Feb. 24, 1953 L. E. BADHAM 2,629,516

COMBINATION LIQUID PISTOL AND SPOTLIGHT

Filed Oct. 2, 1951 2 SHEETS—SHEET 1

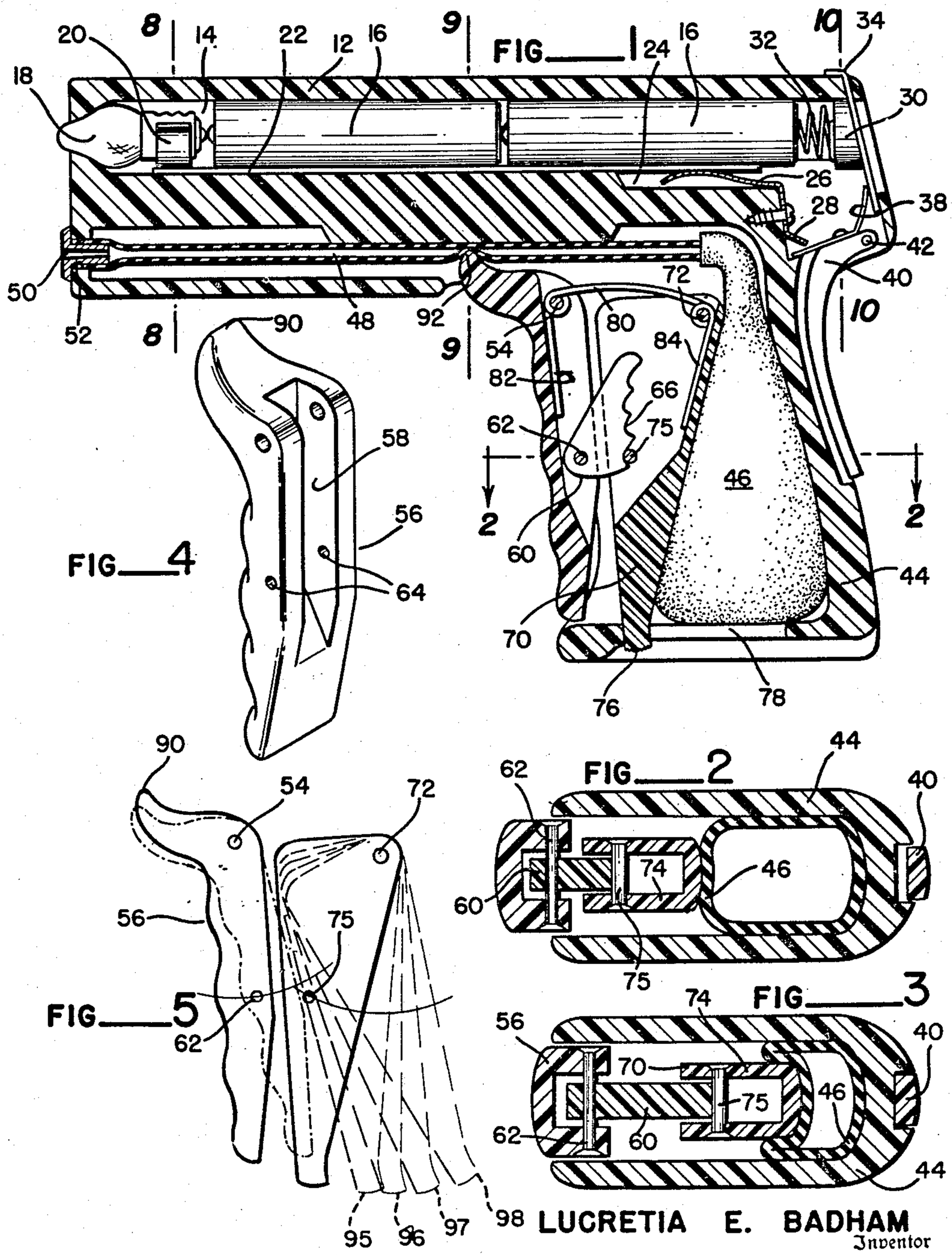

FIG. 1

FIG. 4

FIG. 5

FIG. 2

FIG. 3

TX 344 X279

LUCRETIA E. BADHAM
Inventor

By Smith & Tuck

Attorneys

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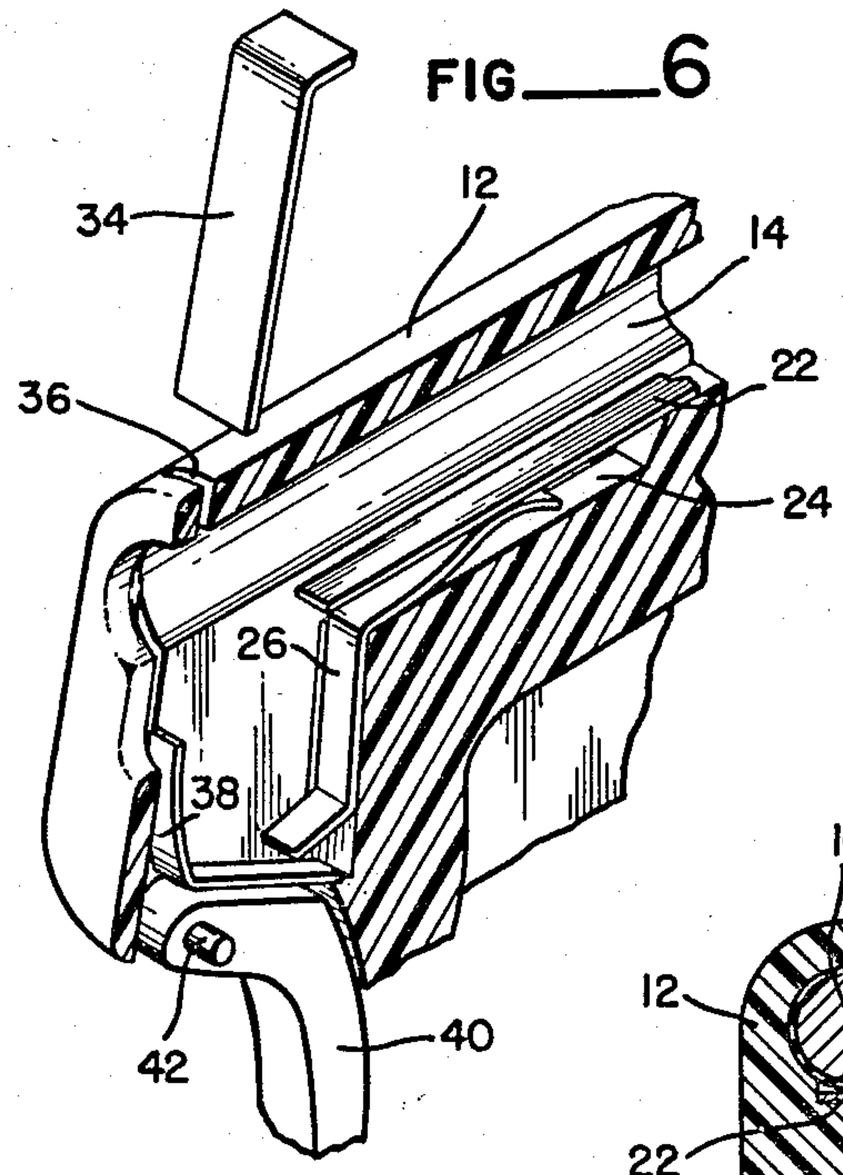
FIG. 6



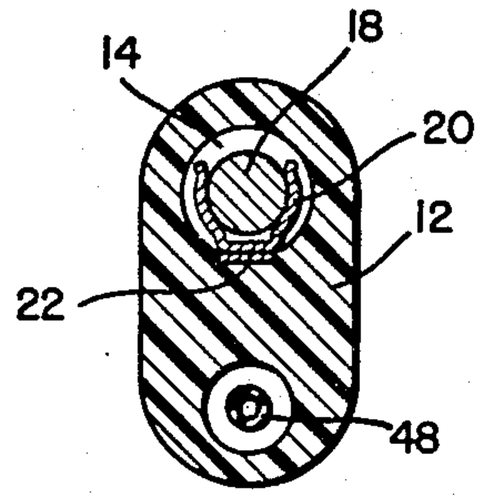


FIG. 8

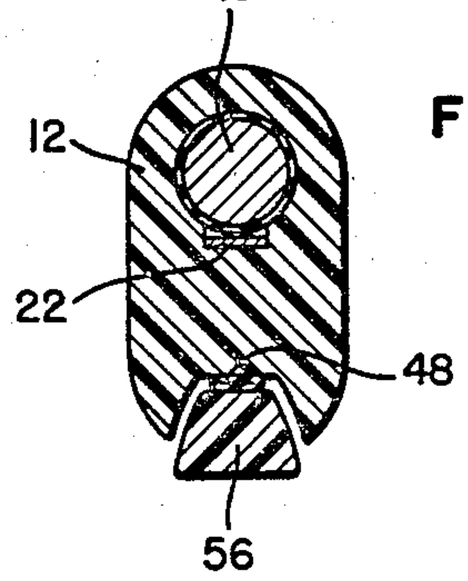


FIG. 9

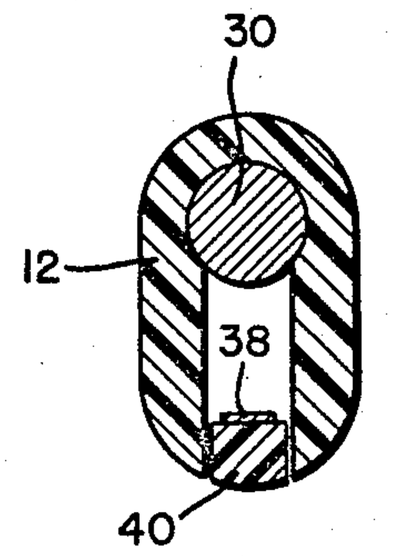


FIG. 10

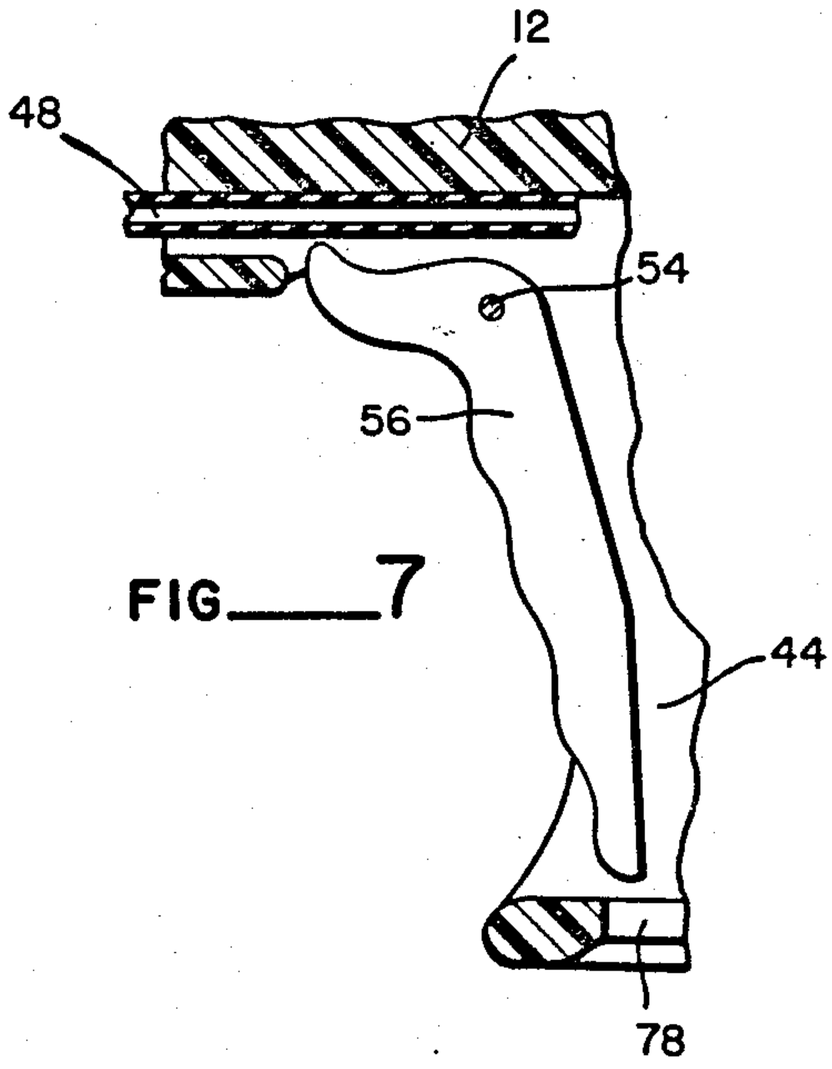


FIG. 7

LUCRETIA E. BADHAM
Inventor

By Smith & Tuck

Attorneys

Patented Feb. 24, 1953

2,629,516

UNITED STATES PATENT OFFICE

2,629,516

COMBINATION LIQUID PISTOL AND SPOTLIGHT

Lucretia E. Badham, Seattle, Wash.

Application October 2, 1951, Serial No. 249,339

4 Claims. (Cl. 222—79)

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This present invention relates to a weapon designed for defense; particularly for women whose work takes them about at night. The weapon is arranged as a fluid pistol having a mechanism arranged to discharge the contents of a liquid container in a plurality of short spurts and at the same time the pistol is gripped to discharge the liquid a grip form of switch completes the electrical circuit to energize a spotlight globe so that a beam of light is projected and this beam of light is substantially coincident with the trajectory of the liquid stream for the short distance that is the normal range of the weapon. Means are provided to make the weapon adaptable to the required sequential operation without undue attention from the user and mechanical means is employed to give extra pressure to the projection of the fluid so that an effective weapon is provided.

In the past a wide variety of defensive weapons have been made available. Actually hundreds of various types of pistol firearms have been provided in small size for easy carrying on the person or in a lady's handbag. Other inventors have endeavored at various times to provide a spotlight or flashlight type of illuminating means, arranging the same in alignment with the bore of the weapon as a convenience in firing the weapon at night, using quite often the center of the beam as the impact point of the bullet. Numerous other weapons have been provided which may be generally classified as liquid pistols in that they are adapted to be filled with various types of liquids and when discharged to have a very deterring effect upon a person or animal attacking a person. A study of these various arms however still does not disclose a weapon primarily intended as a close-in defense weapon which is suitable for use by anyone except an expert in the handling of firearms. A weapon to project a noxious liquid or liquified gas is a very effective defensive weapon and does not permanently injure the person on whom it is used; yet as it actually gives one the protection desired it appears that this is the ideal type of defensive weapon and one which avoids the serious consequences of actually firing a bullet at an attacker.

In order to provide a truly effective defensive weapon for inexperienced persons it is necessary to so construct the weapon that the sequence of operations required are automatically executed by the mere procedure of squeezing the grip of the weapon. For instance the illuminating and aiming light should first be turned on so that

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the weapon can be properly pointed and then the liquid should be discharged at relatively high velocity so that if the aim is not accurate the splatter will be effective. Then too there are many forms of liquified gas in which it is very desirable to have high velocity projection of the liquid to insure proper atomizing of the same.

In this present weapon the recognized disadvantages of existing arms have been avoided and steps have been taken to make a weapon that will first be effective, then, easily used, and finally, one in which the various functions automatically follow each other in their proper sequence.

The provision of a light on a liquid pistol for this purpose is very important. A majority of the assaults of women occur at night when it is difficult to see the attacker and to aim the pistol with the ordinary sights but convenient to aim the pistol by a light beam. At the same time, most women are not accustomed to using firearms and their usual sights and the light rays provide convenient means for aiming the pistol for the novice. The light should be disposed above the liquid jet because the light rays would be diffused by the liquid jet if the light were below and this would make it difficult to aim the pistol properly.

The principal object of this present invention therefore is to provide, as a complete unit, a defensive weapon that will be effective, easily operated, and not lethal in its action.

A further object of this invention is to provide a combination of an aiming light and a multi-shot liquid pistol synchronized together so that their various parts function in the proper sequence when put into use.

A further object of this invention is to provide convenient aiming means for a liquid pistol in the form of a beam of light to assist the novice in aiming the device and for providing sight means for use in the dark; and it is an object of the invention to dispose such aiming means above the liquid nozzle to prevent diffusing of the light beams.

A further object of this invention is to provide a combination spotlight and liquid pistol in which the first action in gripping the handle of the weapon is to turn on the spotlight and then, as continued pressure is applied to the grip, to project the liquid stream.

A further object of this invention is to provide a combination weapon in which the liquid pistol mechanism is arranged to give considerable mechanical advantage in the squeezing of the liquid-holding bulb and further an arrangement is pro-

vided for discharging the contents of the bulb as a number of individual discharges or squirts, each of which requires the compression of the bulb and the momentary release of pressure.

A further object of this invention is to provide means to insure against the leaking of liquids from the pistol as it is being carried without regard to the positioning of the pistol.

A further object of this invention is to provide a simple means for recharging the liquid pistol forming part of this invention.

Further objects, advantages and capabilities will be apparent from the description and disclosure in the drawings, or may be comprehended or are inherent in the device.

In the drawings:

Figure 1 is a vertical sectional view showing the various parts of this invention;

Figures 2 and 3 are cross-sectional views taken along the line 2—2 of Figure 1 and showing two stages in the collapsing of the liquid holding sack;

Figure 4 is a perspective view showing the trigger element of this weapon;

Figure 5 is a bracketed view showing two of the components employed in compressing the liquid-carrying sack and showing the limits of successive movement of the same during the complete discharge of the liquid;

Figure 6 is a fragmentary perspective view with certain parts shown in section illustrating the electric switching means employed in this device;

Figure 7 is a fragmentary, vertical sectional view, similar in part to Figure 1, but showing the trigger in its depressed position;

Figures 8, 9, and 10 are cross-sectional views taken along similarly numbered lines of Figure 1.

Referring more particularly to the disclosure in the drawings, the numeral 12 designates the main frame or housing of my gun. This is preferably made from molded material as plastic or some of the numerous rubber or rubber-substitute compounds. Preferably it is not metallic to the end that the weight may be kept to a minimum and then by having it nonconductive the electrical connections and switching are greatly simplified. By choice it is preferably black or dark blue so as to carry out as fully as possible the similation of a fire-arm. While there are many ways in which the housing could be formed I prefer it to be a unitary molding for both strength and cheapness and provision is made for the adequate assembly and servicing of the device.

In the upper portion of housing 12 is a bore 14. This is positioned substantially where a barrel would occur in an automatic pistol and it provides a proper housing for the small-sized flashlight batteries 16 and the light globe 18. Globe 18 is preferably of the type having a lens portion in the extreme end of the glass globe to the end that a relatively narrow beam of light will thus be provided. The lens portion of globe 18 preferably extends outwardly from bore 14 substantially as illustrated in Figure 1, and the globe is held in place by a clip 20, which clip is secured to an electric conductive strip 22. Strip 22 is held in position by small bosses or by grooving bore 14 but is otherwise free to slide rearwardly or to the right as viewed in Figure 1 in order that it will be convenient to replace bulb 18. To the rear end of bore 14 a groove is formed at 24 in which is disposed the resilient positive contact member 26. This member is fixedly secured to housing 12 and is provided with the contact portion 28.

Disposed concentrically with batteries 16 and positioned within bore 14, which is substantially

complete excepting for a narrow cut in the same, is the backing disc 30 which has secured to it a compression spring 32 which serves to seat the two batteries in operable contact with each other and with the center contact point of globe 18. Disc 30 is held in position by a slidable negative contact member 34 and is disposed for substantially vertical movement within groove 36. Contact member 34 as well as disc 30 are made of electric current conductive material and member 34 forms a wiping contact with the resilient contact member 38. This member in turn is fixedly secured to the switch lever 40. Lever 40 is pivoted about the fixed pivot 42 and contact member 38 is disposed after the showing of Figure 1 so that by pressing inwardly on switch lever 40 contact will be made with the positive contact member 28 and an electrical circuit will be completed which will energize light globe 18. Switch lever 40 is positioned in the same relative position as the grip safety on the usual automatic pistol; consequently the first action when the handle is gripped is the depression of lever 40 and the illuminating of globe 18.

After the general form of automatic pistols, a grip 44 is provided. This is preferably of a U-shaped form as illustrated in Figures 2 and 3. Such a form simplifies molding in the manufacture but it also provides easy access for the installation of the various other working parts including the liquid bulb 46. Bulb 46 is formed after the general teachings of self-restoring bulbs excepting that the shape has been somewhat modified after the showings of Figures 1 and 2. Connecting to bulb 46 is the discharge tube 48 which in turn communicates with the nozzle member 50. Normally in the assembly of this unit tube 48 is passed out through opening 52 in housing 12 and the flexible tube 48 is fitted around the body portion of nozzle 50. Then nozzle 50 is pressed back into housing 12 after the showing of Figure 1 and a tight connection is thus formed. The bore of nozzle 50 can be varied to suit the type of material projected; in most cases a slightly tapered bore as indicated is preferable.

Pivotally secured within handle member 44 as on the fixed pivot 54 is the trigger member 56. This member is preferably configured on its outer surface to give convenient depressions for engaging the fingers of the user. It is also provided with a slot as 58 in which is disposed the pivoted pawl member 60. This member is disposed for free rotation about pivot 62 which is positioned within the aligned holes 64 of the trigger member. Pawl member 60 is provided on its operating face with a plurality of notches 66.

Disposed within the U-shaped portion of handle 44 is the presser member 70. This member is disposed for limited rotation about the fixed pivot 72. Presser member 70 is provided with a slotted portion 74 in which is disposed a fixed pin 75. This pin is adapted to successively receive the various notches 66 of pawl 60 and provides the step by step discharge of the liquid from bulb 46 after the showing of Figure 5. At its lower end a preferably knurled portion 76 is provided which extends outwardly through a slot 78 formed within the lower wall of handle 44. This element is provided for easy engagement of the presser member for use during the refilling operation after the supply of liquid in bulb 46 has been expended. Coiled about pivots 54 and 72 is spring member 80. This is provided with two downwardly extending leg

portions 82 and 84. Portion 82 is positioned to urge trigger 56 into its normal outward position and portion 84 is arranged to hold the presser member in contact with bulb 46 and must be of adequate strength to prevent the restoring characteristic of bulb 46 moving the presser member to the left as viewed in Figure 1. This is an essential relationship in order that pawl 60 may drop by gravity and have its various notches 66 engage pin 75.

Spring 80 has a further function in restoring trigger 56 to its full outer position in that an upward extension 90 of the trigger is disposed to pinch the flexible tube 48, which normally is of rubber or similar material, as at point 92 and thus insure that there will be no flow of liquid out through tube 48 by gravity and further the spring places enough loading on trigger 56 so that it will not be easily depressed while being carried and unintentionally discharge any liquid.

In recharging bulb 46 after it has been emptied, the gun is held in a position with handle 44 uppermost. Then the knurled portion 76 is engaged with the finger or thumb so as to slightly withdrawn pin 75 from engagement with notches 66. The pawl will then fall due to gravity to a position abutting the bottom or wall of slot 58. The liquid can then be fully expelled from bulb 46 by continuing the movement of presser 70, which would be a continuation of that shown in Figure 3, until the walls of the bulb are in engagement. Then, if nozzle 50 is placed below the surface of the liquid and the presser 70 moved as to the left as in Figure 1, moving it over until it abuts the end of slot 78 as shown, the bulb then acting upon the principle of a restoring position bulb will draw in a full storage of liquid. Then if the gun is reversed into a barrel uppermost position, pawl 60 will engage its lower notch 66 on pin 75 and the gun is ready for use. Pressure on the handle 44, as in grasping the same with one hand, then will press in the switch lever 40 illuminating globe 18 and the trigger will move the presser 70 to the position shown at 95 in Figure 5. Now due to the favorable position of pin 62 considerable mechanical advantage is obtained and high pressure can be given to the liquid with a resulting relatively high velocity. When the trigger has been squeezed into the open U of the handle as far as normal gripping can achieve, the one discharge is complete, and it is necessary to release pressure on trigger 56 so that the second vertical notch of pawl 60 can be engaged on pin 75. This will permit moving the presser to the position shown at 96 in Figure 5 and similar movements of the trigger will make corresponding movements in the presser 70 as are indicated at 97 and 98.

It is believed that it will be clearly apparent from the above description and the disclosure in the drawings that the invention comprehends a novel construction of a combination liquid pistol and spotlight.

Having thus disclosed the invention, I claim:

1. A combination liquid pistol and spotlight, comprising: a housing of non-metallic material including a barrel portion and a hand grip depending from the rear end of said barrel portion, said barrel portion having an upper and a lower bore; a light globe positioned in the forward end of said upper bore of a type having a lens forming a narrow beam of light; battery means in said upper bore in contact with the central terminal of said globe; a metal strip contacting the side terminal of said globe and extending rearwardly alongside said battery means; said housing having a rear opening aligned with said upper bore; a metallic connector disc having a metallic compression spring bearing on the rear of said battery means and biasing the same toward said globe; a metallic contact member mounted to slide vertically in said housing past said opening and supporting said connector disc; a switch lever pivotally mounted on the outside of said housing at the upper rear portion of said grip to be pivoted inward when the user squeezes said grip; switch means connected to said switch lever disposed to connect said contact member and said metal strip to activate said globe when said switch lever is pivoted inward; said grip having a U-shaped cross section transversely with the base of the U at the rear of the grip; a bulb positioned in said grip; a nozzle member at the forward end of said lower bore; a flexible tube connecting said nozzle member and the upper end of said bulb; a trigger member positioned in the forward end of said grip and pivotally connected thereto at its upper end; a presser member positioned in said grip between said trigger member and said bulb and pivotally connected to said grip at its upper end; spring means biasing said presser member and trigger member apart; a pawl pivotally connected to said trigger member having an operating face with a plurality of notches at various distances from its point of pivotal connection; a pin on said presser member disposed to contact said notches, one at a time, the selection of the notch depending on the fullness of said bulb; and an extension of the upper end of said trigger member disposed to squeeze said tube shut when the trigger member is in inoperative position.

2. A combination liquid pistol and spotlight, comprising: a housing having a barrel portion and a hand grip depending from the rear end of said barrel portion, said barrel portion having an upper and a lower bore; a light globe positioned in the forward end of said upper bore and battery means in said upper bore in contact with the central terminal of said globe; a metal strip contacting the side terminal of said globe and extending rearwardly; contact means making an electrical contact with the rear end of said battery means and biasing said battery means toward said globe; a switch lever pivotally mounted on the outside of said housing at the upper rear portion of said grip to be pivoted inward when the user squeezes said grip; switch means connected to said switch lever disposed to connect said metal strip and said contact means to activate said globe when said switch lever is pivoted inward; said grip having a U-shaped cross section transversely with the base of the U at the rear of the grip; a bulb positioned in said grip; a nozzle member at the forward end of said lower bore; a tube connecting said nozzle member and the upper end of said bulb; a trigger member positioned in the forward end of said grip and pivotally connected thereto at its upper end; a presser member positioned in said grip between said trigger member and said bulb and pivotally connected to said grip at its upper end; spring means biasing said presser member and said trigger member apart; a pawl pivotally connected to said trigger member having an operating face with a plurality of notches at various distances from its point of pivotal connection; and a pin on said presser member disposed to contact said

notches, one at a time, the selection of the notch depending on the fullness of said bulb.

3. A liquid pistol, comprising: a housing including a barrel portion and hand grip depending from the rear end of said barrel portion, said barrel portion having a longitudinal bore; a nozzle member at the forward end of said bore; said grip having a U-shaped cross section transversely with the base of the U at the rear of the grip; a resilient bulb positioned in said grip; a flexible tube running through said bore and connected to said nozzle member and the upper end of said bulb; a trigger member positioned in the forward end of said grip and pivotally connected thereto at its upper end; a presser member positioned in said grip between said trigger member and said bulb and pivotally connected to said grip at its upper end; spring means biasing said presser member and trigger member apart; a pawl pivotally connected to said trigger member having an operating face with a plurality of notches at various distances from its point of pivotal connection; a pin on said presser member disposed to contact said notches, one at a time, the selection of the notch depending on the fullness of said bulb, whereby a stream of liquid from said bulb under considerable pressure is formed each time the trigger is squeezed; and an extension of the upper end of said trigger member disposed to squeeze said tube shut when the trigger member is in inoperative position.

4. A liquid pistol, comprising: a housing including a barrel portion and a hand grip depending from the rear end of said barrel portion, said barrel portion having a longitudinal bore; a nozzle member at the forward end of said bore; a bulb positioned in said grip; a tube running through said bore and connected to said nozzle member and said bulb; a trigger member pivotally connected to said housing; a presser member positioned in said grip abutting said bulb and pivotally connected to said grip; said presser member and said trigger member having a pawl pivotally connected to one and a pin means secured to the other, said pawl having an operating face with a plurality of notches at various distances from its point of pivotal connection, said pin means being disposed to contact said notches, one at a time, the selection of the notch depending on the fullness of said bulb, whereby a stream of liquid from said bulb under considerable pressure is formed each time the trigger is squeezed.

LUCRETIA E. BADHAM.

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