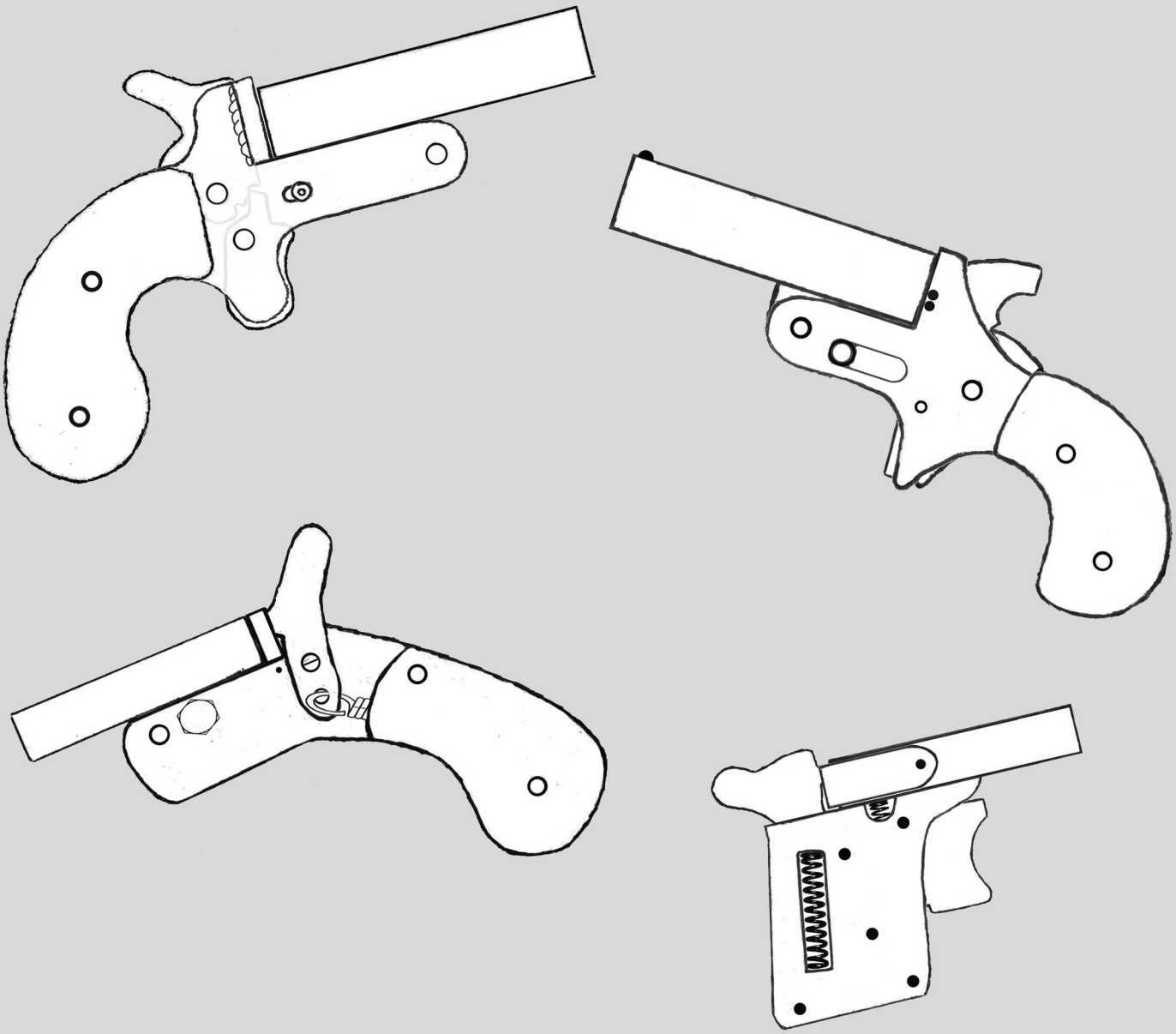
DIY SHEET METAL DERRINGERS

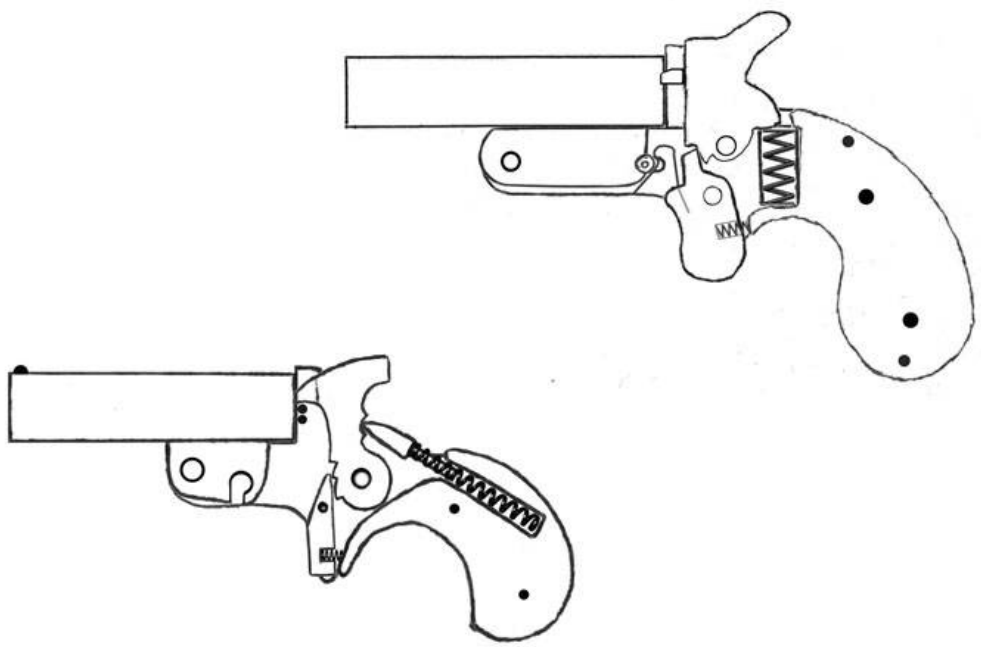
Practical Scrap Metal Small Arms VOL.7



By Professor Parabellum

DIY Sheet Metal Derringers

The following simple .22 rimfire designs utilize sheet metal plate for ease of construction without access to conventional machining equipment. Each model can be made in relatively short order and adapted to whichever materials or tools are at hand. In all instances pins or bolts can be used in place of welding or brazing. With care and attention a commercial standard of quality and functionality can be achieved.

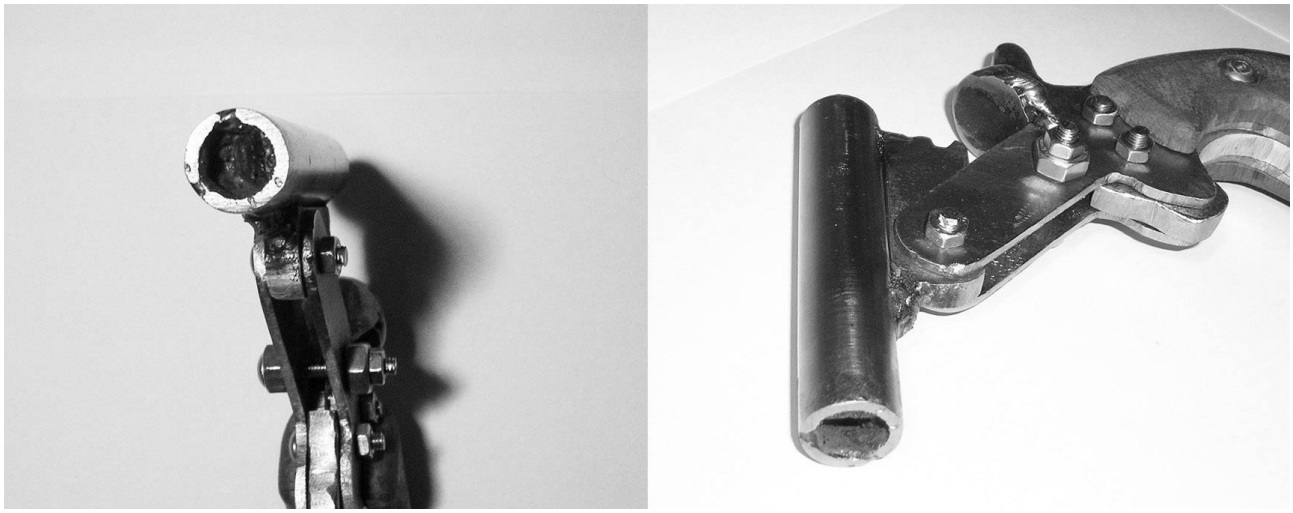


This document is intended purely for academic study purposes only.

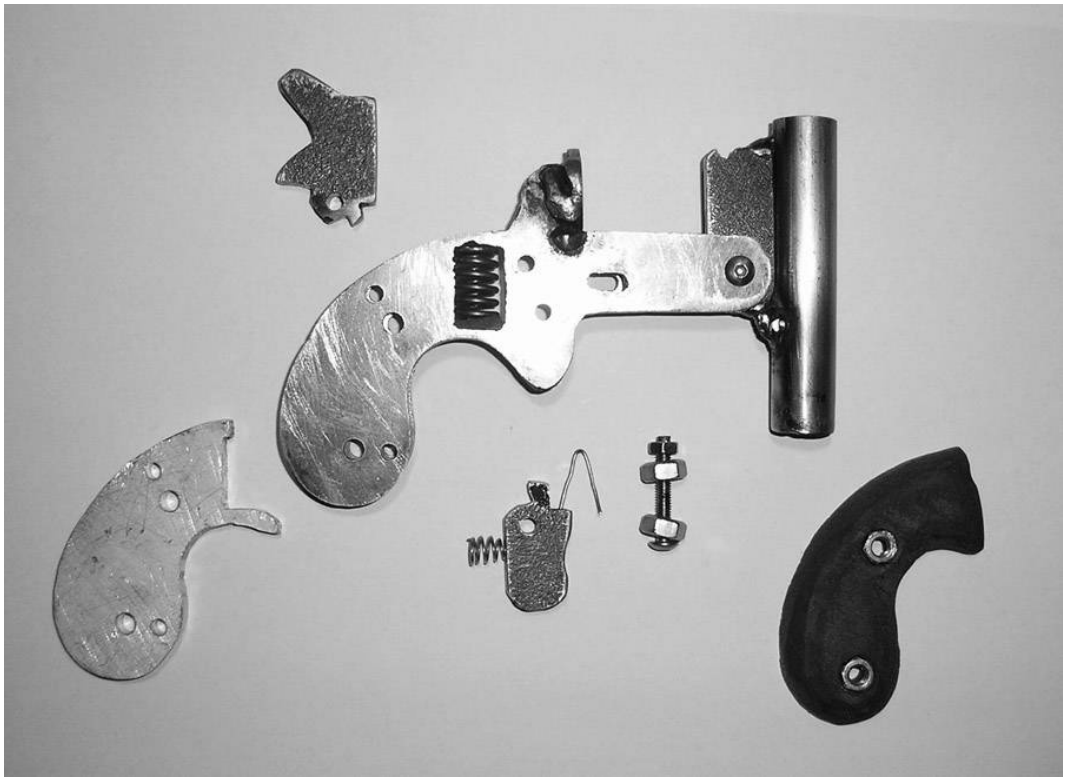
Model 1

The model featured here is copied from a commercial design of particular expedient construction. The majority of components are made from 14 gauge (2mm) and 1/4” (6mm) steel plate and are bolted or welded together. The simple mainspring set up allows for any suitable compression spring to be fitted by simply adapting the size of the frame slot.

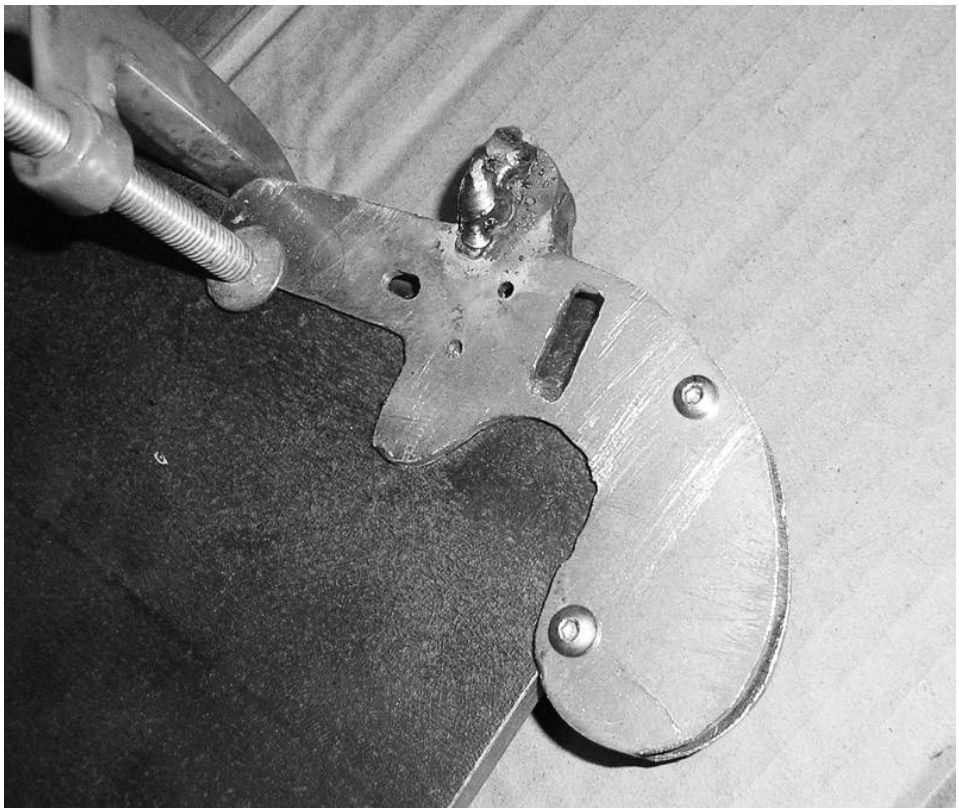
For legal reasons, the demonstration model pictured was made as a non-firing replica paperweight. It contains a permanently blocked and cut up dummy barrel and has no provisions for a firing pin.



Destroyed dummy barrel of demonstration model



Disassembled: note the rudimentary barrel release latch consisting of a bolt and three nuts.

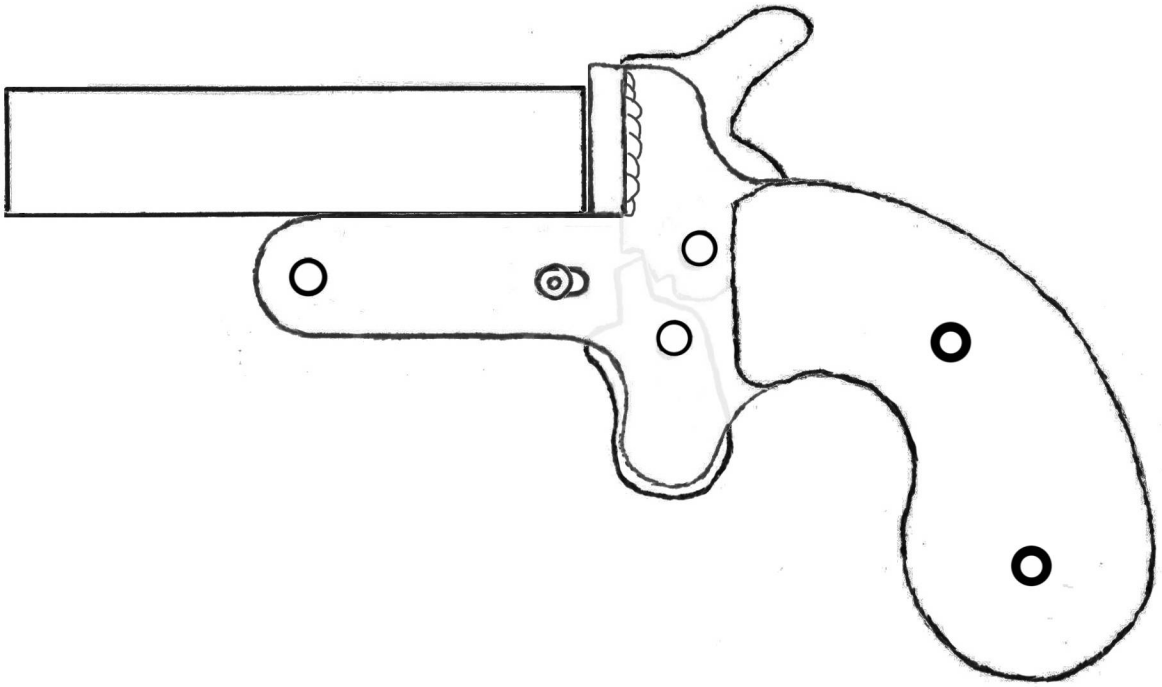


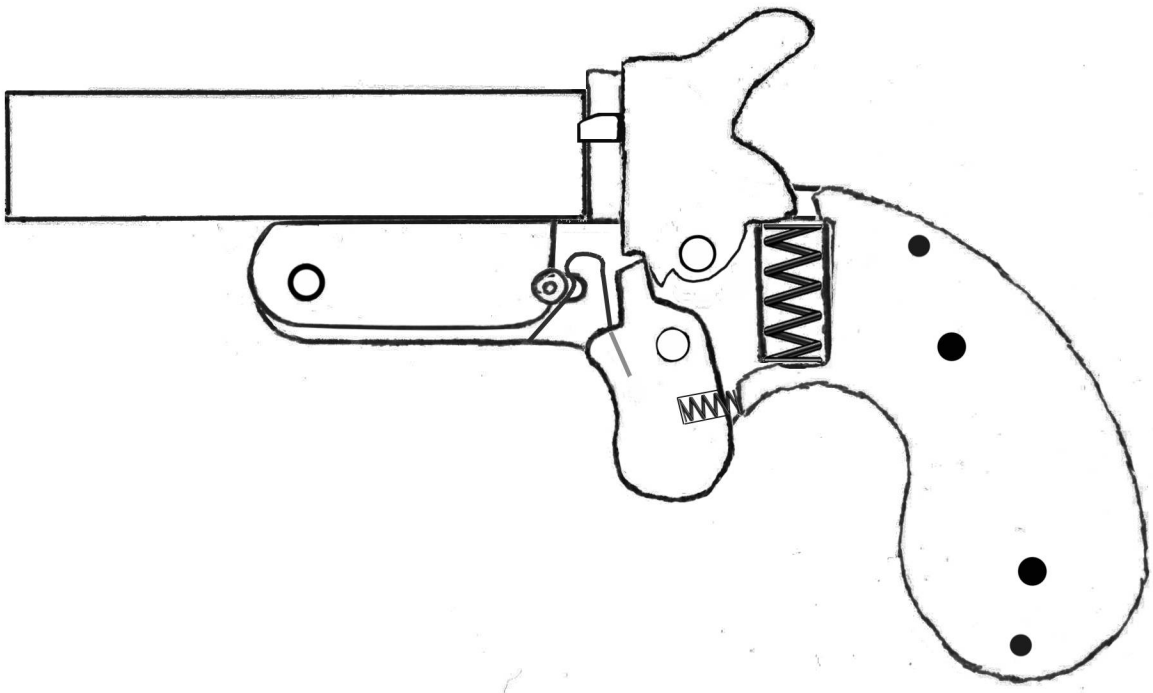
Accurately welding the frame plates together was achieved with the help of a piece of 6mm plate placed in between both pieces and held with a clamp. The grip insert was also cut out and temporarily bolted together to help with alignment. Only one plate had it's holes drilled before welding, after which it was drilled through into the second plate once permanently aligned. If a welder is unavailable, a longer breech piece can be slotted tightly into the frame plates and held in place with a high strength epoxy such as JB weld, or made with pins in the same manor as on the second model contained in the plans.

Plans

All pages included should be printed out on 8.5 x 11 US letter paper. Each component template is drawn to scale and can be cut out and glued to their respective thickness of material. Make sure the ruler at the bottom left of each sheet is 2 inches in length. Alternatively, enlarge the plans using a computer program until the ruler is the correct length, then trace the parts needed onto a sheet of paper taped over your computer's screen.

Sheet Metal Derringer Model 1



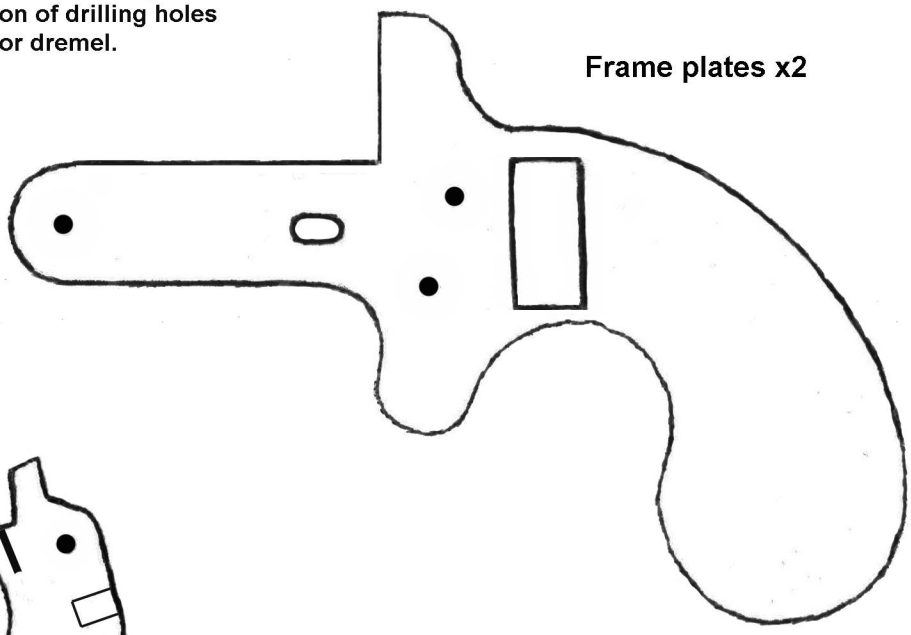


2 inches

Print on 8.5x11 US letter paper

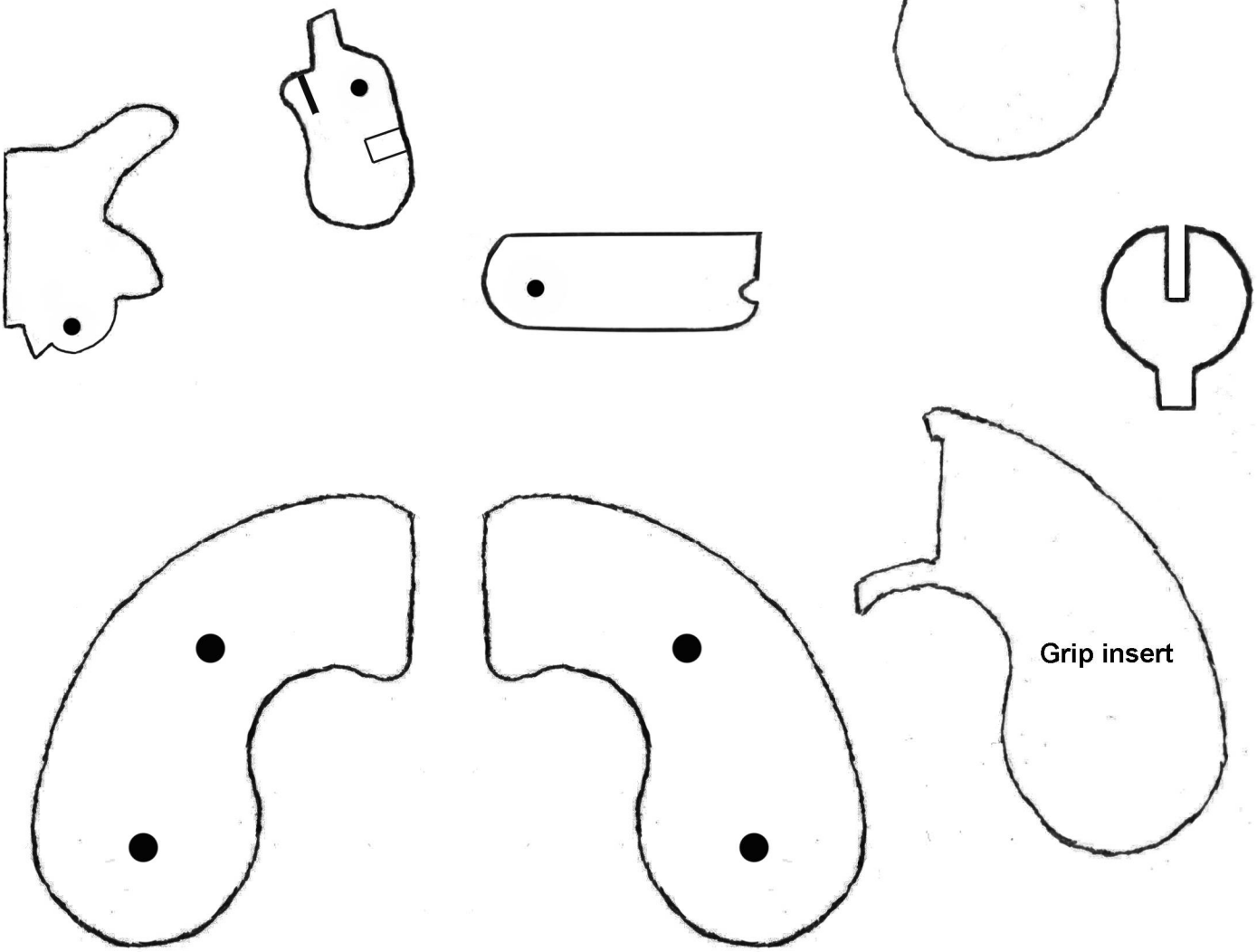
Templates

Release catch and main spring hole on frame plates can be cut out using a combination of drilling holes and grinding to shape with a file or dremel.



Frame plates x2

All holes are drilled with a 4mm bit and accept m4 bolts or pins



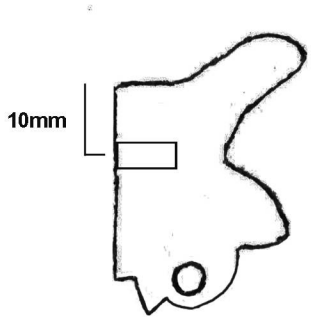
Grip insert

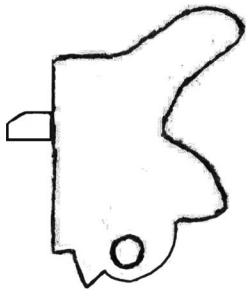
2 inches

Print on 8.5x11 US letter paper

Frame plates : (14 gauge) 2mm thick mild steel plate
Hammer, trigger and lug : 1/4" (6mm) mild steel plate
Breech : 4mm mild steel plate
Grip insert : 1/4" (6mm) alumnum or plastic plate
Grips : 1/2" hardwood or plastic

Drill in center at mark using a 4.2mm drill bit.
Tap for an m5 bolt.





Pin should protrude 6mm.
File flat into a blade profile.

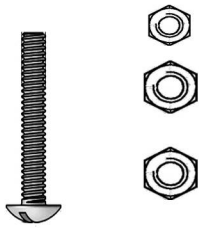
Main spring

20mm x 9mm x 2mm

(Or increase spring cut-out size on frame to accommodate a larger spring - Needs to be very strong)

Release catch

25mm long m4 bolt + an m5 nut either side.
Secure using an m4 nut sealed with loctite or epoxy



(Pull back to release)

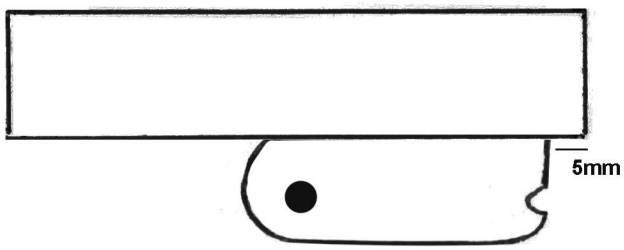
Trigger / catch spring

Bend from a length of 19 gauge spring steel music wire to profile above. The longer arm fits into hole in trigger.
- Can alternatively be made from 6mm wide spring steel strip.

Drill 2mm hole or slit one side

Barrel (dummy)

3" long 5/8" (16mm) dia mild steel bar



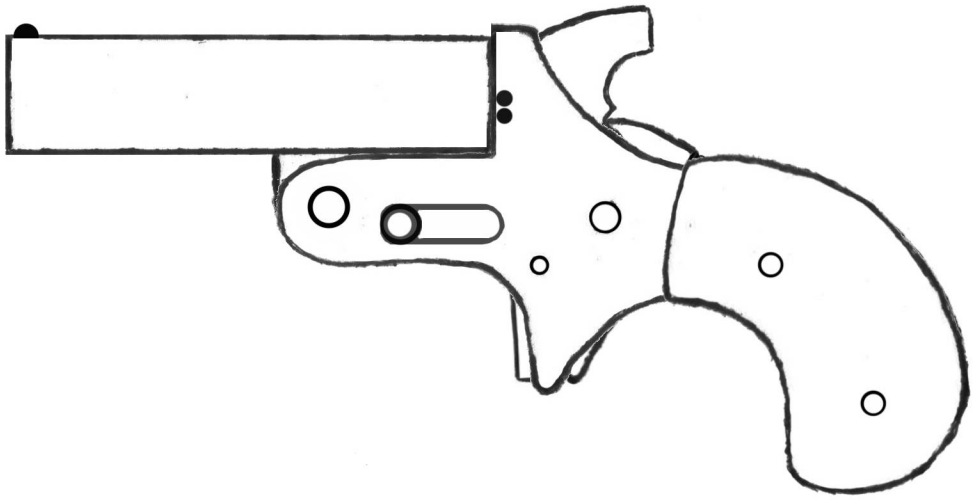
Weld or secure together using two bolts threaded into barrel from below lug.

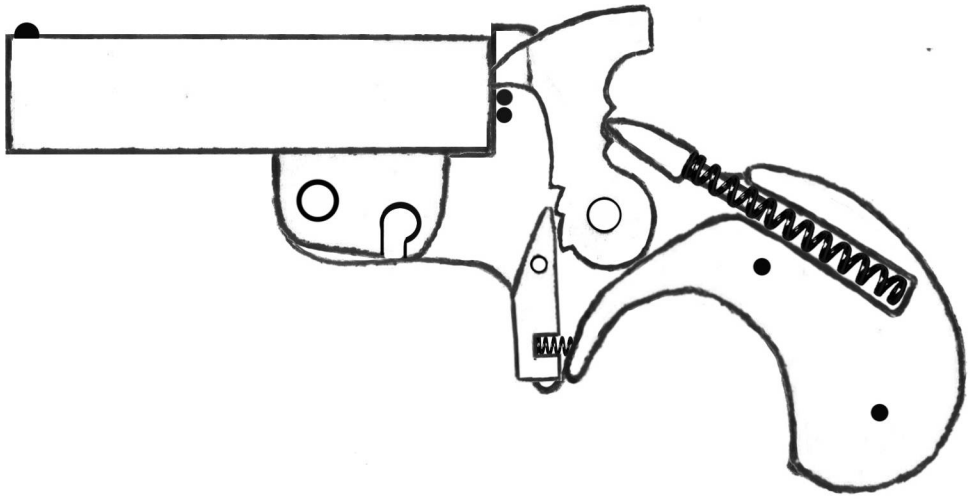
To accept a dummy .22 or blank drill the center with a 7/32" (5.6mm) drill bit.

2 inches

Print on 8.5x11 US letter paper

Sheet Metal Derringer Model 2





2 inches

Print on 8.5x11 US letter paper

Templates

Hammer

Side plates X2

Tap and behead two bolts in place
for extra breech support
- file flat

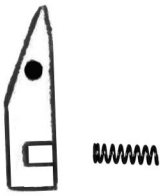
Main spring

- At least 30mm long
- 5mm wide
- 1.5mm wire

Spring guide

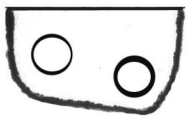
25mm long 5mm dia bar
- turn half down to 3mm
- round off front

Trigger



Drill 4mm hole
for spring

Barrel Lug



Latch, hammer and lug holes are 5mm wide.
Trigger hole is 3mm wide.

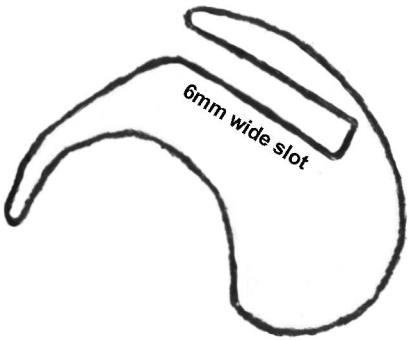
5/8" (16mm) wide, 2.5" long

Weld, braze or secure together
using a bolt through bottom of lug
threaded 4mm into barrel.
Add a strong epoxy where in contact.

Cut through aprox 1/2 of lug hole

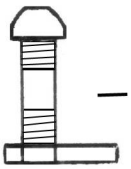
Frame grip insert

- Pinned through frame plates



'Turn' latch

Modified 15mm long m5 bolt

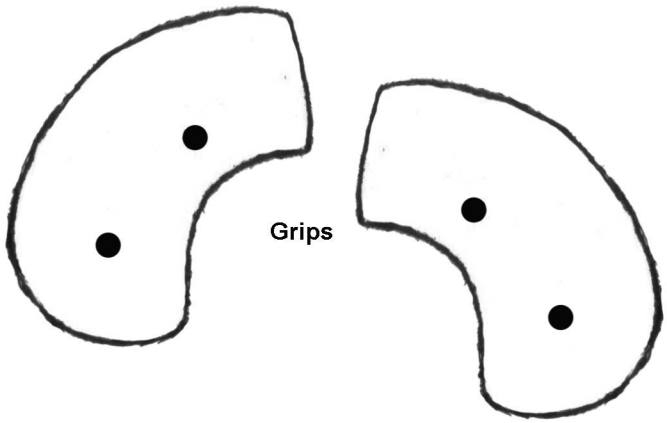


file 6mm slot
until 1/2 thickness

Tap and epoxy into a section of 3mm steel strip

'Pin' release (Alternative)
- m5 bolt / pin

Slot end slightly and hammer
to form friction fit

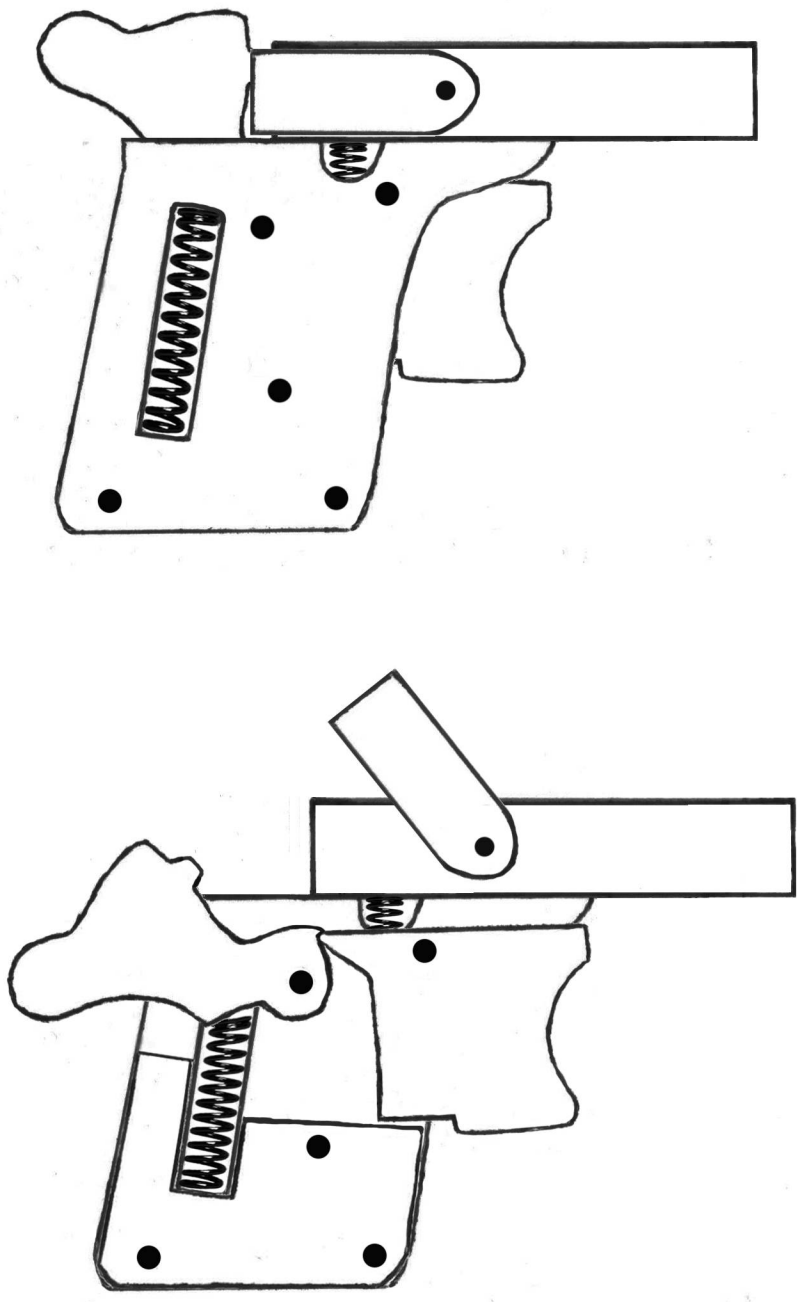


Side plates : 14 gauge (2mm) thick mild steel sheet
Hammer, trigger and barrel lug : 5mm mild steel plate
Grip insert : 5mm plastic, aluminum or steel
Grips : 1/4" wood or plastic
Barrel : 5/8" (16mm) mild steel bar stock

2 inches

Print on 8.5x11 US letter paper

Sheet Metal Derringer Model 3

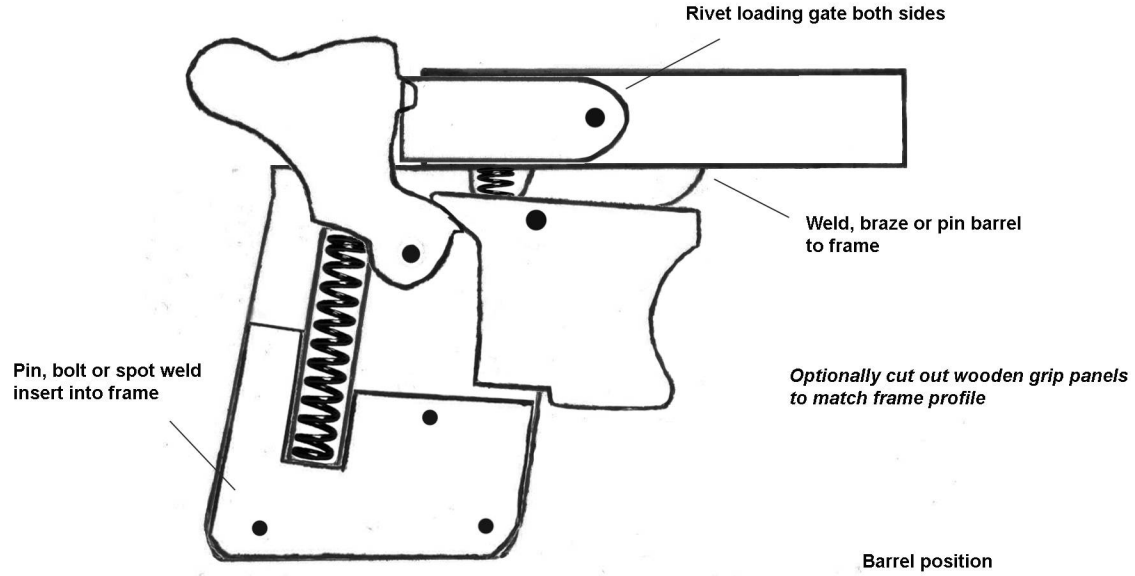


An adaption of a classic 1960s .22 'zip gun' design. At 3 3/4" long with a mere 3/8" thick frame it is highly concealable and contains a limited number of parts. Such a pistol could be made for under 50 cents using any high school workshop. This model is constructed almost entirely from 3mm steel plate and features a simple combination flip-up loading gate / breech block.

2 inches

Print on 8.5x11 US letter paper

Templates

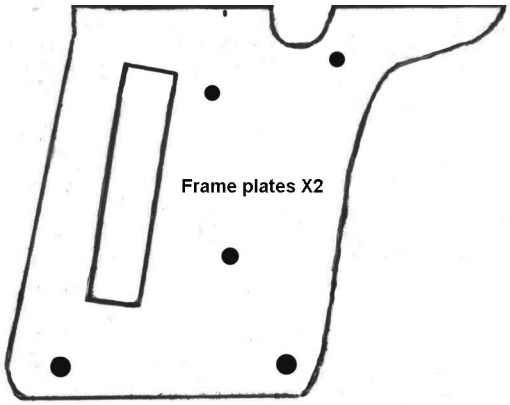


Main spring

30mm long, 5mm dia, 2mm wire

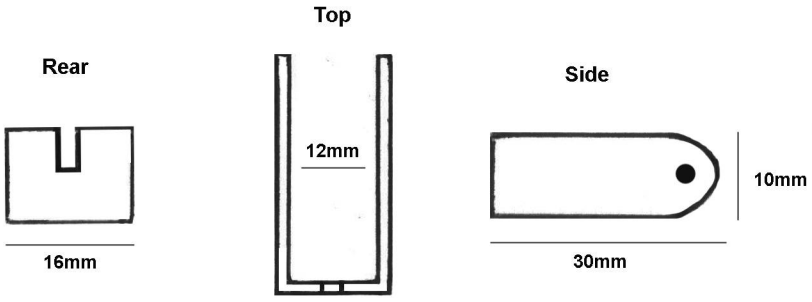
Return spring

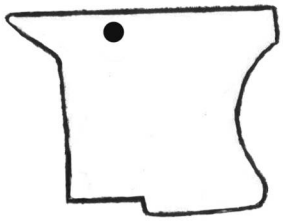
(Small cut-off)

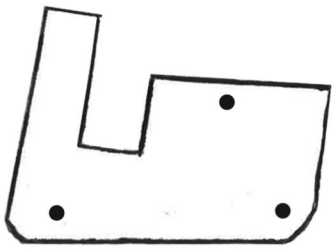


Loading gate / breech

Bend from a 76mm long 2mm thick / 10mm wide steel strip





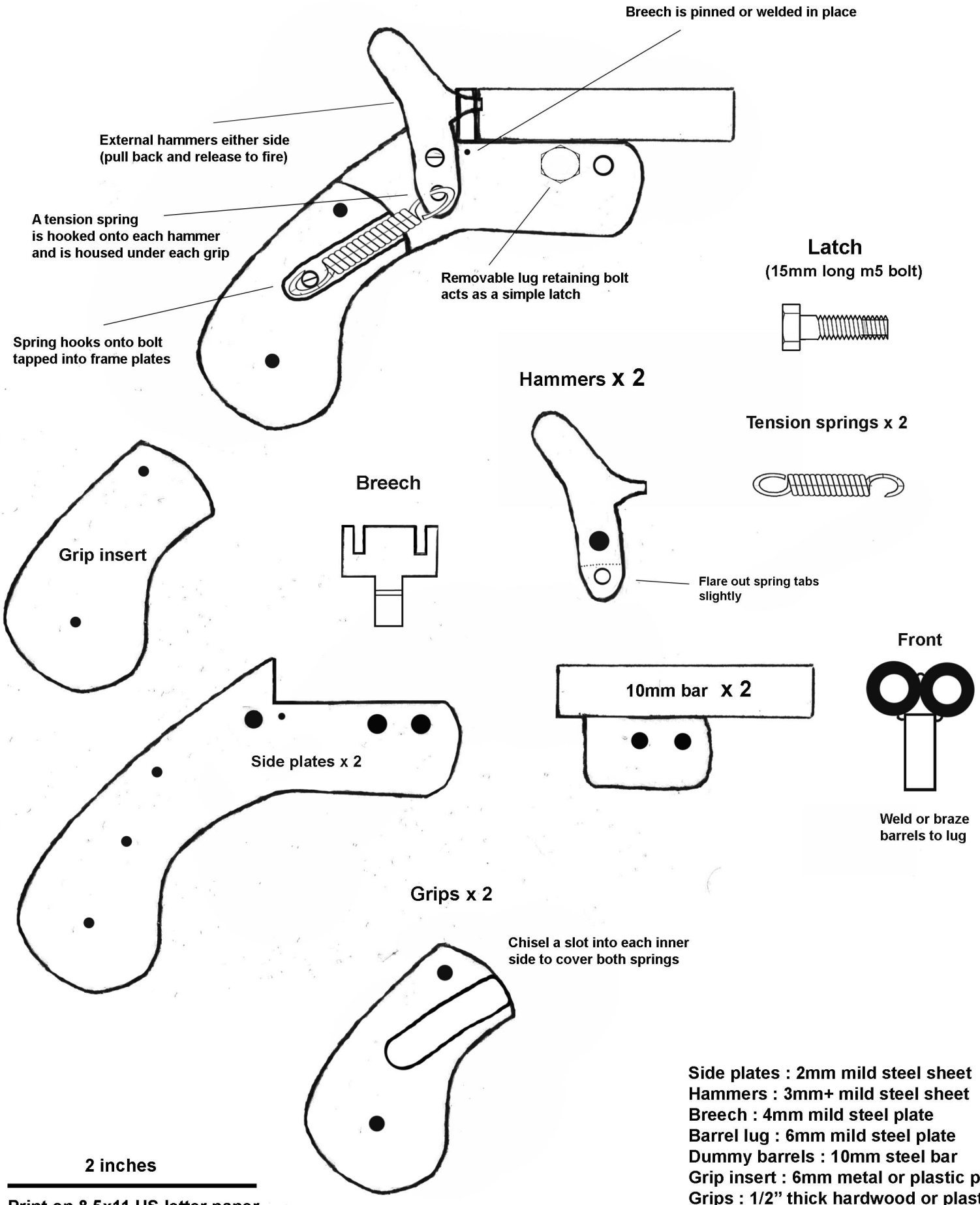


2 inches

Print on 8.5x11 US letter paper

Frame, hammer, trigger and frame insert : 3mm mild steel sheet
Barrel (dummy) : 12mm mild steel bar, 2.5" long
Loading gate : 2mm or 3mm mild steel sheet

Double barrel 'thumb slap' pistol



Side plates : 2mm mild steel sheet
Hammers : 3mm+ mild steel sheet
Breech : 4mm mild steel plate
Barrel lug : 6mm mild steel plate
Dummy barrels : 10mm steel bar
Grip insert : 6mm metal or plastic plate
Grips : 1/2" thick hardwood or plastic

Previous volumes: