

Feb. 14, 1933.

G. A. WOODY ET AL

1,897,099

OPERATING MECHANISM FOR MACHINE GUNS

Filed Sept. 27, 1932

Fig. 1.

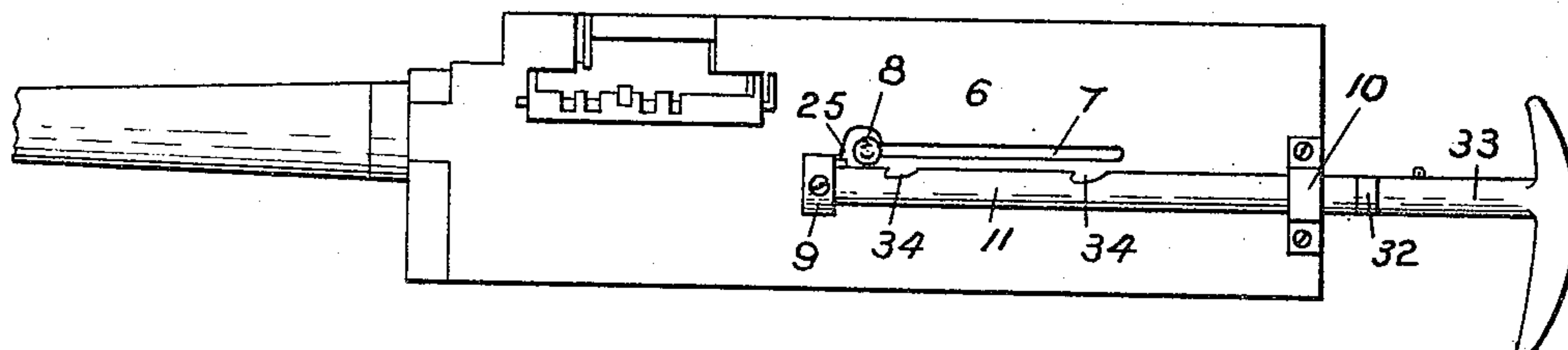


Fig. 2.

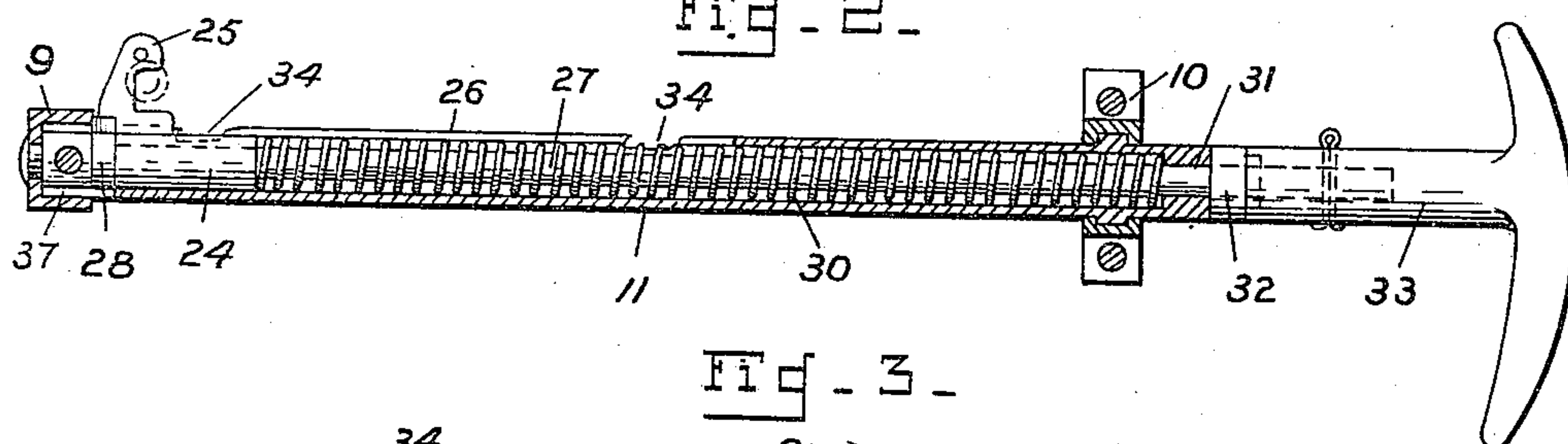


Fig. 3.

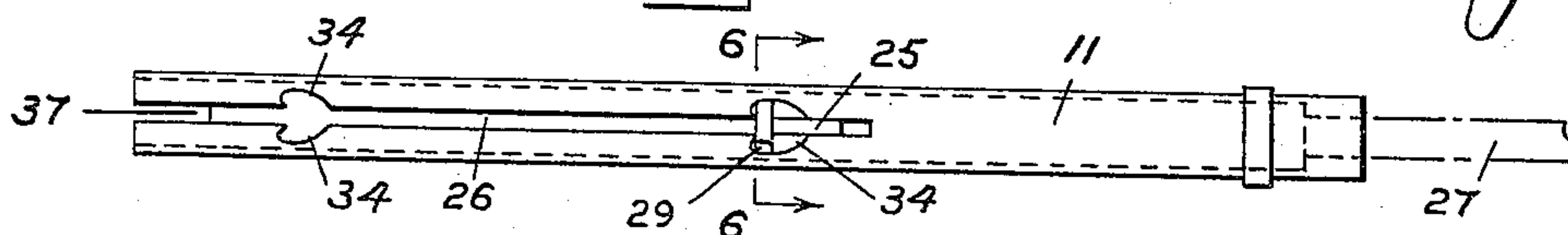


Fig. 4.

Fig. 5.

Fig. 6.

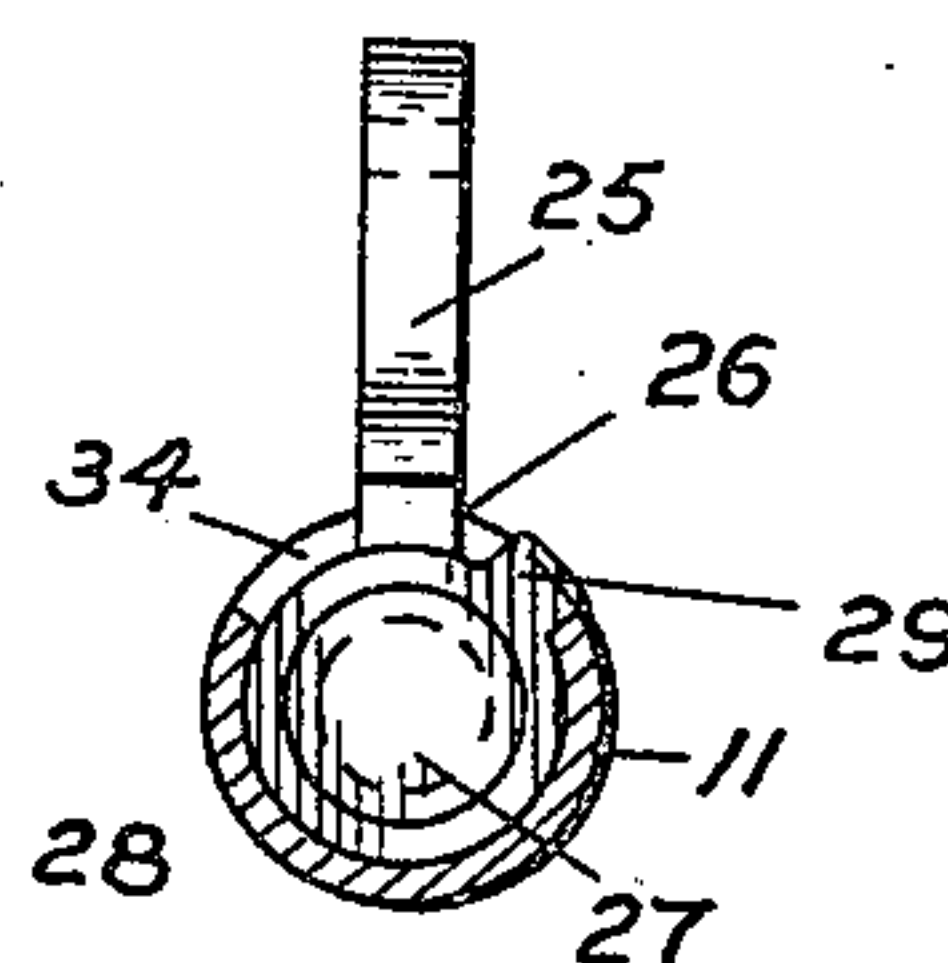
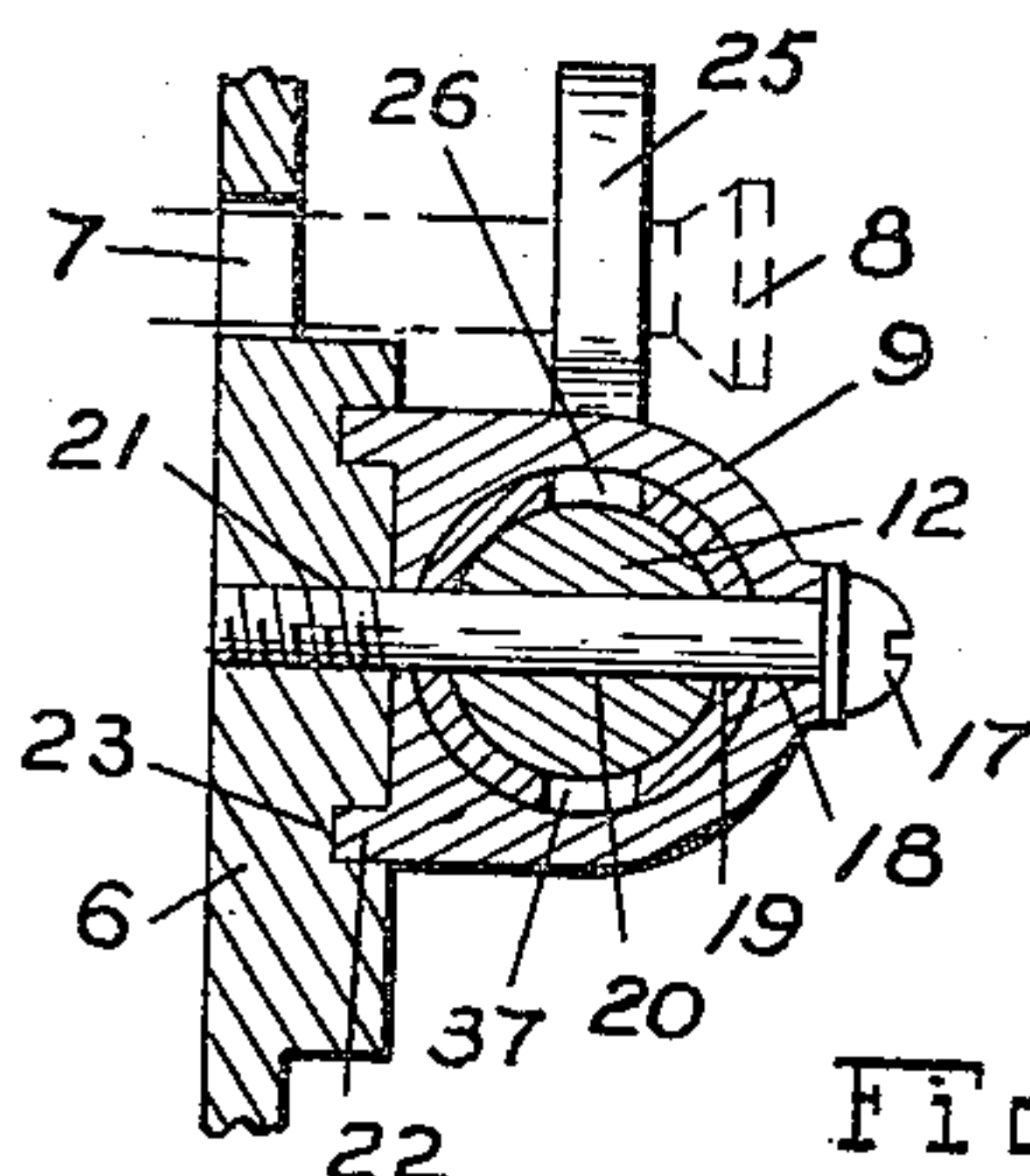
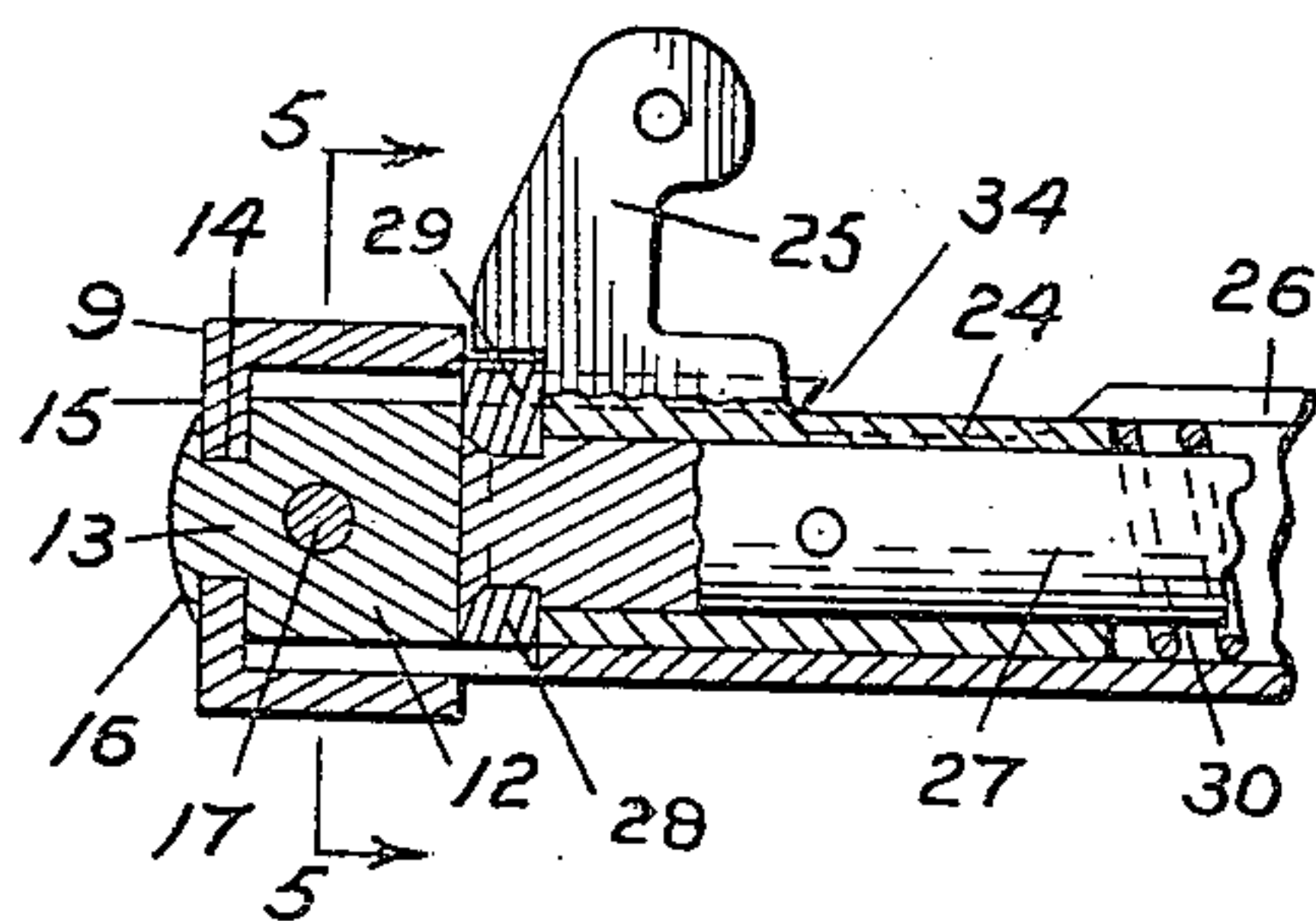
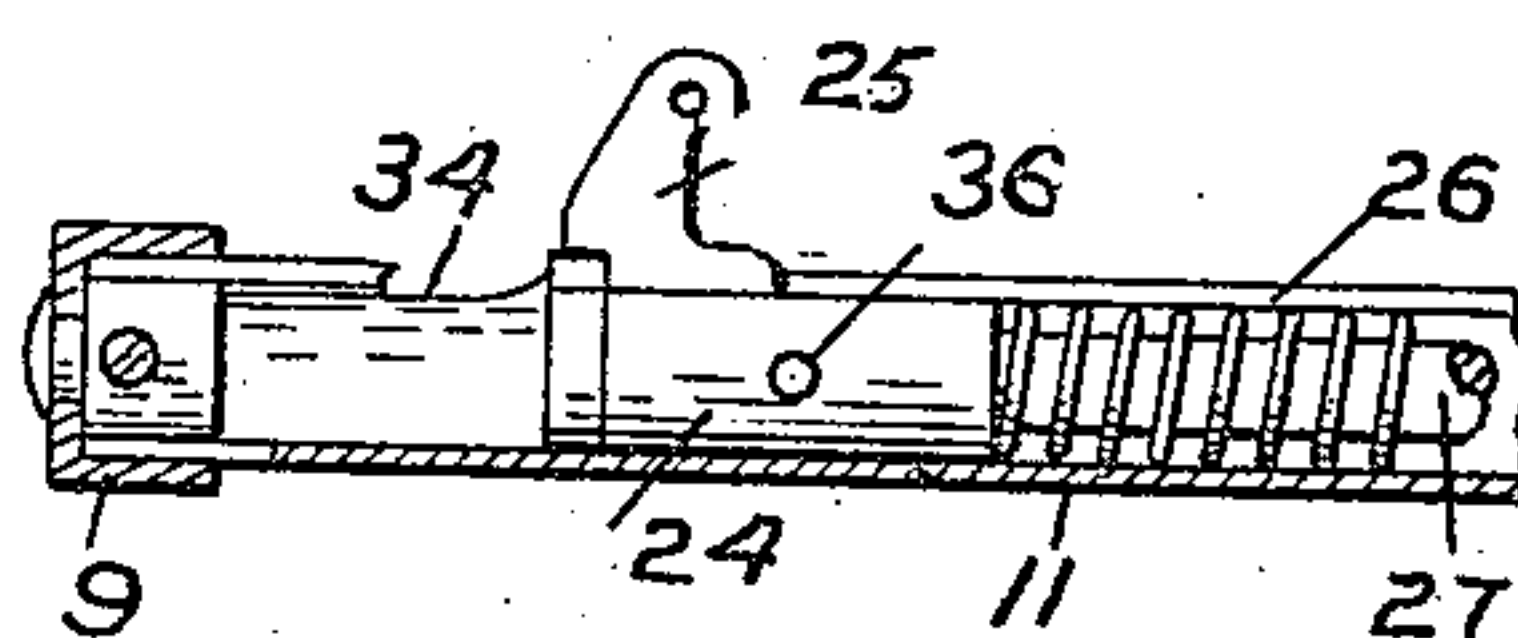
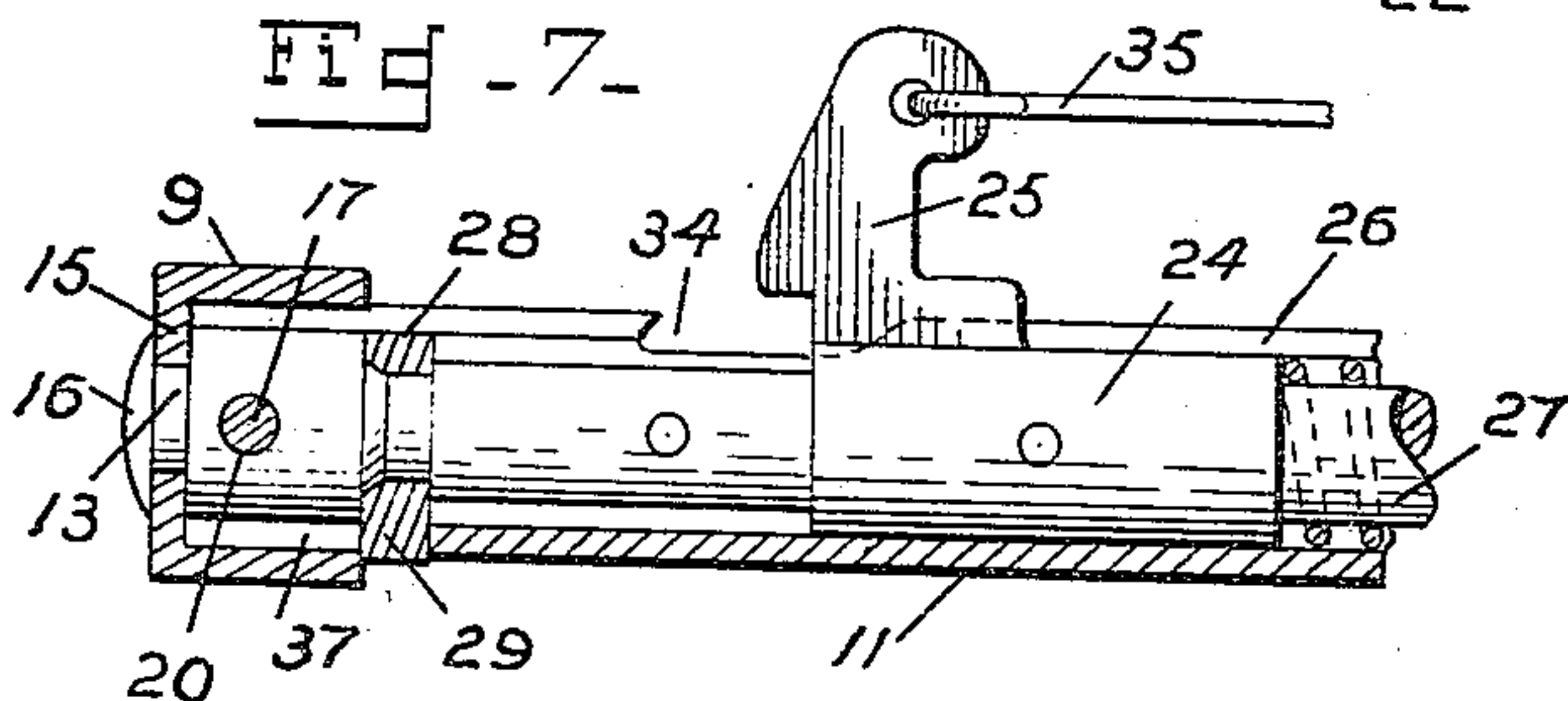


Fig. 7.



Inventors
George A. Woody
Richard C. Coupland

W. N. Ranch
Attorney

UNITED STATES PATENT OFFICE

GEORGE A. WOODY, OF TILDEN, TEXAS, AND RICHARD C. COUPLAND, OF NORFOLK,
VIRGINIA

OPERATING MECHANISM FOR MACHINE GUNS

Application filed September 27, 1932. Serial No. 635,040.

(GRANTED UNDER THE ACT OF MARCH 3, 1883, AS AMENDED APRIL 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to us of any royalty thereon.

5 This invention relates to an operating mechanism for machine guns.

Machine guns are provided with a bolt handle to permit manual retraction of the bolt in order to reproduce the action of the
10 gun mechanism during firing for the purpose of initially loading the gun and correcting stoppages. For guns mounted in proximity to the gunner it is customary to provide a rigid operator while for guns re-
15 motely mounted in the wings of an airplane or in the floor of the fuselage a flexible operator such as a cable is generally employed.

The purpose of the present invention is to provide an arrangement of parts whereby
20 an operator adapted for proximate or remote control may be selectively adjusted to permit or prevent its retention in retracted position.

With the foregoing and other objects in
25 view, the invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the in-
30 vention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawing,
35 wherein:

Fig. 1 is a view in side elevation of a machine gun equipped with the improved bolt operating mechanism.

40 Fig. 2 is a longitudinal sectional view of the bolt operating mechanism.

Fig. 3 is a plan view of the tube with the slide held in retracted position.

Fig. 4 is a longitudinal sectional view of the front end of the operating mechanism.

45 Figs. 5 and 6 are sectional views on the respective lines of Figs. 4 and 3.

Fig. 7 is a view partly in section showing the movement of the slide independently of the rod, and

50 Fig. 8 is a similar view showing the rod

locked to the slide to prevent relative rotation.

Referring to the drawing by characters of reference:

In Fig. 1, the side plate 6 of a machine
55 gun is formed with a longitudinally extending slot 7 in which the operating handle 8 of the breech bolt reciprocates during actuation of the gun. Secured to the side plate at the ends of the slot are front and rear brackets 9
60 and 10 for supporting a tube 11 parallel to and directly below the slot 7.

A plug 12 insertable in the end of the tube 11 has a stud 13 passing through an aperture 14 in the front or end plate 15 of the
65 bracket and then upset as at 16. A screw bolt 17 passing through aligned apertures 1, 19 and 20 respectively in the bracket, tube and plug is threaded in an aperture 21 in the side plate of the gun and serves to main-
70 tain and mount the assembly as well as prevent rotational and axial displacement of the tube. The bracket is provided with lugs 22—22 receivable in correspondingly shaped
75 recesses 23 in the side plate of the gun.

Within the tube 11 is a slide member 24 consisting of a short tubular member to give ample bearing surface and having a hook
25 projecting through a slot 26 in the upper surface of the tube in position to engage in
80 front of the handle 8 of the breech bolt. The slide is mounted on a rod 27 having secured at its front end a head 28 which is conveniently in the form of a ring that serves as a stop for the slide. The head 28 includes
85 a radially projecting stud 29.

A spring 30 embracing the rod and confined between the slide 24 and a bearing 31 secured in the rear end of the tube 11 normally maintains the slide at the forward
90 end of the tube. A fiber washer 32 embracing the rod between the handle 33 and the rear end of the tube 11 serves as a buffer.

Referring to Fig. 3 the walls defining the slot 26 in the tube 11 are provided with sets
95 of oppositely disposed notches 34—34. As clearly shown in the drawing the rod 27 may be rotated to dispose the stud 29 in one of the notches and thereby hold the breech bolt in retracted position as is necessary when the
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cover of the gun is to be raised for the purpose of reducing certain types of stoppages.

When a remotely mounted gun ceases to function the rod may be retracted by means of a cable 35 connected to the end thereof in lieu of the handle 33 or to the hook 25 of the slide. A malfunction of the gun requiring only the reciprocation of the breech bolt for its correction may be overcome in a remotely mounted gun as readily as in a proximately mounted gun. However, since the gunner cannot reach the gun to reduce that type of stoppages necessitating the holding of the bolt in retracted position, there is no necessity for rotation of the rod to engage its lug in the notches 34. In order to prevent the accidental rotation of the rod which might result in hanging up the breech bolt, the rod and slide may be locked together by the insertion of a pin 36 in prepared apertures as shown in Fig. 8.

If the mounting is of such a nature that there is not sufficient clearance to permit retraction of the rod 27 the pin 36 will be omitted and the cable 35 will be attached to the hook 25 of the slide. In this situation the front bracket is removed and the head 28 on the rod will preferably be turned 180° so that the projecting lug 29 may be disposed in a short slot 37 in the lower portion of the tube 11. The engagement of the lug 29 with the tube will positively hold the rod against retraction.

We claim:

1. Mechanism for manually operating the bolt of a machine gun including a tube securable to the gun, said tube provided with a slot and with sets of oppositely disposed notches in the side walls defining the slot, a slide within the tube having a member extending through the slot in the tube, a rod reciprocable and rotatable within the tube and passing through the slide, and a head on the rod confining the slide and having a stud disposed in the slot in the tube.

2. Mechanism for manually operating the bolt of a machine gun including a tube securable to the gun, a slide in said tube having a member extending through the tube, a rod reciprocable and rotatable within the tube and passing through the slide, a head on the rod confining the slide and means on the head movable into engagement with the tube for holding the rod against reciprocation in various positions of its stroke.

3. Mechanism for manually operating the bolt of a machine gun including a tube securable to the gun, a slide in said tube having a member extending through the tube, a rod reciprocable and rotatable within the tube and carrying the slide, and means on the rod movable into engagement with the tube at a predetermined point in its stroke whereby it is held against reciprocation.

4. Mechanism for manually operating the

bolt of a machine gun including a tube securable to the gun, a slide in the tube having a member extending through the tube, a rod reciprocable and rotatable in the tube and passing through the slide and a head on the rod engageable with the slide.

5. Mechanism for manually operating the bolt of a machine gun including a tube securable to the gun, a slide in said tube including a member extending through the tube, a rod reciprocable in the tube, said rod carrying the slide and rotatable relative thereto, means on the rod movable into engagement with the tube at various points in its stroke whereby it is held against reciprocation, and means whereby the slide may be selectively locked to the rod.

6. Mechanism for manually operating the bolt of a machine gun including a tube, a front bracket having an end plate and receiving an end of the tube, a plug fitting in the end of the tube and secured to the end plate of the bracket, a bolt passing through the tube, bracket and plug and affording means for securing the assembly to a gun, a rod reciprocable in the tube, and a spring normally holding the rod against the plug.

RICHARD C. COUPLAND.
GEORGE A. WOODY.

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