

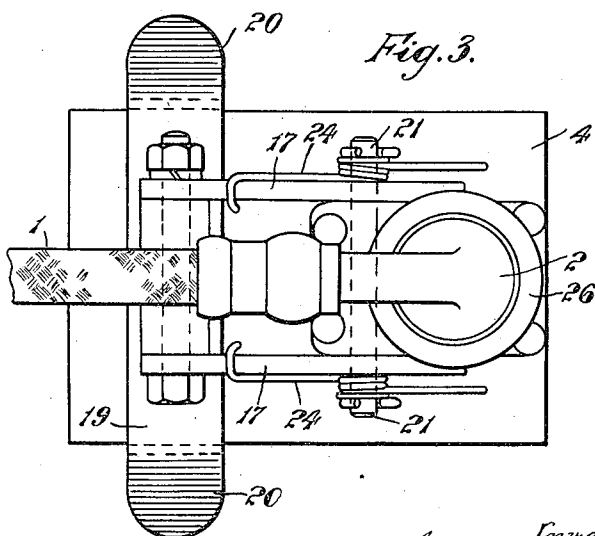
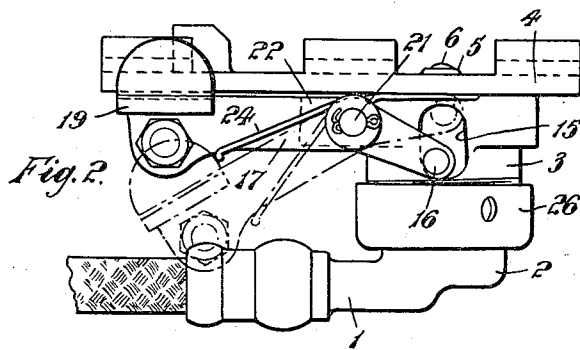
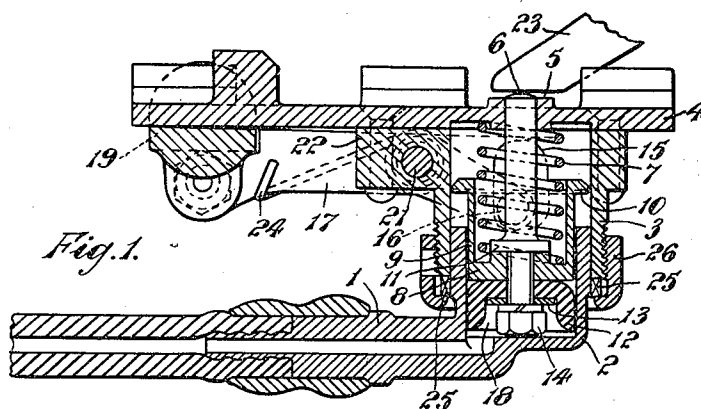
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FIRING DEVICE FOR AUTOMATIC GUNS

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## UNITED STATES PATENT OFFICE

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## FIRING DEVICE FOR AUTOMATIC GUNS

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3 Claims. (Cl. 89—27)

Our invention relates to improvements in firing devices for automatic guns and more particularly to firing devices of this type that may be operated pneumatically or by fluid pressure.

It provides a means whereby the firing mechanism may be operated pneumatically and whereby it may be operated manually when not being operated pneumatically.

In our invention we provide means normally holding the firing mechanism in inoperative position. It may be moved from this inoperative position into operative position by a fluid pressure as, for instance, by compressed air moving on a movable piston or plunger. Alternatively it may be moved from inoperative to operating position by the operation of a manually operated lever.

The various features of the invention are illustrated by way of example in the accompanying drawing, in which—

Fig. 1 is a sectional elevation of the device; Fig. 2 is an outside elevation of the device, and Fig. 3 is a plan view of the device in inverted position.

As shown in Figs. 1 to 3, an air inlet pipe 1 is connected to a hollow cylinder 2 formed integrally upon the pipe 1 and positioned within a chamber 3 which chamber 3 is attached to a base plate 4 securable to the adjacent casing of a gun, not shown, the firing mechanism of which is released by the sear 23, Fig. 1.

The base plate 4 is formed with an apertured boss 5 serving to center a plunger 6, the working end of which plunger is normally held substantially flush with the aperture in the boss 5 by a coil spring 7, one end of which contacts the under surface of the boss 5 and the other end of which contacts the inner face of a hollow piston 8.

The hollow piston 8 is formed with a skirt 9 having a peripheral flange 10 adapted to slide within the chamber 3.

The plunger 6 is formed adjacent the inner face of the piston 8 with a collar 11 and the opposite face of the piston 8 remote from the collar 11 and adjacent the air inlet pipe 1 is provided with a cup shaped washer 12 of yielding material compressed against the piston 8 by a disc washer 13 and a nut 14, the latter being threaded upon the lower end of the plunger.

On admission of air or gas to the space 18, the plunger is driven upwards compressing the coil spring 7 and the end of the plunger 6 protrudes through the apertured boss 5 into operative contact with the sear 23 until the air pressure is released.

In order that the plunger may be raised manu-

ally, the chamber 3 is slotted with elongated slots 15 on opposite sides of the chamber and through each slot protrudes one of a pair of pins 16, each one of which pins 16 is formed upon one of a pair of transversely spaced cranks 17 and contacts the under surface of the flange 10 formed upon the skirt 9 of the hollow piston 8.

The cranks 17 are transversely connected by a cross piece 19, Fig. 2, terminating at each end in a semi-circular serrated thumb piece 20.

A spindle 21 passes through both of the cranks 17 and through a bearing 22 riveted to the base plate 4.

To raise the plunger 6 by hand, pressure is applied to one or both of the serrated thumb pieces 20 whereupon the pins 16 formed on the cranks 17 raise the flange 10 of the hollow piston which is secured to the plunger 6 and so raise the plunger 6 against the pressure of the coil spring 7.

On releasing the thumb pressure, the coil spring 7 reasserts itself as in the case of pneumatic operation to return the plunger to the inoperative position shown in Fig. 1 and the leaf spring 27 similarly returns the cranks 17 from the operative position shown by dotted lines in Fig. 2 to the inoperative position shown by solid lines in Figs. 2 and 1.

It will be observed that the cranks 17 remain in the inoperative position when the plunger 6 is displaced pneumatically.

The hollow cylinder portion 2 integral with the pipe 1 is formed with a series of circumferentially spaced projections 25, Fig. 1, and the base of the chamber 3 is formed with similar spaced projections so that by loosening the securing sleeve 26, the pipe 1 and hollow cylinder 2 may be drawn away from the chamber 3 and secured again thereto after rotation to any convenient position for connecting the air inlet pipe 1.

Having now particularly described our said invention we claim:—

1. Apparatus for operating a bolt release mechanism of an automatic gun which comprises a hollow piston, a plunger attached to said piston, a spring acting against said piston and plunger, pneumatic means for moving said piston and plunger against the action of said spring and manually operated means comprising a lever having pins to engage said hollow piston to move the latter against the action of said spring.

2. Apparatus for operating the bolt release mechanism of an automatic gun which comprises a hollow piston, having an outwardly projecting flange, a plunger attached to said piston, a spring acting on said piston, pneumatic means to move

said piston and plunger against the action of said spring, a chamber enclosing said plunger and pneumatic means, and having longitudinally extending slots and a manually operated lever having projections entering said slots and contacting the end-face of the plunger of said hollow piston.

5 3. Apparatus for operating the release mechanism of an automatic gun which comprises an open ended chamber having projections at its  
10 open end, a cylinder to fit within said chamber and having projections engaging those on said

chamber, a hollow plunger in said cylinder, a spring pressing said plunger to inoperative position, said plunger having a stem projecting outwardly through the upper part of said chamber, said plunger having an outturned flange at its open upper end and a manually operated lever having pins entering said openings in said chamber extending below the outturned flange of said plunger.

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