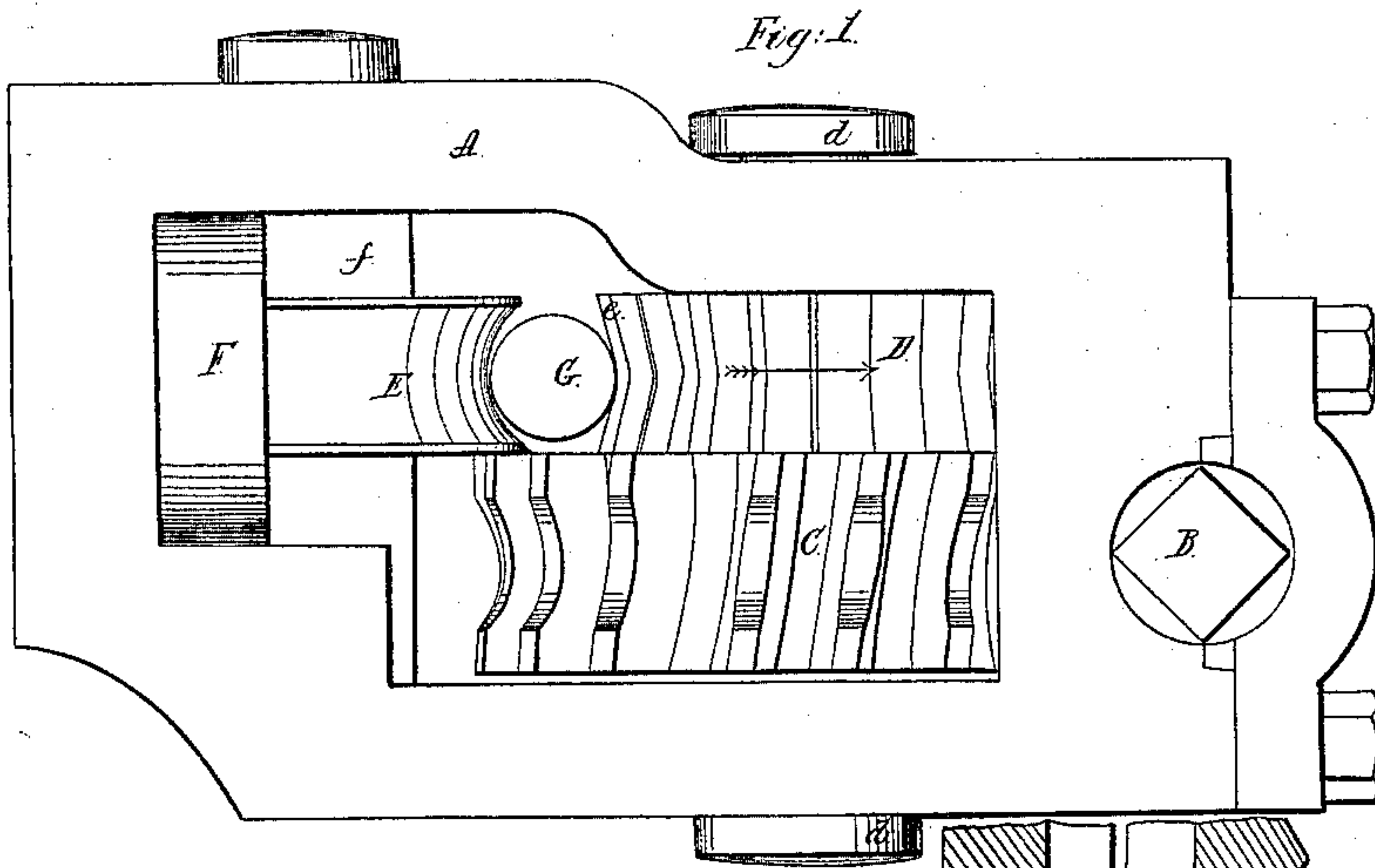
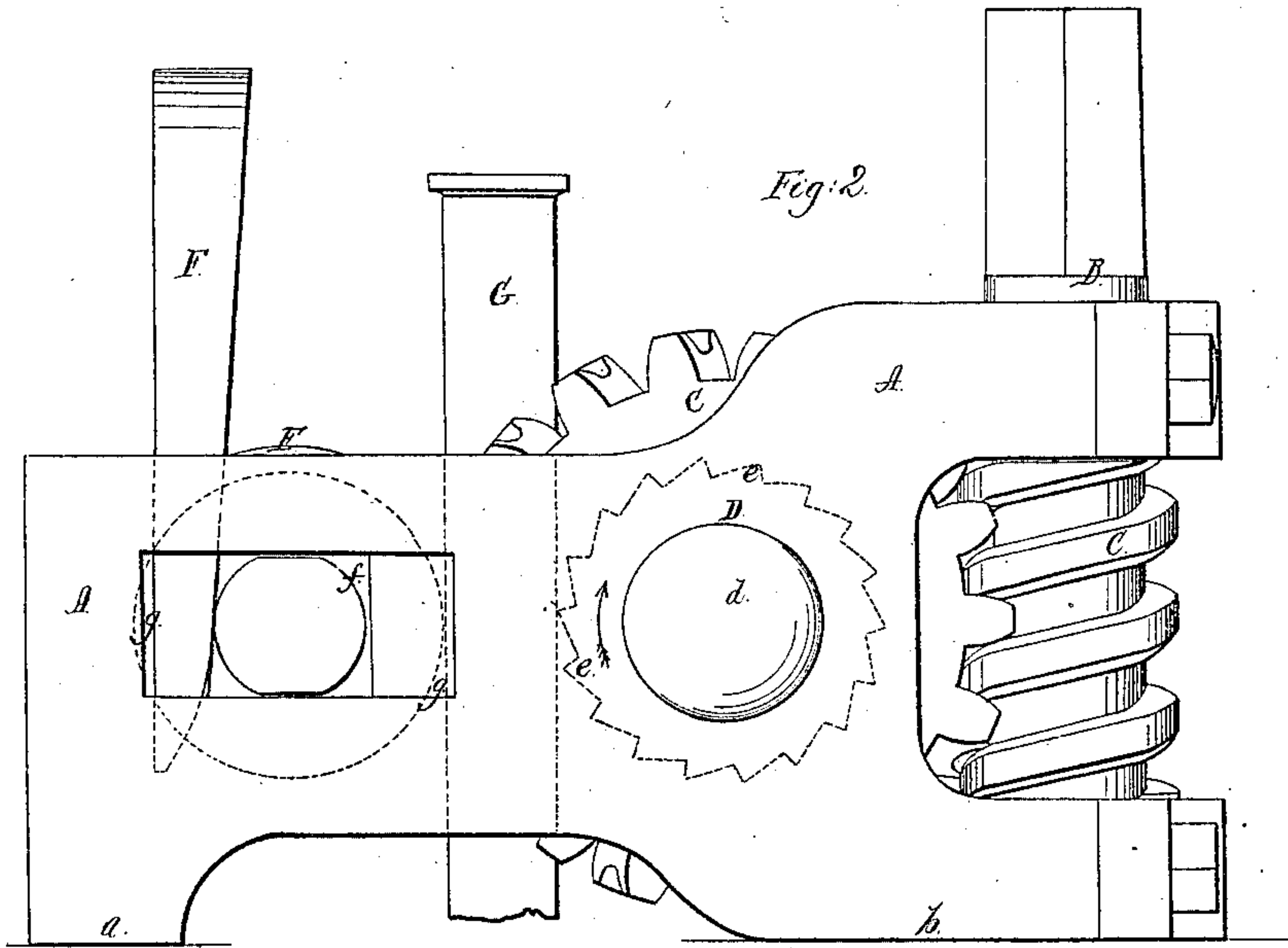


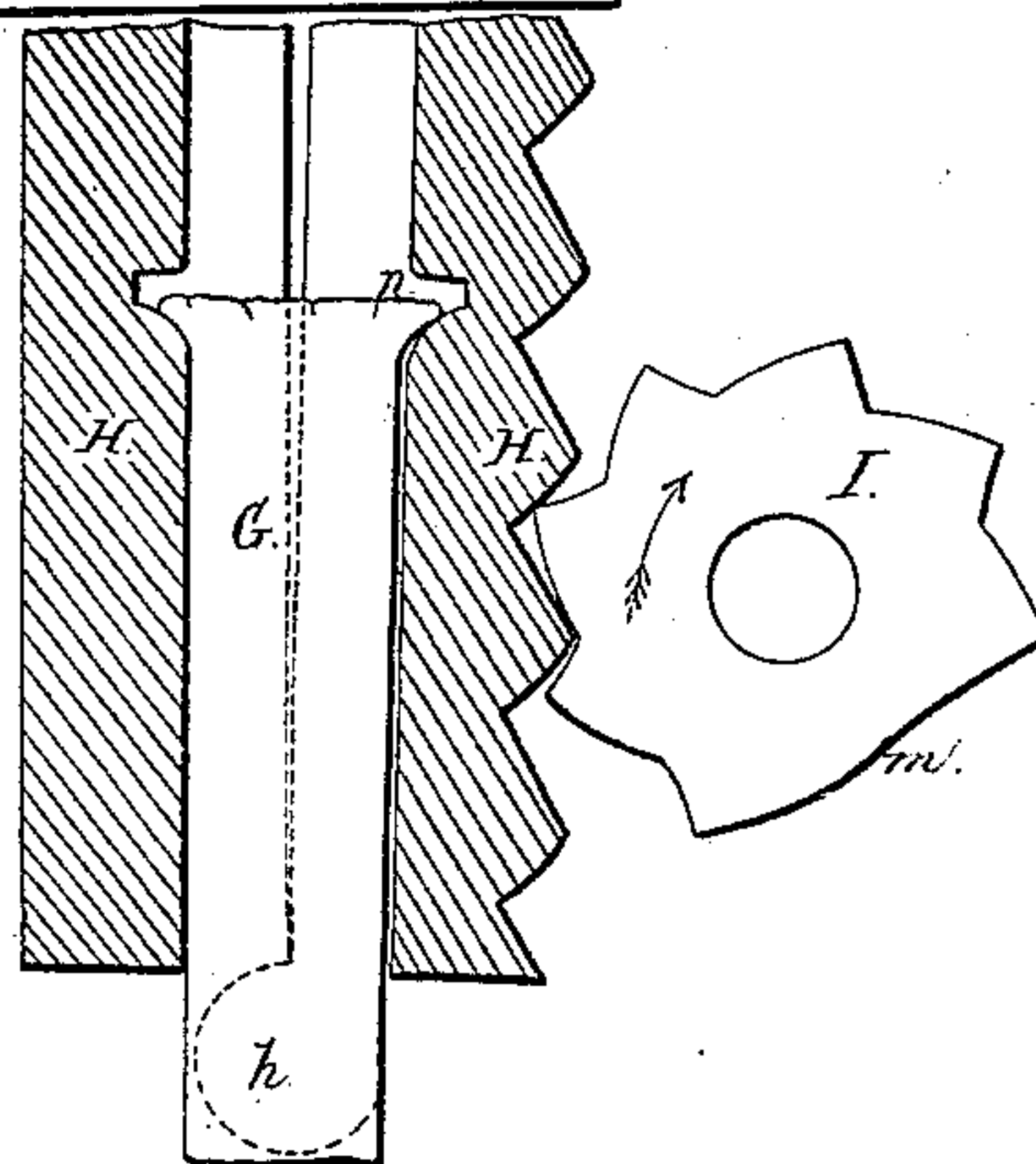
*C. L. Sterenson,  
Nail Extractor,*

*Nº 21,910,*

*Patented Oct. 26, 1858.*



*Fig. 3.*





# UNITED STATES PATENT OFFICE.

C. L. STEVENSON, OF CHARLESTOWN, MASSACHUSETTS.

## MACHINE FOR DRAWING BOLTS.

Specification of Letters Patent No. 21,910, dated October 26, 1858.

*To all whom it may concern:*

Be it known that I, C. L. STEVENSON, of Charlestown, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Machine for Drawing Bolts and Spikes from Timbers, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan; Fig. 2, a side elevation; Fig. 3, detail to be referred to hereafter.

In structures of wood such as bridges, vessels, &c., where heavy bolts and spikes have been used in the construction, it is frequently requisite to remove the bolts or spikes from the timbers for the convenience of repairs, or for the value of the metal, as in the case where heavy copper bolts have been used in a vessel.

The object of my present invention is to construct a machine for this purpose, by means of which a bolt may be drawn from the most tenacious timber, without bending or breaking the bolt.

That others skilled in the art may understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the drawings A is a shell or frame of iron of sufficient strength, which carries the operating parts of the machine, the bottom *a b* (Fig. 2) being intended to rest upon the timber from which the bolt is to be drawn. At one end of this shell in suitable bearings is carried a vertical shaft B the screw thread *c* on which, engages with the beveled cogs of a wheel C, the axle *d* of which has its bearings in the sides of the shell, and lies at right angles to the shaft B. Another wheel D somewhat smaller is attached to the side of the wheel C. It is furnished with sharp steel teeth *e* of the form shown in plan Fig. 1 and dotted in Fig. 2 for the purpose of biting into and taking hold of the bolt to be drawn, which is forced up against the wheel D in the following manner:

A smooth wheel or roll E runs loosely on a shaft *f*; the face of this roll is hollowed out as shown in Fig. 1. The shaft *f* is made square at that part of it which rests in the slots *g* in the sides of the shell A. These slots allow the roll to be moved back and

forth in the shell A, toward or from the wheel D.

A wedge F placed behind the shaft *f* and between it and the end of the shell A serves to force the roll E toward the wheel D, for the purpose of grasping the bolt to be drawn (represented at G) between the roll and the wheel, and thus giving to the teeth *e* a sufficient bite upon the metal of the bolt G, so that as the wheel D is revolved in the direction of its arrows, by power applied to the shaft B, the bolt will be drawn out. The side of the shaft *f* next to the wedge F is beveled to correspond to the inclination of the wedge. The wedge F is cut away in the middle to accommodate the roll E.

Instead of the wedge, other mechanical power may be employed to force up the roll E, for example screws passing through the end of the shell A may be used.

The following is the manner of operating this machine (for example in drawing bolts from the side of a ship): The planking (as is usual) having been removed, the head of the bolt projects a short distance from the timber. The wedge F is removed and the roll E is pushed back away from the wheel D. The machine is then placed over the head of the bolt G, the lower edge *a b* of the shell A resting on the timber. The wedge is now inserted and driven up hard. This forces the teeth *e* of the wheel D into the metal, and gives this wheel a good bite on the bolt. The shaft B is now revolved by a rack-wrench applied to the head of it, and as the wheel D is revolved in the direction of its arrow, the bolt G is drawn out from the timber in a straight line, without the necessity of bending it over, and without the usual risk of breaking it off near the face of the timber. Another advantage I may mention is that this machine does not bruise and dent the face of the timber; the ordinary mode of drawing the bolt, frequently injuring the timber so that it has to be replaced.

In drawing long and valuable copper bolts such as are used in the keels of vessels, it is desirable to protect their surfaces from the notching or scoring they would receive from the sharp teeth of the wheel D. For this purpose I sometimes employ the device shown in Fig. 3, in which H is a guard or sleeve which is slipped over the head of the bolt. It is formed in two pieces, hinged to-



gether at the side as dotted at *h*. A toothed wheel I which takes the place of the wheel D (Figs. 1 and 2) engages with corresponding notches on one side of the sleeve H.  
5 This wheel is cut away on one side at *m* so that when it has made a partial revolution, and the sleeve H and bolt G have been raised a short distance, the sleeve may be slipped down over the bolt and past the wheel, ready  
10 for the wheel at its next revolution to take a fresh bite. To assist in preventing the sleeve from slipping when the bolt is first being started, I have formed a recess in the sleeve at *n* to receive the head of the bolt  
15 (which is generally somewhat enlarged by

driving as shown in Fig. 3) this gives the sleeve a firmer grasp of the bolt, at this the most difficult part of the operation.

What I claim as my invention and desire to secure by Letters Patent, is— 20

A machine for drawing bolts from timber, consisting essentially of the rotating toothed wheel D, which is forced up to the bolt by pressure applied through the roll E or its equivalent.

C. L. STEVENSON.

Witnesses:

CHARLES POOLE,  
STEPHEN P. KELLEY.