

(No Model.)

C. A. THOMAS.
HIGH EXPLOSIVE THROWING ORDNANCE.

No. 576,917.

Patented Feb. 9, 1897.

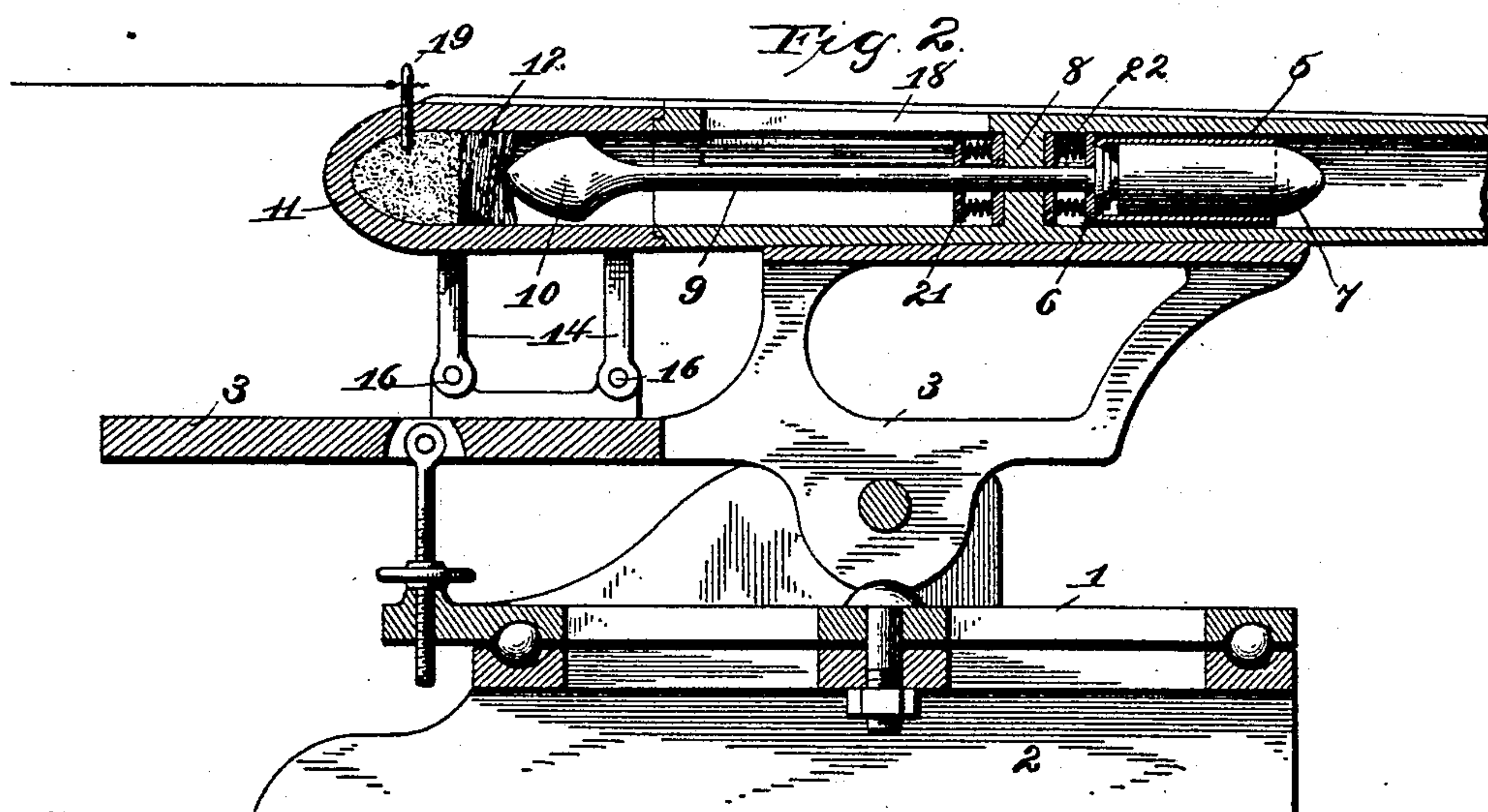
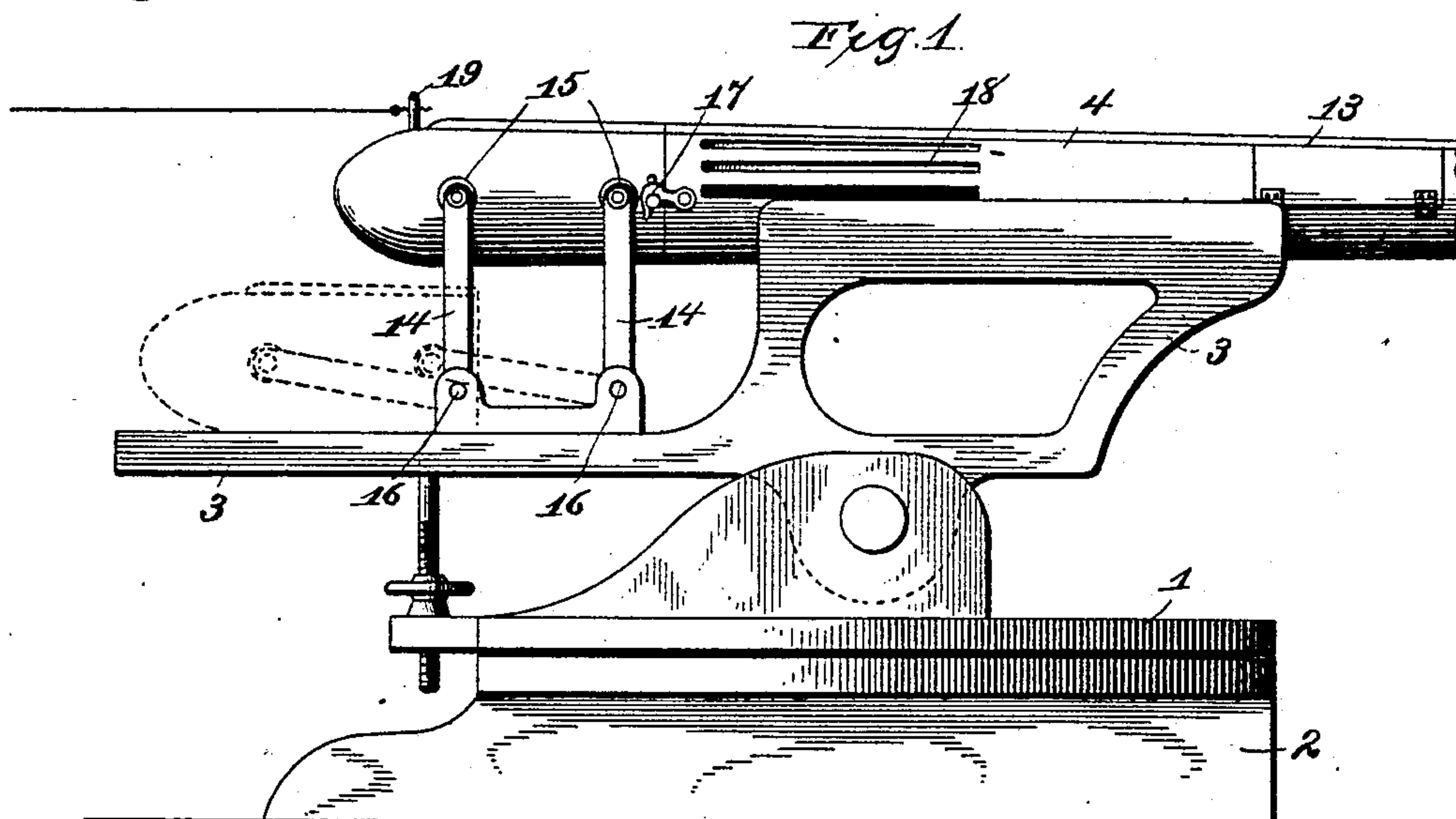
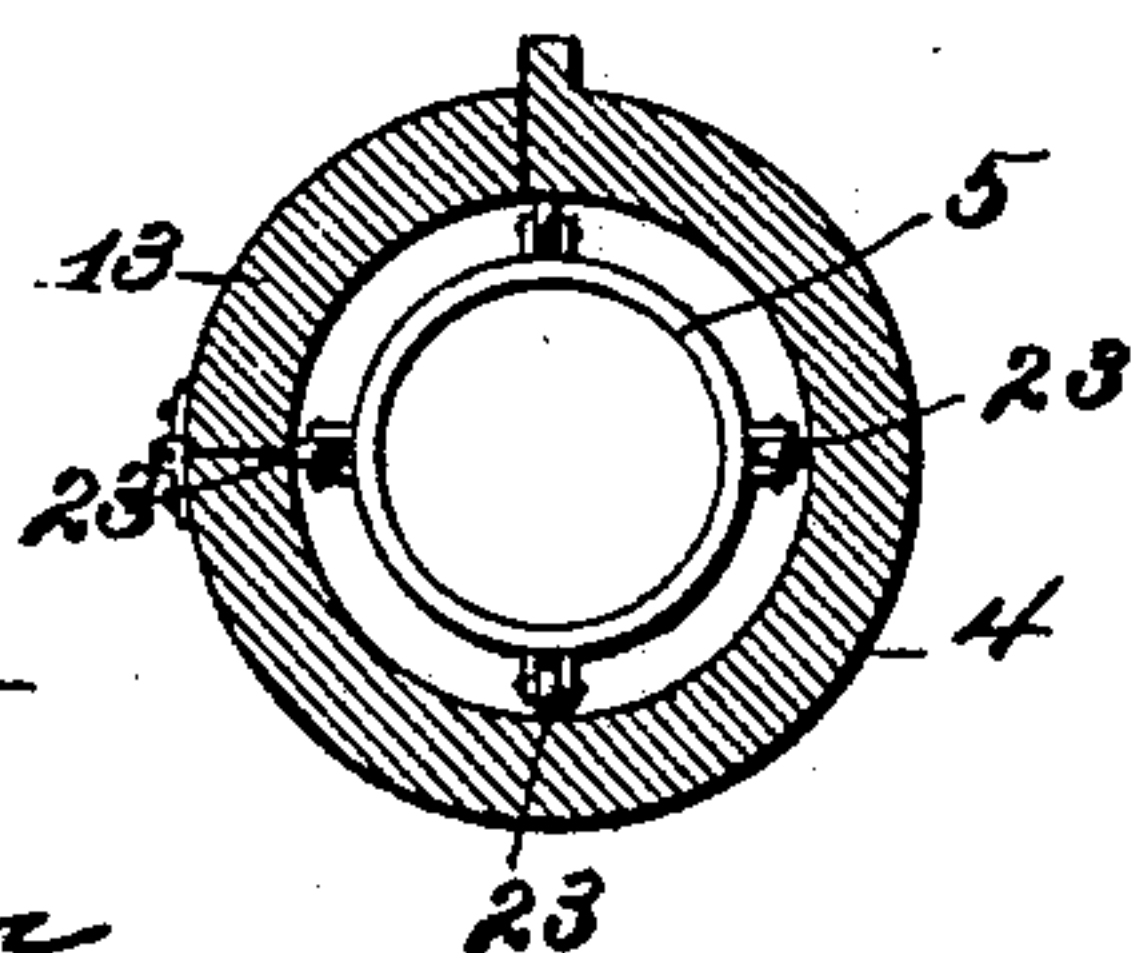


Fig. 3.



Witnesses
E. C. Wurdeman
A. Williamson

Inventor
Charles A. Thomas
by Geo. H. Holgate
attorney

UNITED STATES PATENT OFFICE.

CHARLES A. THOMAS, OF PHILADELPHIA, PENNSYLVANIA.

HIGH-EXPLOSIVE-THROWING ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 576,917, dated February 9, 1897.

Application filed March 13, 1896. Serial No. 583,059. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. THOMAS, a citizen of the United States, residing at Philadelphia, (Fox Chase,) in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Guns, of which the following is a specification.

My invention relates to a new and useful improvement in guns for shooting high-explosive projectiles, and has for its object to so construct such a gun as to entirely separate the projectile and the charge which is to impart the initial velocity to said projectile and to relieve said projectile of all heating influences occasioned by friction upon the bore of the gun and the gases from the powder.

With these ends in view the invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may understand how to make and use the same, I will describe its construction and operation in detail, referring by number to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents my improvement mounted upon a suitable carriage, showing the several parts in position for firing; Fig. 2, a central vertical section thereof; and Fig. 3, a cross-section of a projectile-bore, showing a slight modification of the projectile-carrier, by means of which the friction between the bore of the gun and said carrier is reduced.

Similar numbers denote like parts in the views of the drawings.

Heretofore great difficulty has been experienced in firing high-explosive projectiles from guns by the use of powder or similar material on account of the sudden jar imparted to the projectile, the friction of said projectile in passing through the bore of the gun, and the heat generated by the firing-charge, all of which tend to explode said projectile before leaving the gun, but I have entirely overcome these difficulties by so constructing a gun as to separate the projectile from the firing-charge and place it in a carrier which acts

as a cradle, and also by the intervention of suitable buffers for the purpose of taking up the initial shock. These results are brought about in the following manner:

1 represents a turn-table, and 2 a base upon which said table swings. Mounted upon this table is a suitable carriage 3, to which the gun is secured. The projectile-tube 4 is made of sufficient size to receive the carrier 5, which is preferably composed of non-conducting material, such as leather, and is provided with a cushion 6 at its bottom, against which the projectile 7 rests when in place for firing. The projectile-bore is separated from the rear portion of the tube by a partition 8, through which a hole is formed of sufficient size to permit the passage of the projector-rod 9. The forward end of this rod is secured to the projectile-carrier and its rear end is enlarged, so as to form a head 10, approximately conical in shape, for the purpose hereinafter set forth.

11 is the firing-tube, in the chamber of which is placed the powder or other explosive for this purpose, and after a suitable wad 12 has been placed thereon the head 10 of the projector-rod is placed firmly against said wad, thus bringing the carrier into the position shown in Fig. 2, when the projectile 7 may be placed into position in said carrier through the trap-door 13 in the side of the projectile-tube. The head 10 is enlarged so that it will be arrested by the plate 21 and that gas escaping past the wad may act on the enlarged end.

The firing-tube is mounted upon the parallel levers 14, which are pivoted at 15 to said tube and at 16 to the carriage, so that said tube may be swung backward and downward to the position shown in dotted lines in Fig. 1 for the purpose of placing the firing charge within its chamber.

A suitable hook 17 may be secured upon either side of the projectile-tube and pins upon the firing-tube for the purpose of securing said firing-tube in its normal position relative to the projectile-tube, or any other suitable locking mechanism may be used for this purpose.

The projectile-tube back of the projectile-bore is provided with a number of slots 18,

which connect the interior of said tube with the outside atmosphere, so that when the firing charge is exploded the gases from said explosion may escape to the outer air through
5 these slots.

From this description the operation of my improvement is as follows: The chamber in the firing-tube having been properly loaded and said tube locked in its proper relative
10 position to the projectile-tube and the carrier and projector-rod having been brought to the position shown in Fig. 2 and the projectile placed in position in the carriage, the firing charge is exploded by means of the ordinary primer 19 in the usual manner, when
15 the expansion caused by this explosion will force the projector-rod forward, carrying with it the carriage and projectile until the head 10 comes in contact with the spring-buffer 21,
20 when the momentum of the carrier will be arrested and the projectile permitted to continue its course from the momentum thus imparted thereto. The length of the projector-rod is such as to bring the carrier to the mouth
25 of the projectile-tube before the head 10 is arrested by the buffer 21. Thus no friction will be generated between the projectile and its tube, which will avoid heating. The cushion 6, which is placed at the bottom of the
30 carrier, will diminish the strain due to the initial velocity imparted to the projector-rod by the firing charge, and as all the gases generated by the explosion of said charge pass through the slots 18 it will be seen that no
35 heat and but little concussion is imparted to the projectile. The spring-buffer 22 is for the purpose of preventing any accidental jar upon the projectile when loading the same into the carrier.

40 In the modification shown in Fig. 3 the carrier 5 is provided with antifriction-rolls 23

for the purpose of reducing the friction between said carrier and the projectile-tube.

Having thus fully described my invention, what I claim as new and useful is— 45

1. In a gun for throwing high-explosive projectiles, a projectile-bore and firing-chamber with an interposed partition, a projection-rod working through the partition, a projectile-carriage connected with the rod and
50 buffers against which the rod operates, as and for the purpose described.

2. In a gun for throwing high-explosive projectiles, a projectile-bore, a carrier adapted to slide within said bore, a firing-chamber
55 separated from said projectile-bore, and a projector-rod adapted to impart motion to said carrier by an explosion in the firing-chamber, substantially as and for the purposes set forth. 60

3. A gun for throwing high-explosive projectiles, consisting of a projectile-bore, a firing-chamber separated from said bore by a partition 8, a carrier adapted to slide within
65 said bore, a projector-rod 9, passing through a suitable opening in said partition, a head 10, formed upon said rod, by means of which motion is imparted to the carrier from an explosion in the firing-chamber, supports connected to the firing-chamber whereby it can
70 be moved out of line with the projectile-bore, for the purpose of charging said firing-chamber, substantially as and for the purposes set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two
75 subscribing witnesses.

CHARLES A. THOMAS.

Witnesses:

S. S. WILLIAMSON,
F. MATTNER.