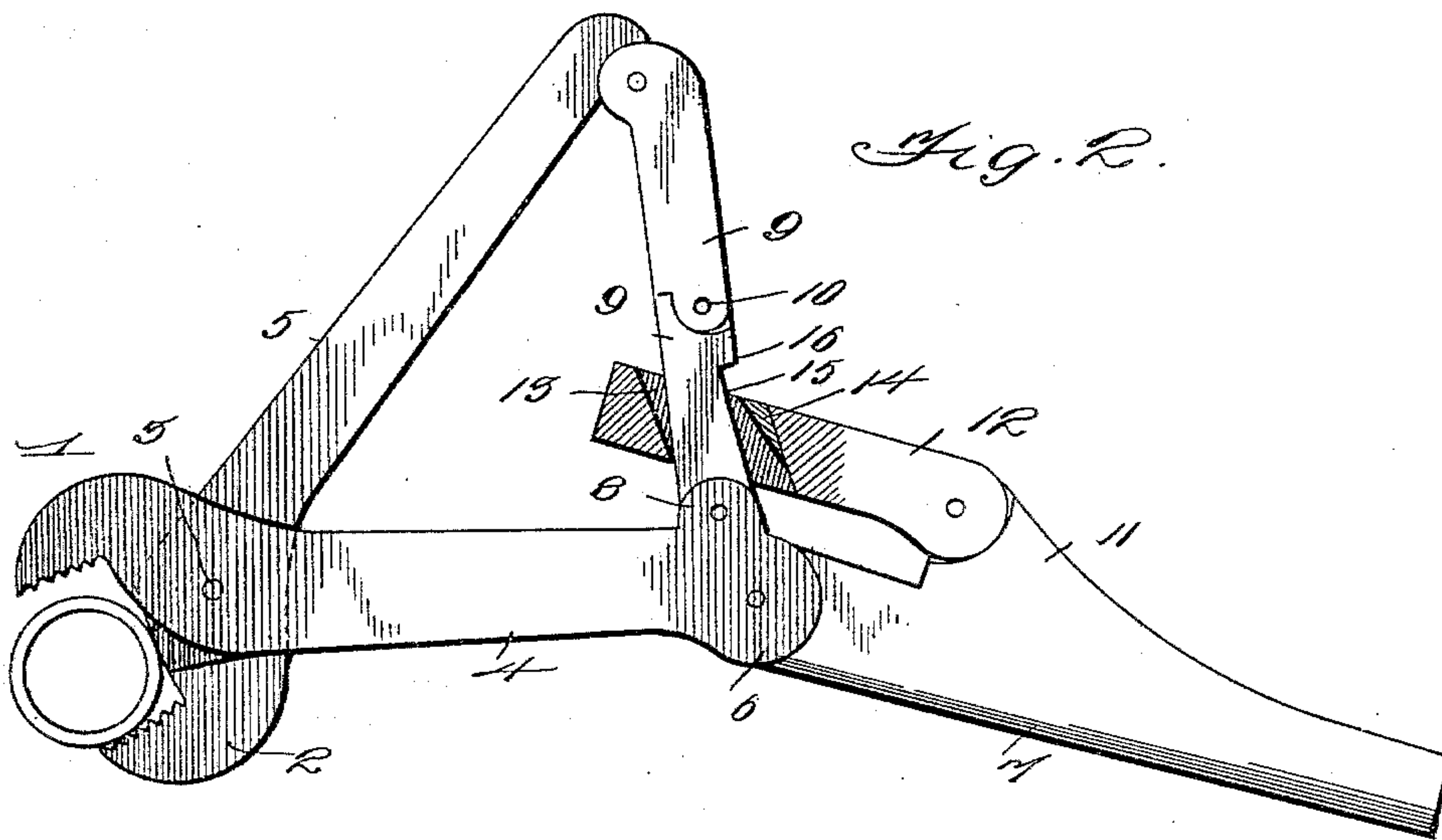
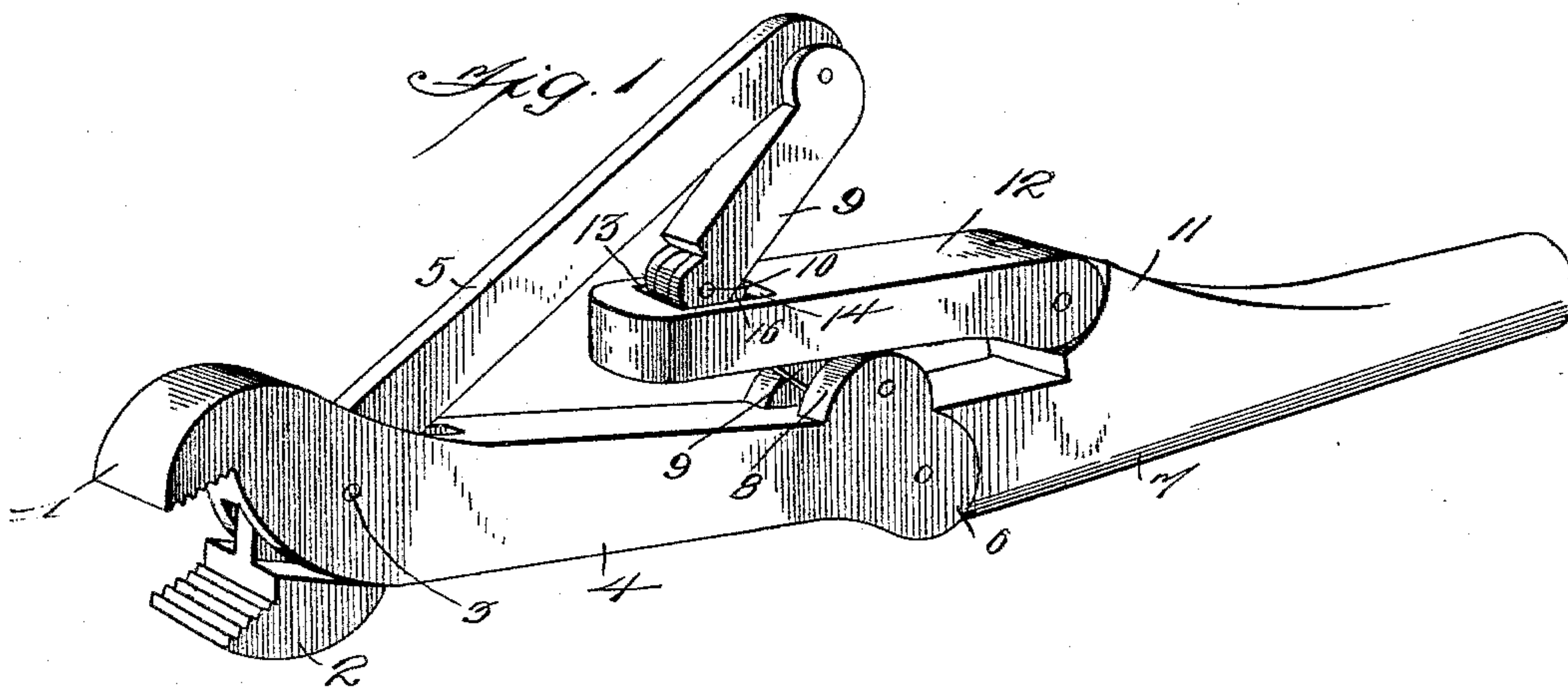


(No Model.)

A. A. LARSON.
WRENCH.

No. 597,990.

Patented Jan. 25, 1898.



Witnesses
W. L. North
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UNITED STATES PATENT OFFICE.

AXEL A. LARSON, OF CHARTER OAK, IOWA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 597,990, dated January 25, 1898.

Application filed July 27, 1897. Serial No. 646,147. (No model.)

To all whom it may concern:

Be it known that I, AXEL A. LARSON, of Charter Oak, in the county of Crawford and State of Iowa, 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.

This invention relates to wrenches, and has for its object to provide a self-acting wrench which when vibrated in one direction will release its hold upon a nut or pipe, as the case may be, and when moved in the opposite direction will obtain a fresh hold upon such nut or pipe, the operation being entirely automatic and requiring no attention on the part of the operator.

The invention consists in an improved wrench embodying certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims hereto appended.

In the accompanying drawings, Figure 1 is a perspective view of a wrench constructed in accordance with the present invention and shown closed. Fig. 2 is a view, partly in side elevation and partly in section, showing the improved wrench with the jaws thrown open and ready to grasp a nut or pipe.

Similar numerals of reference designate corresponding parts in both views.

Referring to the drawings, 1 and 2 designate the jaws of the wrench, which are shown as consisting of flat working faces transversely notched or serrated to obtain a firmer grip upon the nut or pipe. It will be understood, however, that the working faces of the jaws may be curved or irregularly formed without departing from the principle of this invention.

The jaws 1 and 2 are connected by a common pivot 3, and are extended in rear of their pivotal connection to form levers 4 and 5. One of these levers is provided at its heel or inner end with parallel ears 6, between which is received the adjacent end of a handle 7, adapted to be grasped by the operator when using the wrench. The handle 4 is also provided near its rear end and upon its inner side with parallel ears 8, and interposed be-

tween the two handles is a pair of toggle-links 9, the same being pivotally connected to the handles at their outer ends and being pivotally connected together, as shown at 10, the latter connection being in the form of a knuckle-joint, adapting the links to be thrown inward toward the jaws of the wrench and when rocked outward in an opposite direction to lock at a predetermined point and prevent their further outward movement. The handle 7 is provided with an intermediate offset 11, and connected pivotally to this offset is a link-actuating arm 12, which at its free end is provided with a rectangular opening 13, whereby it embraces one of the toggle-links 9. In the lower end of the opening 13 is a gib or wear plate 14, which slides against the lower surface of one of the toggle-links 9, the lower surface of said link being cut away, as indicated at 15, to leave a shoulder 16 against which the gib 14 abuts when the handle is rocked in the direction for closing the jaws of the wrench upon the nut or pipe or other object.

From the foregoing description it will be apparent that the wrench is entirely automatic in action, and that when the handle 7 is rocked in one direction it throws the links 9 out of alinement with each other and causes them to move the inner ends of the levers 4 and 5 toward each other, thereby closing the jaws 1 and 2 upon the object to be grasped. Upon reversing the handle 7 the link-actuating arm 12 draws outward on the adjacent link 9, straightening the links until they are brought into longitudinal alinement with each other, thereby rocking the jaws apart and allowing the wrench as a whole to be moved around the object grasped, so as to obtain a fresh hold thereon.

The improved wrench is very simple in construction and will be found of the greatest possible convenience in many different classes of work. It will also be understood that the wrench is susceptible of various changes in the form, proportion, and minor details of construction which may accordingly be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having thus described the invention, what

is claimed as new, and desired to be secured by Letters Patent, is—

1. A wrench comprising a pair of levers pivotally connected, and provided with jaws, 5 a handle having a jointed connection with one of said levers, and a toggle connection between said levers and having loose connection with a link-actuating arm pivotally connected with said handle, substantially as de- 10 scribed.

2. A wrench, comprising a pair of levers pivotally connected and provided beyond their point of connection with jaws, in combination with toggle-links interposed between 15 said levers, a handle having a jointed connection with one of said levers, and an interposed connection between said handle and links whereby the jaws are automatically moved toward and away from each other in the op-

eration of the handle 7, substantially as de- 20 scribed.

3. A wrench, comprising a pair of levers pivotally connected and provided with jaws, in combination with toggle-links interposed 25 between said levers, a handle pivotally connected to one of said levers, and a link-actuating arm pivotally connected to said handle and embracing and engaging one of said toggle-links, all arranged for joint operation substantially as described. 30

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

AXEL A. LARSON.

Witnesses:

VICTOR CARLSON,
J. G. SHUMAKER.