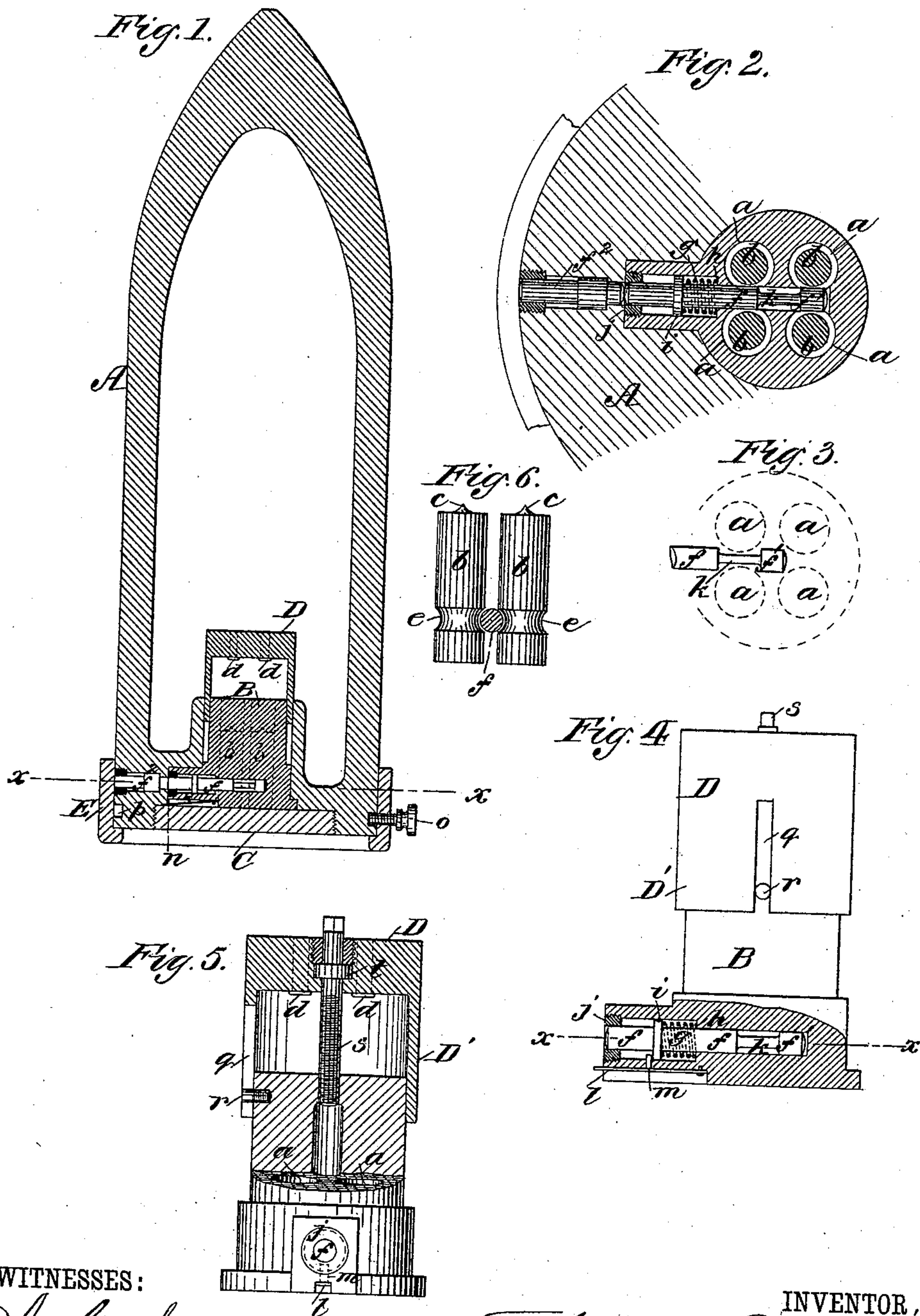


(No Model.)

N. W. PRATT.
MULTIPLE PRIMER FOR SHELLS.

No. 388,787.

Patented Aug. 28, 1888.



WITNESSES:

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MULTIPLE PRIMER FOR SHELLS.

SPECIFICATION forming part of Letters Patent No. 388,787, dated August 28, 1888.

Application filed June 28, 1886. Serial No. 206,457. (No model.)

To all whom it may concern:

Be it known that I, NAT. W. PRATT, a citizen of the United States, residing at the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Multiple Primers for Explosive Shells, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, in which—

Figure 1 is a longitudinal section; Fig. 2, a transverse section on the line xx , on an enlarged scale; Fig. 3, a detail view of a part of Fig. 2; Fig. 4, a side elevation, partly in section, of the primer-case; Fig. 5, a partially-sectioned elevation of the same, viewed in a plane at a right angle to that of Fig. 4, and Fig. 6 a detail view of the primers.

This invention relates to elongated projectiles used in ordnance in which explosive contents within are ignited and discharged by the concussion of the projectile upon the obstacle which terminates its flight; and it consists of certain devices by which the ignition is better insured and timed than by former devices and the manipulation of the parts facilitated; and in order that others may understand and use my said invention I will proceed to describe the same in detail and explain its operation, and subsequently point out in the appended claims its novel characteristics.

Referring to the accompanying drawings, in which like letters indicate like parts throughout the several views, the body A of the projectile, Fig. 1, is cast hollow for the reception of explosive material, which is introduced through the opening at its rear end, into which a plunger-case, B, is fitted, and secured in place by a screw cap or plate, C.

The plunger-case B is provided with four or any desired number of holes or barrels, a , into which are loosely fitted the several plungers b , having the projecting tips c at their forward end, which correspond in position with the opposite fulminate percussion-fuses, d , in the cap D of said plunger-case. The plungers b are further provided near their rear ends with the circumferential grooves e , of semicircular form in cross-section, in which a spring lock-bolt, f , passes between the plungers in the manner shown in Fig. 6. The spring g , compressed

between the seat h and collar i of the bolt f , tends to force the said bolt outward until the collar i stops against the bushing j , which is screwed into the casing B, and through which the bolt f is free to slide when released. When the bolt f is released, its reduced portion k assumes the position shown in Fig. 3, whereby its larger portions, f' and f'' , clear the grooves e of the plungers b , and leave them free to pass out of the barrels a at the moment of impact. The bolt f'' abuts against the main bolt f , which coincides in continuation with it through the shell A when the plunger-case B is placed in position. A lock-spring, l , having a pin, m , engaging with the collar i of the spring-bolt, serves to keep the same in its locked position when the case B is out of the projectile. When said case is inserted in place, the spring l is withdrawn by contact of its projecting end with the shoulder n of the shell. At this time the spring-bolt f and bolt f'' are held back by a temporary collar, E, kept upon the butt of the projectile until used by means of a thumb-screw, o , entering the circumferential groove p . The cap D is made longitudinally adjustable on the plunger-case B, being guided thereon by its sleeve D' , which fits freely over the smaller diameter of the said case, and is kept from turning by a slot, q , and stud r , while the adjusting bolt s , tapped into the casing B and having a square head and a collar, t , may be turned to determine the adjustment in either direction.

In operation the projectile is inserted in the breech of the gun by removing the collar E, whereupon the bolt f'' rests against the interior of the bore.

Upon firing the gun the position of the parts herein described remains unchanged until the projectile is delivered, at which time the spring-bolt $f f''$, released and thrown out, leaves the plungers b to be retained by their inertia within the chambers a during the flight of the projectile. At the moment of impact the plungers impinge against the fulminates d , which exploding ignite the charge in the shell.

The multiple plungers insure against failure of explosion in event of the non-action of one or part of their number from any cause.

The adjustment of the cap D minutely determines the interval between the impact of the

projectile and its explosion, the distance through which the plungers *b* must travel being regulated thereby.

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

1. A projectile for carrying an explosive charge provided with a series of independent plungers for exploding the fulminates, a series of independent fulminates mounted clear of the plungers, and a lock for normally holding said plungers positively against movement toward the fulminates, but automatically unlocked when the projectile leaves the gun, such plungers being then kept from impingement against the fulminates by inertia, substantially as described.

2. A projectile provided with a series of plungers for exploding a fulminate, a series of fulminates in position to be exploded by said plungers, and a case for containing said plungers and fulminates, having an adjustable end to vary the distance between the striking-point of the plungers and the fulminates, whereby to regulate the time utilized to explode the charge after the projectile strikes an object or is embedded therein.

3. A projectile provided with a plurality of plungers for exploding a fulminate, a spring-

seated bolt for locking the plungers in position when placed in the projectile or in the barrel of a gun, and a temporary collar adapted to be placed upon the butt of the projectile when out of the gun to hold the bolt in its locking position, substantially as described.

4. A primer-case for projectiles provided with a plurality of plungers for exploding a fulminate, a spring-seated bolt for locking the plungers in position, and a spring-pin for normally holding the bolt in its locking position, and adapted to be disconnected to free the bolt when the case is inserted in place in the projectile by the engagement of the spring with the wall of the projectile, substantially as described.

5. In a projectile, the combination, with a case having chambers containing plungers for exploding a fulminate, of a lead to said case provided with the fulminate and sustaining it a distance removed from the points of the plungers, and an adjusting-screw for adjusting the position of the lead to vary the distance between the fulminate and plungers, substantially as described.

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Witnesses:

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