(No Model.)

W. A. HARWOOD.

MORTAR.

No. 291,054. Patented Jan. 1, 1884.

Fig. 1.

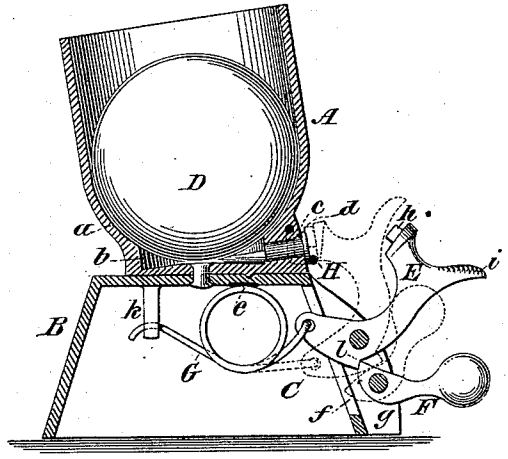
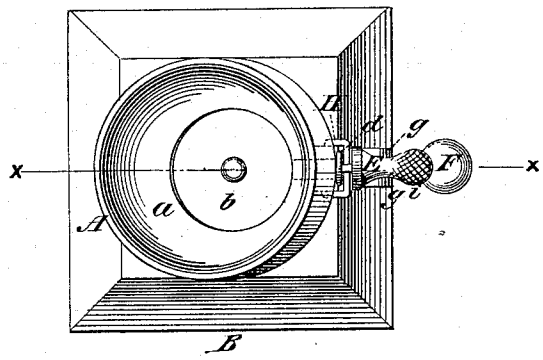


Fig. 2.



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UNITED STATES PATENT OFFICE.

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MORTAR.

SPECIFICATION forming part of Letters Patent No. 291,054, dated January 1, 1884.

Application filed November 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. HARWOOD, a citizen of the United States, residing in Montclair, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Mortars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to mortars for firing light projectiles with small charges of explosives; and it consists of a mortar having a cartridge-receiving chamber, and a chambered breech for containing a charge of air behind the projectile, and into which the cartridge is discharged.

It also consists in a lock provided with a weighted trigger and a hammer actuated by a coiled-wire spring.

It further consists in a latch pivoted to the mortar-body and capable of resting on the end of the cartridge, and which, in conjunction with the hammer of the lock, retains the cartridge-shell in its chamber.

Figure 1 of the drawings is a vertical transverse section of my improved mortar, taken on line *x x* in Fig. 2. Fig. 2 is a plan view.

Like letters of reference refer to like parts in the two figures of the drawings.

The mortar A is mounted on the base B, which contains the lock C. The barrel of the mortar A has a concave breech, *a*, adapted to the projectile D, and provided with an air-chamber, *b*, smaller in diameter than the bore of the mortar. The breech of the mortar is thickened at one side and bored to form a cartridge-chamber, *c*, for receiving the cartridge *d*. The cartridge-chamber *c* extends from the exterior of the breech to the interior thereof and communicates with the air-chamber *b*. The exterior of the breech is beveled to give the mortar a slight inclination, and adapted to the top of the base B, to which it is secured by a single rivet or screw, the mortar being prevented from turning by a small lug, *e*, formed on the mortar, entering a corresponding depression in the top of the base.

Although I have in the present case made the mortar and base separately, and afterward fastened them together, I may form them both of a single casting, thereby saving the labor of riveting them together. The base B, I have made in the form of a hollow, truncated, rectangular pyramid. In one side of the base B, immediately under the cartridge-chamber, there is a slot, *f*, on each side of which are ears *g*. Between these ears are pivoted the hammer E and the trigger F. The hammer E is a lever of the first kind, with its longer arm exterior to the base, and provided with the nib *h* for discharging the cartridge, and having a thumb-piece, *i*, while the shorter arm projects into the base, and is apertured to receive one end of a coiled-wire spring, G, the other end of the spring entering a hole in the stud *k*, projecting downward from the inner surface of the top of the base. This spring is retained in position by a slot in the inner surface of the top of the base, in which the upper edge of the coil rests. The hammer E has a notch, *l*, into which the inner end of the trigger F enters when the hammer is cocked, the trigger being actuated by its weighted outer end, which extends beyond the side of the base below the hammer. A latch, H, consisting of a wire bent twice at right angles, and having its ends bent upward and pivoted at the sides of the thickened portion of the breech, drops over the outer end of the cartridge-shell below the path of the nib *h* of the hammer E, and when the cartridge is discharged by a blow from the hammer the shell is retained by the latch H, which is prevented from rearward and upward movement by the nib of the hammer.

My improved mortar is designed for firing light projectiles, for the purpose of carrying life-lines in case of shipwreck or fire, for projecting fire-works, and, when made in small sizes, as a toy for projecting wooden or other light balls.

The explosion of the cartridge is modified by the charge of air in the air-chamber, so that the projectile is not violently projected.

I have placed the trigger under the hammer, to guard against the accidental discharge of the mortar.

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

1. The combination, with the mortar A, hav-

ing an air-chamber, *b*, lateral cartridge-chamber *c*, and base B, formed of a hollow truncated pyramid, of a coiled-wire spring, G, hammer E, and weighted trigger F, substantially as set forth, the said trigger extending from the base at the back of the hammer, as described.

2. The combination, with the mortar A and hanging latch H, of the hammer E, provided with the nib *h*, the said latch and nib being so arranged relative to each other that the said nib *h* will strike over the said latch H, and act as a catch for preventing the swinging of the latch, as herein described.

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Witnesses:
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