J. M. ROBINSON.

REPEATING EXPLOSIVE TOY.

APPLICATION FILED DEC. 20, 1909.

983,402. Patented Feb. 7, 1911.

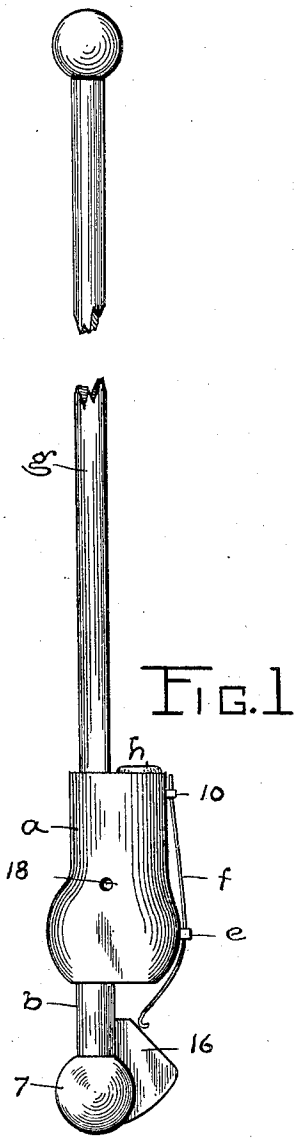

FIG. 1

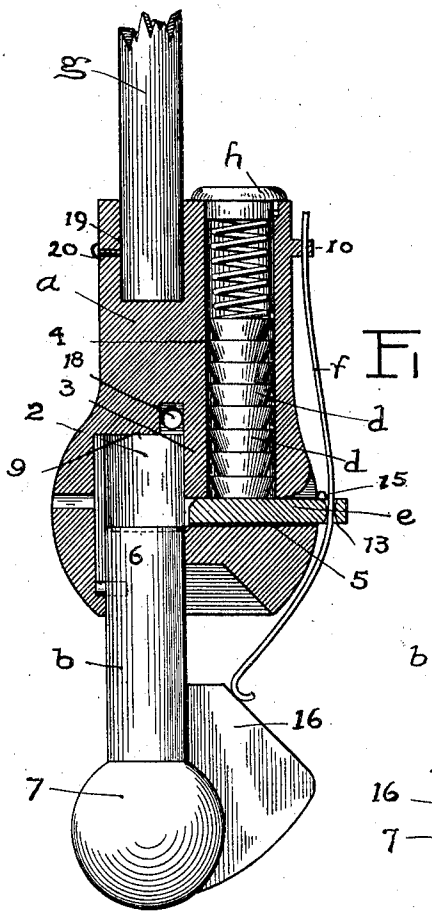

FIG. 2

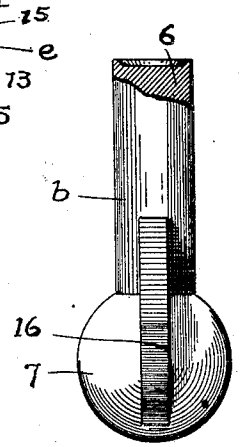

FIG. 3

WITNESSES:

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UNITED STATES PATENT OFFICE.

JESSE M. ROBINSON, OF ALAMEDA, CALIFORNIA.

REPEATING EXPLOSIVE TOY.

983,402. Specification of Letters Patent. Patented Feb. 7, 1911.

Application filed December 20, 1909. Serial No. 534,188.

To all whom it may concern:

Be it known that I, JESSE M. ROBINSON, a citizen of the United States, residing at Alameda, in the county of Alameda and State of California, have invented new and useful Improvements in Repeating Explosive Toys, of which the following is a specification.

This invention relates to that class or description of toy, which is designed to explode a cap, disk or wafer of fulminate composition, and generally known as dynamite canes.

The object of the invention is the production of a toy or device having a magazine or chamber containing a number of caps or wafers and means for feeding them in succession to the exploding means, whereby the device is self-charging and is capable of firing one shot after another with a greater or less frequency as desired without the necessity of inserting an explosive cap or wafer for each shot.

A further object of the invention is to provide a simple and effective operating repeating exploder for caps or wafers at relatively small cost of manufacture.

The nature of my said invention and the manner in which I proceed to construct, produce and carry out the same are explained in the following description, wherein the accompanying drawing illustrating a repeating exploder embodying the novel features thereof are referred to by letters and figures.

Figure 1 is a general view of a repeating exploder of my invention showing the same fixed in the end of a cane or staff for use like the ordinary dynamite cane. Fig. 2 is a vertical section on an enlarged scale taken through the middle of the magazine. Fig. 3 is a detail view of the hammer.

The body of the exploder is so formed as to be readily cast in one piece, being preferably a metal block with the exploding chamber 2 and the magazine 4 side by side, separated by a wall 3 in which is formed a transversely extending slot 5. This slot 5 is both a connecting passage between the two chambers, through which the explosive caps are transferred from the bottom of the magazine to the exploding chamber, and also a vent for the gases.

In the last-named chamber is the hammer *b* composed of the plunger 6 loosely fitting the chamber 2 so as to slide easily, and a head or mass of metal 7 on the butt end on the outside designed for the double purpose of taking the force of the blow when it is struck against the ground and of increasing the impact of the plunger against the explosive which is inserted between the plunger and the anvil 9 at the top of the chamber.

The means for feeding or transforming the explosive caps *d* from the magazine to the exploding chamber comprises the feeding slide *e* fitted to move easily in the slot, and a yielding arm or lever preferably formed of a flat spring *f* attached to a fixed point 10 on the body *a* and passed through a slot 13 in the feeding slide *e*. With this fixed point of attachment for a fulcrum the part *f* on being pressed outward at the free end operates to draw out the feeding slide a sufficient distance to clear the chamber of the magazine, and by virtue of its resiliency as the pressure is removed, or the free end relieved therefrom, the part *f* acts on the slide with the effect to throw it forward across the bottom of the chamber. A stop 15 on the slide regulating the length of that movement prevents the end of the slide from projecting into the exploding chamber in the path of the plunger. Provision is made for operating the slide in this way automatically from the strokes or motion of the firing-piece or hammer, and in the present construction the same is effected in proper time with the movements of the plunger by so arranging or shaping the spring *f* that its free end will rest on or lie normally in close relation to the inclined edge of a projection 16 on the plunger, the latter part being so arranged at a proper angle with respect to the perpendicular motion of the plunger that it will give the required length of outward throw or stroke to the feeding slide in the exploding stroke of the plunger, as the head is struck or dropped against the ground. As thus constructed and arranged the feeding slide is thrown forward when the plunger drops at the moment that the exploder is raised from the ground after the explosion, and a fresh cap is set from the bottom of the pile in the magazine into the exploding chamber ready for another shot.

In the upward movement of the plunger the cap in the recessed hammer end of the plunger is brought with force against the anvil 9 formed by the upper end of the exploding chamber. At each explosion, therefore, the cam 16 moves upward and the feeding slide is set backward to take a fresh

cap from the magazine by means of the spring *f*, and on the downward motion of the cam the slide is thrown forward to bring the cap into firing position. The communicating passage between the two chambers is closed by the plunger at the moment the explosion takes place, thereby shutting off the magazine chamber and eliminating all danger of setting off the caps in that chamber.

A vent 18 at the top of the exploding chamber affords outlet for the generated gases necessary to produce the desired noise.

For conveniently operating the exploder it is fixed on the end of a stick or staff *g;* the body *a* being provided with a socket 19 for that purpose, and with an intersecting hole 20 for a pin or screw to fasten the stick *g*.

The caps *d* are confined in the magazine by a cap or stopper *h*, a coiled spring placed between the topmost cap in the pile and the stopper insures the regular downward movement of the caps in position in front of the feeding slide.

I claim:—

1. A repeating exploder, comprising a body having an exploding chamber, a reciprocating hammer arranged to operate therein through an aperture in the bottom, a magazine chamber contiguous to but separated from the exploding chamber by a dividing wall, having a communicating passage opening from one into the other and located at the bottom of the exploding chamber, a feeding slide movable in said passage and extending outside the body, and a spring connected to the body, loosely attached to the feeding slide and bearing on a cam on the firing plunger to operate the feeding slide from the movement of the firing plunger.

2. In a repeating exploder, the combination with the body having an exploding chamber, a magazine chamber contiguous thereto and a communicating passage between said chambers; of a reciprocating firing plunger in the exploding chamber adapted to operate through the bottom thereof, a feeding slide arranged to move in said passage across the bottom of the magazine chamber, a cam on the firing plunger and a spring connecting the feeding slide with the cam to operate said feeding slide from the movement of the firing plunger, substantially as set forth.

JESSE M. ROBINSON.

Witnesses:
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