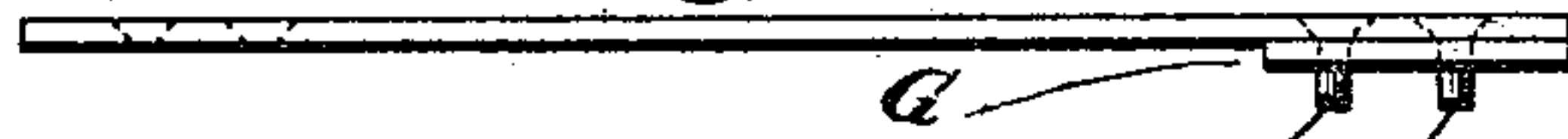
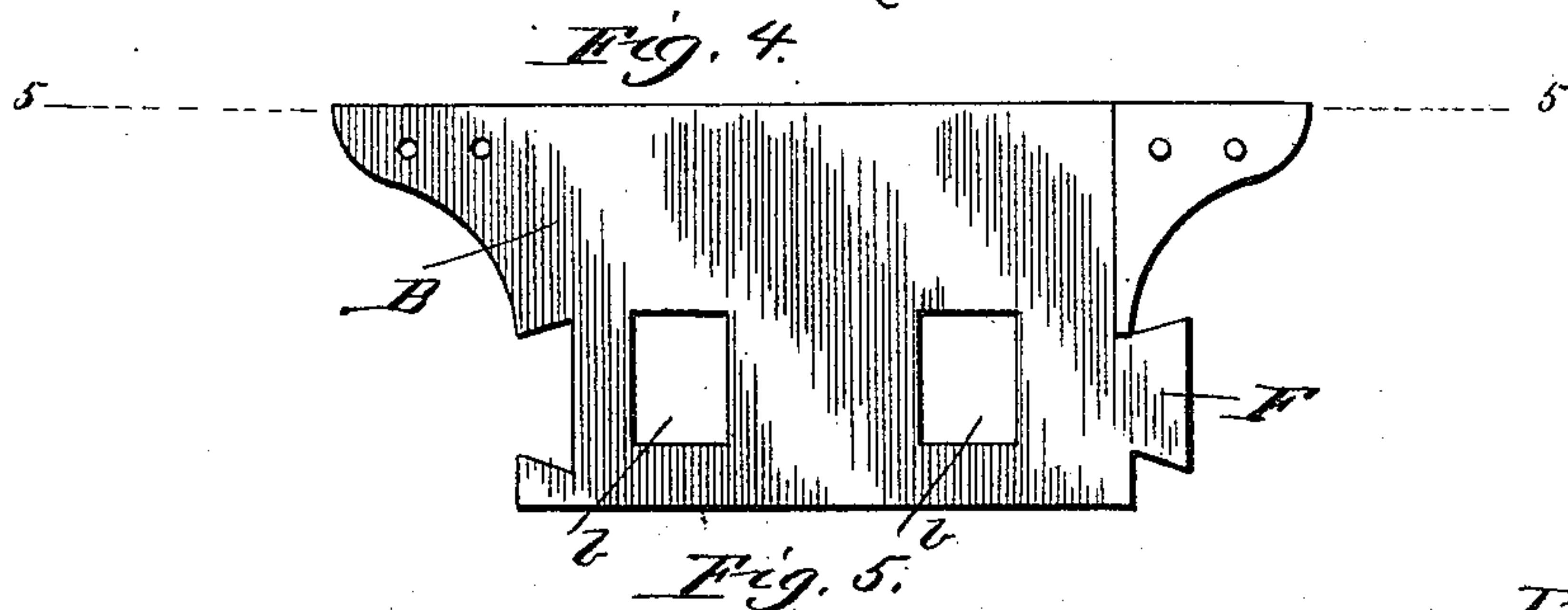
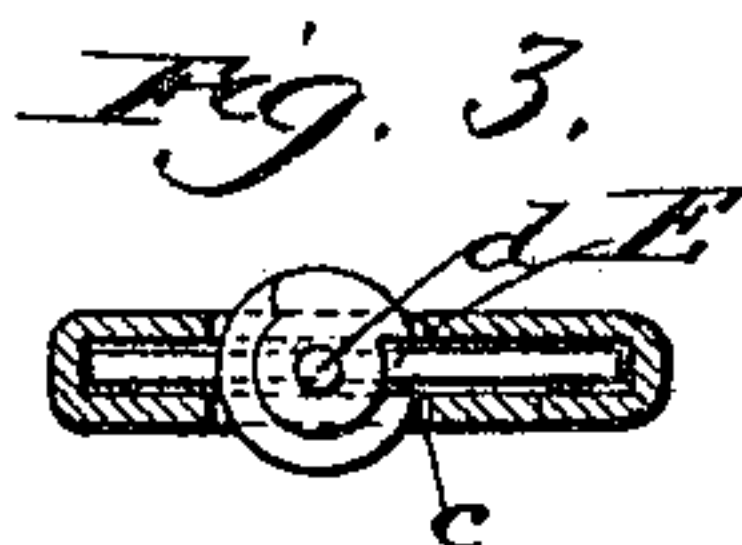
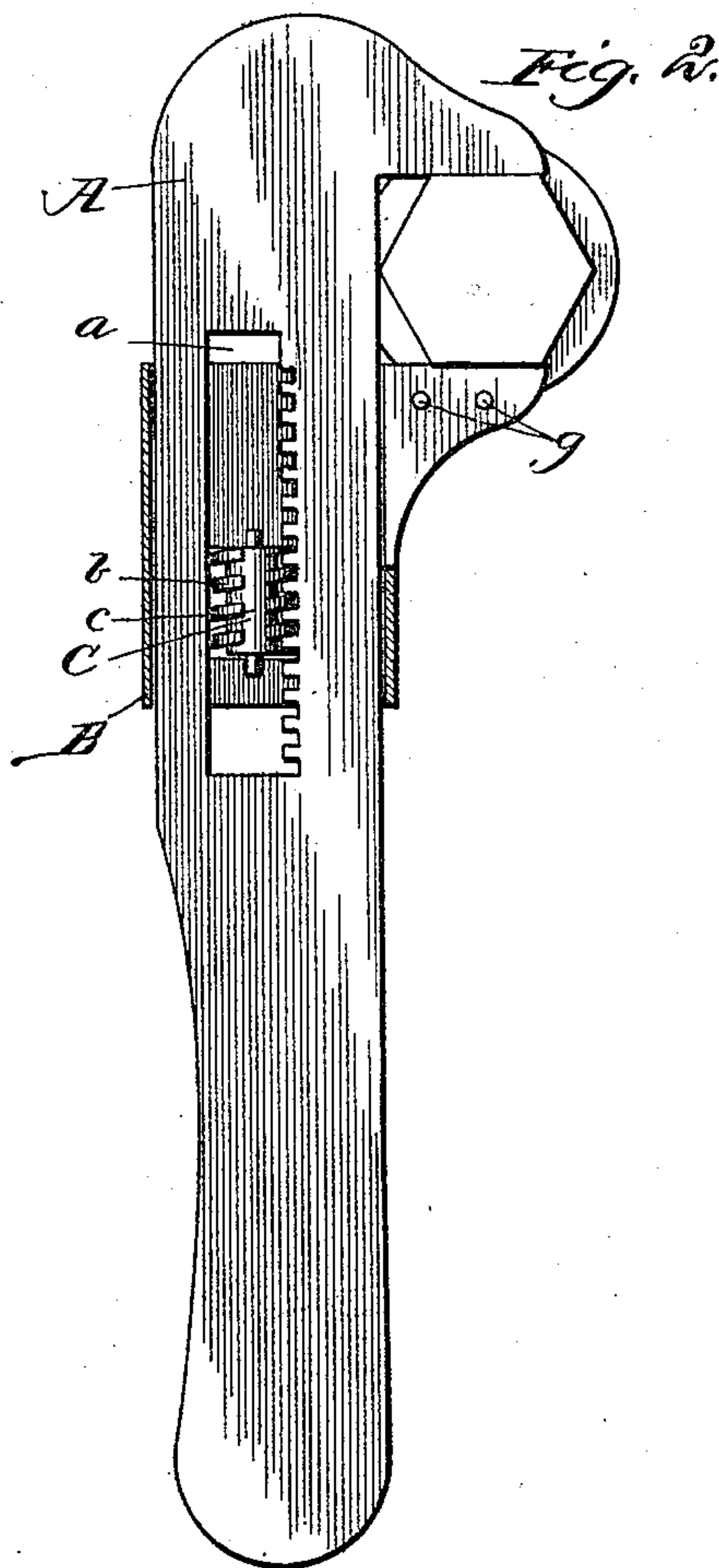
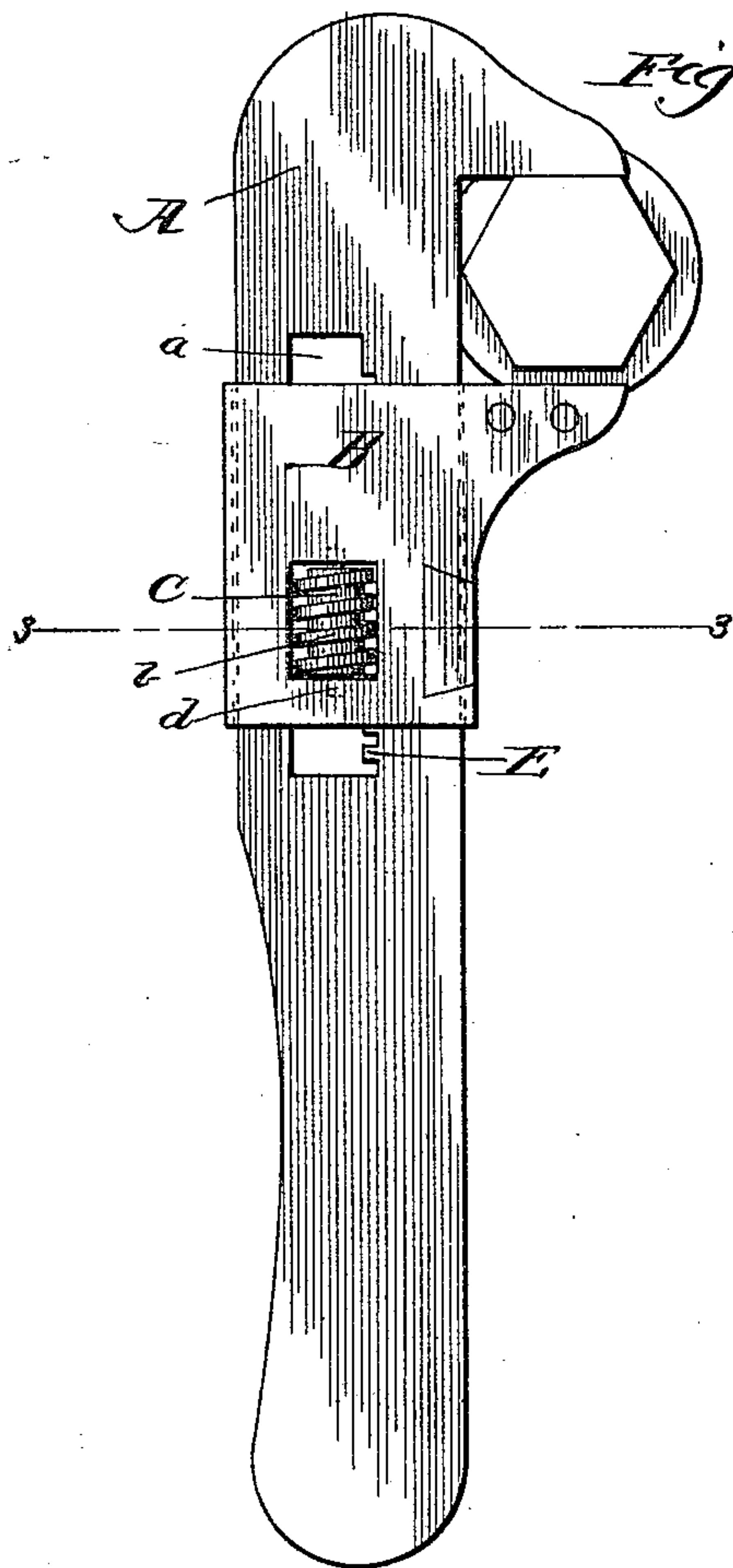


(No Model.)

J. H. BROWN.
WRENCH.

No. 451,023.

Patented Apr. 28, 1891.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES H. BROWN, OF EVANSTON, ILLINOIS.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 451,023, dated April 28, 1891.

Application filed November 19, 1890. Serial No. 371,919. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BROWN, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In my invention the object has been to secure a small and light wrench of great strength and quick adjustability for use upon bicycles, although my invention may be used in the manufacture of wrenches of every size and of any suitable material. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view. Fig. 2 is a horizontal sectional view. Fig. 3 is a cross-section on line 3 3 of Fig. 1, showing the slotted screw and movable jaw and showing also a tooth of the rack engaging with the grooved slot. Fig. 4 shows the movable jaw as stamped from the sheet of steel or other metal and before it is closed around the body-piece of the wrench and upon itself. Fig. 5 is a sectional view on line 5 5 of Fig. 4 at the widest part of Fig. 4.

A is the body-piece or handle of the wrench; *a*, a slot or mortise in the same; and B, the movable jaw, also slotted or mortised, as at *b*.

C is the screw, having a channel *c* through its threads in a direction parallel with the plane of its axis.

d is the journal of the revolving screw C.

E is the toothed rack upon the margin of the slot in the handle or body-piece A.

F is a spur of the strip of steel forming the enveloping sheath or sliding jaw which may be used to give the jaw greater strength by forming a dovetail joint with the other wing of the strip used to form the jaw B.

G is a supporting-piece which may be inserted and held by the same rivets *g* which hold the wings that form the sliding jaw together; but the wrench may be manufactured without the use of the supporting-piece G or the dovetail joint.

Similar letters refer to similar parts throughout the several views.

One advantage of my wrench is that it may be more cheaply made than the ordinary wrench with a sliding jaw and at the same time be lighter, more easily made, and more rapidly adjusted.

In wrenches having sliding jaws as heretofore constructed it has been necessary for the sliding jaw of the wrench to be made large enough for a thread to be cut therein, in which a screw is moved to adjust the sliding jaw, said screw being usually not less than five-sixteenths or three-eighths of an inch in diameter, and thus rendering the construction cumbrous. By my form of construction I accomplish the same result by cutting a section of a thread in the margin of the slot, and a wrench is produced having greater cheapness in construction, weighing less, and having greater ease and facility of adjustment than other forms. I cut the main parts of the wrench from sheet-steel, that for the body-piece or handle A being, preferably, about one-sixteenth of an inch in thickness and that for the jaw B about one thirty-second of an inch in thickness for a wrench six inches in length, though steel of a different thickness may be used, and the gage of the steel used should conform to the required strength of the wrench. I thus produce a wrench of great strength, which is at the same time very light and easily made and when completed need not be more than about an eighth or three-sixteenths of an inch in thickness at its thickest part for a wrench having a length of six or seven inches. Like the handle A, the sliding jaw B may be cut from a single piece of steel, and at the point where the two wings of the metal come together to form the forward part of the jaw B they may be strengthened by a supporting-piece G or by the dovetail joint shown in the drawings, or by both, or the wings may be fastened in any suitable manner.

My present invention is an improvement on that embraced in my former application for a patent in wrenches, filed September 22, 1890, Serial No. 365,866, and shows an improved mechanism for adjusting the jaws of the wrench. I employ a threaded screw for this purpose, which may be journaled loosely in

the open spaces of the movable jaw and may have bearings on the inner walls thereof. The walls of the slot of the movable jaw serve to retain the screw from moving sidewise. In this construction the screw, while held with great firmness and rigidity as to its location within the slots, has but few frictional points, and is operated with greater ease by reason thereof. Only the tops and bottoms of the journal touch a bearing, and the screw is secured sidewise by the edges of the threads touching the walls of the slot and the rack; but this rack, as well as the walls of the slot, being of quite thin material, only a small part of the screw in its rotation is at any one time in engagement or touch with them, or either of them, and the minimum of friction is secured, and this is an important feature in wrench construction and operation.

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

1. In a wrench having a recessed handle with a toothed rack upon one edge of the recess and a recessed sliding jaw moving upon said handle, a threaded screw journaled and operating within the sliding jaw and engaging the toothed rack to move the sliding jaw, substantially as shown and described.

2. In a wrench having a recessed handle with a toothed rack upon one edge of the recess and a recessed sliding jaw moving upon said handle, a threaded screw journaled and operating within the sliding jaw and engaging the toothed rack to move the sliding jaw, said screw having its threads channeled to admit of a quick adjustment of the jaw, substantially as shown and described.

3. In a wrench, a recessed sliding jaw bearing within its recess, and a threaded screw adapted to engage with a rack to move the jaw upon the body or handle of the wrench, substantially as shown and described.

4. In a wrench, a recessed sliding jaw, a threaded screw operating within the recess to move the jaw, and a channel through the threads of the screw to allow quick adjustment

of the jaw, substantially as shown and described.

5. In a wrench, a recessed body-piece or handle, a recessed sliding jaw, and a threaded screw operating within the recessed parts and serving to limit the play of the sliding jaw by striking against the bottom of the recess, substantially as shown.

6. In a wrench, the combination of a recessed body-piece or handle A, a recessed sliding jaw B, and a threaded screw C, substantially as described, and for the purpose specified.

7. In a wrench, the combination of a recessed body-piece or handle A, a recessed sliding jaw B, and a threaded screw C, having a channel c, substantially as described, and for the purpose specified.

8. In a wrench with an adjustable jaw, a threaded screw having a groove channeled through its threads in a line parallel with its axis to allow quick adjustment of the jaws, substantially as shown and described.

9. In a wrench with adjustable jaws and a rack upon one of the jaws, a grooved screw adapted to engage the rack to adjust the wrench and at its grooved point to slide freely over the rack, substantially as shown, and for the purpose specified.

10. In a wrench the jaws of which are made of strips of sheet metal, the construction of a recessed body-piece or handle, a recessed sliding jaw, and a threaded screw, substantially as shown and described.

11. In a wrench the jaws of which are made of strips of sheet metal, the construction of a recessed body-piece or handle, a recessed sliding jaw, and a channeled screw to allow quick adjustment of the jaws, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES H. BROWN.

Witnesses:

A. C. CAMPBELL,
BURR JENKS.