No. 820,070. PATENTED MAY 8, 1906.

R. D. SIMPSON.

REPEATING EXPLODER.

APPLICATION FILED OCT. 17, 1903.

Fig. 1

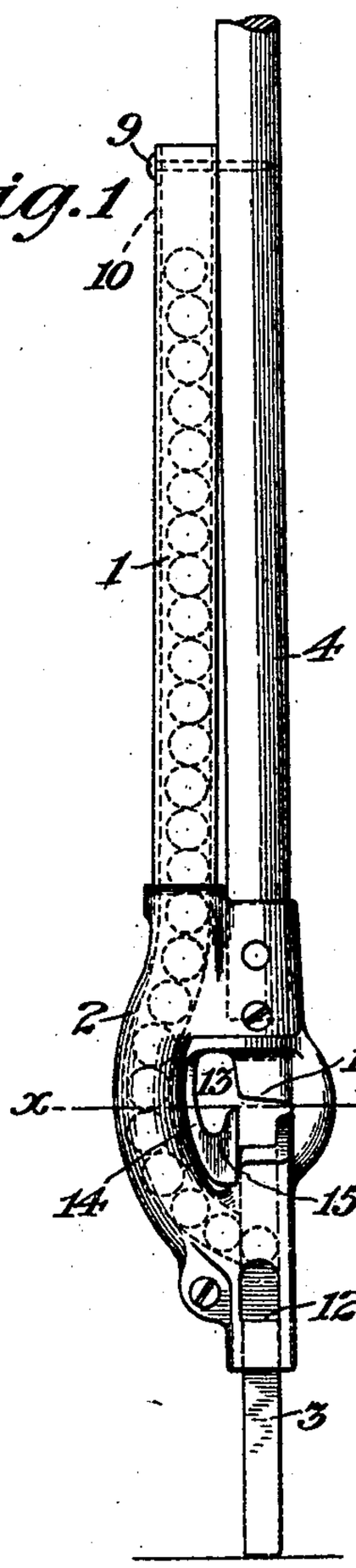


Fig. 3

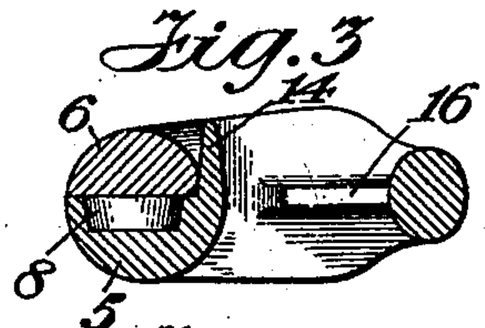


Fig. 4

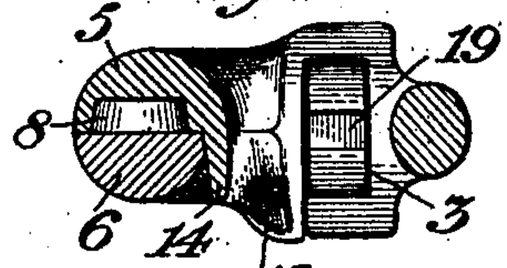


Fig. 6

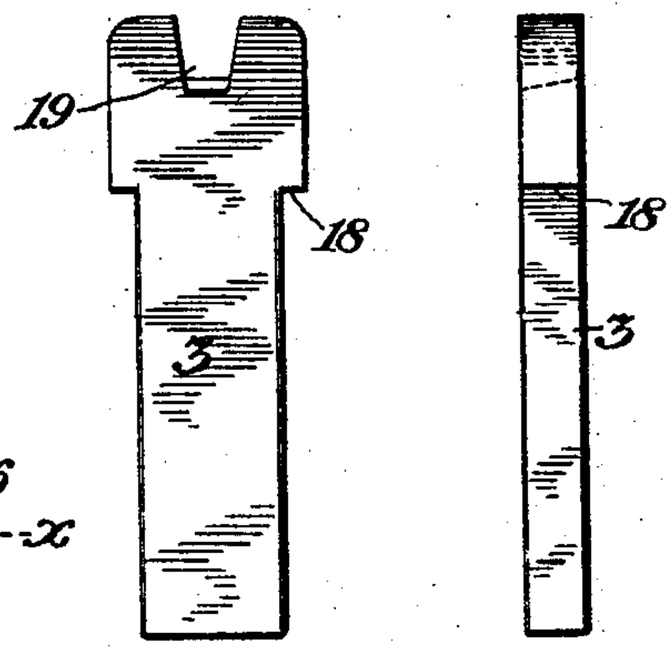


Fig. 7

Fig. 2

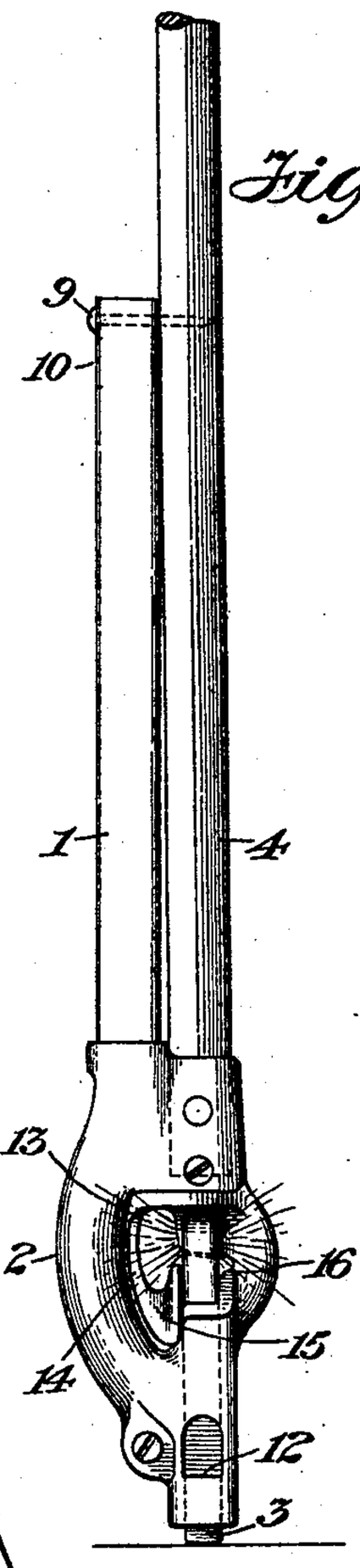
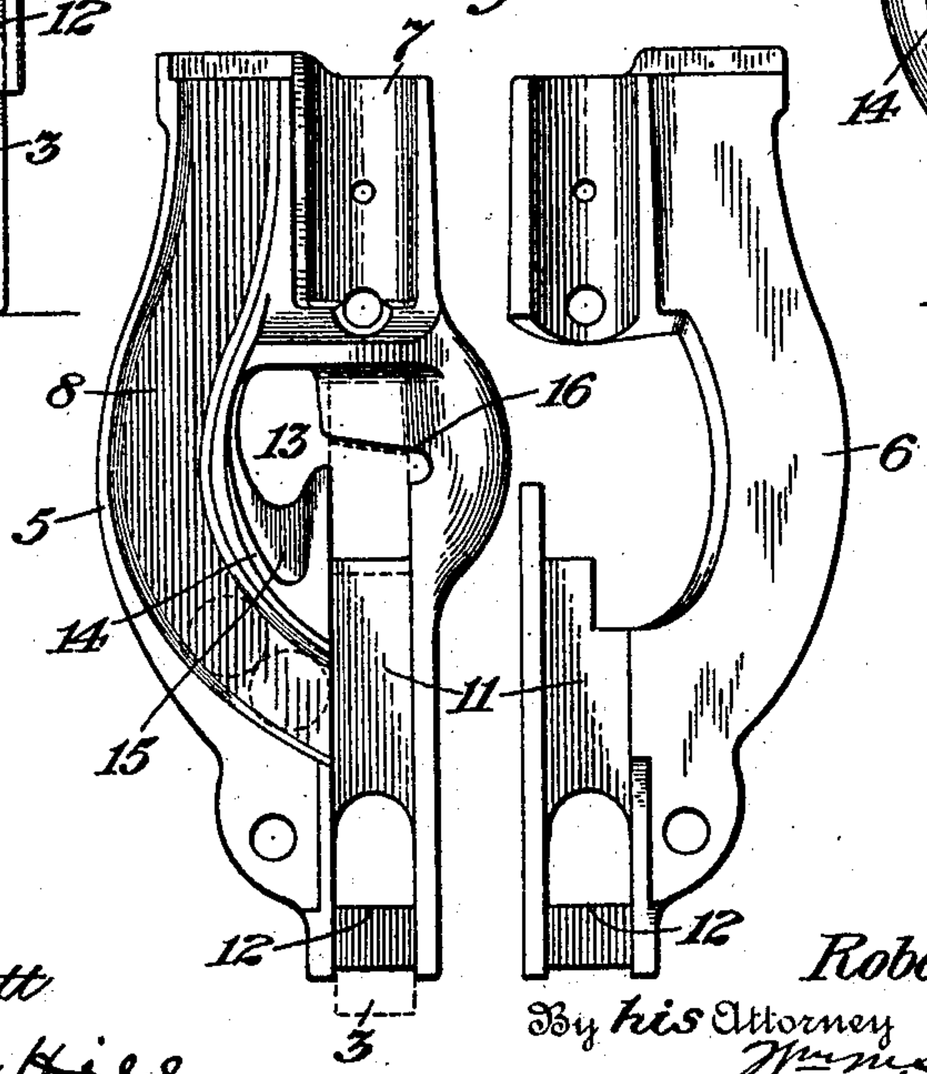


Fig. 5



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UNITED STATES PATENT OFFICE.

ROBERT D. SIMPSON, OF COLUMBUS, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE BEREA NOVELTY COMPANY, OF BEREA, OHIO, A CORPORATION OF OHIO.

REPEATING EXPLODER.

No. 820,070. Specification of Letters Patent. Patented May 8, 1906.

Application filed October 17, 1903. Serial No. 177,387.

To all whom it may concern:

Be it known that I, ROBERT D. SIMPSON, a citizen of the United States, residing at Columbus, Ohio, have invented certain new and useful Improvements in Repeating Exploders, of which the following is a specification.

My invention relates to repeating exploders, the object of the same being to provide a novel form of device of this character by means of which a number of ammunition pellets may be exploded in rapid succession without the necessity of reloading.

A further object of the invention is to provide means for exploding the ammunition in an unconfined open space or chamber, thereby overcoming the danger of exploding the ammunition in the magazine.

A further object of the invention is to provide means whereby the ammunition pellets are fed or delivered one by one to the plunger and by the latter elevated and brought in contact with the anvil in the explosion-chamber.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be set forth in the claims.

In the drawings forming part of the specification, Figure 1 is a side elevation of my improved device, showing the same in the form of an exploding or torpedo cane. Fig. 2 is a view similar to Fig. 1 with the plunger in its raised position. Fig. 3 is a cross-section on the line *x x* of Fig. 1 looking upwardly. Fig. 4 is a similar section on the same line looking downwardly. Fig. 5 is an inside elevation of the two parts of the casting of which the casing on the lower end of the cane is made up, and Figs. 6 and 7 are detail views of the plunger.

Like reference-numerals indicate like parts in the different views.

My improved exploder is made up of a magazine 1, a casing or body portion 2, and a plunger or firing-pin 3, the same being shown as applied to the lower end of a cane 4. The casing 2 has been shown as made of a casting, the two parts of which are represented in Fig. 5 of the drawings by the numerals 5 and 6. The upper end of said casing is provided with a socket 7 for the reception of the lower end of the cane 4 and is also provided with a curved passage 8, through which the ammunition pellets from the magazine 1 are delivered to the plunger 3. Said passage may be considered as part of the magazine. The said magazine is preferably constructed of sheet metal, the lower end of which fits within the casing 2, so that the interior of said magazine communicates with the passage 8. The upper end of the magazine 1 is secured to the cane 4 by means of a pin 9 or other suitable device. This pin extends through the center of the magazine-tube and prevents the accidental escape of the ammunition pellets from the upper end thereof.

A filling-opening 10 is formed in the magazine-tube near the upper end of the latter, as clearly shown in Fig. 1 of the drawings. A vertically-extending plunger-tube or passage-way 11 is formed in the lower end of the casing 2, the same intersecting and communicating intermediate its ends with the lower or discharge end of the curved passage 8 and having its lower end contracted, forming on each side a shoulder 12. The said plunger-tube 11 extends upwardly beyond the throat of the passage 8 and communicates with the explosion-chamber 13. This explosion-chamber is open on both sides, the same being separated from the passage 8 by means of a web 14, formed on the part 5 of the casting. This web 14 is beveled or cut away, as shown at 15, so as to permit of the ready escape of the gases from the explosion-chamber. The side wall of the web 14 is plane and in line with the corresponding side wall of the plunger-tube 11. Within the explosion-chamber 13 is a rib 16, constituting an anvil, and coöperating with this anvil and vertically movable within the tube 11 is the plunger or firing-pin 3. This plunger is rectangular in cross-section to correspond with the shape of the plunger-tube and is freely movable within said tube. The same is formed on its opposite sides with shoulders 18, which coöperate with the shoulders 12 for limiting the downward movement of said plunger and preventing its accidental removal from the casing. The upper end of said plunger is formed with a substantially V-shaped notch or recess 19, which notch is

designed to receive the ammunition pellets and to retain them in place while the plunger is moved upwardly into contact with the anvil 16. Said anvil and said notch correspond in shape and dimensions, so that when concussion occurs between said anvil and the pellet in said notch said pellet will be held from escape until explosion actually takes place.

The operation of the device is as follows: The magazine-tube 1 is filled with suitable ammunition pellets, the said pellets settling by gravity down into the curved passage 8. When the device is elevated from the ground, the plunger or firing-pin 3 drops by gravity and assumes the position shown in Fig. 1 of the drawings. The lowermost ammunition pellet then falls from the passage 8 into the notch 19 in the upper end of the plunger. Upon now forcing the lower end of the plunger with a sharp quick blow into contact with the ground said plunger will be forced upwardly and the ammunition pellet in the notch 19 will be brought into sudden contact with the anvil 16. Explosion then takes place in the usual manner and the gases generated are allowed to escape without danger of passing back into the magazine in which the ammunition is carried. This is due to the fact that the explosion-chamber is open on both sides and that said explosion-chamber is completely cut off from the passage 8, and consequently from the magazine, by the web 14. It is impossible for the gases to pass down through the plunger-tube 11 and thence into the passage 8, for the reason that as soon as the plunger 3 is raised it serves to cut off the throat or discharge end of said passage. Even should ignition of the ammunition in the passage 8 take place, however, no explosion could occur, as concussion is necessary to effect this. In such event the ammunition would merely burn. Concussion and consequent explosion of one of the pellets outside of the explosion-chamber 13 is impossible, as the plunger merely crosses the passage 8, and a pellet could not lodge between said plunger and the sides of the tube in which it works.

Important features of my invention are the curved passage 8 in the casing 2, leading from the magazine, the rectangular plunger-tube 11, which intersects said passage, the notch in the upper end of the plunger within the latter tube, the open explosion-chamber with the anvil therein, and the web or wall separating said explosion-chamber from said passage.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A repeating exploder comprising a magazine, a casing having a passage therein communicating with said magazine, having a plunger-tube intersecting said passage, and having an explosion-chamber at the upper end of said tube provided with a downwardly-extending rib, constituting an anvil, and a plunger movable in said tube having a notch in its upper end adapted to receive said anvil, as and for the purpose set forth.

2. A repeating exploder comprising a magazine, a casing having a passage therein communicating with said magazine, having a plunger-tube intersecting said passage which is rectangular in cross-section and has a shoulder therein, and having an explosion-chamber at the upper end of said tube provided with a downwardly-extending rib, constituting an anvil, and a plunger movable in said tube, having a notch in its upper end adapted to receive said anvil, the said plunger corresponding in size and shape with said tube and having a shoulder thereon coöperating with the shoulder in said tube for limiting its downward movement, as and for the purpose set forth.

3. A repeating exploder comprising a magazine, a casing having a passage therein communicating with said magazine, having an open, unconfined explosion-chamber located on one side of said passage above the discharge end thereof, having a laterally-extending web provided with beveled or flaring walls separating said chamber from said passage, and having a plunger-tube intersecting said passage and leading into said explosion-chamber, and a plunger fitting and movable in said tube, and cutting off communication between said chamber and said passage when the parts are in position to effect the explosion, as and for the purpose set forth.

4. A magazine-torpedo-cane head comprising a ferrule or socket to receive the cane proper, a body offset laterally to one side of the axis of the cane and provided with a magazine-passage having a lateral discharge-mouth, guide projections extending from the lower part of the head on each side of the discharge-mouth and forming a receiving-chamber, a lateral projection from the body of the head located some distance above said guide projections and above the mouth of the chamber, and a plunger movable vertically in said chamber toward and from the anvil projection, and having the upper end of its body portion normally below the discharge-mouth of the magazine-passage.

5. A head for magazine torpedo-canes, provided with a longitudinal magazine-passage, said head comprising two separate members divided longitudinally with respect to said passage, the plane of division being partially central and partially offset, and means for securing said members together.

6. A head for magazine torpedo-canes, pro-

vided with a longitudinal magazine-passage, said head comprising two separate members divided longitudinally with respect to said passage, the plane of division being partially central and partially offset, said offset portion being located adjacent to the point of explosion.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT D. SIMPSON.

Witnesses:

ABBY W. SIMPSON,

JOSEPH SIMPSON.