

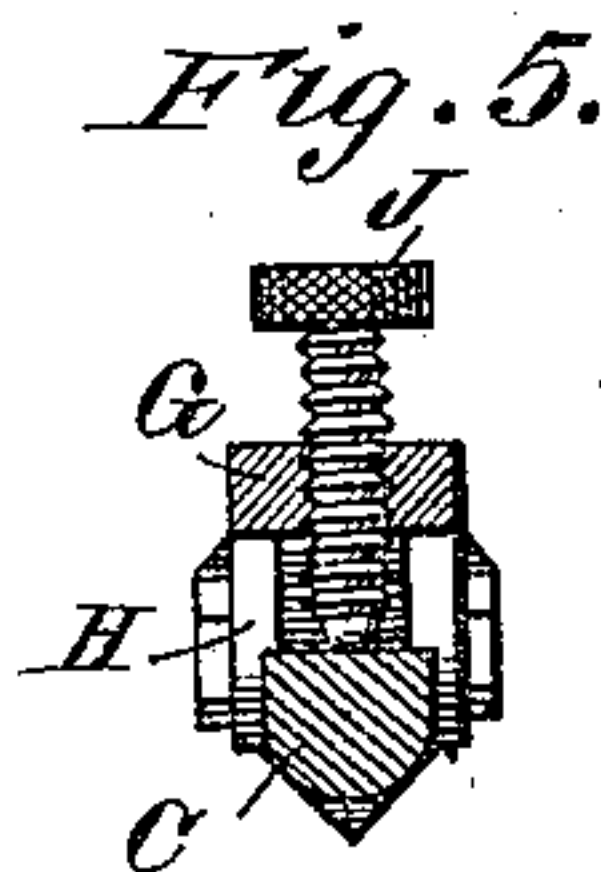
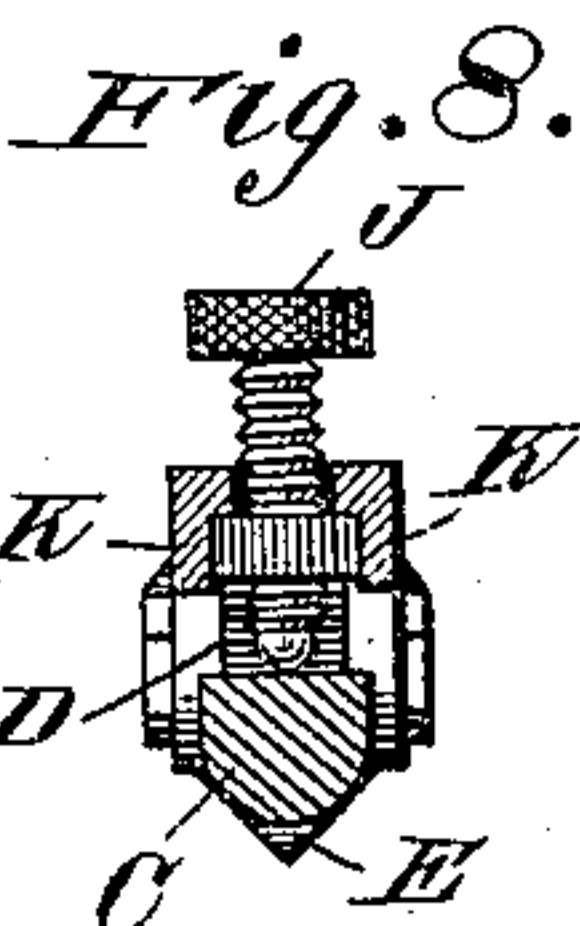
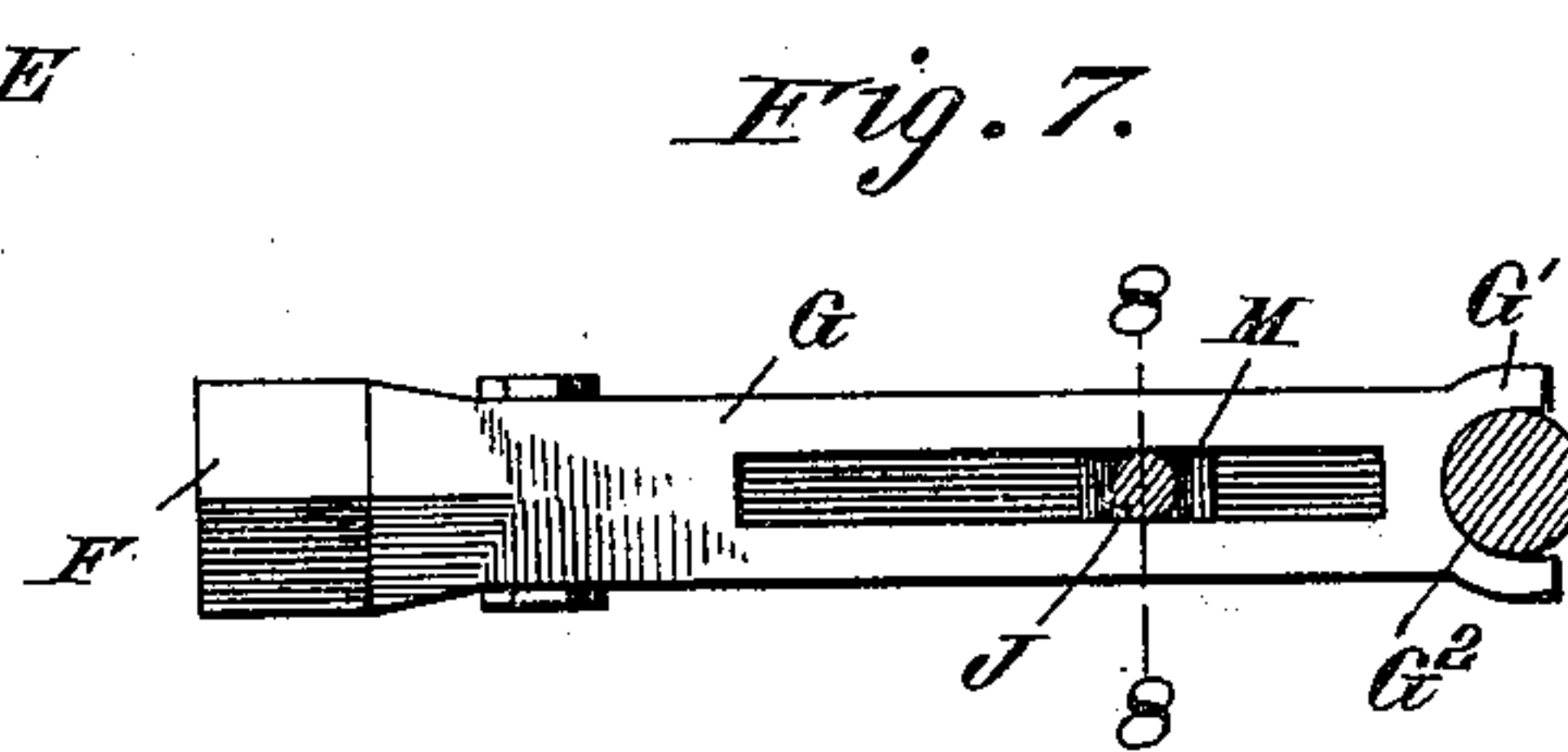
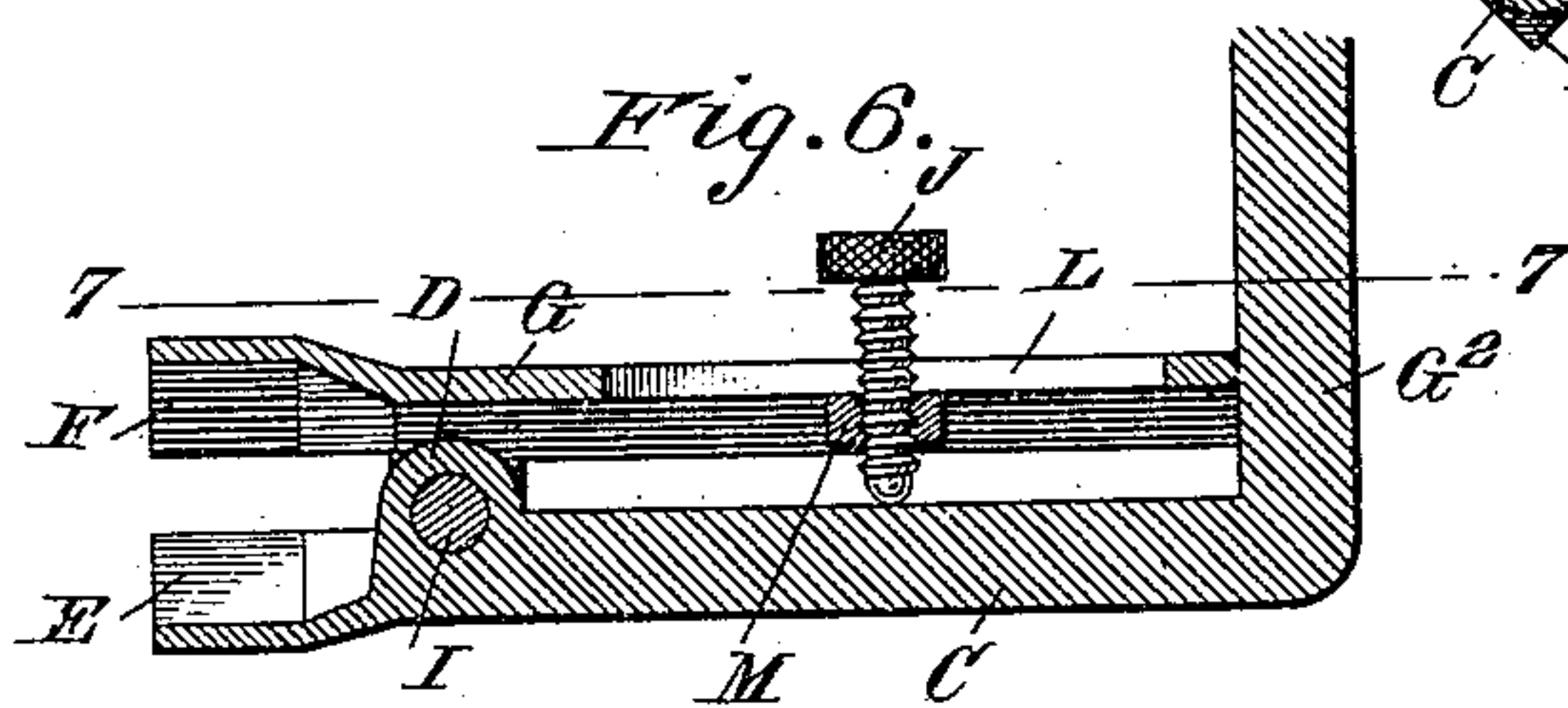
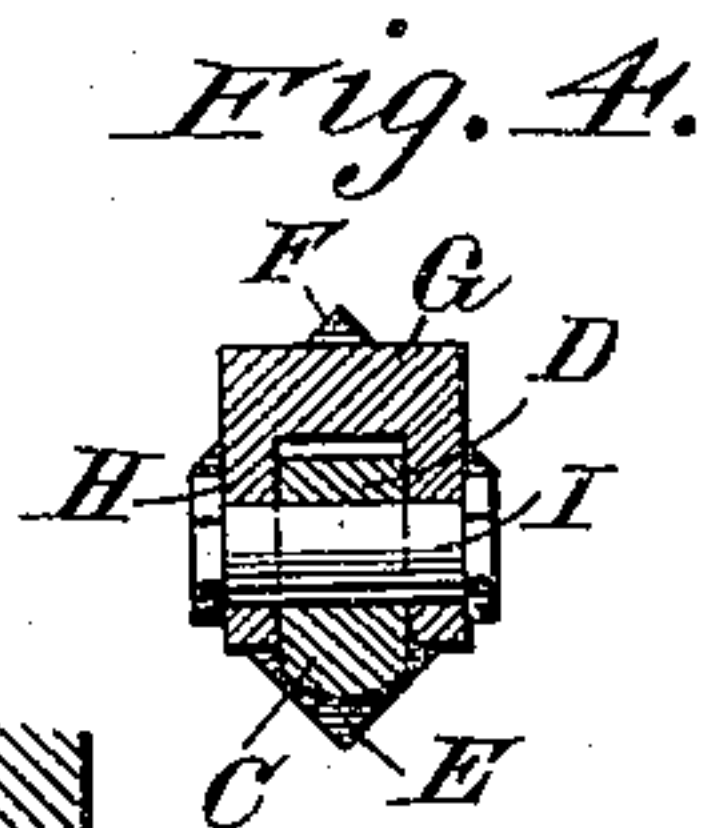
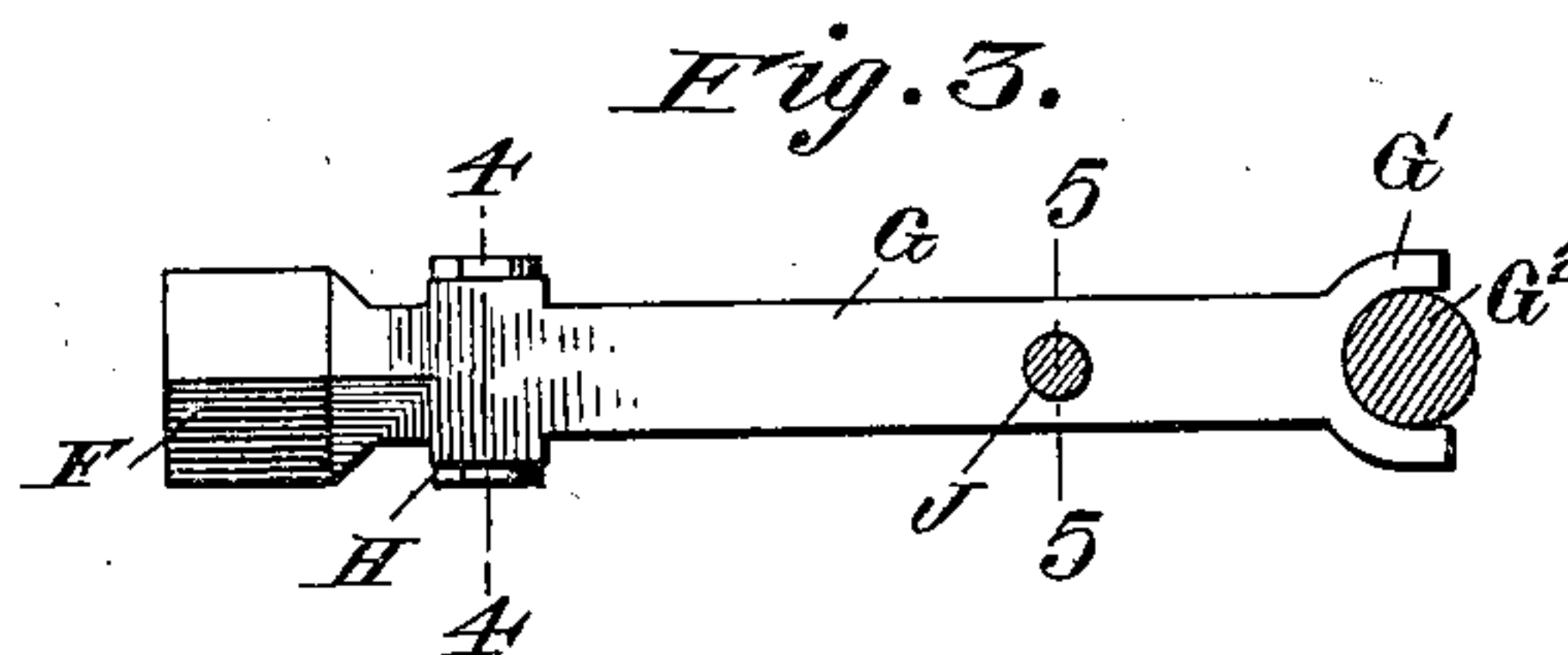
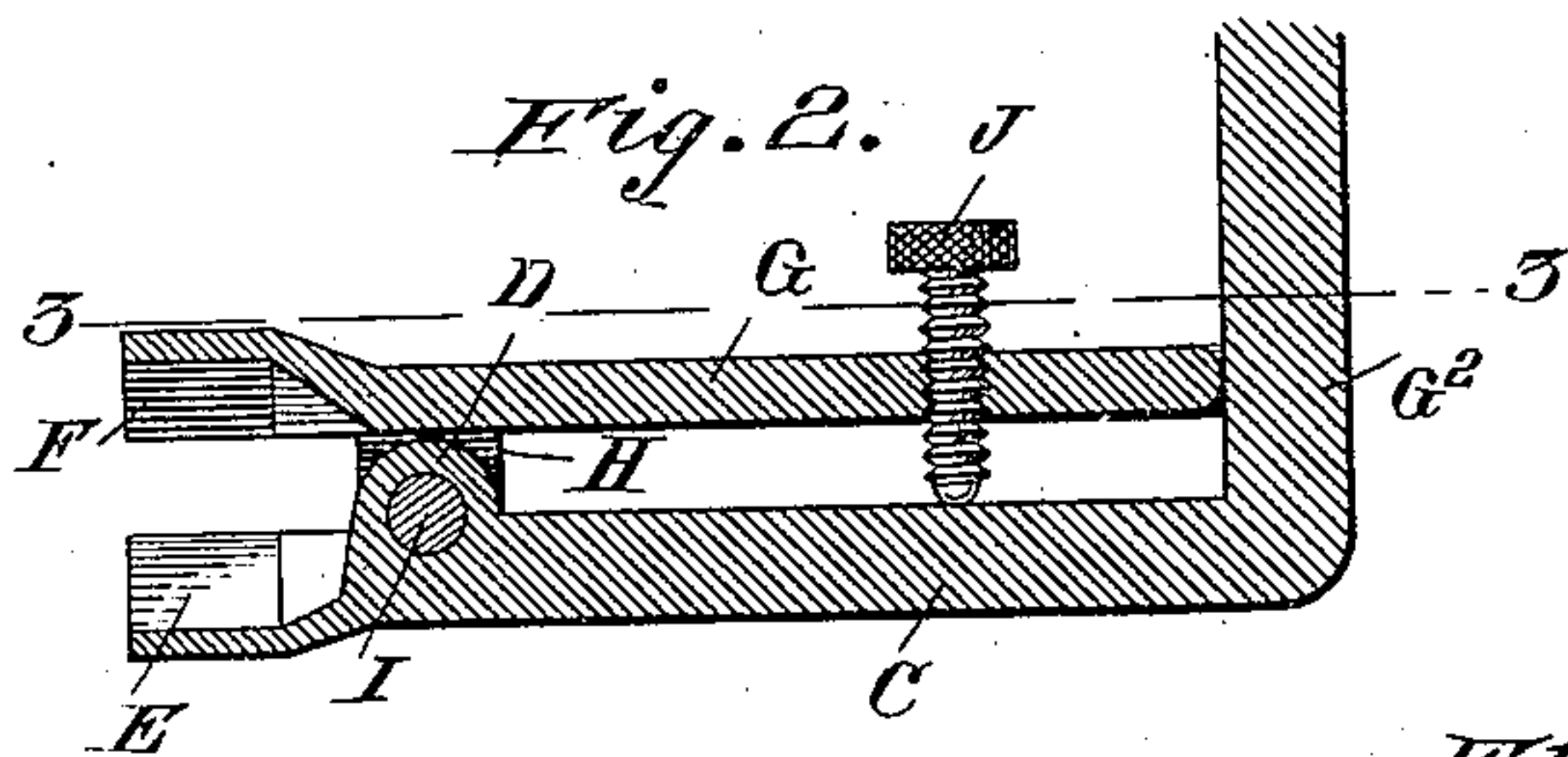
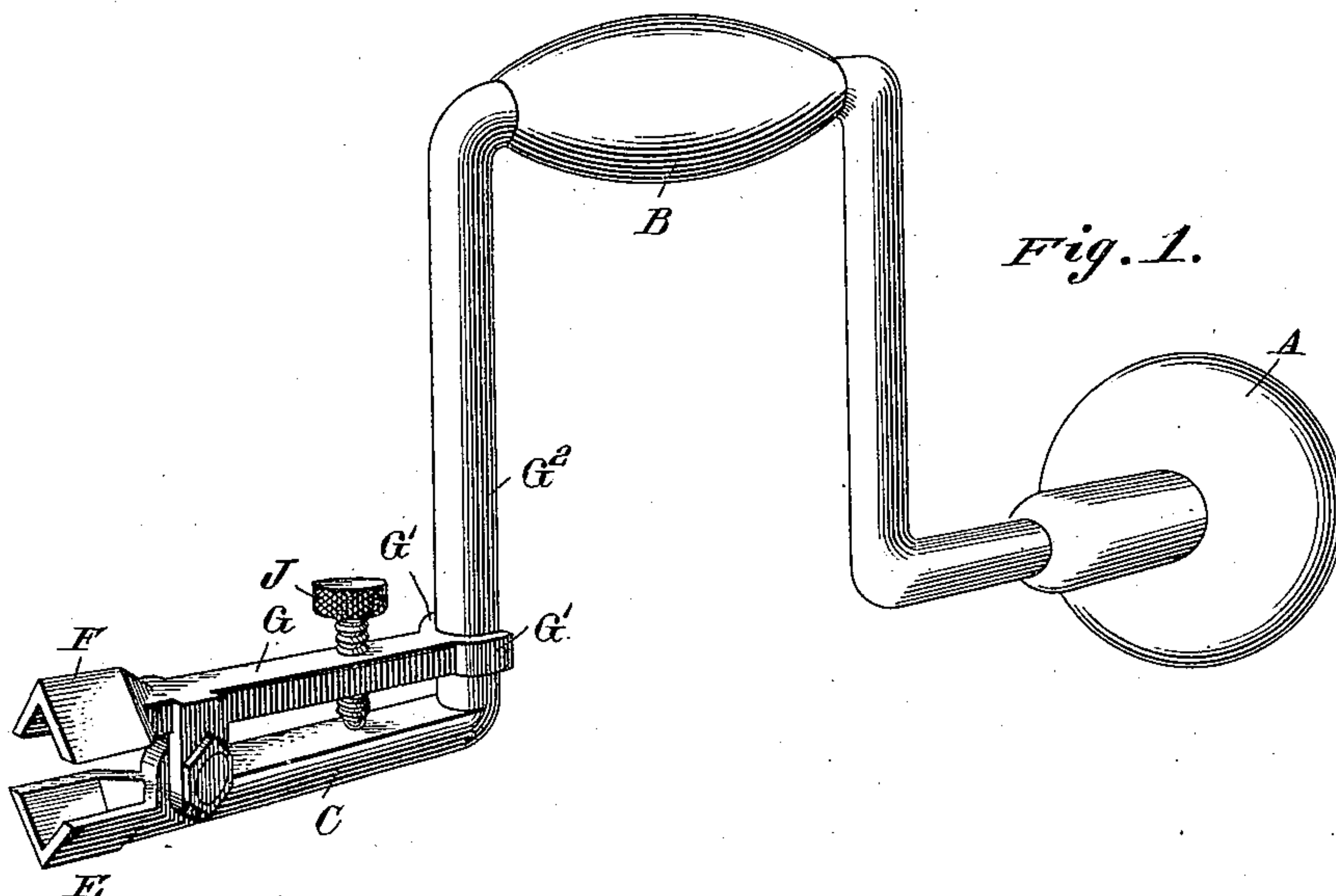
No. 617,742.

Patented Jan. 17, 1899.

J. HARTER.
AXLE NUT WRENCH.

(Application filed Jan. 24, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

JACOB HARTER, OF NORTH MANCHESTER, INDIANA.

AXLE-NUT WRENCH.

SPECIFICATION forming part of Letters Patent No. 617,742, dated January 17, 1899.

Application filed January 24, 1898. Serial No. 667,835. (No model.)

To all whom it may concern:

Be it known that I, JACOB HARTER, residing at North Manchester, in the county of Wabash and State of Indiana, have invented a new and useful Axle-Nut Wrench, of which the following is a specification.

This invention relates to wrenches, and more particularly to wrenches intended for removing and replacing the nuts of vehicle-axles by which the wheels are held in place.

The object of my invention is to furnish a device of this character which shall be simple in construction and effective and durable in operation, means being provided whereby different sizes of nuts may be manipulated and the operation performed in a more rapid and easier manner than with wrenches intended for ordinary uses.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward specifically pointed out in the claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, having reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of an axle-wrench constructed in accordance with my invention. Fig. 2 is a vertical section through the forward end of the brace and the nut-clamping jaws. Fig. 3 is a horizontal section through the same on the line 3 3 of Fig. 2. Fig. 4 is a transverse section on the line 4 4 of Fig. 3. Fig. 5 is a similar section on the line 5 5 of Fig. 3. Fig. 6 is a view similar to Fig. 2, illustrating a somewhat modified but preferred form of my invention. Fig. 7 is a section on the line 7 7 of Fig. 6, and Fig. 8 is a transverse section on the line 8 8 of Fig. 7.

Like letters of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the preferred form of wrench illustrated in Figs. 6, 7, and 8, I have represented the brace, constructed as is usual in carpenters' bit-braces, as provided with a flat knob A on its outer end and a swiv-

eled handhold B, the forward arm of the brace being flat on its upper side, as at C, and provided with an upwardly-projecting perforated lug D and formed into an angular jaw E at its outer end, which is adapted to engage with one corner and two sides of a nut of corresponding shape, usually square. The jaw E is the fixed jaw of the wrench, and F indicates a movable jaw, which is of corresponding construction and is mounted on the outer end of a lever G, provided with lugs or ears H, which overlap the lug D and are pivotally connected therewith by means of a pin or bolt I. The rear end of the lever G is bifurcated, forming arms G', which partially embrace the bars G² of the brace. Said lever is also constructed with the downwardly-projecting flange K along its sides and with a longitudinal slot L in its upper surface. The space between the flanges K is just sufficient to receive a nut M, permitting it to slide longitudinally, but holding it against turning. A set-screw J extends through slot L, in which it is movable, and is threaded through said nut, with its inner end bearing against the flat upper surface of bar C, as clearly shown.

In operation the jaws E and F are passed over the nut, after which the set-screw J is turned inwardly, causing the rear end of the lever G to be moved away from the bar C and the jaw F to be moved toward the jaw E until the nut is tightly clamped between said jaws, during which operation the movement is steadied by means of the curved forked rear end G' of the lever G moving along the bar G², as before described, thus preventing any twisting strain on the lever G and relieving the pivotal bolt and lug or ears of all such strain.

The amount of power to be applied to jaws E and F when clamping the nut may be increased or diminished at will by moving the nut M toward or away from the pivotal pin I, the effect being to decrease or increase the leverage with which the power of the screw is applied.

In the construction illustrated in Figs. 1 to 5 set-screw J is threaded through a suitable opening in lever G, nut M, flanges K, and slot L not being used in this construction. The first construction described, however,

possesses a further advantage over the latter construction owing to the fact that should the thread in the opening in arm G be worn out or stripped off either a new jaw must be
 5 provided, with a proper thread to correspond with its screw, or a new thread must be cut in the opening and a screw provided to fit the new thread, while in said preferred construction no such accident is possible; and
 10 should the nut-thread be stripped it is very easily and cheaply replaced.

While I have illustrated and described the best means now known to me for carrying out my invention, I do not wish to be understood as restricting myself to the exact details of construction shown and described, but hold that any slight changes or variations, such as might suggest themselves to the ordinary mechanic, will properly fall within the
 15 limit and scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A bit-brace comprising a cranked central portion and having its forward end formed into a wrench-jaw, in combination with a lever pivoted to its forward end formed at one end into a corresponding wrench-jaw and at its inner end with curved arms to embrace the forward crank-arm, and means for actuating the jaws, substantially as described.
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2. An axle-nut wrench comprising, in its construction, a brace, the forward arm of which is shaped to form a fixed jaw and is provided with a perforated lug, in combination with a lever having its front end formed into a jaw of corresponding shape and provided with lateral lugs to embrace and be pivotally connected with the lug of the forward arm of the brace, the rear end of the lever
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being formed to embrace the bit and serving as a guide in the movement of the lever, and a set-screw passed through an opening in the lever and bearing against the upper surface of the forward bar of the brace, substantially as described. 45

3. An axle-nut wrench comprising, in its construction, a forward arm formed, at its outer end, into a fixed jaw, a lever pivoted to said arm having its forward end formed into a correspondingly-shaped jaw, being also provided with longitudinal flanges at right angles to its body, and a longitudinal slot in its body, a nut seated in the space between the longitudinal flanges, and a set-screw passed through the slot and nut and having a bearing against the upper side of the forward end of the brace, substantially as described. 50
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4. An axle-nut wrench comprising, in its construction, a brace having the bars G² and C at right angles to each other, the jaw E formed at the outer end of the bar C, the lug D projecting laterally from the bar C and perforated, the lever G provided with lugs H correspondingly perforated and embracing the lug D, the pin or bolt I pivotally connecting the lugs, the jaw F corresponding in shape to the jaw E and formed at the outer end of the lever G, the depending flanges K formed longitudinally on the lever G, the forked rear ends G' of the lever G embracing the bar G², the nut M seated between the flanges K, and a set-screw passed through the longitudinal slot L in the lever G, and through the nut M and bearing against the upper surface of the arm C, substantially as described. 60
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Witnesses:

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