

(No Model.)

2 Sheets—Sheet 1.

W. E. SCHMICK.
MACHINE FOR REMOVING NUTS FROM BOLTS.

No. 599,260.

Patented Feb. 15, 1898.

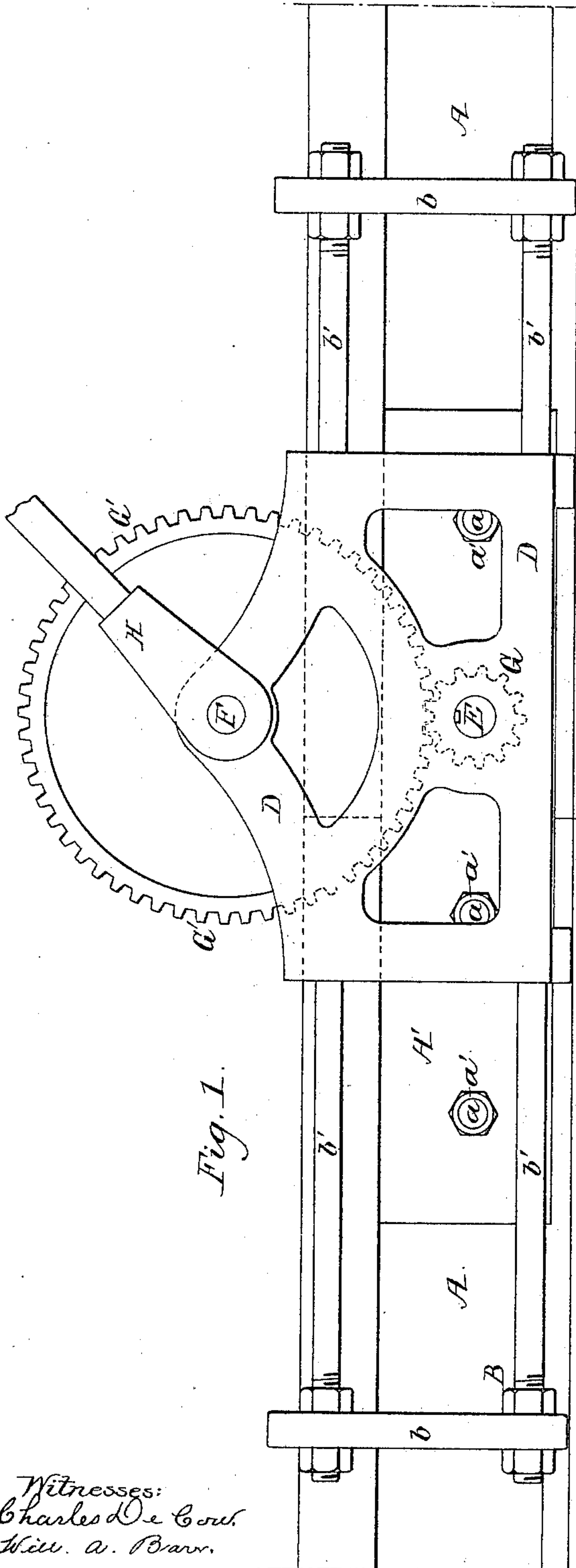


Fig. 1.

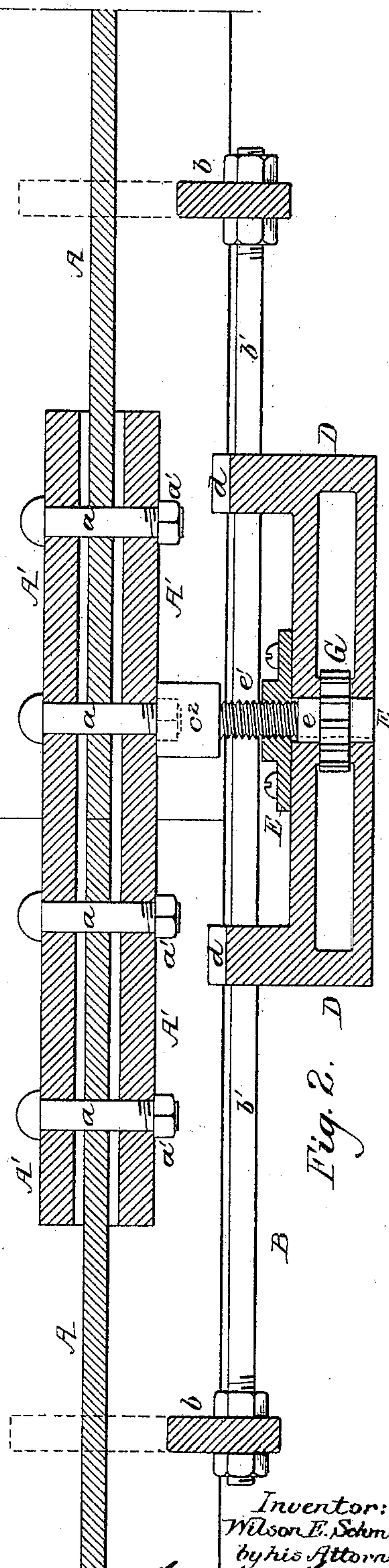


Fig. 2.

Witnesses:
Charles De Cour.
Wm. A. Barr.

Inventor:
Wilson E. Schmick
by his Attorneys,

Howe & How

(No Model.)

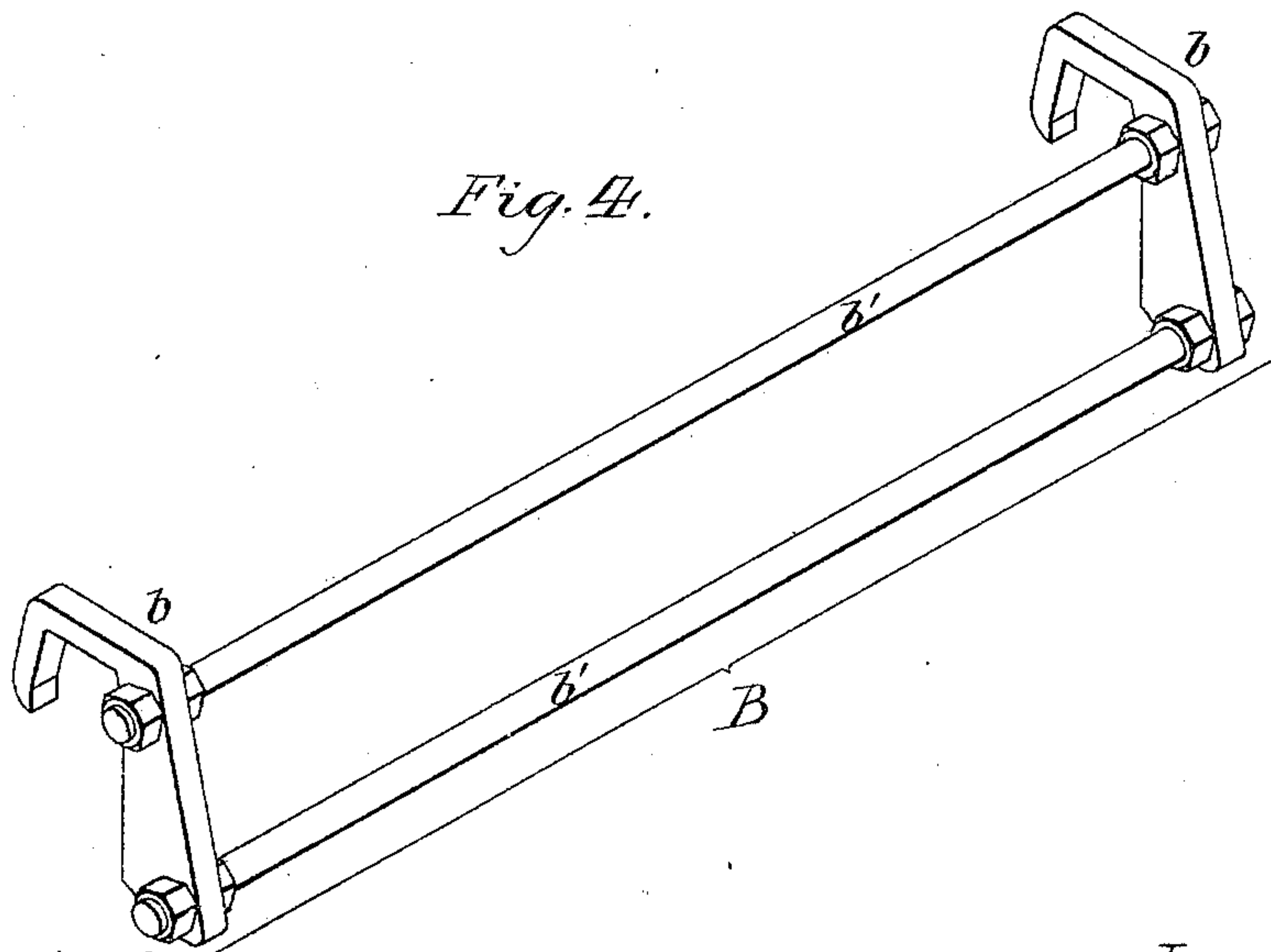
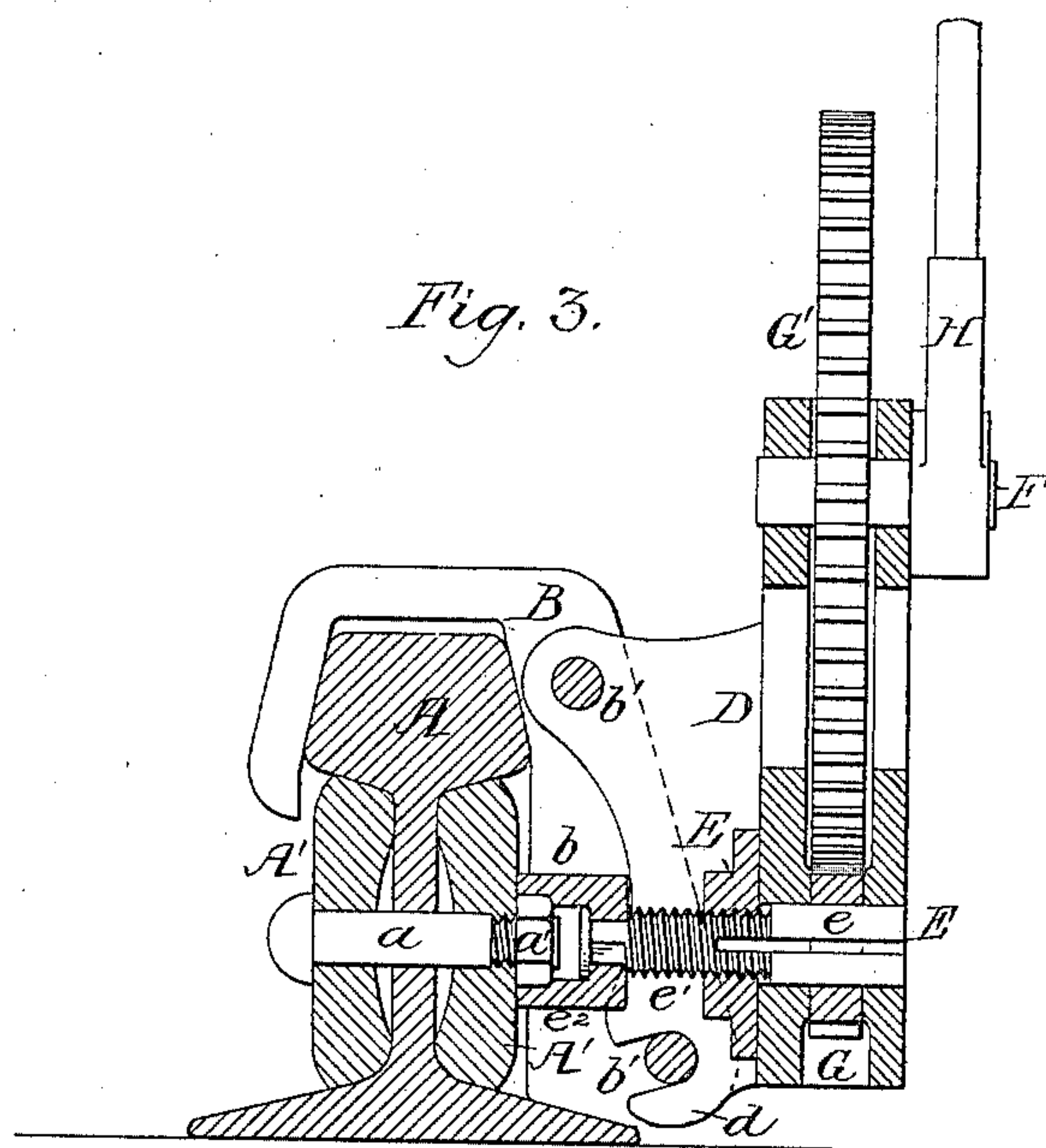
2 Sheets—Sheet 2.

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Witnesses:
Charles De Bow.
Will. A. Barr.

Inventor:
Wilson E. Schmick
by his Attorneys,
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UNITED STATES PATENT OFFICE.

WILSON E. SCHMICK, OF HAMBURG, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO MILTON L. RITTER, OF READING, PENNSYLVANIA.

MACHINE FOR REMOVING NUTS FROM BOLTS.

SPECIFICATION forming part of Letters Patent No. 599,230, dated February 15, 1898.

Application filed March 18, 1897. Serial No. 628,220. (No model.)

To all whom it may concern:

Be it known that I, WILSON E. SCHMICK, a citizen of the United States, and a resident of Hamburg, Pennsylvania, have invented certain Improvements in Machines for Removing Nuts from Bolts, of which the following is a specification.

The object of my invention is to provide means for the ready removal of nuts from railroad-fish-plate joints. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a side view showing the section of a rail-joint with my improved apparatus in position. Fig. 2 is a sectional plan view. Fig. 3 is a transverse sectional view, and Fig. 4 is a perspective view of the carrying-frame.

A A are the abutting rails of a railroad-track. A' are the fish-plates. *a* are the bolts, and *a'* are the nuts on the bolts for securing the fish-plates to the rails.

My device consists of a frame B, adapted to be hung to the rail. In the present instance this frame consists of two hooked end plates *b b*, adapted to extend over the rails beyond the fish-plate and to rest upon one base-flange of the rails, so as to have a rigid support when mounted at the joints. Extending from one end plate to the other are two rods *b' b'*, which are secured to the end plates by nuts mounted on the rods on each side of the plate. The frame is of sufficient length to allow the carriage D to move in front of each nut of the fish-plate joint, so that the operating mechanism may engage with the nut and remove it. The carriage D in the present instance is pivoted to the upper longitudinal bar *b'* and has sockets *d*, which span the lower bar and thus keep the carriage rigid when the mechanism is turned; but this carriage can swing on the upper bar, so as to allow the mechanism to engage the nut, and it also allows for the discharge of the nut from the socket when removed from the bolt. Mounted on the carriage are two shafts E and F. The shaft E has in the present instance one portion *e* plain, a portion *e'* screw-threaded, and a socket *e²* secured to its end, so as to turn with it. This socket engages the nut *a'* on the bolt *a* and the screw-threaded portion of the shaft is on

the same pitch as the thread of the bolt. The plain portion *e* of the shaft is adapted to bearings in the carriage, and mounted on the shaft between the two frames of the carriage is a pinion G. This pinion has a tongue which enters a longitudinal slot in the shaft, so that the shaft can slide longitudinally through the pinion, but must turn with it. Secured to the carriage is a fixed nut E', the screw-thread of which engages the screw-thread on the shaft, so that when the shaft is turned by the pinion G it will move longitudinally in the nut.

Gearing into the pinion G is a large gear-wheel G', which is mounted on a shaft F, adapted to bearings in the carriage, and I preferably turn this shaft by means of a ratchet-lever H of the ordinary construction, so that on vibrating the lever the gear-wheel and pinion will turn intermittently in one direction.

It will be noticed that the preponderance of the weight of the carriage is at one side of the pivot-point, so that when the ratchet-lever is operated the carriage will be seated rigidly on the two bars of the frame.

When the nuts are on the bolts of a fish-plate joint for any length of time, they are often very hard to remove and sometimes as much as one man can do to remove the nut by the ordinary tool. By my invention, however, the nuts can be readily removed and the device can be quickly applied. If, for instance, certain fish-plates have to be removed, the hooks of the frame are placed over the rail and the frame is allowed to seat itself at one side of the rail. The carriage is then turned on its pivot and moved until its socket is opposite a nut. Then it is turned into position so that the socket will pass over the nut. The ratchet-lever is vibrated so that the screw-shaft *e'* will be turned in its nut E, having engaged the nut *a* on the bolt. The two will be withdrawn from the bolt in unison. When the nut is entirely removed, the carriage is turned on its pivot, the nut will be discharged, and by reversing the motion of the ratchet-lever the shaft will be again projected. Then by moving the carriage opposite the next nut, allowing it to swing in position, its socket will engage the nut and the above operation may be repeated.

It will be understood that the gears may be enlarged or a train of gears used, or I may use bevel-gears without departing from my invention, and that a hand-wheel may be substituted for the ratchet-lever, if necessary.

I claim as my invention—

1. The combination in a machine for removing nuts from bolts, of the frame adapted to the rail at the fish-plate joint, a carriage longitudinally movable on the frame, with means on the carriage for engaging and turning one of the nuts of the fish-plate joint, substantially as described.

2. The combination in a machine for removing nuts from bolts, of the frame detachably secured to the rail at the fish-plate joint, said frame consisting of end plates and longitudinal bars, a carriage mounted on one bar and resting against the other and capable of sliding thereon, a shaft having a socket adapted to engage one of the nuts of the fish-plate joint and mounted on the carriage with means for turning the shaft, substantially as described.

3. The combination of the frame having two end pieces adapted to engage with the rail at the fish-plate joints, connecting-bars, a carriage on said bars, a screw-threaded shaft mounted in the carriage, an operating-shaft, a gear-wheel on the operating-shaft, a gear-wheel on the screw-shaft meshing with the wheel on the operating-shaft, said screw-threaded shaft adapted to turn with the wheel but slide therein, a threaded nut on the carriage engaging with the threaded shaft, a socket on the threaded shaft adapted to engage the nut to be removed so that when the operating-shaft is turned the screw-threaded shaft will be turned and will be moved longitudinally carrying the nut with it, substantially as described.

4. The combination of the frame adapted to be hung on the rails and consisting of two

end plates and longitudinal bars, a carriage hung on one of said bars and adapted to rest against the other, a screw-threaded shaft having a socket, said shaft being adapted to bearings in the carriage and controlled by a fixed nut thereon, means for turning said shaft so as to remove a nut from a bolt, said carriage being free to swing so that it can swing into position and the socket engage with the nut, substantially as described.

5. The combination of the frame having the two hooked end pieces, longitudinal bars, a carriage mounted on one of said bars, and resting against the other bar, a driving-shaft on the frame, a screw-threaded driven shaft having a longitudinal groove therein, a pinion on the shaft having a tongue adapted to the groove, a gear-wheel on the driving-shaft meshing with the pinion, a fixed nut on the frame controlling the longitudinal movement of the screw-shaft, a socket on the end of the screw-shaft adapted to engage the nut of the fish-plate joint when the carriage is moved opposite the nut and swung into position so that on turning the driving-shaft the screw-shaft will turn and back off with the nut, substantially as described.

6. The combination of the frame having the hooked end pieces adapted to engage with the rail, longitudinal bars connecting said end pieces, a carriage hung to one of said bars and resting against the other, a socket having a shaft mounted so as to be movable transversely through said carriage, and provision for rotating said shaft, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILSON E. SCHMICK.

Witnesses:

A. S. KOLLER,
SOL. K. HOFFMAN.