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Patented Dec. 2, 1902.

J. C. BURGESS.  
ADJUSTABLE SOCKET WRENCH.

(Application filed Sept. 20, 1902.)

(No Model.)

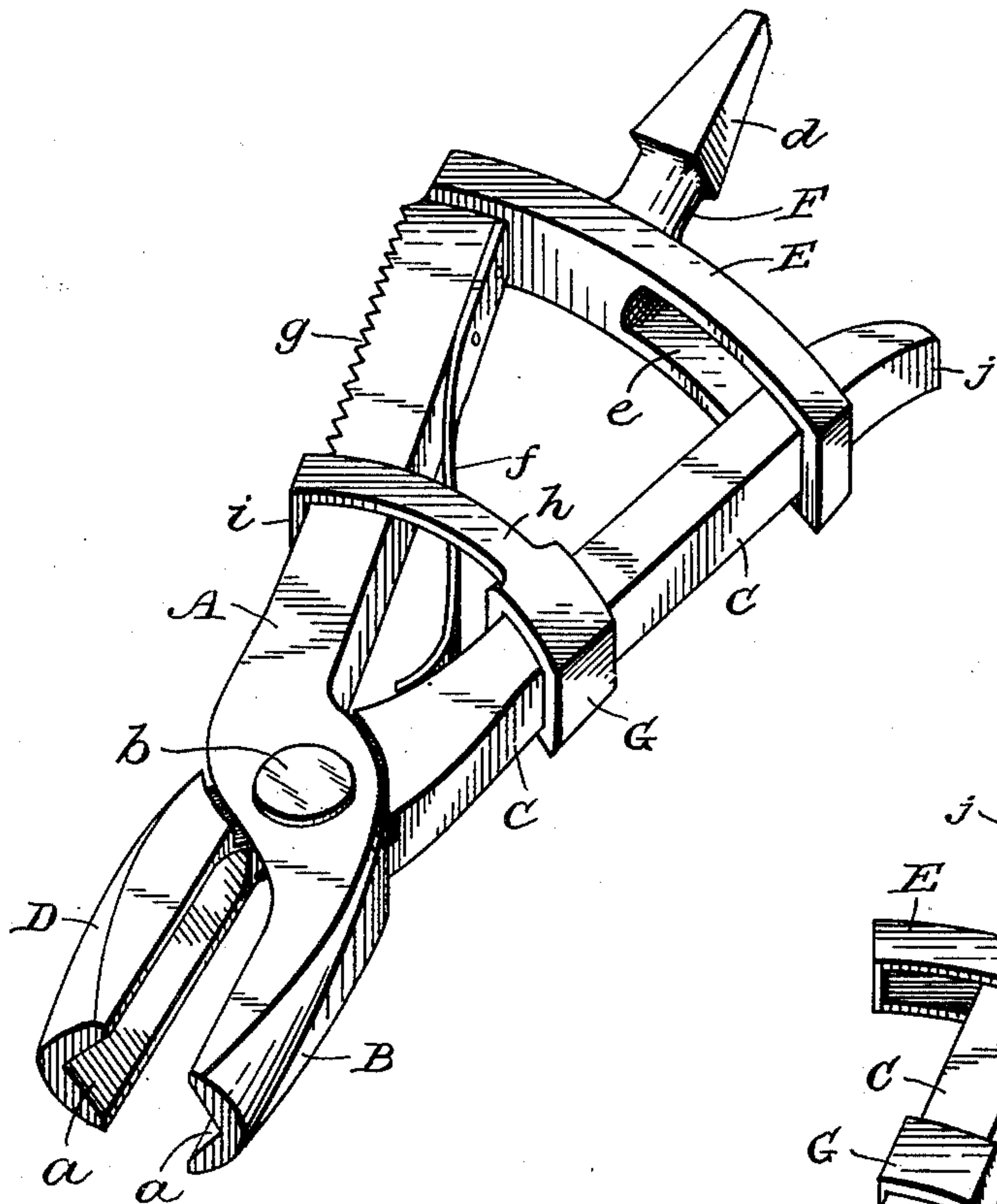


Fig. 1.

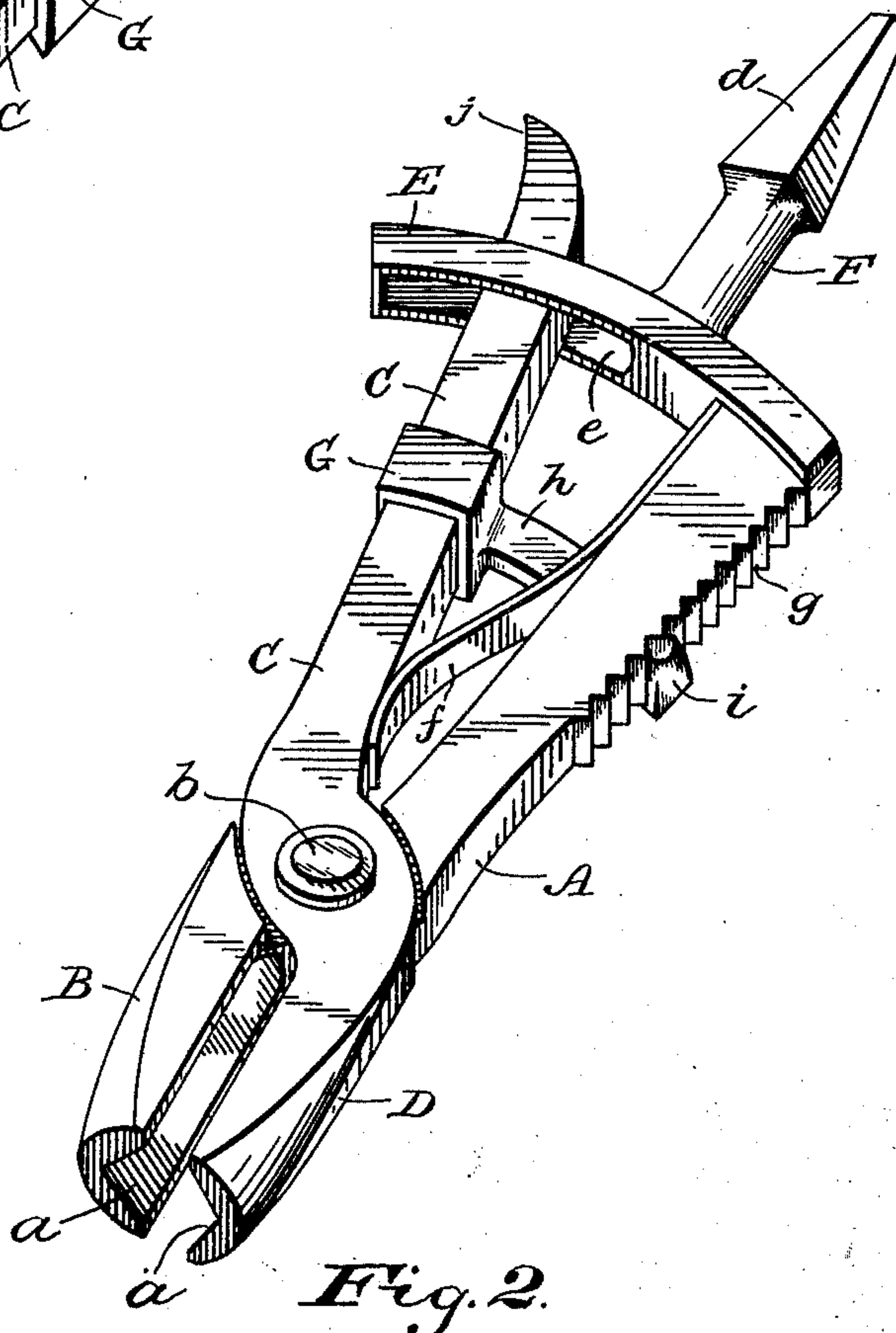


Fig. 2.

WITNESSES:

A. M. Intouch  
Stella Snider.

INVENTOR:

Jas. C. Burgess.  
BY E. T. Silvius,  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

JAMES C. BURGESS, OF BRIGHTON, CANADA, ASSIGNOR TO HARRISON R. HOOVER, OF ZIONSVILLE, INDIANA.

## ADJUSTABLE SOCKET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 715,014, dated December 2, 1902.

Application filed September 20, 1902. Serial No. 124,135. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. BURGESS, a citizen of the United States, residing at Brighton, in the county of Northumberland, Province of Ontario, and Dominion of Canada, have invented certain new and useful Improvements in Adjustable Socket-Wrenches; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to adjustable socket-wrenches that are designed to be used in connection with breast-braces for quickly applying and removing the nuts of the smaller sizes of screw-bolts, the object of the invention being to provide a cheap wrench of this character, whereby the nuts may be manipulated most rapidly when repairs are being made to vehicles, farm implements, machinery, &c., and which may also be as advantageous in factories on new work in economizing time and labor.

With the above objects in view the invention consists in the novel features of construction and in the combination and arrangement of parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 represents the complete wrench perspective, as viewed from one side thereof, showing the socket at its maximum size; and Fig. 2 is a perspective view of the opposite side, showing the socket adjusted to medium size.

Similar reference characters in the drawings indicate corresponding parts throughout the different figures thereof.

In the drawings, A designates an arm having a jaw B offset somewhat from the longitudinal axis of the arm, and C designates a companion arm having a jaw D similar to the jaw B and also offset from its arm. The jaws each have a longitudinal V-groove *a* in the inner face thereof, the sides of the grooves being right angles, so that when the jaws are placed with the grooves opposing the opening or socket in the end of the wrench formed by the grooves will be substantially square in plan and receive a square nut as well as

one of hexagonal form. The two arms are connected together by means of a rivet *b* or a bolt, so that the arms and jaws may be opened and closed similarly to tongs or pliers.

The arm A is provided with an integral lateral arm E, to which is attached an integral shank F of suitable length, having a squared tapering end *d* or one adapted to fit into well-known forms of braces having sockets in which bits are usually held. By this construction the shank is practically a part of the arm A, whereby the wrench may be operated, the shank being offset somewhat from the arm, so that its axis will correspond to the axis of the bolt on which the nut is to be worked—that is, the axes of the socket and the shank are substantially identical. The arm E has a slot *e* through which the arm C extends, and it may operate therein, and by this means the power applied to the shank F may be transmitted to the arm E and to the arm C as well as to the arm A in operating the wrench on a nut.

A suitable spring *f* is interposed between the arms A and C to normally force the arms apart and the jaws B and D together, and the spring may obviously be of the plate form, as shown, secured to one of the arms, or it may be of the coiled type compressed between the arms.

Usually the outer face of the arm A has notches *g* formed therein when it is desired to construct a comparatively short wrench; but when the arms A and C are of considerable length, so that their divergent angles are not excessive in degree, the notches may be omitted, as will be understood, and the surface be smooth.

The arm C is provided with a sleeve G, that is fitted closely but slidingly thereon, and the sleeve has an integral arm *h*, extending therefrom transversely across one side of the arm A, the arm *h* having a lateral finger *i*, adapted to enter the notches *g* or to bear against the outer face of the arm A if the notches be omitted. Although one arm *h* only is shown, it will be obvious that another like arm may be attached to the sleeve and the finger at the opposite side of the arm A thus forming, in effect, a slip-band operating over the arms A and C, performing the same



function as the specific device herein shown in the interest of clearness of illustration. The extremity of the arm C has a thumb-bearing *j*, curved outwardly or oppositely to the shank F. It should be understood that the sleeve G may be placed on the arm A, the parts being suitably modified.

In practical use the socket may be adjusted to a nut either before or after the shank end *d* is inserted into the brace-socket. In either applying a nut to a bolt or removing it therefrom the nut may be held in the grooves *a a* by forcing the sleeve G and the finger *i* toward the shank. The frictional contact of the sleeve G on the arm C will prevent accidental movement of the sleeve, the frictional resistance being induced by means of the spring *f*.

Having thus described the invention, what is claimed as new is—

1. An adjustable socket-wrench comprising a pair of arms having jaws pivoted together, one of the arms having a lateral arm engaging the other arm; a shank attached to the lateral arm, a spring whereby the jaws may normally be held apart, and an adjustable device embracing the arms having the jaws for holding the jaws in opposition to the spring.

2. An adjustable socket-wrench comprising a pair of arms having jaws pivoted together and diverging from the pivot, a slotted lateral arm attached to one of the pivoted arms and having a shank attached thereto, the other pivoted arm extending through the slot in the lateral arm; a spring opposing the pivoted arms, and a sliding band mounted on one of the pivoted arms and having an arm whereby the other pivoted arm may be restrained against the spring pressure.

3. In an adjustable socket-wrench, the combination with pivoted divergently-extending arms having grooved jaws, of a shank at-

tached substantially to one of the pivoted arms and having substantially an adjustable connection with the other one of the pivoted arms, whereby both of the pivoted arms may be operated by the shank, a locking device engaging the pivoted arms, and a spring co-acting with the locking device.

4. In an adjustable socket-wrench, the combination with pivoted divergently-extending arms having grooved jaws adapted to embrace a nut, of a lateral arm attached to one of the pivoted arms and having a slot through which the other pivoted arm extends, a shank attached to the lateral arm whereby the jaws may be turned about the axis of the nut that may be embraced thereby, a sleeve mounted on one of the pivoted arms and having means engaging the other pivoted arm to hold the same in adjusted positions, and a spring mounted so as to tend to force the pivoted arms apart.

5. In an adjustable socket-wrench, the combination of the pivoted arms having the jaws for gripping nuts, one of said arms having the notches at the outer side thereof; the lateral arm attached to one of said pivoted arms and having the slot through which the other one of said pivoted arms extends, the shank attached to said lateral arm, the sleeve mounted movably on one of said pivoted arms and having the arm provided with the finger adapted to engage said notches, and the spring attached to one of said pivoted arms and pressing against the other one of said pivoted arms, substantially as set forth.

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

JAMES C. BURGESS.

Witnesses:

JOHN E. BEELAR,  
LEE MURPHY.