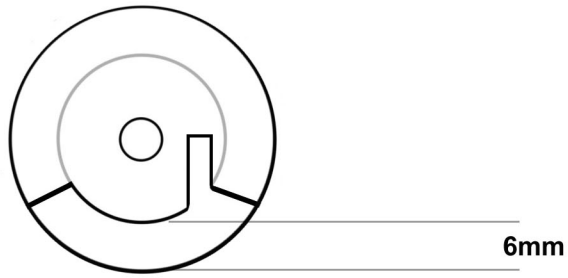


Print on A4 paper

2 inches

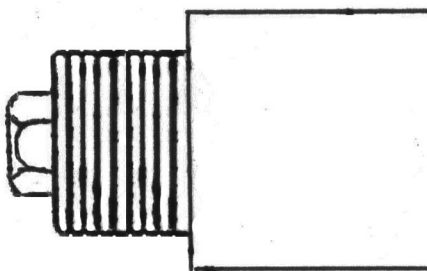
Bolt

35mm mild steel round bar, 7.5" long



Firing pin

6mm (1/4") dia steel bar, 1" long. Secure with grub screw.

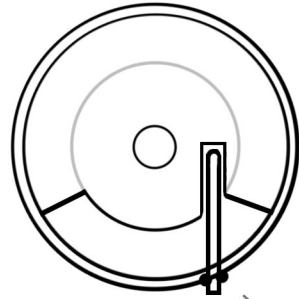
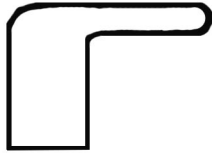


Additional weight can be added to the back of the bolt through the use of a stack of steel washers retained via a long M8 bolt.

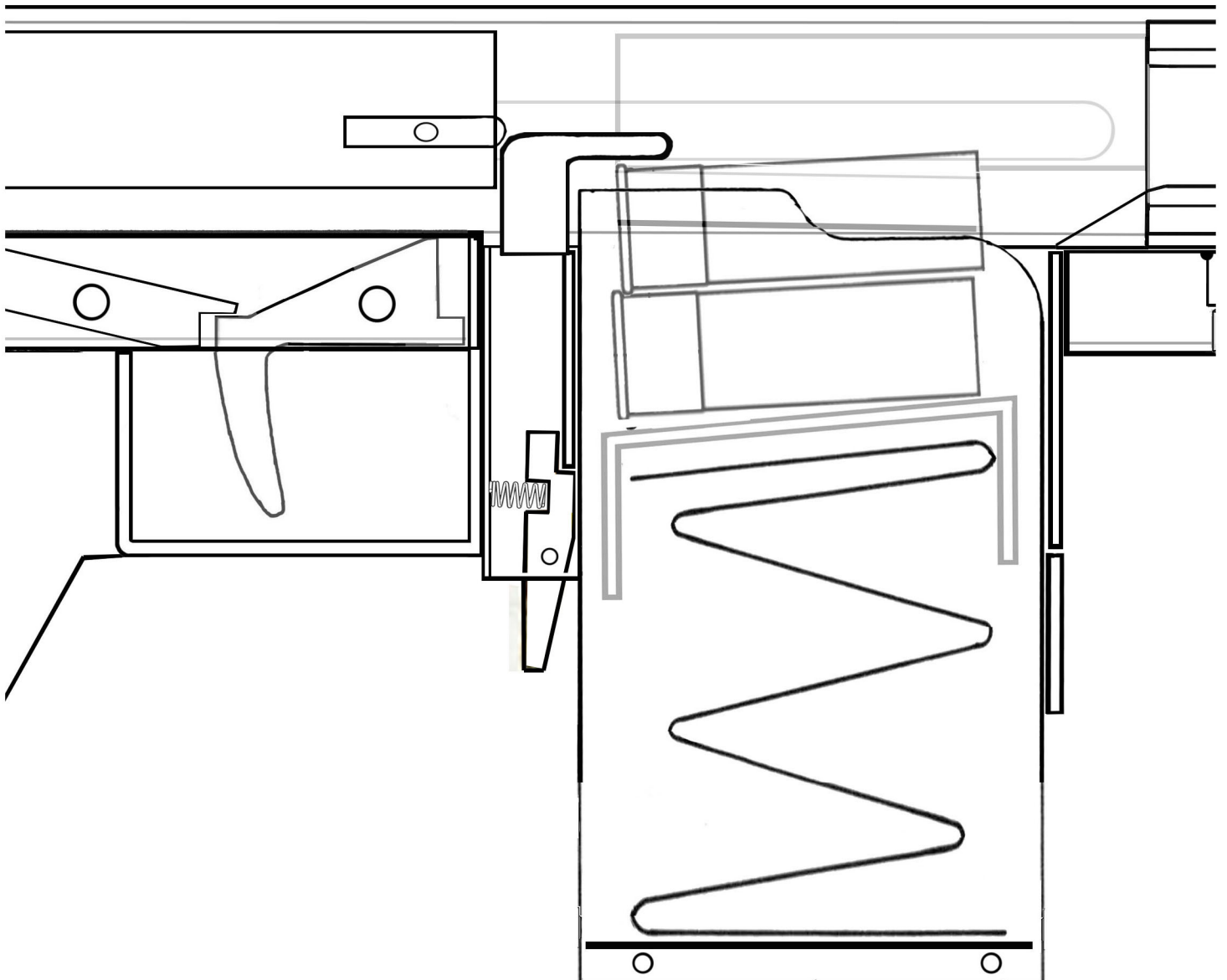
Ejector

3mm steel plate. Harden.

Template

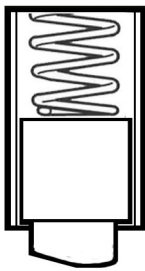
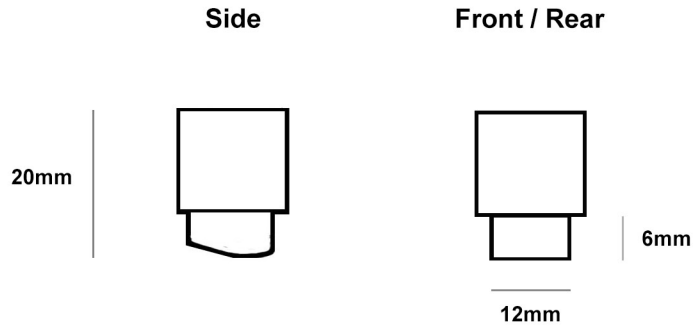


Weld

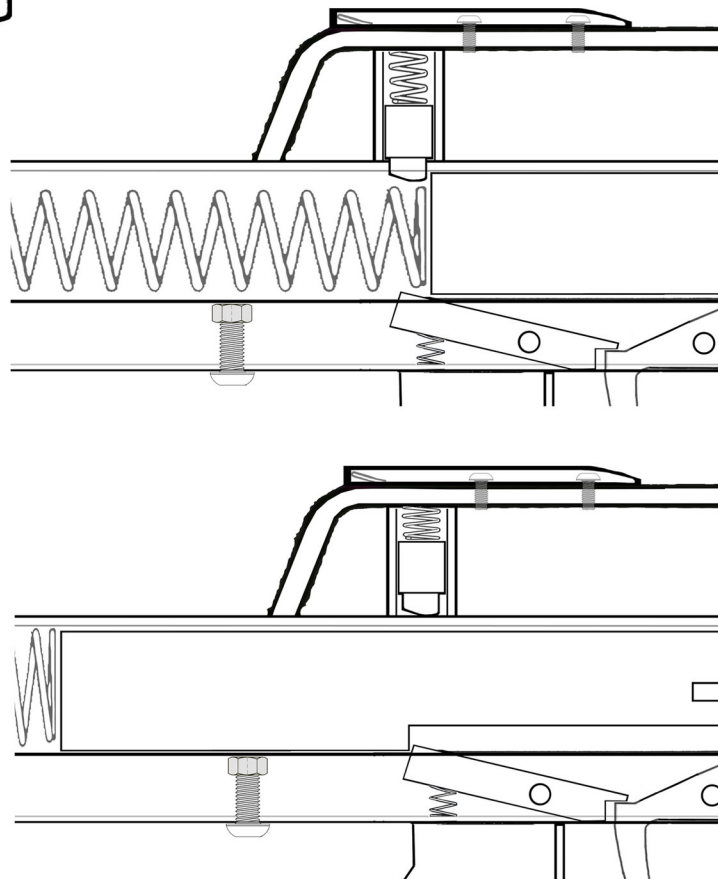


Bolt retarding mechanism

16mm (5/8") dia steel round bar stock. Harden.



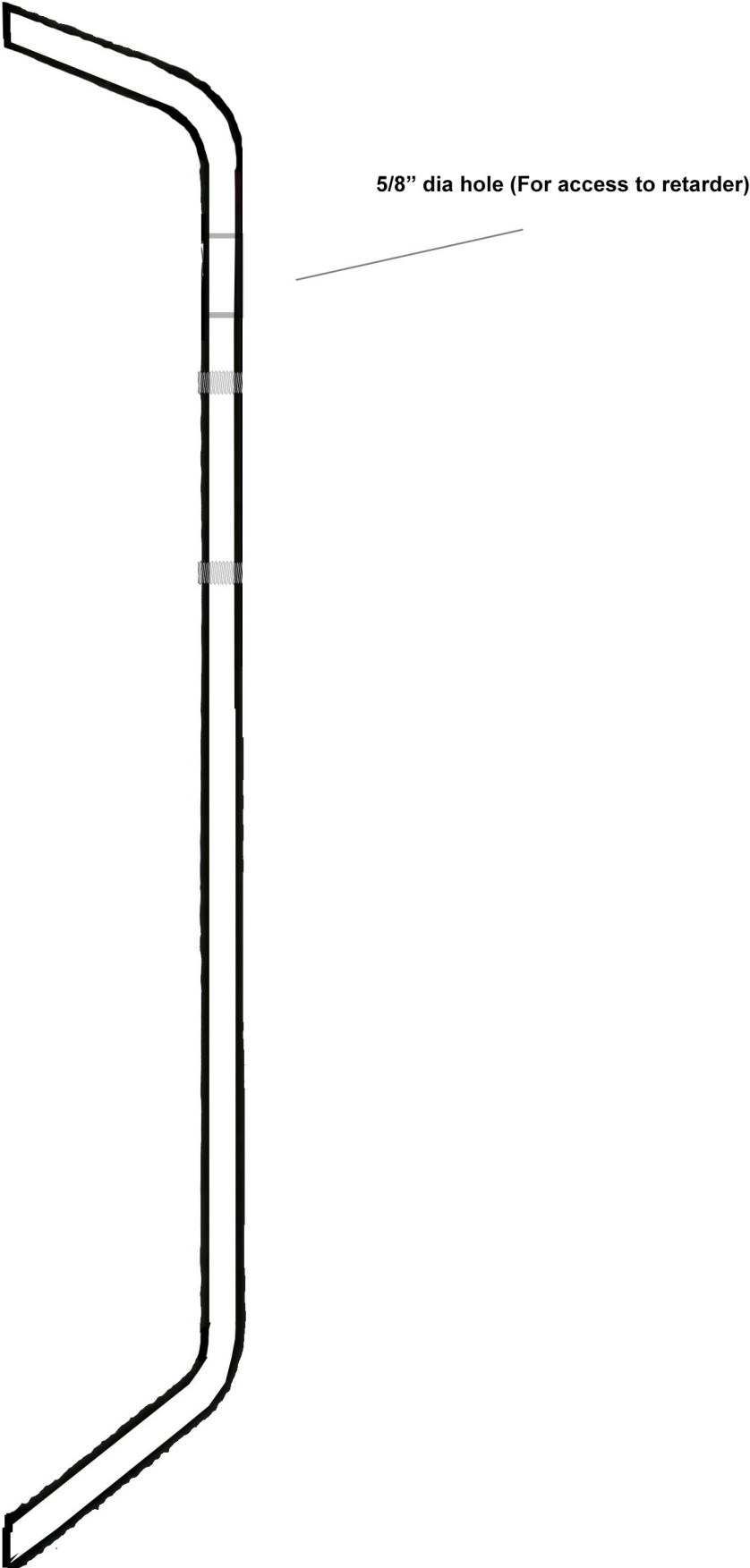
Housing: 30mm length of 19mm (3/4") steel tube. A strong compression spring should be used. Weld in place between receiver and carry handle.



The retarding wedge is included to slow down the opening of the breech. It should be capable of being overridden with a firm pull of the bolt rearwards. Harden contact surfaces using a product such as Kasenit or similar.

Carry handle

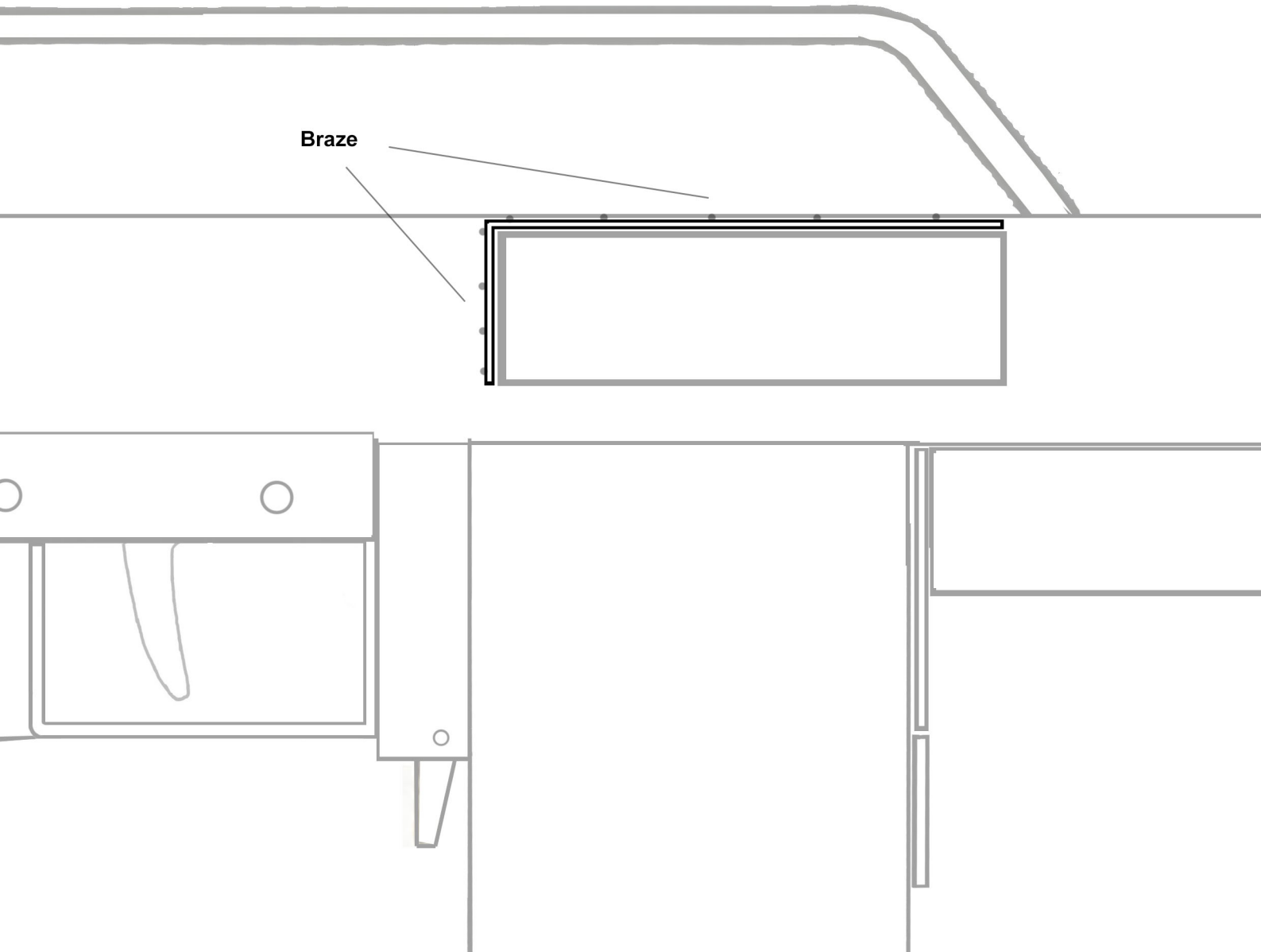
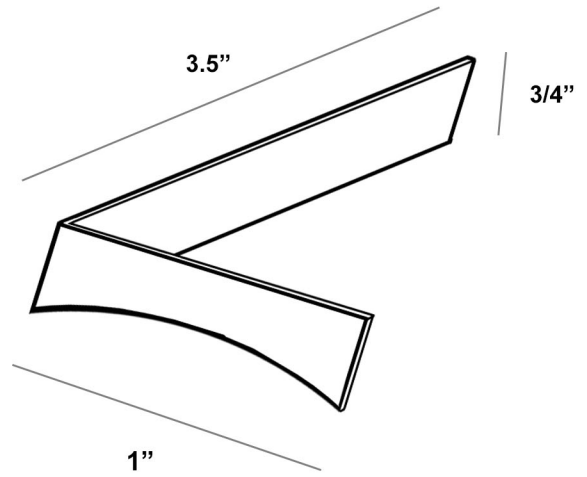
5mm thick mild steel strap, 20mm wide, 11" long. Bend to profile.



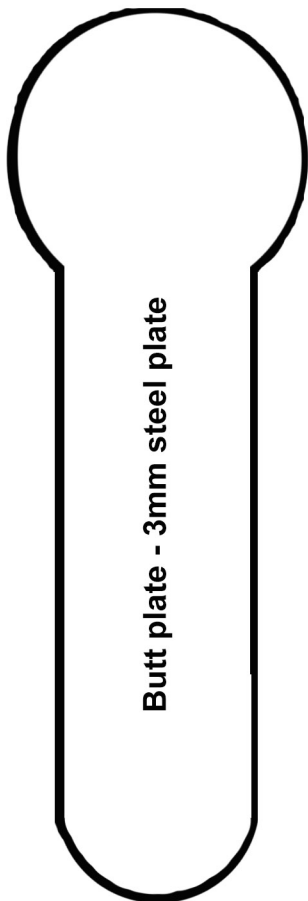
Print on A4 paper

2 inches

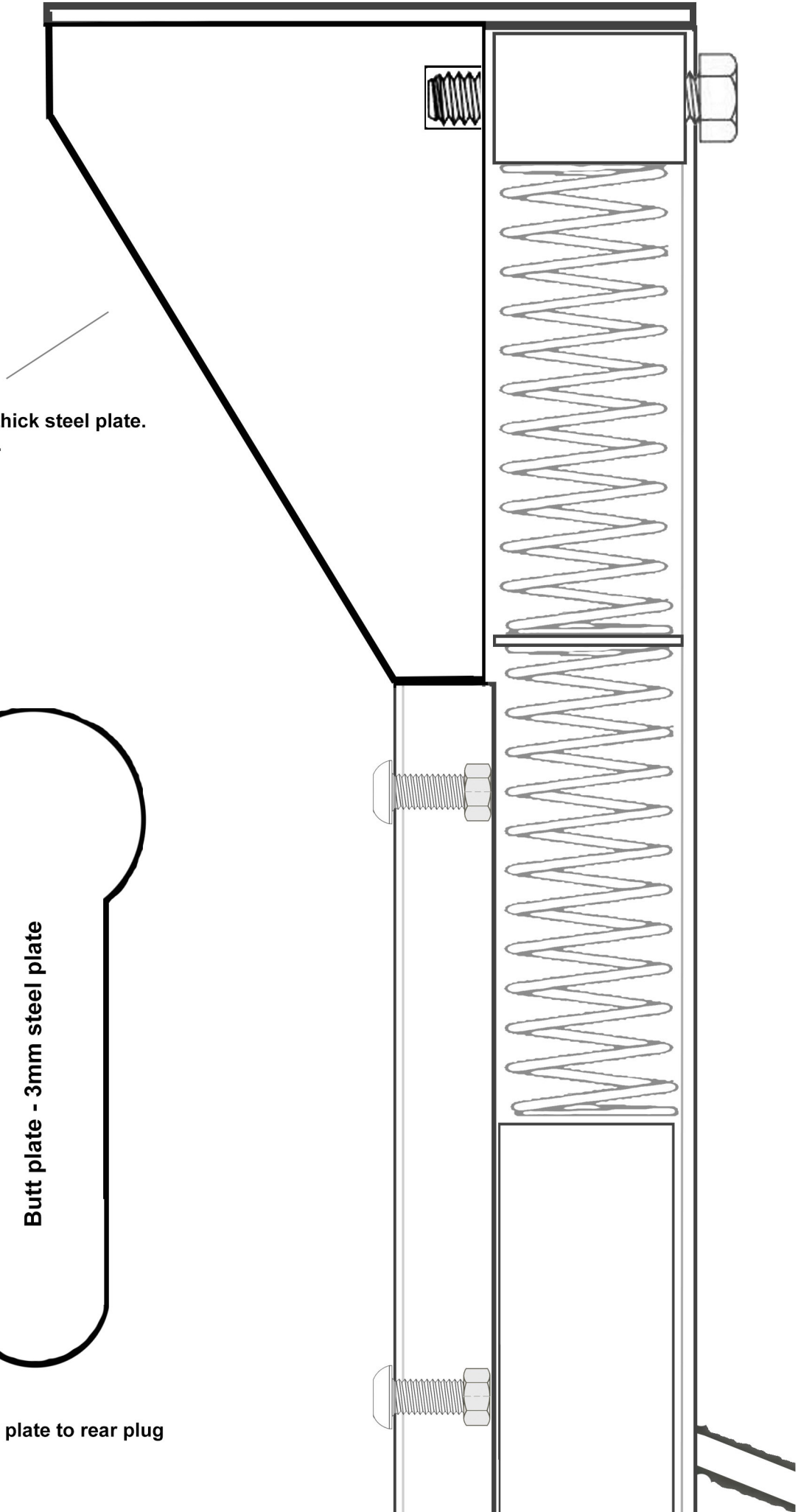
An optional 'splash guard' bent from 3mm thick wide steel strap can be brazed around the ejection port.



**Stock support: 3mm thick steel plate.
Weld to receiver tube.**

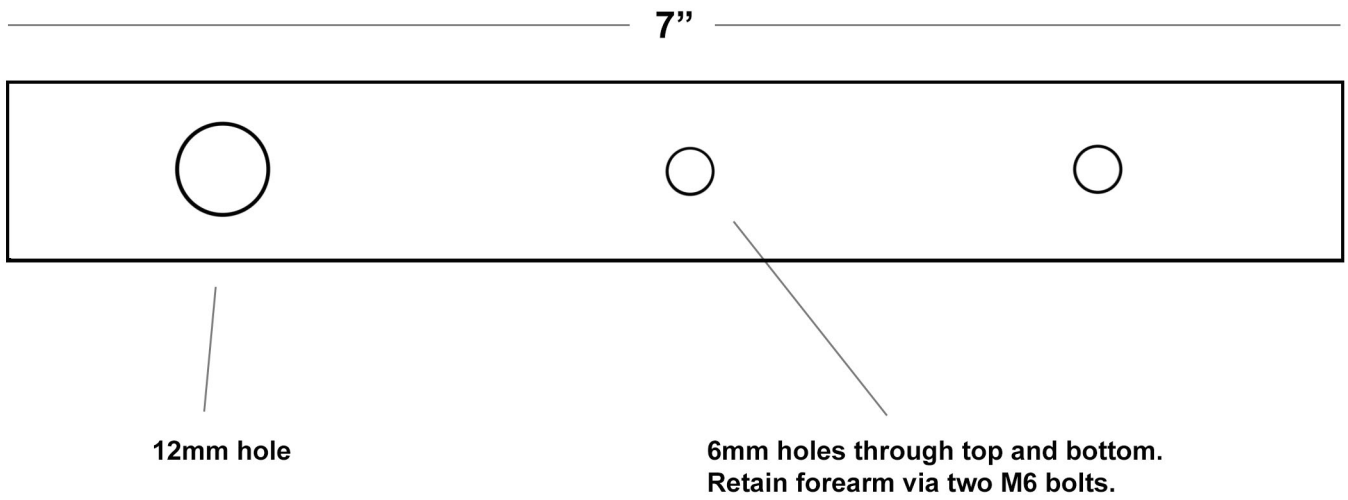


Weld butt plate to rear plug



Forearm

1" (25mm) square tube



Cut slot at top for front magazine bracket to pass. Close at front with a 1" plastic square end cap.

Additional Firepower...

