

J. P. Rollins.

Shell.

N^o 34268.

Patented Jan 28. 1862

Fig. 1.

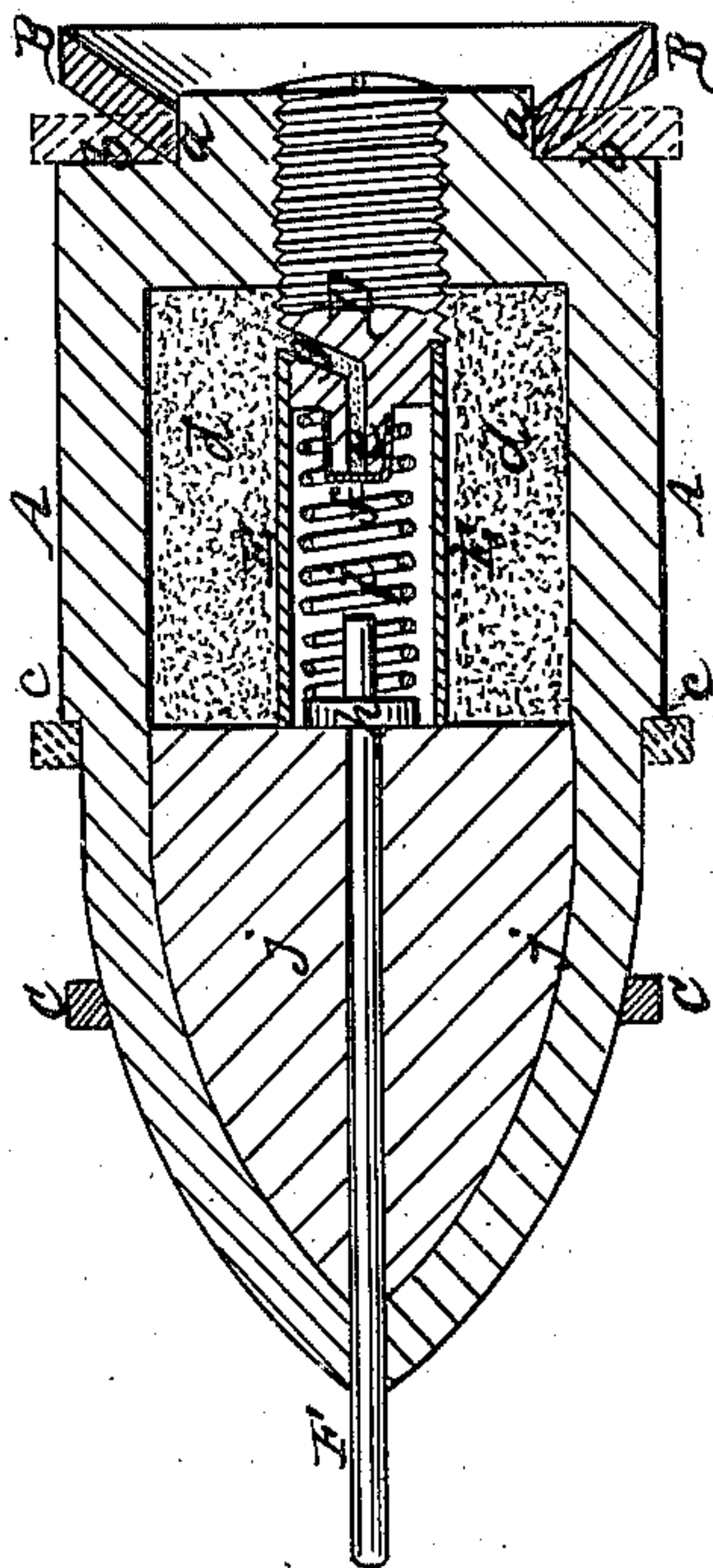
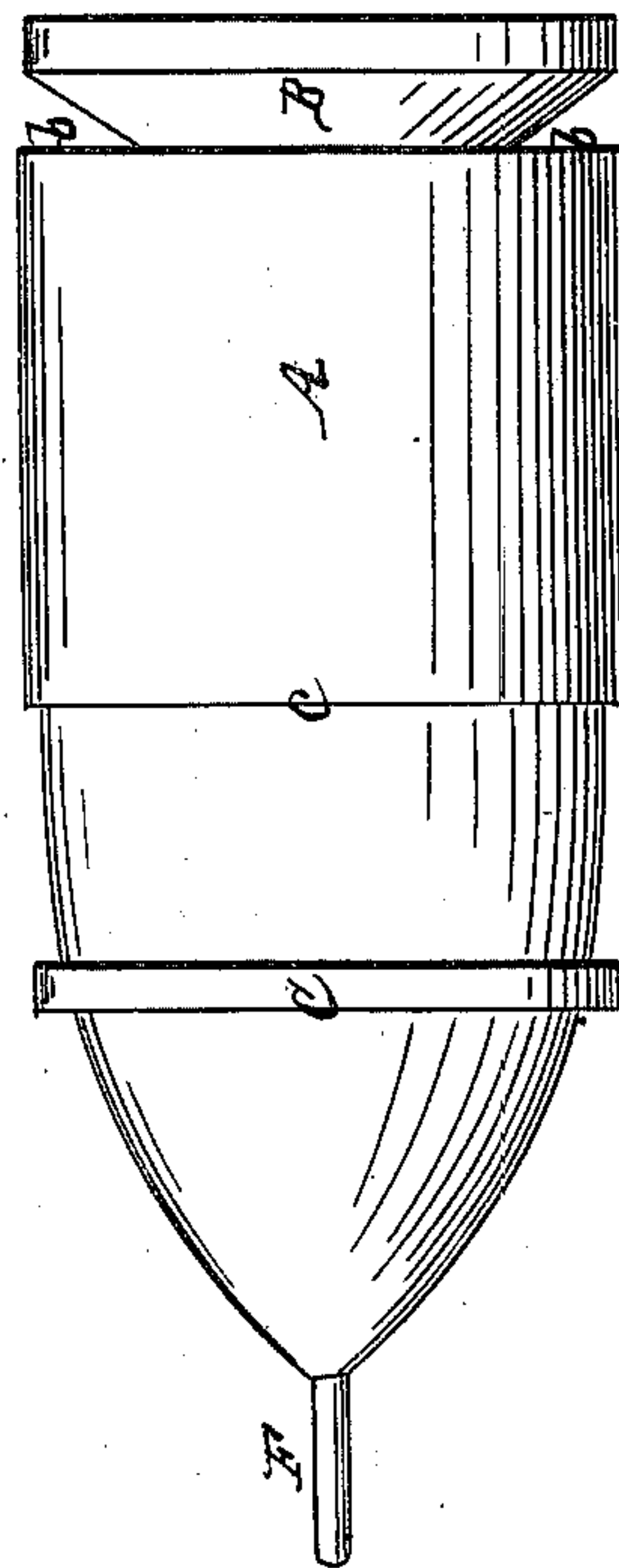


Fig. 2.



Witnesses.

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JOHN P. ROLLINS, OF CEDAR RAPIDS, IOWA.

IMPROVEMENT IN SHELLS FOR RIFLED ORDNANCE.

Specification forming part of Letters Patent No. 34,268, dated January 28, 1861.

To all whom it may concern:

Be it known that I, J. P. ROLLINS, of Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Elongated Projectiles for Ordnance; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central longitudinal section of a shell with my improvements. Fig. 2 is a longitudinal outside view of the same.

The nature of the invention consists in an improved device for effecting the explosion of a hollow projectile or shell by percussion.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the body of the projectile, having its exterior of cylindro-conoidal form, with a rabbet, *a b*, around the base, and a shoulder, *c*, at the junction of its cylindrical portion and its conoidal portion.

B is a packing-ring of sole-leather surrounding the cylindrical portion *a* of the rabbet *a b*, and C another packing-ring of the same material surrounding the conoidal portion of the projectile. The packing-ring B, after being cut out, when flat, of an internal diameter, to fit tightly to the portion *a* of the rabbet, and of an external diameter sufficiently greater than that of the exterior of the cylindrical portion of the body A, and of the bore of the gun in which the projectile is to be used, is formed into the conical shape represented in bold outline in Figs. 1 and 2, by being pressed, while wet, in a suitable die or mold, and its external diameter is thus reduced to less than that of the exterior of the body, so that when, after having been dried and become hard, it is placed tightly on the portion *a*, and close up to the flat face *b* of the rabbet, it may not be disturbed in inserting the projectile into the gun. This ring may be fastened to the projectile by some adhesive material. The ring C is made of an external diameter, slightly less than the exterior of the cylindrical portion of the projectile, and of an internal diameter to fit the conoidal portion of the projectile some distance in front of the shoulder *c*, and where it is smaller than it is

close to the shoulder, and this ring should be secured by some suitable adhesive material to prevent its slipping off. The projectile fitted with the rings B C, as above described, may be inserted at the muzzle or breech of the gun, but in either case, the ring C must be rammed by a hollow or concave rammer inserted at the muzzle to drive it up toward the shoulder *c* far enough for the expansion produced on it by passing along the conoidal portion of the ball to make it fit tightly into the bore and enter the grooves of the gun, and thereby to prevent windage. When the gun is fired, the pressure of the gases evolved acts against the back of the ring B, and drives it forward toward the shoulder *b*, formed by the front of the rabbet *a b*, and so causes the said ring to expand laterally, in the manner indicated by dotted outline, to such an extent as to make it fill the bore and grooves, so that as the projectile moves along the bore in the discharge of the gun the said ring is caused to derive, and to impart to the projectile a rotary motion about its axis. As the projectile starts, its conoidal front part acts like a wedge to expand the ring C, which is thus further expanded and made to fill the grooves until the shoulder *c* comes in contact with it, as shown in dotted outline in Fig. 1, when it moves forward with the projectile and aids the ring B in producing the rotary motion. In adapting the ring B to breech-loading fire-arms, it need not be made of the conical form represented in the bold lines of Fig. 1 and in Fig. 2, but may be applied to the projectile in the flat form shown in the dotted lines of Fig. 1, as it will yield to allow its entrance into the chamber in the conical form.

D, Fig. 1, is a screw-plug screwing into and closing the opening in the rear of the shell, through which the charge by which it is exploded is inserted. This plug is long enough to protrude some distance into the cavity *d*, which contains the powder, and is turned down in front of its screw-thread for the reception of a light tube, E, of tin plate or other metal, and is finished off in front in the form of a nipple, *e*, for the reception of a percussion-cap, *f*, a vent, *g*, being provided from the said nipple through one side of the plug to the cavity *d*. The tube E fits snugly onto the plug, and is confined between the

solid head of the projectile and a shoulder on the said plug when the latter is screwed into the projectile.

F is a plunger passing through a hole in the head of the projectile, and protruding from the front thereof, said plunger being furnished within the cavity *d* with a collar, *h*, which serves as a bearing for the spiral spring *i*, applied between the said collar and the plug D, and also serves as a stop to prevent the spring forcing the plunger too far out through the front of the projectile. The object of the spring *i* is to keep the plunger F from accidentally striking the cap *f* on the nipple *e*. The body of the projectile has its front part filled, as shown at *j j* in Fig. 1, with lead, which, by reason of its specific gravity being greater than iron, brings the center of gravity

of the projectile nearer the front than if it were made entirely of iron, and so insures its striking on the point when the plunger F protrudes. When the projectile strikes, the plunger F is first arrested and the continued movement of the projectile brings the cap *f* in contact with the inner end of the plunger and produces the explosion.

I claim—

The combination of a sliding spring-rod, F, projecting in front of the shell, with a discharge-nipple, *e*, formed upon a screw, D, inserted from the rear, all substantially as and for the purposes set forth.

JOHN P. ROLLINS.

Witnesses:

D. B. RAMSDELL,
MARTIN HAGER.