D. F. HALE.

Toy Gun.

No. 221,302. Patented Nov. 4, 1879.

Fig. 1.

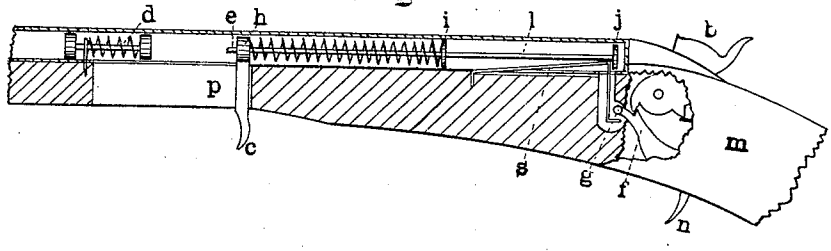


Fig. 2.

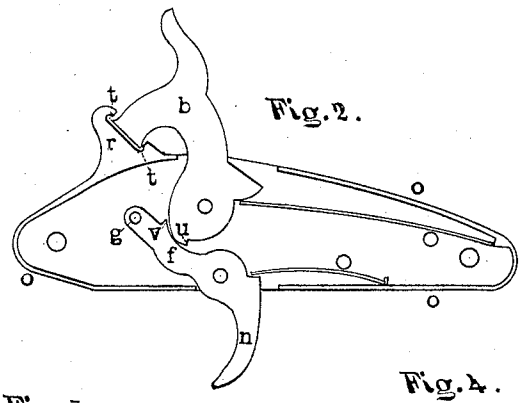


Fig. 3.

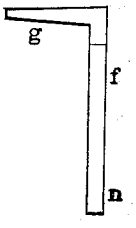


Fig. 5.

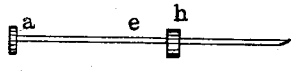


Fig. 4.



Witnesses;

W S Miller

M. D. Coates.

Inventor;

D. Frank Hale

By Allen Webster his atty

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

D. FRANK HALE, OF SPRINGFIELD, MASSACHUSETTS.

IMPROVEMENT IN TOY GUNS.

Specification forming part of Letters Patent No. **221,302**, dated November 4, 1879; application filed August 1, 1879.

To all whom it may concern:

Be it known that I, D. FRANK HALE, of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Toy Guns; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Heretofore toy guns and pistols have been made in various ways, both to explode a cap or primer and to throw a missile. I am not aware, however, that they have ever been so constructed that either effect may be produced independently of the other.

The object of my invention is to make a toy gun or pistol with which a missile may be thrown with considerable force, and in which a missile very much smaller than the bore may be used, in which the mechanism is all conveniently arranged for loading and firing, and so arranged that a primer or cap may be exploded at the same time the missile is thrown out of the barrel, or that the explosion may precede or follow the throwing of the missile, and so arranged that either part may be operated independently of the other.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a side view of a portion of a gun with the barrel and part of the stock in section, showing also a part of the stock broken away, exposing to view a part of the lock mechanism. Fig. 2 is a view of the lock on a larger scale. Fig. 3 is a view of the trigger as seen from the direction of the muzzle. Fig. 4 is a view of the piece *h* and finger-piece *c*, seen from the same direction; and Fig. 5 is a view of the projector extended.

The peculiar features of construction are as follows: I make the barrel of metal, having no opening in its sides in that portion through which the missile passes, the portion back of which may be slotted for its whole length, or slots made for the finger-piece *c* to travel in, and an opening in the rear for the spring *s* to pass through, thus doing away with the objectionable feature of having a slot the whole length of the barrel, found in many of the toy guns now in use. This also allows of the use of a very much smaller missile than could otherwise be used. To prevent the passage of the missile too far in the barrel, I place the piece *d*, which I style the "plunger," near the muzzle. This prevents the passage of the missile into the slot *p*, and when it is thrown from the barrel but a small amount of power is lost by friction. Again, when the projector *h* strikes the plunger a sudden impact is given the missile, which is found to throw it to a greater distance than if the missile traveled with the projector. When greater accuracy is desired the plunger is placed farther in the barrel; or if an arrow be used for a missile, it should also be placed farther in than when pease or beans are used.

It will be seen that changing the position of the plunger does not in any way necessitate the alteration of any part of the mechanism, except the wire or rod *e* is made longer or shorter; or the same result will be accomplished if this wire be attached to the plunger; or, again, it may be loose if properly held in place. I do not, therefore, hold that the plunger is necessary in any way for the successful operation of the other parts of my device, as the plunger may be removed and the missile bear directly against the head *a* of the projector. In this case, however, the rod *e* is carried forward far enough to project beyond the slot *p*, and a circular head, *a*, is placed upon it, as shown in Fig. 5.

The plunger is held in place by a staple or other suitable device, and the spiral spring holds it in position to receive the blow from the projector. The ring, staple, or other suitable device *i* acts as a bearing for the projector-spring. The end *j* of the rod *l* may be made of any convenient shape to engage with the spring *s*. I deem a circular disk the best shape. The spring *s* may be made of any convenient shape or size. I deem, however, a wire spring shaped as shown to be the best. The end is bent to pass through the hole made to receive it, and is bent to engage with the projection *g* on the trigger.

It will now be seen that if the trigger be pressed at the point *n* the spring *s* is borne

downward and the spring released, which forces the projector *h* forward, thus discharging the missile. The lock is made of few parts, these being of the shape shown in Figs. 1 and 2. When the hammer is raised the notch *u* engages with the shoulder *v* on the trigger. The fulminate cap or primer being now placed in position and the finger-piece *c* pressed back, the gun is ready for discharging.

It will be seen that if the trigger be now pressed the hammer is first released and the cap exploded, and if the trigger be pressed still further the piece *g* bears against the end of spring *s*, and the missile is discharged.

If it is desired that the explosion and discharge should occur at the same time, then the distances which the spring or catch *s* and the hammer-notch travels will be made equal; and if it is desired to discharge the missile first then the engaging-notches will be made deep enough to hold the hammer raised until after the projection of the missile.

If what is known as a "primer" is to be used, I make the raised part *r* with the grooves *t t*, into which the primer is placed, and thus prevented from falling out. The striker *r* may be made separately and attached, or may be cast with the lock-plate; the latter method I deem the better one.

It will be seen that some other spring may be substituted for the spiral without any material alteration of the parts. By this arrangement it is seen that either the exploding or projecting mechanism may be used and operated with the same trigger without at the same time using the other part.

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

1. The combination, substantially as hereinbefore described, of a trigger having a right-angular engaging-arm, a hammer for exploding a cap or primer, a missile-forcing means, and a releasing device, whereby either or both exploding and missile mechanism can be operated by the same trigger.

2. In a toy pistol, the combination of the trigger having shoulder *v* and arm *g*, hammer *b*, having notch *u*, releasing device *s*, and projector *h*, substantially as described.

3. In a toy gun, the combination of the trigger, having shoulder *v* and arm *g*, hammer *b*, with notch *u*, releasing device *s*, projector *h*, and plunger *d*, of the construction substantially as described, and for the purposes set forth.

In testimony that I claim the foregoing as my own I hereto affix my signature in presence of two witnesses.

D. FRANK HALE.

Witnesses:
ALLEN WEBSTER,
GEO. LEONARD.