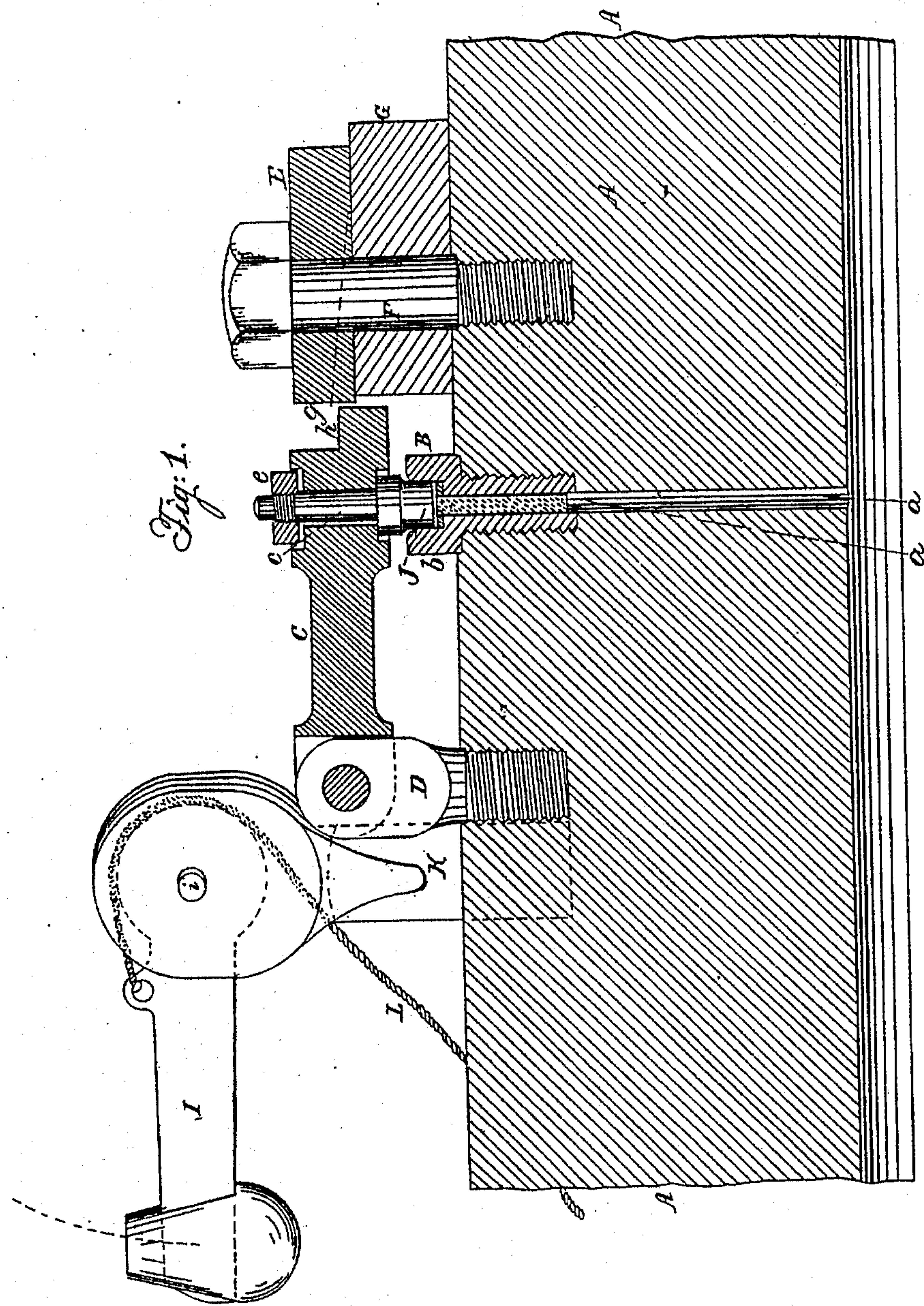


D. TREADWELL.

## Gun-Lock.

No. 37,017.

Patented Nov. 25, 1862.



*Witnesses.*

Wm. C. Hubbard  
John B. Fony

*Inventor:*

Paul Treadwell

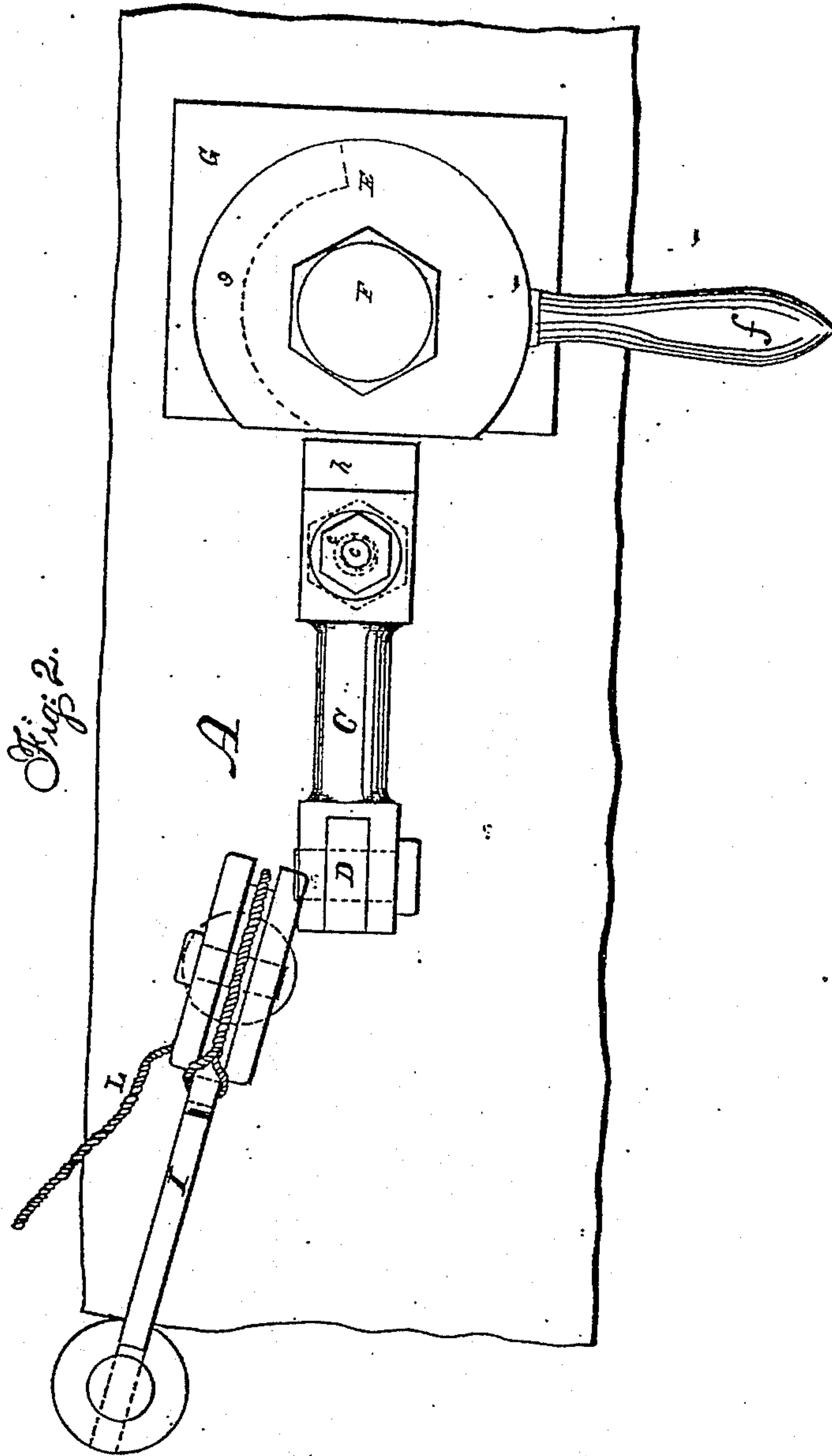
D. TREADWELL.

3 Sheets—Sheet 2.

Gun-Lock.

No. 37,017.

Patented Nov. 25, 1862



Witnesses.

*Wm C Hibbard*  
*John Pickering*

Inventor.

*Dan Treadwell*



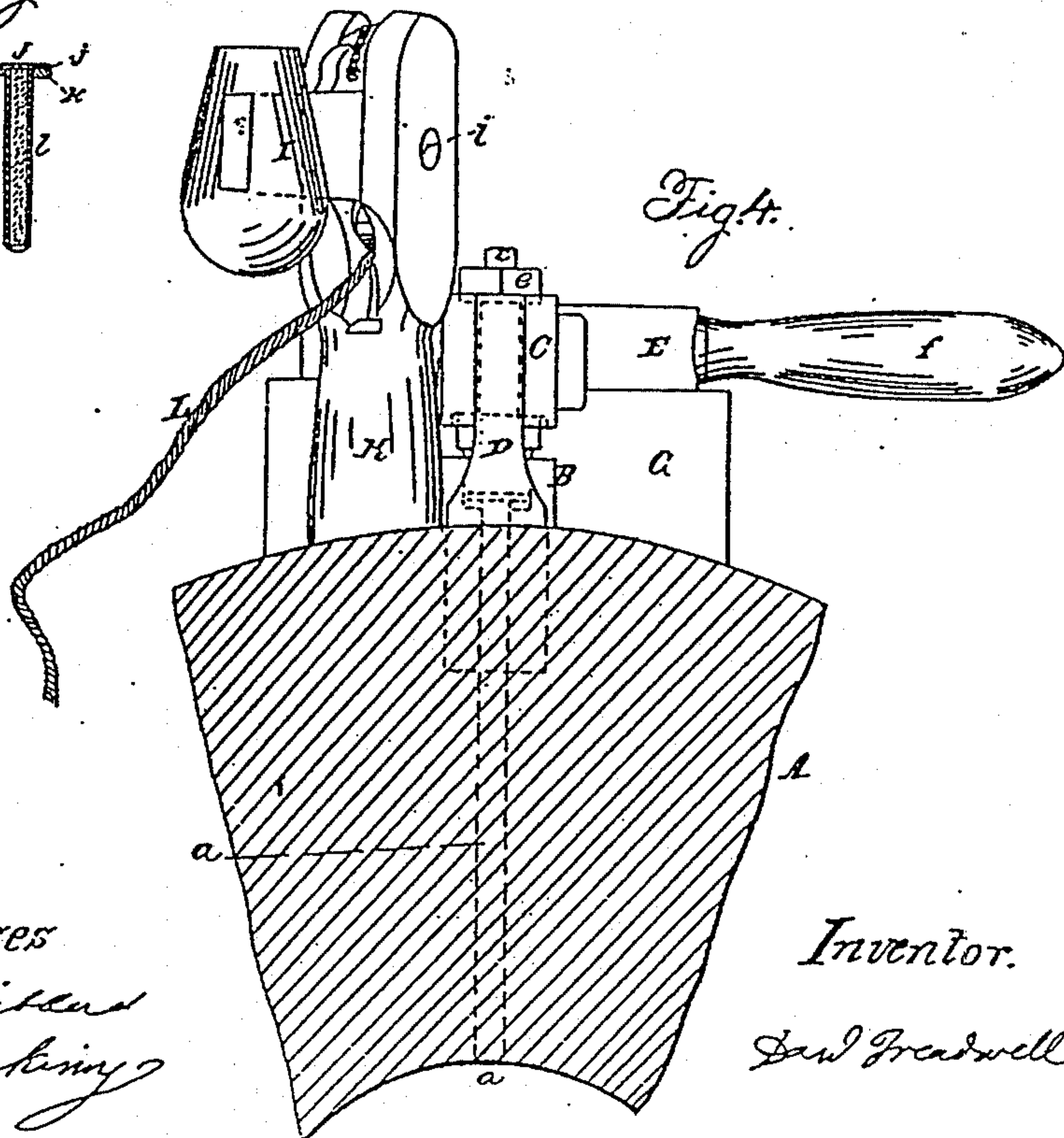
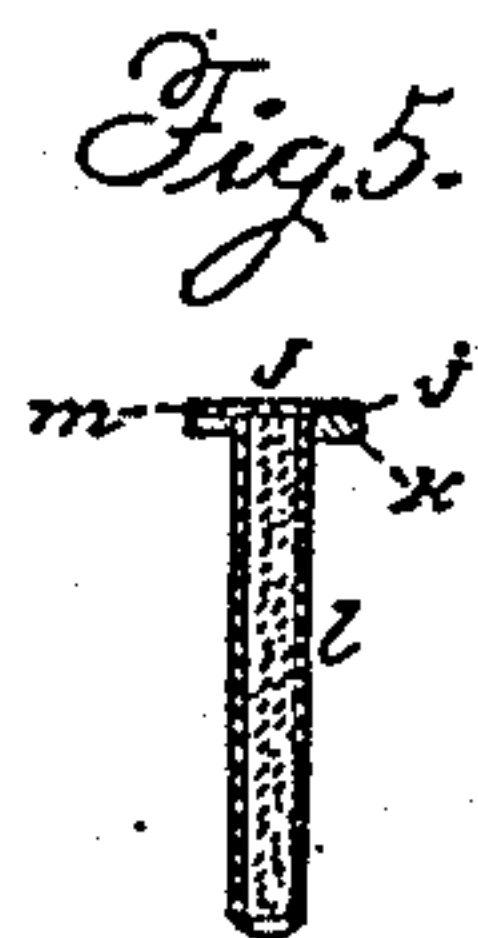
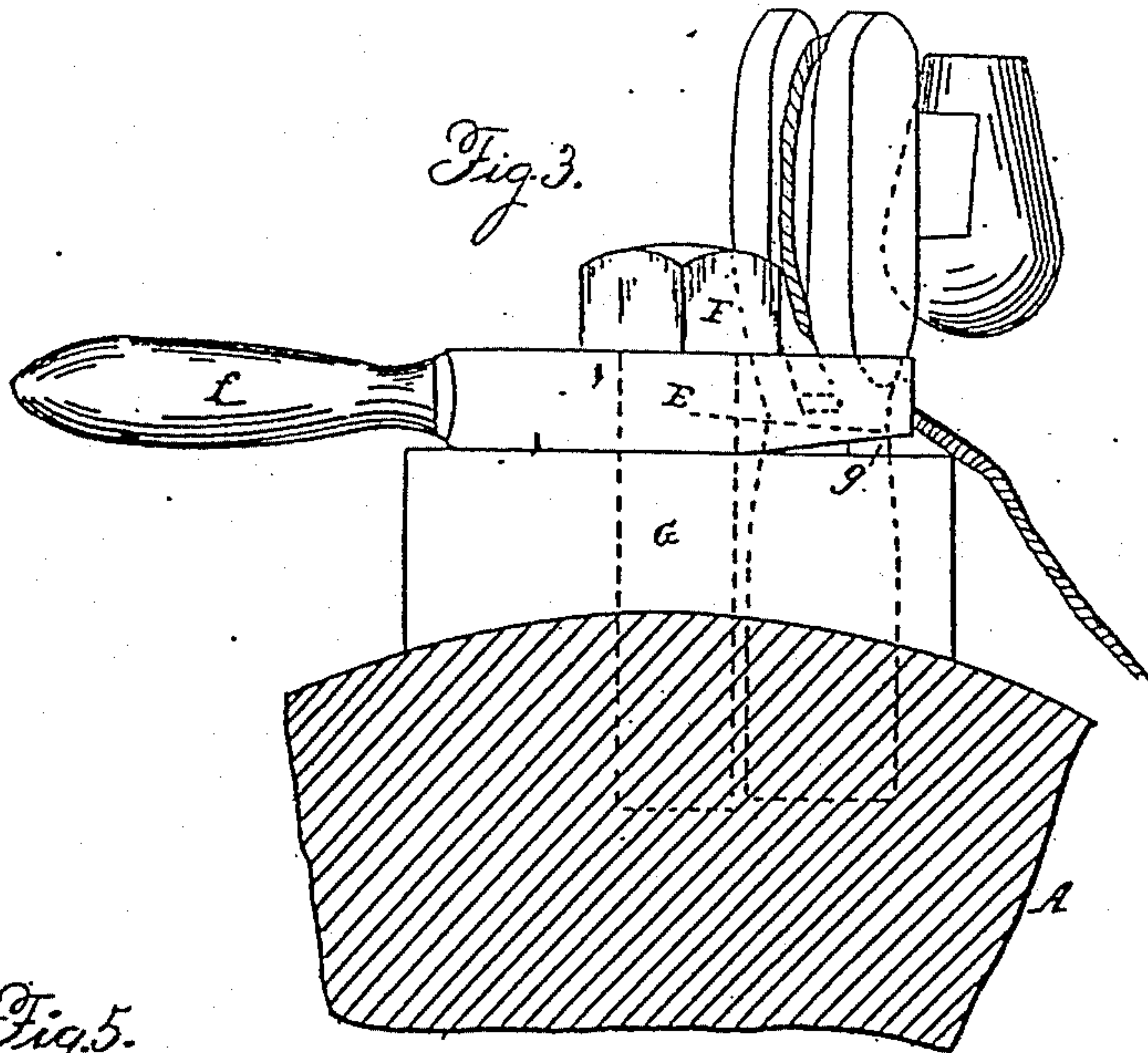
D. TREADWELL.

3 Sheets—Sheet 3.

Gun-Lock.

No. 37,017.

Patented Nov. 25. 1862.



Witnesses  
*Wm C. Hill*  
*John B. King*

Inventor.  
*Dan Treadwell*



# UNITED STATES PATENT OFFICE.

DANIEL TREADWELL, OF CAMBRIDGE, MASSACHUSETTS.

## IMPROVEMENT IN DEVICES FOR FIRING CANNON.

Specification forming part of Letters Patent No. 37,017, dated November 25, 1862.

*to all whom it may concern:*

Be it known that I, DANIEL TREADWELL, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in the Method of Firing Guns or Ordnance; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, taken in connection with the accompanying drawings, making a part of this specification, in which—

Figure 1 is a sectional elevation of a portion of the breech of a gun with the mechanism for closing the vent and igniting the primer attached thereto. Fig. 2 is a plan of the same. Fig. 3 is an end elevation of the same. Fig. 4 is an end elevation of the opposite end, and Fig. 5 is a separate view of the primer in section.

The subject-matter of my invention relates to the construction and mode of operation of the apparatus for discharging guns or ordnance, and is designed to obviate certain difficulties attending the modes of construction now usually employed, which will be briefly stated in order to afford a better understanding of the conditions to which my improvements more particularly apply.

In the guns now used, when the explosion of the charge takes place, the vent being open permits a portion of the gas produced from the charge to escape through it during the whole time that the projectile is within the gun. This gives rise to certain difficulties, which I will mention. The gases within the gun thus escaping through the vent at the moment of explosion under an enormous pressure, and perhaps also by their chemical agency, produce an erosion of the surface of the metal within the vent, and rapidly wear and enlarge it, so as to require it to be replaced, after a few hundred discharges by an operation well known as "bouching." The vent when new has to be sufficiently large to insure its being kept free from clogging, and from its further rapid enlargement, the proportion of the charge that escapes through it becomes very considerable in guns firing the ordinary round shot with windage, and the evil is greatly aggravated both as to the amount of waste of charge and wear of vent by the greater pressure of the gases in the gun where an elongated projectile is fired

without windage, as is the case with modern rifled guns. The escape of this amount of gas from the vent, in addition to the wear and waste produced, is also very prejudicial when the gun is fired with the breech in some confined space—such as the casemate of a fort or between decks of a ship of war—where the fire is dangerous, and the smoke becomes a serious inconvenience to the gunners. These difficulties I obviate by the employment upon the exterior of the gun of certain devices which inclose the vent and primer, with sufficient strength to retain the gases of the discharge, and which can be readily removed and replaced to permit all the operations of loading and priming, or to enable the vent to be used in the usual manner in case of accident to the vent-stopper or the absence of proper primer.

These devices consist, substantially, in forming upon the exterior of the vent a recess or receptacle for containing a fulminating primer, and employing therewith a set or plug, which I call a "vent-stopper," which closes it, and is confined thereto by some efficient means, as will be hereinafter described, and a fulminating primer provided with a casing of thin copper or other suitable material, that by its expansion against the sides of the recess or vent closes the joint to the escape of the gas, the primer being ignited by a blow applied to the exterior of the set by a lock or otherwise.

In the drawings the letters represent the the same parts in all the figures.

A represents a portion of the breech of the gun containing the touch-hole, or "vent," as it is called, and to which the apparatus for closing the vent and igniting the primer is attached.

B is a steel plug screwed into the gun, as shown, forming a vent-piece, through which the vent *a a* is bored, which also extends through the walls of the gun to the caliber, as is shown. The upper or outer part of the vent is enlarged to form a recess or chamber, *b*, into which the priming-cap *J* is placed, as is seen in Fig. 1, which will be hereinafter more particularly described.

C is a strong lever, which I call a "set-stock," which is jointed at one end to the stud *D*, which is screwed into the gun, as shown, or otherwise connected with it, which permits the other end of the set-stock to be turned back from the vent out of the way. In that part of



the set-stock that comes over the vent is fitted a steel set or bolt or punch, *c*, the lower end of which fits close in the socket *b* of the vent-piece, as shown, and the other end of which passes up through the set-stock and is secured to it by a screwed collar, *e*. The set is made with a shoulder that bears against the under side of the set-stock, as shown, and is fitted into it loosely, so as to have a little play to enable the set to adapt itself to the socket *b* and the primer when it is fastened down upon them. This set serves the double purpose of a vent-stopper and a striker for igniting the primer. This end of the set-stock is held down by the button *E*, which is a disk of steel having a segment cut off from one side, as shown, and rotating upon a steel bolt, *F*, as a center, which secures it firmly to the gun. This button rests upon a lock-piece, *G*, which is either fastened upon the gun, as shown, or made in one piece with it, if preferred. Upon its under side it is made for a part of its circumference in the form of a helical wedge or incline, like a portion of square screw-thread, as shown at *g*. When the button is turned by the handle *f*, the inclined surface *g* passes over the lip *h* of the set-stock, (which is also beveled transversely to correspond to it,) and forces the set *c* down upon the priming-cap *J*, and holds it firmly against the force of the discharge of the gun.

*I* is the hammer by which the blow is given to the set *c* to ignite the primer. It is jointed at *i* to the stud *K*, which is screwed into or otherwise attached to the gun, and is worked by a lanyard, *L*, in the same manner as the cannon-lock in common use.

*J* is the primer, which is also shown separately in Fig. 5. It is made of two disks of copper, the upper one of which, *j*, is made thin, and has its edge turned down outside of the lower one, *k*, fitting closely to it. Between these disks the fulminate *m* is placed. In the center of the disk *k* is a small hole, into which the quill or paper case *l* is fixed for holding the priming-powder in the usual way, which is inserted into the vent. The outside of the disk *j* is made of a diameter to fit the recess *b* of the vent-piece, as shown in Fig. 1, where the parts are shown in position, and when the gun is fired (by striking the top of

the set *c* with the hammer *I* or otherwise) the explosion of the fulminate *m* expands the flange of the disk *j* against the sides of the recess *b* and effectually closes the joint to the escape of the gas. After firing the gun the handle *f* of the button *E* is turned to the position shown in Fig. 1, releasing the set-stock, which is then thrown back out of the way, and the disks *j* and *k* of the exploded primer are removed by the priming-wire or other instrument for the purpose carried by the gunner, by thrusting it through the center of the upper disk and through the hole of the lower one in which the guide *l* was fixed, by which means they may be removed with facility.

I am aware that heretofore mechanism has been devised for closing the vent of the gun before or at the time of priming it; but in all instances that have come to my knowledge the vent in the first place was so modified that it could not be used in the ordinary way, and in the second place that the joint of the inclosure was made tight by the accurate fitting of valves or pistons in the vent which the corrosive action and residuum of the powder would soon render inoperative; but by my invention the vent, if necessary, may be used in the usual way, and the copper casing of the primer forms an expanding packing that fits itself to the form of the cavity that incloses the primer and effectually closes the joint, although their surfaces may be considerably corroded.

The ability to use the vent with ordinary priming I regard as of great importance in connection with my apparatus for closing it.

Having thus described my invention, what I claim is—

The employment, in combination with the vent of a gun, of a recess or receptacle upon the exterior thereof for containing a primer, and a vent-stopper for closing the same, and a primer with an expanding case which serves as a packing to close the joint and prevent the escape of the gas, substantially as described.

DANL. TREADWELL.

Witnesses:

WM. C. HIBBARD,  
JOHN PICKERING.