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GAS DISCHARGING DEVICE

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8 Claims. (Cl. 42—2)

The present invention relates generally to devices for discharging an incapacitating fluid, such, for example, as tear gas. More particularly the invention relates to that type of gas discharging device which is designed primarily to be used as a weapon of defense against criminals, and comprises a barrel for retaining a gas cartridge, a tubular stock in alignment with the barrel, a spring-pressed plunger which is slidably mounted in the stock and embodies a firing pin for engaging the percussion cap of the cartridge and a stud which is adapted to be used to retract the plunger against the force of the spring and extends through a longitudinally extending slot in the stock.

One object of the invention is to provide a device of this type in which the barrel and stock and the other operating parts are housed within a box-like casing which consists of a bottom section and a hinged top section, and is adapted to be placed upon a desk or counter and used as a paper weight or like article.

Another object of the invention is to provide a device of the aforementioned character in which the barrel for the gas cartridge is secured to and supported by the bottom section and discharges through an opening in one end of the casing, and the stock is connected to the top section in such a manner that when the top section is in its closed position, it is aligned with the barrel, and when the top section is in its opened position, it is located at one side of the barrel so that access to the latter may be readily had in order to insert or withdraw the gas cartridge.

A further object of the invention is to provide a gas discharging device of the type and character under consideration which embodies a finger-operable lever for holding the plunger in its cocked position and for releasing the plunger, and in which the stud for retracting the plunger against the force of the spring projects downwardly through a slot in the bottom section of the casing and embodies a head at the extreme lower end which cooperates with the slot to hold the top and bottom sections in connected relation when the plunger is in discharged position and to prevent closing of the top section unless the plunger is in its cocked position.

A still further object of the invention is to provide a device for discharging gas cartridges which is generally of new and improved construction, can be manufactured at a low and reasonable cost and is efficient in operation.

Other objects of the invention and the various

advantages and characteristics of the present gas discharging device will be apparent from a consideration of the following detailed description to those who are skilled in the art.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by the claims at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a perspective of a gas discharging device embodying the invention;

Figure 2 is a vertical longitudinal section illustrating in detail the manner in which the stock is connected to the top section so that it is aligned with the barrel when the top section is in its closed position;

Figure 3 is a horizontal section;

Figure 4 is a vertical longitudinal section, similar to Figure 2, showing the spring-pressed plunger in the stock protracted to its cocked or firing position;

Figure 5 is a vertical transverse section on the line 5—5 of Figure 4; and

Figure 6 is a vertical transverse section on the line 6—6 of Figure 4.

The device which forms the subject matter of the invention consists of a cast metal, box-like casing 7 and is designed primarily to discharge a cartridge *c* containing a irritant, such as tear gas, and a propellant powder. The casing 7 consists of a bottom section 8 and a top section 9 and is so constructed that it may be used on a desk or counter as a paper weight or like article. The bottom section is rectangular in conformation and embodies in the bottom face thereof an L-shaped recess 10. The top section 9 is also rectangular in conformation and embodies a top wall 11, a pair of depending sides 12, a front 13 and a back 14. The front and back extend between and are formed integrally with the ends of the sides 12 and form with the latter and the top wall 11, a rectangular compartment 15. The top section 9 is disposed directly above the bottom section 8 and is connected to the latter by a pair of hinges 16 so that it may be swung into an open position at one side of the bottom section. The hinges 16 are located at the ends of the sides 12 and comprises hinge-members 17 which are formed integrally with and project upwardly from the bottom section 8, fit within recesses or sockets in the said side 12 and embody pivot pins 18. The top section 9 is secured in its closed posi-

tion by means of a screw 19. The latter extends through a hole in the recess portion of the bottom section 8 and extends into an internally threaded socket in the top wall 11. Upon removal of the screw 19, the top section is free so that it may be swung to one side of the bottom section in order to provide access to the compartment 15.

In addition to the casing 7, the device comprises a barrel 20 and a stock 21. The barrel 20 extends longitudinally of the casing and is formed integrally with the bottom section 8, as shown in Figure 5 of the drawing. It is positioned in the compartment 15 when the top section 9 is in its closed position, and is arranged so as to discharge through a circular opening 22 in the front 13. The gas cartridge *c* is adapted to be inserted into and withdrawn from the barrel 20 when the top section of the casing is in its opened position. A pin 23 extends diametrically across the opening 22 and serves as a stop for the wad which is usually held in the discharge end of the cartridge *c*. The stock 21 is in the form of a block of metal and is secured against the bottom face of the top wall 11 of the top section 9 by screws 24. It embodies a longitudinal bore 25 and is positioned so that it is aligned with the barrel 20 when the cover is in its closed position (see Figures 2 and 4).

The cartridge *c* is fired so as to effect a discharge of the gas through the circular opening 22 by means of a plunger 26. This plunger is mounted slidably in the bore 25 in the stock and embodies at one end thereof a firing pin 27 which is designed to extend through an aperture 28 in a cross wall 29 at one end of the stock and to strike against the percussion cap of the cartridge. A coil spring 30 is interposed between the back 14 of the top section 9 and the plunger 26 and serves to force the plunger towards the cartridge *c*. When the plunger 26 is retracted against the action of the spring and then released, it is forced forwardly and causes the firing pin 27 to pass through the aperture 28 and strike against the percussion cap of the cartridge. One end of the spring 30 is confined in a socket 31 in the back 14. The other end of the spring is confined in a cylindrical socket 32 in the other end of the plunger 26. The plunger 26 is retracted against the action of the spring 30 into its cocked or firing position by means of a stud 33. This stud is secured to and projects downwardly from the front end of the plunger and extends through a longitudinal slot 34 in the stock and a longitudinal slot 35 in the recessed portion of the bottom section 8 of the casing. The extreme outer or distal end of the pin is provided with an enlarged head 36. A circular opening 37 is formed at one end of the slot 35 and permits the head to pass through the recess portion of the bottom section 8 when the top section is swung into its closed position. This opening is so positioned with respect to the slot 35 that the cover section cannot be swung into its closed position unless the plunger is in its cocked or firing position. When the plunger is in its firing position (see Figure 2), the stud 33 is disposed in the slot 35 and the head 36 prevents opening of the top section of the casing.

The plunger 26 is retained in its cocked or firing position by means of a lever 38. This lever is located in a longitudinal groove 39 in the bottom face of the top wall 11 of the top section, and is centrally fulcrumed by means of a pin 39^a which is supported between the top wall 11 and the stock 21. A finger 40 is secured to and projects downwardly from one end of the lever 38. This finger, as shown in Figures 2 and 4, extends

through an opening 41 in the top of the stock 21 and is adapted to fit within a notch 42 in the front end of the plunger so as to hold the plunger in its retracted position. When the lever 38 is swung downwardly, the finger 40 is withdrawn from the notch and the plunger is thus released so that it is actuated by the spring 30 to fire the cartridge *c*. Manipulation of the lever 38 is effected by means of a button 43. The latter is secured to one end of the lever and is positioned in a circular opening 44 in the top wall 11 of the top casing section so that it may be readily pressed downwardly for lever-actuating purposes. Withdrawal of the finger 40 from the notch 42 in the plunger 26 is opposed by a spring wire 45. The latter is secured against the top wall 11 by a screw 46 and is applied to the button 43 so that the lever 38 is urged into a position wherein the finger 40 is disposed within the notch 42. Accidental discharge of the device is prevented by means of a safety member 47. This member is disposed in the compartment 15 adjacent to the button 43 and is in the form of a lever. It is centrally fulcrumed by means of a screw 48 and is arranged so that one end thereof extends through an opening 49 in one of the sides of the top section of the casing. The other end of the safety member is adapted normally to underlie the button 43 so as to prevent the latter from being depressed so as to release the finger 40 from the notch in the plunger. When the safety member 47 is swung in one direction, the end portion which normally underlies the button is swung away from the button and permits the latter to be depressed for cartridge firing purposes. A spring wire 50 is applied to the safety member so as to hold the latter in a position wherein the button is held against downward displacement. In loading the device, the plunger 26 is first retracted against the force of the pin 30 into its cocked or firing position, by manipulation of the stud 33 which projects downwardly through the slot 34 in the stock and the slot 35 in the recess portion of the bottom section of the casing. Thereafter, the screw 19 is withdrawn and the top section 9 is swung into its open position so as to expose the barrel 20. The gas cartridge *c* is then inserted into the barrel, as shown in Figure 4. After the loading operation, the top section of the casing is swung downwardly and is locked in its closed position by means of the screw 19. When it is desired to fire the device, the safety member 47 is swung against the force of the spring wire 50 so as to release the button 43. The button is then pressed downwardly so as to shift the lever 38 to withdraw the finger 40 from the notch 42 in the plunger. Upon withdrawal of the finger from the notch, the spring 30 forces the plunger 26 towards the cross wall 29 of the stock and results in firing of the cartridge *c*. When the cartridge is fired, the gas passes outwardly from the compartment 15 through the circular opening 22 in the front 13 of the casing. The safety member and the button 43 are arranged so that in firing the device, the safety member may be manipulated by the thumb and the button by the first or fore-finger.

The herein disclosed gas discharging device consists of but a small number of parts and consequently may be manufactured at a low and reasonable cost. It is extremely efficient in operation and is so constructed that access may be readily had to the barrel 20 for the insertion and removal of the gas cartridge.

Whereas the device has been described as being primarily adapted for use in connection with the discharge of a gas cartridge, it is to be understood that other types of cartridges may be fired in the barrel. It is also to be understood that the invention is not to be restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a device for discharging a cartridge, the combination of a box-like casing consisting of a bottom section and a top section separable from the bottom section and embodying a continuous depending compartment-forming wall with an opening therein, a barrel for the cartridge connected to the bottom section and positioned so as to discharge through the opening in the wall when the sections are in their operative position, and manually operable firing means for the cartridge secured to the top section.

2. In a device for discharging a cartridge, the combination of a box-like casing having an opening in one end thereof and embodying a bottom section and a top section separable from the bottom section and forming therewith a compartment, a barrel for the cartridge disposed in the compartment so as to discharge through the aforesaid opening, a tubular stock connected to the top part for alignment with the barrel, a spring-actuated plunger mounted slidably in the stock and provided with a pin for firing the cartridge, means for holding the plunger in a cocked position, and means associated with the top section for manually releasing the holding means for cartridge discharging purposes.

3. In a device for discharging a cartridge, the combination of a box-like casing having an opening in one end thereof and embodying a bottom section and a top section separable from the bottom section and forming therewith a compartment, a barrel for the cartridge disposed in the compartment so as to discharge through the aforesaid opening, a tubular stock connected to the top part for alignment with the barrel, a spring-actuated plunger mounted slidably in the stock and provided with a pin for firing the cartridge, means for holding the plunger in a cocked position, and means associated with the top section for releasing the holding means for cartridge discharging purposes comprising a lever and a finger button at one end of the lever extending through the top section and operable from outside the top section.

4. In a device for discharging a cartridge, the combination of a box-like casing consisting of a bottom section and a top section separable from the bottom section and embodying a continuous depending compartment-forming wall with an opening therein, a barrel for the cartridge positioned in the compartment within the wall so that it discharges through the aforesaid opening, a tubular stock connected to the top section in alignment with the barrel, a plunger mounted slidably in the stock and provided with a pin for firing the cartridge, and a spring for actuating the plunger for cartridge firing purposes extending between the plunger and the wall

and having the ends thereof abutting directly and respectively against said plunger and wall.

5. In a device for discharging a cartridge, the combination of a box-like casing having an opening therein and comprising a pair of separable, complementary sections shaped to form a compartment therebetween, a barrel for the cartridge disposed in the compartment and positioned so as to discharge through the opening, a tubular stock secured to one of the sections so that it is aligned with the barrel, a spring-pressed plunger mounted slidably in the stock and provided with a pin for firing the cartridge, and a stud for shifting the plunger into a firing position extending through a slot in the other section.

6. In a device for discharging a cartridge, the combination of a box-like casing having an opening therein and comprising a pair of separable, complementary sections shaped to form a compartment therebetween, a barrel for the cartridge disposed in the compartment and positioned so as to discharge through the opening, a tubular stock secured to one of the sections so that it is aligned with the barrel, a spring-pressed plunger mounted slidably in the stock and provided with a pin for firing the cartridge, and a stud for shifting the plunger into a firing position extending through a slot in the other section and provided with a head whereby the two sections are held in connected relation when the plunger is in its inoperative or fired position.

7. In a device for discharging a cartridge, the combination of a box-like casing consisting of a bottom section and a top section separable from the bottom section and embodying a continuous depending compartment-forming wall with an opening therein, a barrel for the cartridge connected to the bottom member and positioned so that when the sections are in their operative position it is disposed in the compartment within the wall and discharges through the aforesaid opening, a tubular stock connected to the top section in alignment with one end of the barrel, a spring-actuated plunger mounted slidably in the stock and provided with a pin for firing the cartridge, releasable means associated with the top section for holding the plunger in a cocked position, and a stud for shifting the plunger into its cocked position, connected to the plunger and extending through a slot in the bottom section.

8. In a device of the character described for discharging a cartridge, the combination of a box-like casing having an opening therein and consisting of a pair of separable, complementary sections shaped to form a compartment therebetween, a barrel for the cartridge disposed in the compartment and positioned so that it discharges through the opening when the two sections are in their operative position, a stock also disposed in the compartment and arranged in alignment with one end of the barrel, a spring-pressed plunger mounted in one end of the stock and provided with a firing pin for the cartridge, releasable means for holding the plunger in a cocked position, and means whereby the two sections of the casing cannot be placed together into their operative position until the plunger is shifted into its cocked position wherein it is held by the aforesaid means.

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Fig. 1

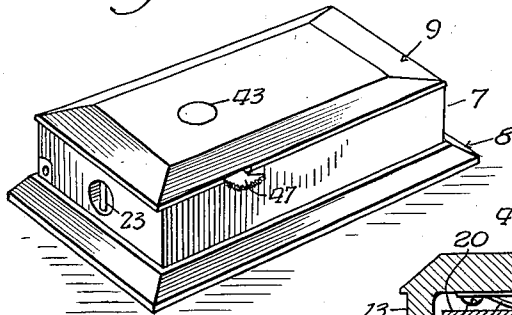


Fig. 2

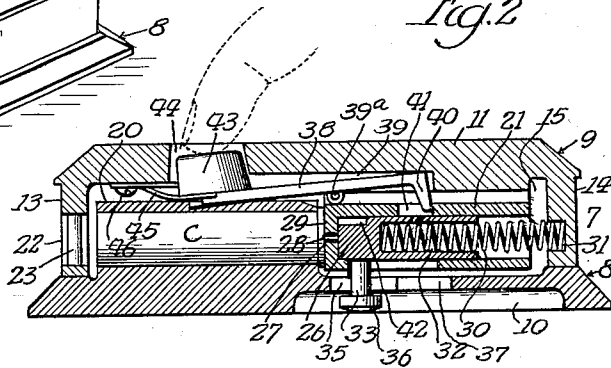


Fig. 3

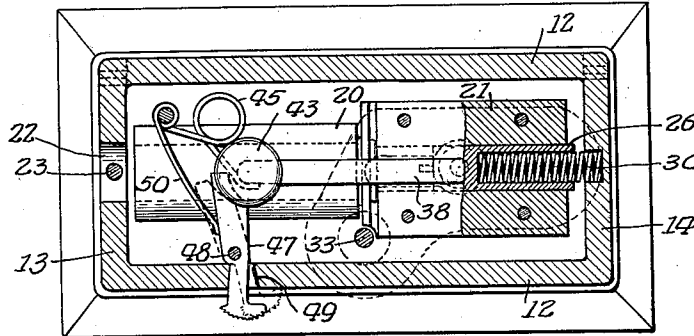


Fig. 4

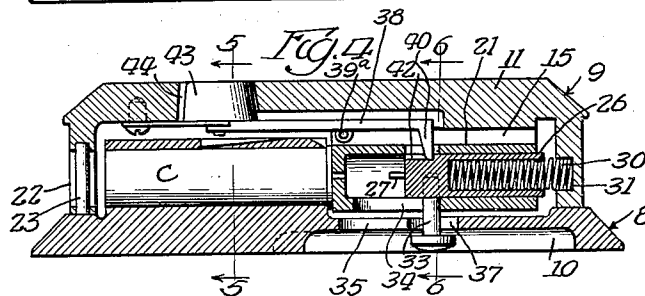


Fig. 5

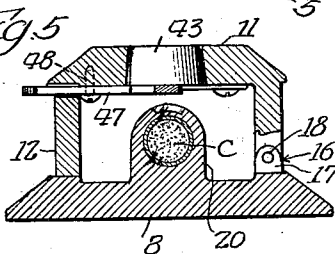
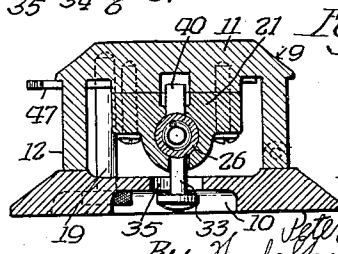


Fig. 6



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