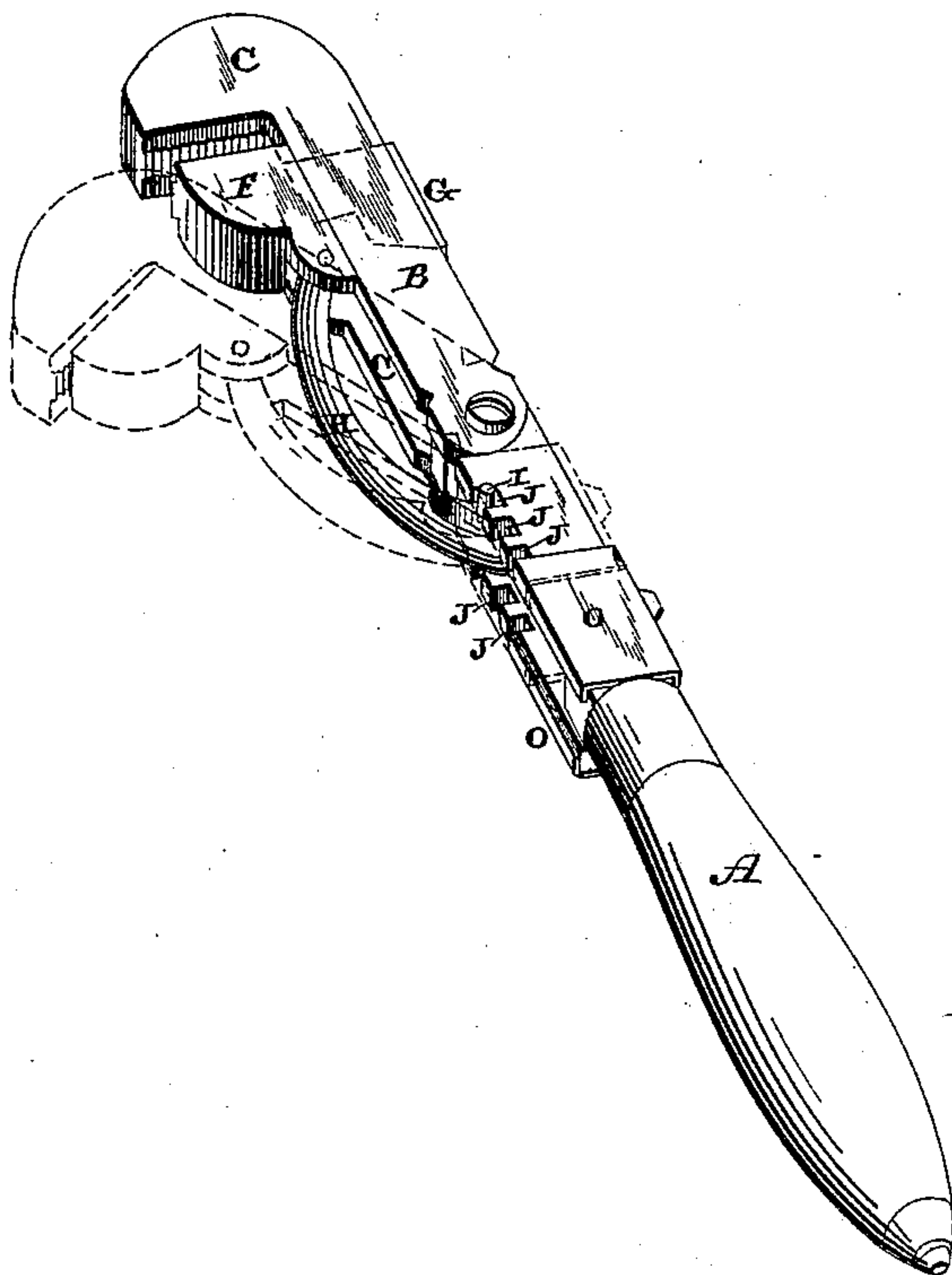


(Model.)

T. WARREN.  
WRENCH.

No. 396,017.

Patented Jan. 8, 1889.



Witnesses.

Edm. B. Ellis,  
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# UNITED STATES PATENT OFFICE.

THOMAS WARREN, OF CENTRALIA, ILLINOIS.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 396,017, dated January 8, 1889.

Application filed July 31, 1888. Serial No. 281,552. (Model.)

*To all whom it may concern:*

Be it known that I, THOMAS WARREN, of Centralia, in the county of Marion 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 pertains to make and use it, reference being had to the accompanying drawing, which forms part of this specification.

My invention relates to an improvement in wrenches; and it consists in the combination of a rigid shank or handle, a rigid jaw provided with a suitable shank, which is pivoted at its inner end to the handle, and which jaw and shank move through a portion of a circle, a sliding jaw which moves upon the shank of the stationary jaw, a brace which is pivoted to the sliding jaw at one end and loosely connected to the handle at the other, and a sliding collar or sleeve upon the handle, as will be more fully described hereinafter.

The objects of my invention are to pivot a rigid jaw to the handle so that it will move through a portion of a circle, and to place the sliding jaw thereon and connect it by means of a brace with the stationary handle, so that when a strain is brought to bear upon the handle the rigid jaw in being moved through a portion of a circle will operate the sliding jaw, and thus cause the jaws to close upon any object to which they are applied, and to catch hold of the object with a force which is proportioned to the power exerted by the operator on the handle, and to make the point of attachment of the brace which operates the sliding jaw upon the handle adjustable, and thus regulate the distance between the jaws according to the thickness of the object to which they are to be applied.

The accompanying drawing represents a perspective of a wrench which embodies my invention, the parts being shown in one position in solid lines and in another position in dotted lines.

A represents a rigid handle or shank, to which the shank B of the rigid jaw C is pivoted. The length of the shank B is a matter entirely of choice, and through it is made a slot, C', so that the sliding jaw F can be freely

adjusted back and forth upon this shank in relation to the stationary jaw C.

Projecting from the inner side of this sliding jaw F is an extension or shank which projects through the slot in the shank B, and which has the head G secured to its outer end, and this head bears against the rear side of the shank B, so as to prevent the jaw F from becoming displaced. The jaw F slides freely back and forth upon the shank B, and is operated entirely by the brace H, which is pivoted to it. This brace has formed upon its free end a projection, I, upon each of its sides, and these projections are made to catch in sets of notches J, which are formed in the inner edge of the handle or shank A. There may be any desired number of these notches, so that the free end of the brace can be adjusted from one to the other, according to the distance it is desired to move the sliding jaw F when at rest from the stationary one, C. Where the wrench is to be applied to a thin object, the brace will have its free end applied to those notches which are nearest to the inner end of the shank B, and where the wrench is to be applied to objects of considerable thickness the free end of the brace will be applied to the notches farther removed from the pivot. The adjustment from one notch to the other is quickly made, and the jaws are thus adjusted to be used upon articles of different thicknesses and sizes. In order to hold this free end in connection with any one of the notches, the sliding sleeve or collar O is employed, and this sleeve or collar is moved back and forth upon the handle A, so as to lock the free end of the brace into whatever position it has been adjusted. This collar or sleeve has an opening in one side, so as to slide past the end of the brace itself, but which catches over the pins or projections which extend from its side. When the end of the brace is to be adjusted from one set of notches to another, the sliding sleeve or collar is moved outward upon the handle toward the hand of the operator by pressure applied with the thumb, and then the end of the brace can be adjusted from one notch to another, as may be desired. As long as the shank B is in a line with the handle A, or is pressed backward, so as to be slightly out of line there-



with, the jaws C F are separated to their greatest distance from each other. When the jaws have been placed upon opposite sides of an object and the handle is forced forward toward that side upon which the jaws are placed, the shank B turns upon its pivot and the rigid jaw C moves through a circle toward the handle or shank, and as the free end of the brace is locked rigidly in position by means of the sliding collar or sleeve, so that it can have no movement, the sliding jaw F is forced toward the rigid jaw by this brace, so as to compel the two jaws to catch against the object from opposite sides and with a force in direct proportion to the amount of force which is applied by the operator to the handle A. The very act of applying force to the handle causes the two jaws to automatically approach each other for the purpose of clamping the object between them. The moment pressure is removed from the handle and the handle is moved slightly backward, the jaws are forced

apart, so as to automatically release the object. As the jaws automatically approach and recede from each other, all necessity of having to adjust the sliding jaw by hand to the thickness of the article is done away with.

Having thus described my invention, I claim—

In a wrench, the combination of the handle provided with a series of notches and the sliding sleeve or collar placed thereon, with the jaw provided with a shank which is pivoted to the handle, the sliding jaw, and the brace provided with projections at its free end to catch in the notches in the handle, substantially as set forth.

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

THOMAS WARREN.

Witnesses:

H. T. CUNNINGHAM,

F. LEANDER PARKINSON.