(No Model.)

J. H. BROWN.

WRENCH.

No. 451,022. Patented Apr. 28, 1891.

Fig. 1.

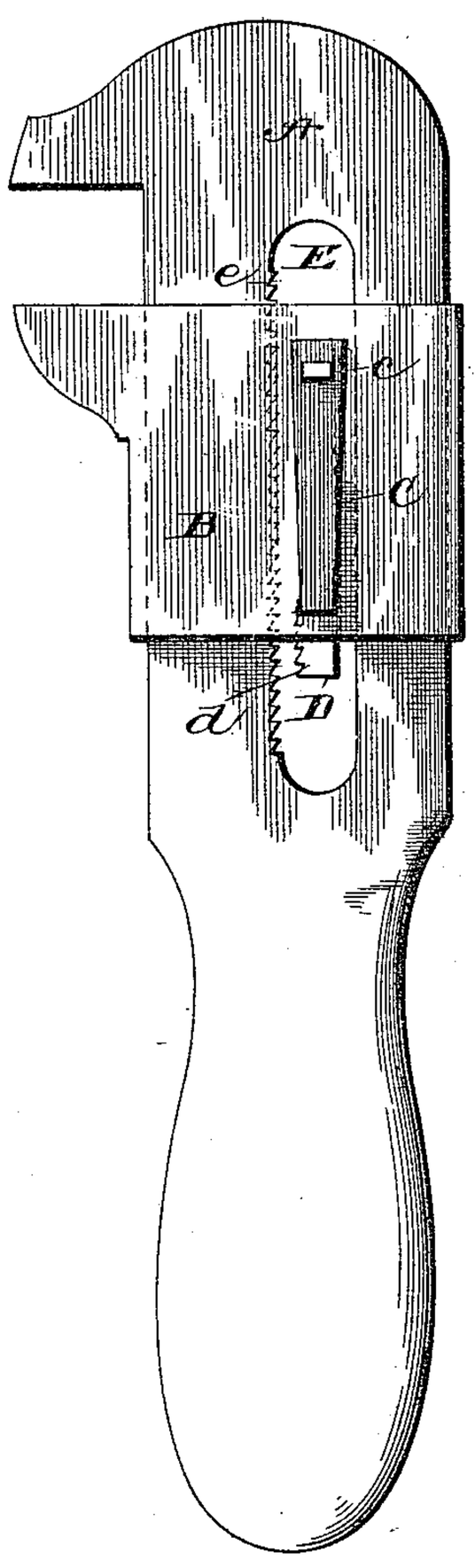

Fig. 3.

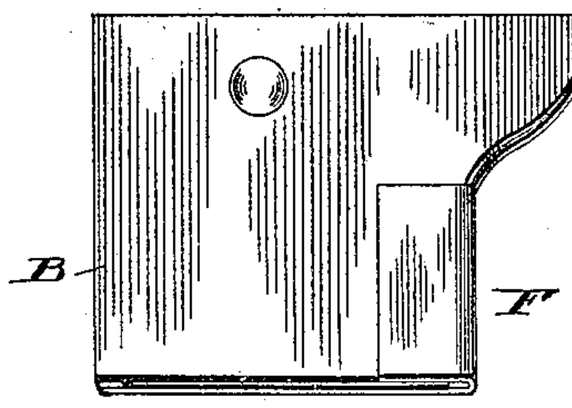

Fig. 2.

Witnesses
John Imrie
R. H. Bishop.

Inventor
James H. Brown

By his Attorney
Charles H. Roberts.

UNITED STATES PATENT OFFICE.

JAMES H. BROWN, OF NORTH EVANSTON, ILLINOIS.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 451,022, dated April 28, 1891.

Application filed September 22, 1890. Serial No. 365,866. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BROWN, a citizen of the United States, residing at North 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.

My invention relates to improvements in wrenches in which a sliding jaw is adapted to be fixed at any point upon the body of the wrench without the aid of a screw or adjustable nut. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view of the entire wrench. Fig. 2 represents a form of pawl which may be used and which is calculated to lock the sliding jaw by a pressure of the thumb-piece in a direction away from the jaws of the wrench Fig. 3 is a view of the reverse side of the sliding jaw, showing the manner of strengthening the same by folding the metal back upon itself.

In the drawings, A represents the body of the wrench, and B a sliding jaw working upon the same.

C represents a lever connected by a short shaft or rivet *c* with a pawl D.

E represents a slot in the main body of the wrench, provided on the side next the jaw of the wrench with a toothed rack *e*.

The pawl D is provided upon one side with teeth *d*.

The object of my invention is to provide a strong wrench of rapid and easy adjustment and firm clutch for the use of bicyclers; but the same may be used to perform the office of a wrench upon any machinery.

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 a sliding jaw, 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, thus rendering the construction cumbrous. By my form of construction I accomplish the same results by cutting a section of a thread in the margin of the slot, and a wrench is produced having greater cheapness of construction, weighing less, and having greater ease and facility of adjustment than other forms. I cut the main parts from sheet-steel, that for the body of the wrench 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 or body-piece A, the sliding jaw B may be cut from a single piece of steel, and at the point where the two wings of steel come together to form the forward part of the jaw B they may be strengthened by a supporting-piece G, secured by rivets between said points.

A form of my wrench may be constructed as follows, although it may be constructed of any size or any suitable material: The body of the wrench is about six inches long and cut, preferably, from a flat piece of steel. One end of this body-piece forms one of the jaws of the wrench. A slot E, two or three inches in length, or of a length to correspond with the desired grasp of the jaws, is cut out of the center of the body-piece A. This is bordered upon the margin nearest the jaw by a toothed edge or rack *e*. A sliding jaw B is extended to encircle the body-piece below the jaw formed thereon, and this is curved or bent back upon itself, as shown in Fig. 3, to strengthen the sliding jaw. A toothed pawl is located within this sliding jaw, adapted to

move along the slot without friction when not engaging with the teeth on the margin of the slot.

Connected by a rivet or shaft *c* or other firm connection with the toothed pawl is a thumb-piece C, firmly fixed outside the sliding jaw and adapted to control the movement of the pawl.

In operation the wrench may be grasped in the hand and quickly and easily adjusted to the nut to be moved by moving the thumb-piece toward the jaws of the wrench with the thumb of the same hand. The toothed pawl is thus forced against and into the notched or toothed rack, and this locks the sliding jaw, when force may be applied to turn the wrench. In order to lock the sliding jaw by a pressure upon the thumb-piece in a direction away from the jaws, the notched pawl should be constructed to extend above the rivet, as in Fig. 2; or the same effect may be secured by forming the toothed rack upon the opposite side of the slot from that which it occupies in the drawings, and placing teeth upon the opposite side of the pawl to engage therewith.

I do not wish to limit myself to a pawl operating in a slot, as the pawl-and-rack mechanism may be adjusted outside of the body-piece A to operate between it and the sliding jaw; but

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

1. In a wrench provided with a toothed rack, a sliding jaw adapted to be adjustably secured to the rack by a pawl, substantially as described.

2. In a wrench provided with a slot and a toothed rack upon the margin of the slot, a sliding jaw adapted to be movably secured by a pawl engaging with the rack, substantially as described.

3. In a wrench provided with a toothed rack, a sliding jaw adapted to be movably secured by a pawl operated by pushing its thumb-piece or lever toward the jaw of the wrench, substantially as described.

4. In a wrench provided with a toothed rack, a sliding jaw adapted to be movably secured by a pawl operated by pushing its thumb-piece or lever away from the jaw of the wrench, substantially as described.

5. In a wrench, the slotted body-piece A, sliding jaw B, lever C, rivet *c*, and pawl D, substantially as described, for the purpose specified.

6. In a wrench having a recessed handle, a movable jaw sliding upon and enveloping such handle, such movable jaw being formed as to the enveloping portion of a single piece of metal, substantially as described.

7. A wrench having slotted jaws, both said jaws being formed from single strips of sheet metal, substantially as described.

8. A wrench having slotted jaws, both said jaws being formed from single strips of sheet metal, the movable jaw being supported at its forward point by an interposed piece of metal, substantially as described.

9. In a wrench having a recessed handle, a recessed movable jaw sliding upon and enveloping such handle, a connected pawl and lever operating within such recessed portions and against a rack for the purpose of adjusting the jaws, substantially as described.

10. In a wrench having a recessed handle, a recessed movable jaw sliding upon and enveloping such handle, and a connected pawl and lever operating within such recessed portions and against a rack for the purpose of adjusting the jaws, said pawl and lever serving to limit the play of the movable jaw by impinging the walls of the slots, substantially as described.

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

JAMES H. BROWN.

Witnesses:

SAMUEL DESPRES,

NATHAN M. FREER.