

C. HEATON.

Improvement in Ordnance and Projectiles.

No. 128,392.

Patented June 25, 1872.

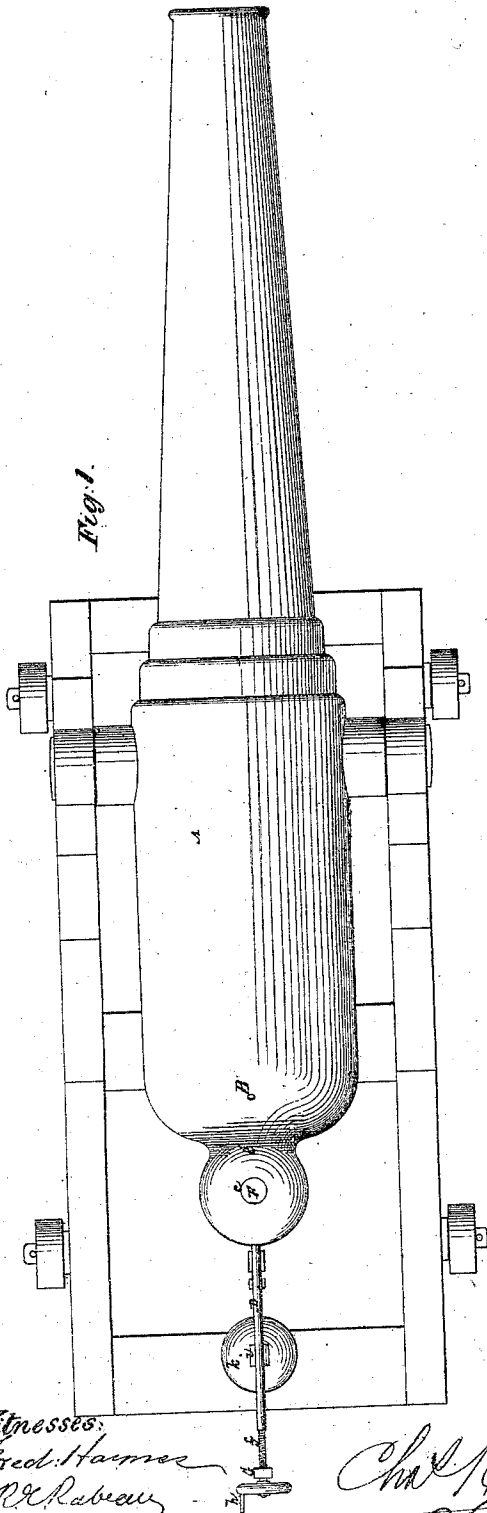


Fig. 1.

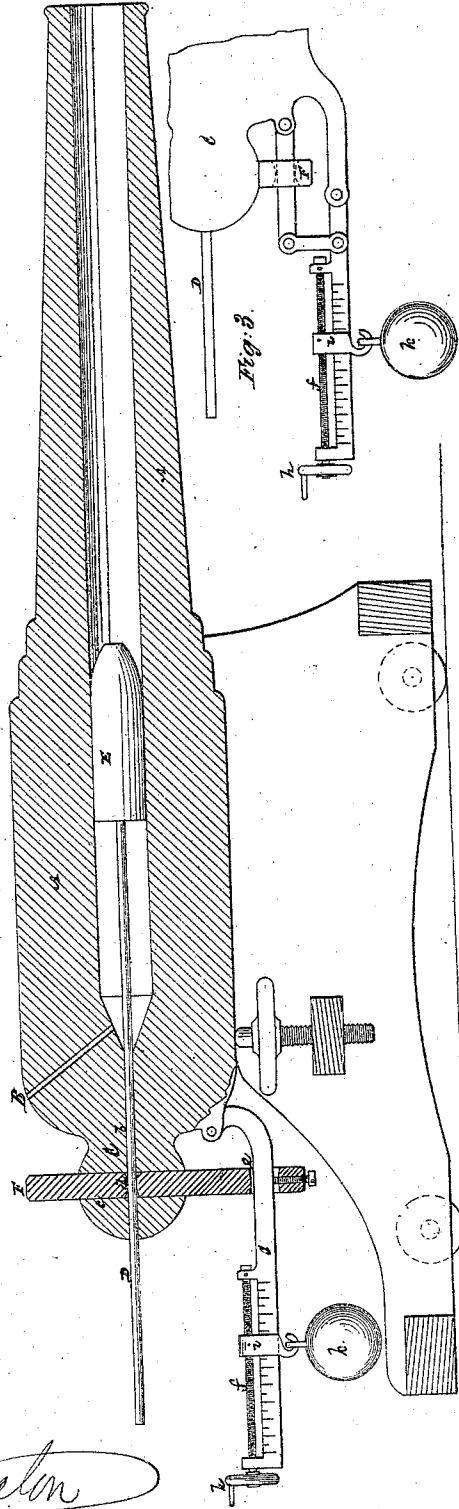


Fig. 2.

Witnesses:

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IMPROVEMENT IN ORDNANCE AND PROJECTILES.

Specification forming part of Letters Patent No. 128,392, dated June 25, 1872.

To all whom it may concern:

Be it known that I, CHARLES HEATON, of the city, county, and State of New York, have invented a new and useful Improvement in Ordnance and Projectiles; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a plan, and Fig. 2 a longitudinal sectional elevation, of a piece of ordnance constructed according to my invention with projectile combined. Fig. 3 is a view illustrating a modification of certain details.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide for the effective burning of a larger powder-charge behind a shot of given weight than has heretofore been practicable, and thus to give an increased propelling force to the shot.

Ordinarily a gun or cannon has its effective charge of powder limited for a shot of given weight which presents a given inertia dependent upon its weight, and all surplus of powder beyond this amount is only lost or blown out of the gun without exerting any appreciable effect on the shot.

My invention consists in certain means, including a friction-producing device applied to the cascabel or rear portion of the gun, and preferably adjustable to vary its action to suit different-sized charges of powder, and a tail attached to the shot arranged to project through a hole in the breech and cascabel and through the clamp, which latter, bearing down on the tail of the shot, induces friction of said tail in the breech and cascabel to retard the escape of the shot till the powder has been burned, and afterward, or when the tail of the shot is free of such hold, closes the aperture in the breech and allows of the exploded gases to continue the propulsion of the shot out of the gun. In this way, or by these means, a much larger and variable charge of powder may be made to exert its effective force on the shot than is otherwise attainable.

Referring to the accompanying drawing, A represent the walls of a gun, which latter should be of lengthened dimensions in proportion to its caliber to provide for the burning

of an extra charge of powder. B is the vent; and C, the cascabel and breech of the gun, provided with a hole, *b*, through it or them in direction of the length of the gun to receive through it a tail, D, attached to the shot E, said tail projecting for a limited distance in rear of the gun when the latter is loaded. The powder may be inserted in the shape of one or more cartridges, formed with a hole through them for the passage of the tail D of the shot therethrough. The cascabel C has also a transverse hole, *c*, through it for the free fit of a clamp or plug, F, therethrough. This plug, which may be of steel, has a hole, *d*, through it for the passage of the tail D of the shot, which hole may be countersunk back and front to prevent any scraping of the tail D during its rapid discharge through the plug. G is a lever, pivoted to the gun, and arranged to pass through a hole, *e*, in the plug. This lever, which is graduated, is fitted with a screw, *f*, operated by a crank or hand-wheel, *h*, for adjustment along said screw, and the lever of which it forms part, of a hooked nut, *i*, on which is hung a ball or weight, *k*. In place of the single lever G a compound one, or system of levers, as shown in Fig. 3, may be used, and whereby not only a smaller weight, *k*, will suffice, but a stop is provided by the casting or projection which carries the levers to prevent the plug or clamp from falling too low when the tail of the shot is free of it.

By means of the plug F and its attachments, as described, any desired amount of friction may be put upon the tail D of the shot in the cascabel and breech of the gun, according to the amount of powder-charge it is required to explode. Thus, if the shot weigh one hundred pounds, and it is desired to use sixty pounds of powder behind it in place of the usual charge of twenty pounds, then the weight *k* is adjusted along the lever so that the friction on the tail of the shot where it passes through the plug will be equal to two hundred pounds. This added to the weight of the shot gives three hundred pounds as the force to be overcome before the shot can be set in motion. As said charge of powder is burned and exerts its force on the shot the latter moves forward and draws the tail D within the gun, and as soon as said tail is

drawn beyond or out of the plug F the latter is drawn down by the weight *k*, and simultaneously therewith the resistance or friction due to the action of the clamp (here supposed to be two hundred pounds) is destroyed, when the shot immediately springs forward under the full force of the extra powder-charge at a rapid velocity through the remaining portion of the gun and out of it.

If desired the vent B may be dispensed with and the tail D of the shot made tubular and with transverse holes in it, for communicating fire to the powder-charge by means of rocket or fuse powder inserted in said hollow tail, and which may be ignited from the rear of the tail. Furthermore, instead of a solid shot, a shell may be used, and the hollow tail be made to act as a fuse for exploding the shell at any given point in its flight. Likewise the tail of the shot or shell may be rifled, and also the plug F, so as to throw rifled shot from a smooth-bored gun; but in such case said tail and plug should be made of larger diameters. Under such an arrangement a new clamping-plug may be substituted whenever necessary,

and which will be equivalent to rifling the gun, while the latter, having no rifling or grooves within it, is stronger, and the degree of rifling may be changed by substituting one clamping-plug for another.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination of the friction-producing device, applied in rear of the bore of the gun, a hole, *b*, through the breech or rear portion of the gun in direction of its length, and a shot or shell provided with a tail, D, for passage through said clamp and rear of the gun, all constructed and arranged for operation substantially as and for the purpose herein set forth.

2. The combination, with the friction clamp or plug F and hole *b* in the gun, of a weighted lever made capable of adjustment as regards its load, essentially as and for the purposes described.

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Witnesses:

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