Aug. 25, 1936. S. WILEY 2,051,927

DISCHARGER FOR PYROTECHNIC CARTRIDGES

Filed March 10, 1934 2 Sheets-Sheet 1

Fig. 1.

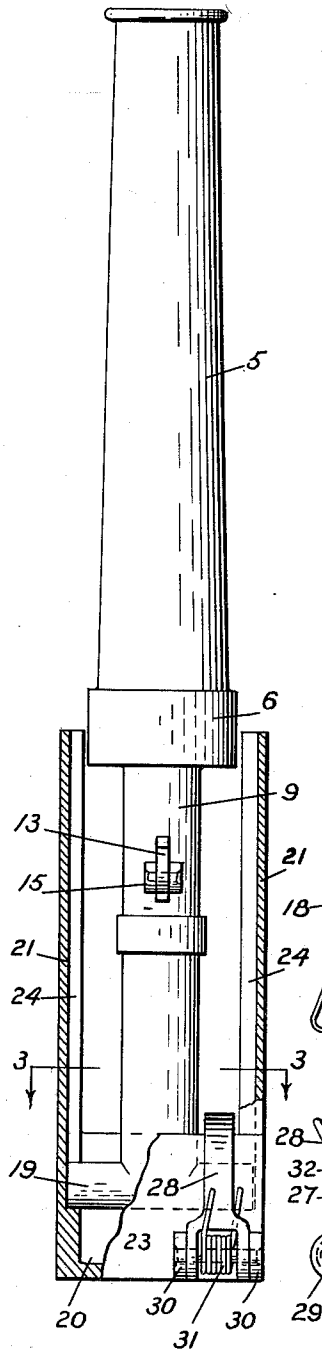


Fig. 2.

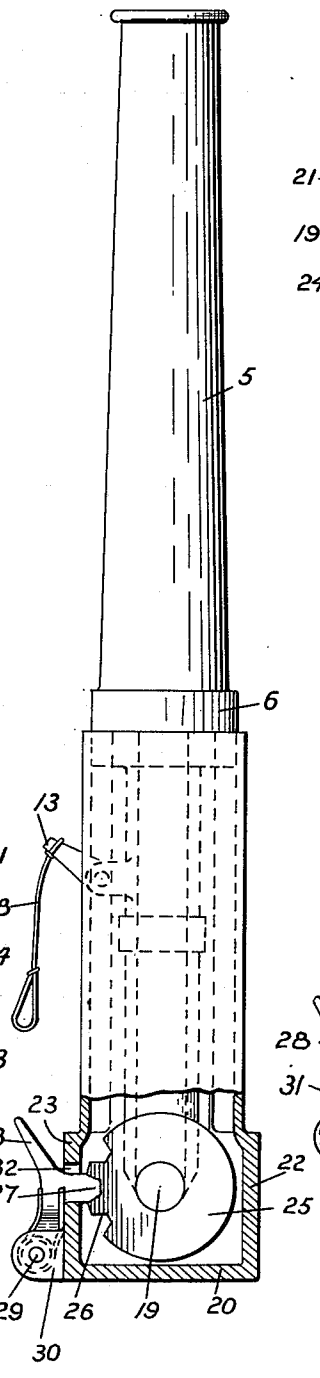


Fig. 3.

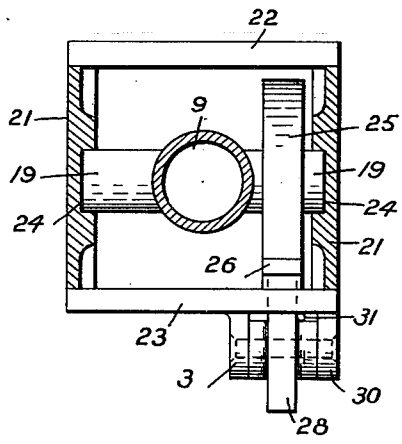
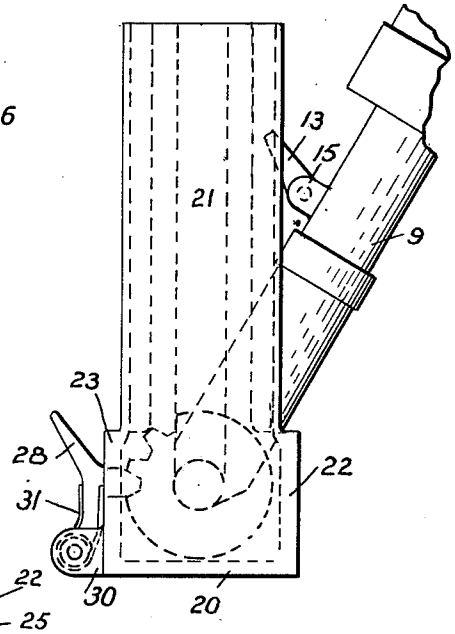


Fig. 4.



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Aug. 25, 1936. S. WILEY 2,051,927

DISCHARGER FOR PYROTECHNIC CARTRIDGES

Filed March 10, 1934 2 Sheets-Sheet 2

Fig. 5.

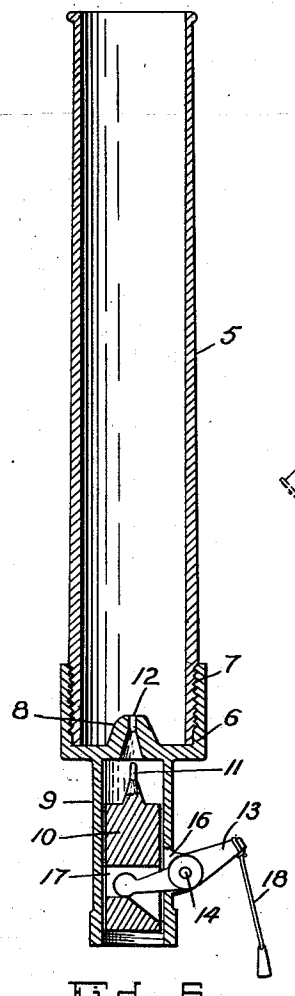


Fig. 6.

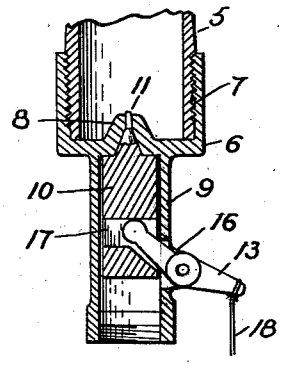


Fig. 7.

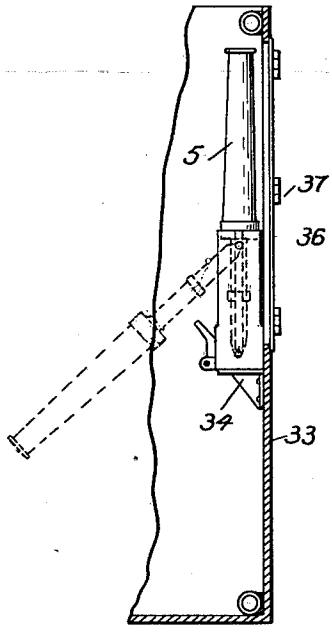


Fig. 8.

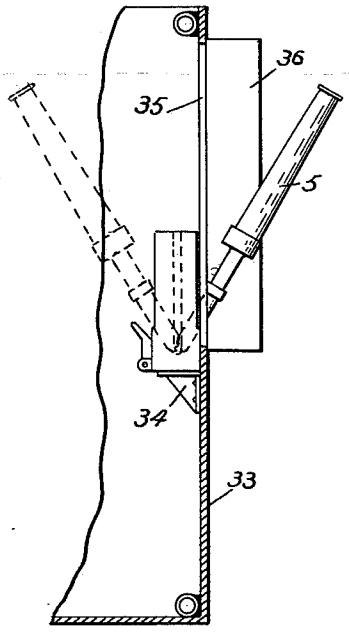


Fig. 9.

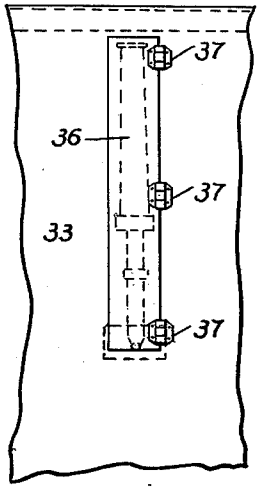
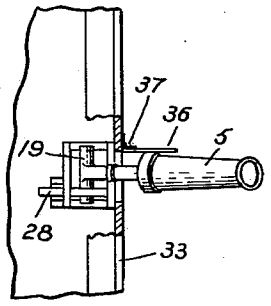


Fig. 10.



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UNITED STATES PATENT OFFICE

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DISCHARGER FOR PYROTECHNIC CARTRIDGES

Samuel Wiley, Metuchen, N. J.

Application March 10, 1934, Serial No. 714,939

4 Claims. (Cl. 89—37)

(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 me of any royalty thereon.

This invention relates to a discharger for pyrotechnic cartridges.

The principal object of the invention is to provide a discharger which is capable of firing a large cartridge carrying a heavy propellant charge and which may be conveniently mounted on the side wall of aircraft.

Other objects are to provide a novel means for mounting a barrel in a frame and for locking the barrel in various positions of angular adjustment.

With the foregoing and other objects in 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 invention 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 drawings, wherein:

Fig. 1 is a view in rear elevation and partly in section of the improved discharger.

Fig. 2 is a view in side elevation.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary view in side elevation showing the barrel in firing position.

Fig. 5 is a longitudinal sectional view of the barrel with a firing pin in retracted position.

Fig. 6 is a longitudinal sectional view showing the firing pin in fired position.

Fig. 7 is a view showing the mounting of the discharger on the wall of an aircraft.

Fig. 8 is a similar view with the barrel in firing position.

Fig. 9 is a view in side elevation of the wall of the aircraft.

Fig. 10 is a plan view of the discharger of Fig. 8.

Referring to Figs. 1 to 6 the discharger comprises a barrel 5 having its rear end closed by a breech 6 wihch is attached to the barrel by the threaded connection 7. The breech 6 is formed with a conical projection 8 for centering a cartridge (not shown) carrying its own propelling charge.

A reduced stem 9 on the breech and coaxial with the barrel houses a firing pin 10 whose point 11 is adapted to pass through an aperture 12 in the conical projection 8. A lever 13 pivotally mounted on a pin 14 carried by ears 15—15 on the stem extends through an aperture 16 in the stem and has its inner end disposed in a slot 17 in the firing pin. A lanyard 18 is attached to the outer end of the lever and serves to rotate the lever and drive the firing pin forward. The extremity of the stem 9 is provided with a pair of trunnions 19—19.

A frame for mounting the barrel consists of a bottom plate 20, side plates 21—21 and relatively short front and back plates respectively 22 and 23. The side plates are formed with opposite guideways or channels 24—24 on their inner faces. The channels are open at the upper edge of the side plates and are closed adjacent the bottom plate. This arrangement provides for entry of the trunnions 19 between the plates and the closed ends constitute bearings or seats for the trunnions as clearly shown in Fig. 1.

One of the trunnions is provided with a wheel or annular head 25 positioned between the side plates and having peripheral notches or recesses 26 for receiving a beveled lug 27 on a detent 28. The detent is pivotally mounted on a pin 29 carried by ears 30—30 fast on the back plate 23. A spring 31 acting on the detent normally moves it towards the back plate and causes the lug 27 to project through an aperture 32 in the back plate and into one of the recesses 26.

As shown in Fig. 2 when the lug 27 is engaged in the center recess the barrel is parallel to the frame. When the lug is engaged in the end recesses the stem of the barrel rests on and is additionally supported by the front or back plate as indicated in Figs. 4 and 8.

Referring to Figs. 7 to 10 the discharger is installed on a vertical wall 33 and is supported in any suitable manner, as by the bracket 34. The wall 33, for example, may be the body of an aircraft. The wall is provided with an opening 35 through which the barrel may be moved as shown in Fig. 8. The opening is normally closed by a panel 36 mounted on spring-actuated hinges 37.

When the discharger is not in use it is carried in a vertical position parallel to the wall 33 as seen in Fig. 7. In order to load the discharger from the inside of the aircraft it is moved to the position shown in dotted lines in Fig. 8 and a cartridge is dropped into the muzzle of the barrel. The firing pin 10 is in the retracted position due to the action of gravity. The barrel is then pushed through the opening 35 in the wall 33 and locked in the position shown in full lines

in Fig. 8 by means of the detent 28. The cartridge is fired by pulling the lanyard and driving the firing pin forward.

When it is desired to remove the cartridge from the barrel due to a misfire or to a decision not to fire, the barrel is grasped by the hand and pulled upwardly. This action automatically disengages the detent 28 and causes the trunnions 19 to ride upwardly in the channels 24 of the side plates 21. The barrel is then tilted either outwardly or inwardly as indicated in dotted lines in Fig. 7 and the cartridge falls out of the barrel. Upon lowering the barrel until the trunnions are seated in the bottom of the channels 24 the lug 27 on the detent reengages in one of the recesses 26 and holds the barrel in place.

While the discharger is illustrated as mounted on a wall 33 it is to be understood that it may be carried by any suitable support.

I claim:

1. In a discharger, a frame including spaced side plates, the inside face of each plate having a guideway open at the upper edge of the plate and providing a seat adjacent the bottom of the plate, a front plate and a back plate connecting the side plates and extending above the seats of the guideways, a barrel including a reduced stem having trunnions adapted to ride in the guideways and be supported on the seats thereof, an annular head on one trunnion provided with a series of peripheral recesses, a detent carried by the back plate and selectively engageable in the recesses to hold the barrel in position of angular adjustment, and the stem of the barrel engageable with the front or back plate when the detent is in the end recesses.

2. In a discharger, a frame including spaced side plates, the inside face of each plate having a guideway open at the upper edge of the plate and providing a seat adjacent the bottom of the plate, a front plate and a back plate connecting the side plates, a barrel including a reduced stem having trunnions adapted to ride in the guideways and be supported on the seat thereof, an annular head on one trunnion provided with a series of peripheral recesses, a detent carried by the back plate and selectively engageable in the recesses to hold the barrel in position of angular adjustment, and the stem of the barrel engageable with the front or back plate when the detent is in the end recesses.

3. In a discharger, a frame including spaced side plates, the inside face of each plate having a guideway open at the upper edge of the plate and providing a seat adjacent the bottom of the plate, a front plate and a back plate connecting the side plates and extending above the seats of the guideways, a barrel including a reduced stem having trunnions adapted to ride in the guideways and be supported on the seats thereof, an annular head on one trunnion provided with a series of peripheral recesses, a detent carried by the back plate and selectively engageable in the recesses to hold the barrel in position of angular adjustment.

4. A support having trunnion seats, barrel holding means carried by the support adjacent the seats, a barrel having trunnions engaging the seats when in firing position and held by the holding means, and vertical trunnion guideways in the support above the seats for receiving the trunnion when the barrel is raised from engagement with the holding means for the purpose of being tilted an amount greater than that permitted by the holding means.

SAMUEL WILEY.