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HAND SIGNAL DISCHARGER

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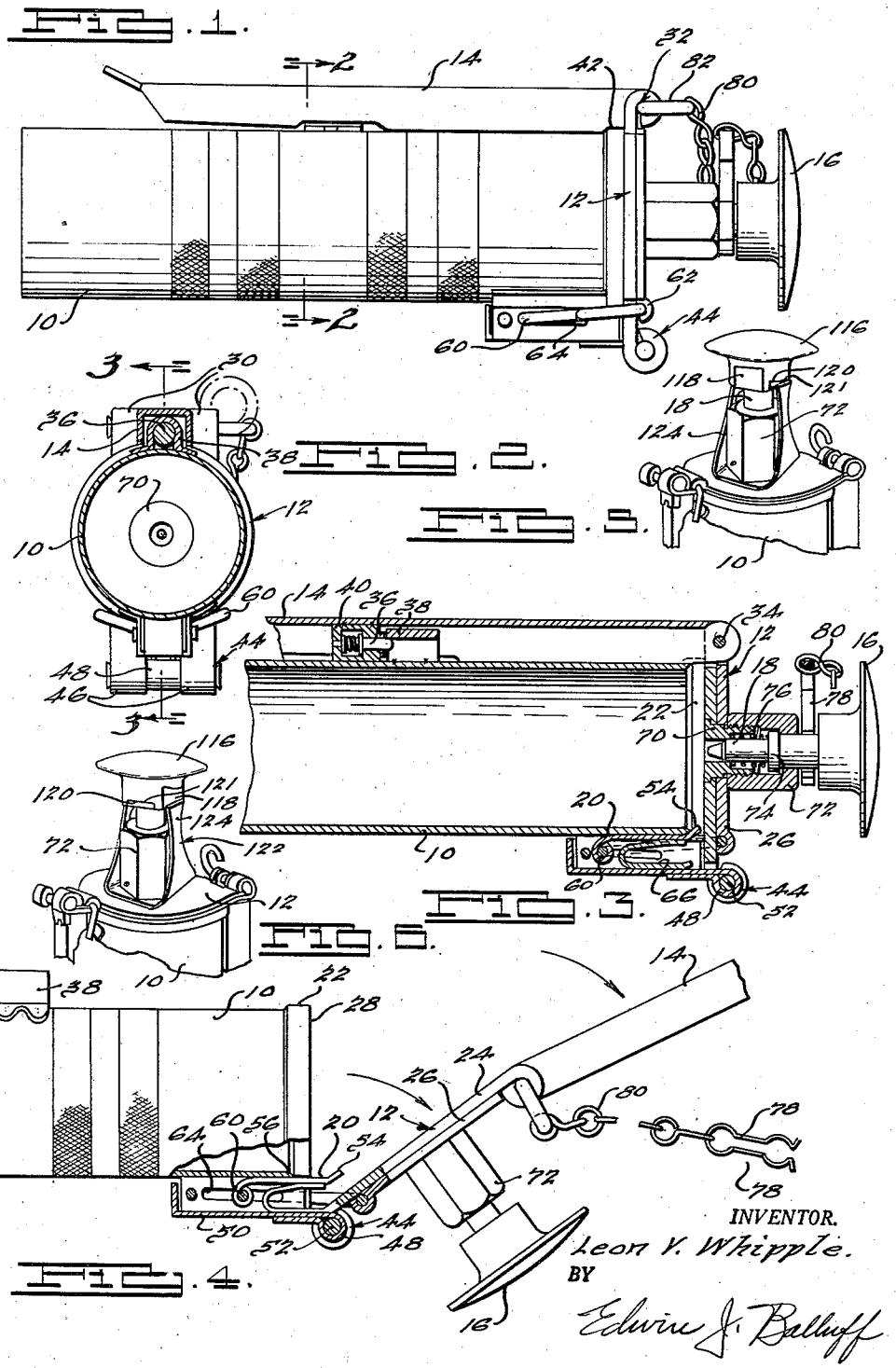

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HAND SIGNAL DISCHARGER

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3 Claims. (Cl. 42—2)

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This invention relates to signal dischargers and has particular reference to a simple and inexpensive pyrotechnic signal discharger which is adapted to be hand operated.

Principal objects of the invention are:

To provide a durable, inexpensive, and efficient hand operated discharger;

To provide a discharger of this type which is adapted to handle both rim type and interrim type of ammunition;

To provide a discharger of the type referred to with an extractor which is adapted to handle both rim type and interrim type of ammunition; and

To provide a discharger of the character disclosed with a very simple and convenient form of safety.

Other objects and advantages of the invention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawings, of which there is one sheet and wherein:

Fig. 1 is an elevational view of a discharger embodying the invention;

Fig. 2 is a vertical sectional view taken along the line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary elevational view with parts illustrated in section with the breech of the discharger open;

Fig. 5 is a fragmentary elevational view illustrating a modified form of safety in "on" position; and

Fig. 6 is a view similar to Fig. 5 but with the safety in "off" position.

The discharger illustrated is particularly adapted, although not limited, for use in shooting pyrotechnic signals, lights, etc., and is a portable, hand operated device. In general it consists of a barrel 10, a breech block or closure 12, a latch 14, a knob 16, a firing pin 18, and an extractor 20. The barrel 10 may be formed of steel tubing or any other suitable material, and has its breech end flared or enlarged as indicated at 22 to accommodate the rims or flanges of rim type ammunition. The breech 12, as illustrated, consists of a pair of flat, plate-like members 24 and 26 suitably integrally united. The plate 24 is adapted to seat against the end 28 of the breech end of the barrel 10 for closing the same. The plate 24 is extended beyond the sides of the barrel 10 to provide a bifurcation 30 which forms part of a hinge 32 by means of which the latch 14 is hinged to the breech 12. The end of the latch

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14 is accommodated between the bifurcations 30 and a pin 34 extends through suitably formed portions of the bifurcation 30 and the end of the latch 14 to form the hinge 32.

When the breech is closed the latch 14 is adapted to be positioned along side the outside of the barrel 10, as illustrated in Figs. 1 and 3. The latch 14 may be formed of a U-shaped piece of metal and has arranged therein spring pressed detent 36 which is cooperable with a retainer or keeper 38 for holding the latch 14 in the position illustrated in Fig. 1 and hence holding the breech 12 closed.

The keeper or retainer 38 may consist of a suitable U-shaped strip of metal secured to the exterior of the barrel and in position to be accommodated between the side legs of the latch 14. The spring pressed detent 36 is carried by a block 40 which is integrally secured between the side legs of the latch 14. The latch 14 is notched as indicated at 42 to accommodate the enlarged end 22 of the barrel 14.

The other side of the plate 24 is extended to form a part of the hinge 44 by means of which the breech 12 is pivotally connected to the barrel 10. The part of the plate 24 which extends to one side of the barrel 10 to form a part of the hinge 44 is bifurcated as indicated at 46 so as to accommodate therebetween a bracket 48 which forms a part of a hollow box or member 50 secured to the exterior of the barrel 10 adjacent the breech end thereof.

A pin 52 carried by the bracket 48 extends through the bifurcations 46 to complete the hinge 44. The box or member 50 is adapted to house the extractor mechanism which includes the extractor 20. The free end 54 of the extractor 20 projects upwardly through a notch 56 formed in the end of the barrel 10, the end 54 being positioned as illustrated in Fig. 3 when the breech 12 is closed. In this position the end 54 of the extractor 20 is adapted to engage either the rim of a piece of rim type ammunition or the shoulder of a piece of interrim type of ammunition, so that when the breech is opened, as illustrated in Fig. 4, the piece of ammunition will be extracted. The extractor 20 has its other end connected to a bail 60 the ends of which are pivotally connected to the breech 12 at 62. The side walls of the member 50 are provided with slots 64 through which the bail extends, the extractor 20 being positioned between the side walls of the box 50. The extractor 20 is pivoted to the bail 60 and a spring 66 positioned in the box 50 and secured

to the bottom wall thereof biases the extractor 20 toward the barrel 10.

The bail 60 is so connected to the breech 12 that when the breech is opened the extractor is shifted from the position illustrated in Fig. 3 to that illustrated in Fig. 4 so as to extract the shell. The breech 12 may from the position illustrated in Fig. 3 be swung about its hinge more than 180° in a clockwise direction so as to completely expose the breech end of the barrel 10, thereby facilitating the removal of ammunition from the barrel 10 and the insertion of ammunition into the barrel 10. The enlarged end 28 of the barrel permits the front end of the ammunition to be positioned at the side of the end 54 of the extractor so that the same can be depressed in order to insert the ammunition in the barrel 10. If the breech 12 is swung about its hinge 180° from the position in which it is illustrated in Fig. 3, the extractor 20 will be positioned in the same place as that in which it is illustrated in Fig. 3.

A guide 70 projects through a central opening in the breech 12 and on the rear face thereof has secured thereto a nut 72. The guide 70 and nut 72 form a housing and support for the firing pin 18 which is formed on the forward end of a pin to which the knob 16 is secured. The firing pin is provided with a lateral flange 74 and a spring 76 is arranged around the pin 18 and between the flange 74 and the guide 70 for biasing the firing pin to its retracted position. As illustrated in Figs. 1 and 3, the firing pin is straddled by a spring clip 78 which is positioned between the nut 72 and the knob 16, thereby preventing actuation of the firing pin. The spring clip 78 is carried at one end of a chain 80 which may be fastened to a loop 82 formed on one end of the hinge pin. 34. The spring clip 78 may be readily separated from the firing pin so that the same may be actuated by a blow imparted to the knob 16 in the direction of the barrel 10. The spring clip 78 when positioned as illustrated in Fig. 3 forms a safety for the discharger by preventing actuation of the firing pin.

In the modifications illustrated in Figs. 5 and 6, the construction is the same as that previously described except for the safety. In this embodiment the shank of the knob 116 is squared so as to provide a pair of flats 118 and a pair of flats 120, the flats 118 being positioned on opposite sides of the shank and the flats 120 likewise being positioned on opposite sides of the shank but 90° from the flats 118. A U-shaped spring clip 122 is secured between the nut 72 and the breech 12 with the legs 124 extending beyond the nut 72. It will be noted that the flats 120 are of considerably less axial length than the flats 118. When the ends of the sides 124 of the clip 122 are contacting the flats 120 as illustrated in Fig. 5, the shoulders 121 at the upper ends of the flats 120 will engage the ends of the sides 124 of the clip 122, thereby preventing actuation of the firing pin. By turning the knob 116 ninety degrees about the axis of the firing pin from the position in which the knob 116 is illustrated in Fig. 5, the knob 116 will be positioned relative to the legs 124 as illustrated in Fig. 6, and in this position a blow may be imparted to the knob 116 for actuating the firing pin without interference from the legs 124 of the clip 122. The ends of the legs 124 bear against the flats 118 or 120, thereby preventing accidental shifting of the pin 116 from one of its positions to the other. The knob 116 and the firing pin 18 on which it is mounted are free to rotate except as resisted by the action of the legs 124 on the flats 118 or 120.

While the invention has been described with some detail, it is to be understood that the description is for the purpose of illustration only and is not definitive of the limits of the inventive idea. The right is reserved to make such changes in the details of construction and arrangement of parts as will fall within the purview of the attached claims.

I claim:

1. A discharger comprising a barrel, a breech member, a housing projecting from said breech member, and firing mechanism carried by said breech member and including a firing pin and an exposed knob connected to said firing pin in order that a blow may be imparted thereto for moving said knob toward said breech member for actuating said firing pin, said knob being provided with a shoulder on one side thereof facing said breech member and a spring member positioned in the path of movement of said shoulder upon movement of said knob for obstructing movement of said knob and firing pin, said spring member being mounted on said breech member, said knob and spring being constructed and arranged so as to be relatively rotatable about the axis of said firing pin so as to effect disalignment of said spring and shoulder in order to permit actuation of said firing pin, said spring bearing against said knob so as to bias said knob and spring against relative rotation.

2. A discharger comprising a barrel, a breech member, a housing rigidly mounted on said breech member, and firing mechanism carried by said housing and including a firing pin and an exposed knob connected to said firing pin in order that a blow may be imparted thereto for actuating said firing pin, said knob being provided on one side thereof with a shoulder facing said housing and a spring member fixedly secured to said breech member and positioned in the path of movement of said shoulder upon movement of said knob in one direction and being engageable with said shoulder for obstructing movement of said knob and firing pin, said knob and spring being constructed and arranged so as to be relatively rotatable about the axis of said firing pin so as to permit disalignment of said spring and shoulder in order to permit actuation of said firing pin, said spring bearing against said knob so as to bias said knob and spring against relative rotation.

3. A discharger comprising a barrel, a breech member, a housing fixedly mounted on said breech member and projecting therefrom, and a firing mechanism carried by said housing and including a firing pin and an exposed knob at the rear of said discharger connected to said firing pin in order that a blow may be imparted thereto for actuating said firing pin, said knob being provided with a pair of circumferentially spaced shoulders facing said housing, and a U-shaped spring member, the ends of the arms of said U-shaped member being arranged in the path of movement of said shoulders upon movement of said knob in one direction and being engageable with said shoulders for obstructing movement of said knob and firing pin, said spring member being clamped between said breech member and housing.

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