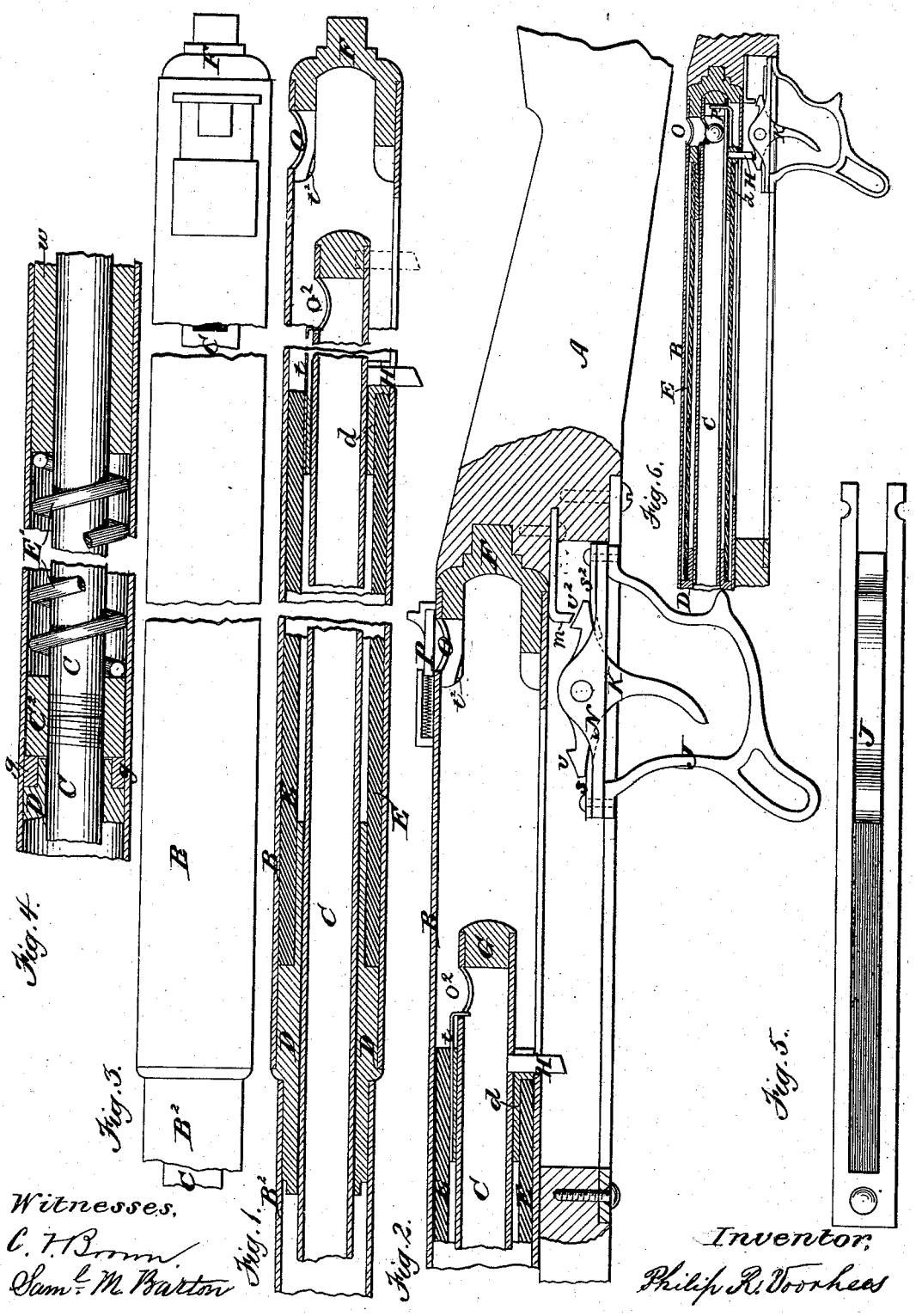
P. R. VOORHEES.

Toy Spring-Gun.

No. 168,812. Patented Oct. 11, 1875.



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PHILIP R. VOORHEES, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN TOY SPRING-GUNS.

Specification forming part of Letters Patent No. **168,812**, dated October 11, 1875; application filed July 31, 1875.

To all whom it may concern:

Be it known that I, PHILIP R. VOORHEES, of Washington, in the District of Columbia, have invented certain Improvements in Breech-Loading Spring-Guns, of which the following is a specification:

The object of this invention is to provide an efficient substitute for the ordinary cross-bow, which, while preserving all the projectile force of such bow, shall be neater in appearance and more durable, and whose spring shall save the space required for the bow, by occupying a part of the exterior barrel of the gun parallel to its axis.

The invention consists of an outer and an inner barrel of any thin or light metal or other cheap material, (the inner barrel, either movable or stationary, and containing within it the projectile,) and the necessary springs and parts for operating said inner barrel, and discharging the projectile.

The inner barrel may be operated by either a coiled spring of wire of any suitable metal, or by a tube of india-rubber, or other similar elastic material. If of wire its reaction after either compression or elongation will discharge the projectile. If of india-rubber its reaction, after elongation or stretching, will discharge the projectile. These springs may be made of great strength, if desired, and thus a breech-loading spring-gun suitable for either indoor or outdoor sport may be provided, which, while being of cheap construction, will have an accurate range of projectile for a considerable distance, and may be used in acquiring accuracy of aim before practice with fire-arms. It can also be used with effect for exterminating birds destructive to gardens.

In the drawing forming part of this specification, Figure 1 shows the method of attaching a rubber spring to the barrels, and Fig. 4 the method of attaching a coiled metal spring to the barrels. Fig. 2 shows the barrels mounted upon the stock, and the trigger and trigger-guard constituting the lock. Fig. 3 is a plan of the outer barrel. Fig. 5 is a plan of outer plate of lock and trigger guard. This plate is slotted, and the trigger-guard slides in this slot. Fig. 6 is a sectional view, showing the inner barrel C stationary.

A is the stock of the gun; B, the outer barrel; C, the inner barrel. D is a hollow plug, its central portion of larger diameter than its ends. This central portion is tapped into the end of the outer barrel B, and upon its outer or larger end is tapped the end of the outer barrel B^2. Thus the two outer barrels are united to form one barrel of two different diameters. To the inner or smaller end of plug D is secured, by a wire binding, or in any suitable manner, one end of a rubber tube, E, through which and the plug D passes the inner barrel C, to the rear end of which is fastened the rear end of the rubber tube E, so that when the inner barrel C is retracted for the purpose of discharging a projectile, the rubber tube is stretched, and by its reaction, when the trigger is pulled, throws forward the inner barrel, and thereby discharges therefrom the projectile. A spiral spring may be substituted for the rubber tube, as seen in Fig. 4. In this case a convenient mode of construction is to divide the inner barrel C, and couple it by a collar, C^2. The spiral spring E^2 is interposed between this collar, and an inner hollow cylinder, *w*, forming a continuation of the breech pin or plug F. This cylinder *w* may be of either wood or metal, as may also be the breech-pin, though no breech-pin is absolutely required. The stock of the gun may serve fully that purpose. The orifice O for loading the gun at the breech may be either circular or slotted and will pass through either the cylinder *w* or breech-pin F. This orifice may be covered by the spring-slide P, forming a rear sight, which, until pressed forward by the hand, keeps the orifice O closed. O^2 is an orifice made in the top of the breech of the inner barrel C, to receive the projectile. This orifice, like that in the outer barrel B, may be either circular or slotted. I do not, however, confine myself to inserting the projectile through the top of the outer barrel B only. If desired, the inner barrel C may project through the breech of the barrel B, so as to be loaded in rear of said breech. The spring *t*, inserted in the orifice O^2, is depressed when the barrel C is drawn back by the inclined slot t^2 in the breech-block F, or cylinder *w*. The spring will then hold the projectile in the barrel until the gun is discharged. To the rear end of the inner barrel is attached the pin or

catch H. This pin may either be attached to the barrel C through the sleeve *d*, surrounding said barrel, and to which the rubber spring is attached, or it may be attached to the barrel by passing through it into a plug, G, inserted in its rear end, as seen in dotted lines in Fig. 1.

The operations of loading and discharging this gun are as follows: In order to load it, the trigger-guard J is pushed forward until the trigger K is latched by its end *v* to the pin H of the inner barrel C, when the guard is drawn back until the trigger is latched by its end v^2 to the stop *m*. The sight-piece P is then pushed forward, and the projectile inserted through the orifices O and O^2, or the projectile, if an arrow, may be inserted in the muzzle. The gun is now loaded and cocked, and by pulling the trigger it is discharged, leaving the trigger and its guard held fast by the stop *m*, to release it from which the trigger must be pushed forward when the guard can be advanced for cocking and loading the gun, as before. The trigger is held in position by a central pin, which suspends it between the slotted sliding block N, to the ends of which block the trigger-guard is attached by either screws or rivets. At the ends of this block are also secured, under the ends of the trigger $v\ v^2$, the springs $s\ s^2$. These springs keep the trigger balanced, and retain the catches in contact with the pin H and the stop *m*, as occasion may require. The shape of the trigger-guard J may be varied to suit the taste; the only requisite being that its ends should be of a convenient shape for pushing it forward and drawing it back. It will be observed that the depths of the catches on the ends of the trigger K are sufficient to allow of the necessary lost motion in the forward end of the trigger, while the rear end is engaging with the stop *m*, so that the catch V shall still retain hold of the pin H, while the catch V^2 is engaging with the stop *m*. The letters *g g* represent a band or ring of rubber surrounding the end of the plug D, and extending beyond its ends. The object of this ring is to receive the blow of the collar C^2, and thereby to diminish the shock of the spring, and also to protect both the collar and the plug from the effects of a forcible impact. When the gun is discharged the inner barrel should not protrude beyond the muzzle of the outer barrel. If the barrel C be made stationary, then its forward end is either tapped or soldered into the plug D, as seen in Fig. 6, and its rear end is centered in the breech-block, and slotted either at bottom or sides to allow for the traverse of a yoke or offset, *p*, on the collar *d*, which offset, instead of the rear end of the barrel C, will then impinge upon the projectile in discharging the gun.

Having thus fully described this spring-gun as of my invention, I claim—

1. The combination of the outer and inner barrels B C, provided, respectively, with the orifices O O^2, with an interposed annular spring, all constructed and arranged to operate substantially as described, for the purposes set forth.

2. The vibrating trigger K, provided with the end catches V V^2, in the manner substantially as described, for the purposes set forth.

3. The combination of the guard J with the sliding block N, provided with springs $s\ s^2$, one or both, the trigger K, provided with catches $v\ v^2$, and the pins or stops H and *m*, all in the manner substantially as described, for the purposes set forth.

In witness whereof I hereunto set my hand.

PHILIP R. VOORHEES.

Witnesses:

SAML. M. BARTON,

C. F. BROWN.