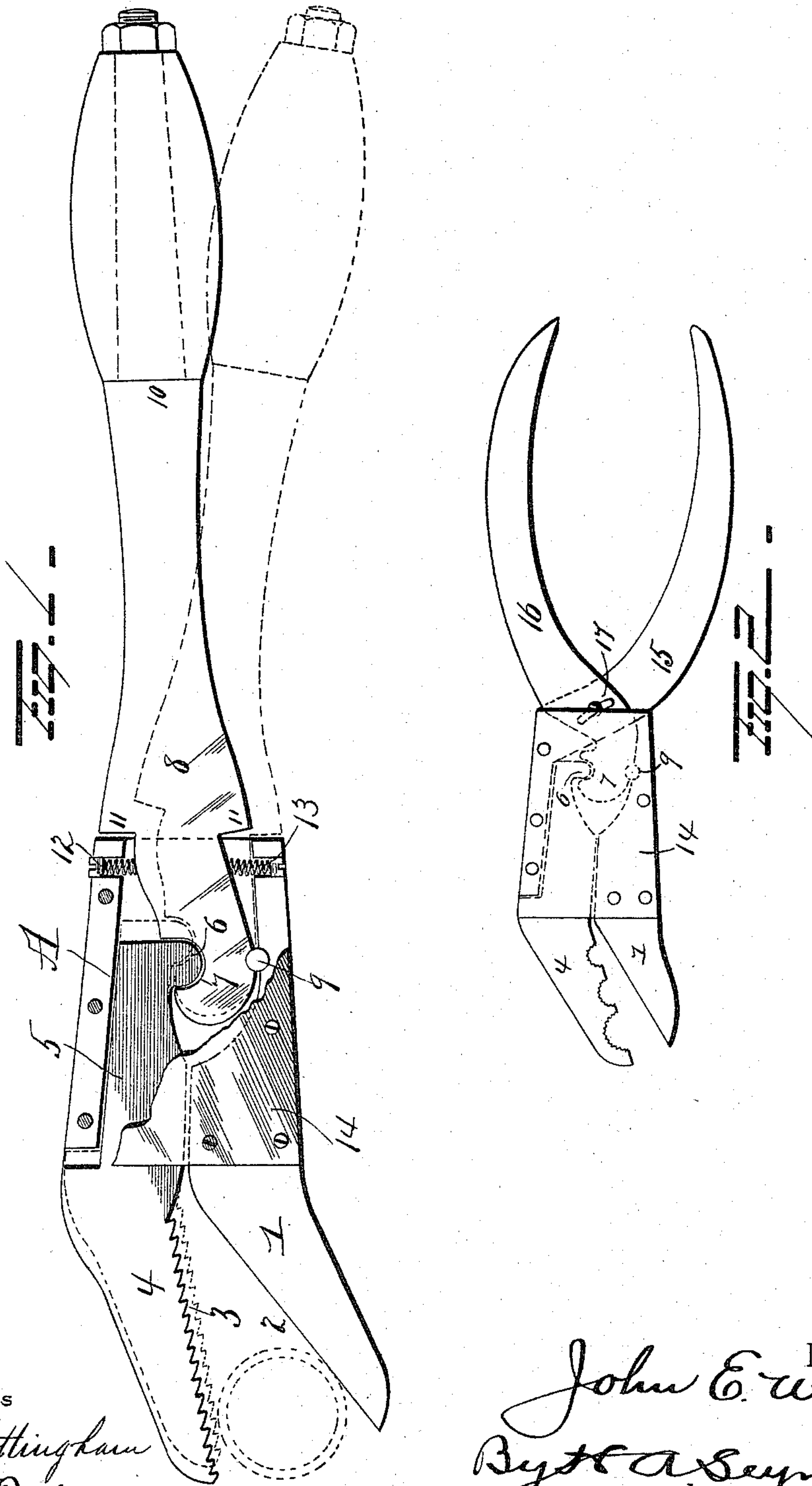


(No Model.)

J. E. WOOD.  
WRENCH.

No. 573,070.

Patented Dec. 15, 1896.



Witnesses  
E. J. Nottingham  
S. W. Porter

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# UNITED STATES PATENT OFFICE.

JOHN ELMER WOOD, OF BEVERLY, MASSACHUSETTS.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 573,070, dated December 15, 1896.

Application filed July 18, 1896. Serial No. 599,685. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN ELMER WOOD, a resident of Beverly, in the county of Essex and State of Massachusetts, 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.

My invention relates to an improvement in wrenches, the object of the invention being to construct a simple and efficient wrench adapted to be used either as a pipe-wrench or for operating upon nuts of any shape or size.

A further object is to construct a wrench in such manner that it shall be adapted for a large range of sizes of pipe or other objects to be operated upon.

A further object is to so construct a wrench that it can be operated to automatically clamp a pipe or other object.

A further object is to so construct a wrench that when placed on a pipe or other object and its handle moved in one direction said wrench will tightly grip the object, and so that when the handle is moved in the reverse direction the wrench can be easily removed from the object without liability of sticking or catching.

A further object is to construct a wrench which shall be universal in its application, which shall be comparatively cheap to construct, which can be easily and quickly operated, and which shall be effectual in all respects in the performance of its functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a face view of a wrench. Fig. 2 is a view showing the application of my improvements to pliers.

A represents a box or casing provided at one end with a fixed jaw 1, the shank of which may be secured in said box or casing or made integral therewith, as desired. The fixed jaw 1 is made with an inclined inner face 2, adapted to act in conjunction with the serrated or

toothed inner face 3 of a movable jaw 4, the space between said jaws 1 and 4 being practically V-shaped. The shank 5 of the movable jaw is disposed within the box or casing A and adapted to have longitudinal movement therein. The inner end of the shank 5 is made with a tooth or lug 6, adapted to enter a recess 7 at or near the forward end of a lever 8.

The lever 8 is pivoted at 9 in the box or casing A and terminates at its free outer end in a shank 10 for the reception of a suitable handle. The lever is also preferably provided with shoulders 11 in proximity to where the lever enters the box or casing A. Springs 12 13 are disposed within the box or casing and bear against the lever 8 at diametrically opposite faces of the lever, said springs serving to normally retain the lever and movable jaw at points intermediate of the extremities of their movements. The box or casing is closed by means of a cap or cover 14.

By making the jaws so that the space between them is V-shaped the wrench is capable of being operated on pipes or other objects of numerous sizes and forms. The wrench, when not in use, is in such position that the jaws are not wide open or entirely closed, (as above intimated,) but are about half-way open, so that when placed on an object the pressure or pull on the lever causes the movable jaw to slide and its face to approach the pipe or other object, thus closing the jaws on the object and clamping it tightly between them. It is evident that should the wrench be placed on the object to be turned, so that the faces of both jaws will engage the object, and then if pressure be applied to the lever the jaw 4 will tend to move and the object will be tightly clamped. By applying pressure in the opposite direction to the lever the jaw 4 will be moved away from the pipe or other object, whereupon the wrench can be readily removed without liability of catching or sticking, thus avoiding a serious defect present in many wrenches.

It is evident that instead of providing the box or casing with a removable cover the latter may be made integral with said box or casing and the parts secured in place in any desired manner within said box or casing.

In Fig. 2 the application of my improve-



ments are shown in the form of pliers. In this form of the invention the movable jaw is provided with curved serrated recesses of various sizes adapted to receive small pipes and gas-burners. A fixed lever 15 is secured to the box or casing, and the movable lever 16 is pivotally connected to the fixed lever and provided with an elongated slot 17, through which the pivot-pin passes.

Other slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope, and hence I do not wish to limit myself to the precise details of construction herein set forth.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrench, the combination with a pair of jaws, the inner surfaces of which converge with relation to each other, and one jaw rigid, and the other non-pivotal and movable endwise or longitudinally with relation to the other, of a handle for operating said movable jaw, substantially as set forth.

2. In a wrench, the combination with two jaws, one of which is non-pivotal and movable endwise, of a handle pivoted to one jaw and connected with the other so as to pull endwise upon and move the movable jaw in the direction in which the latter is swung by the movement of the wrench.

3. In a wrench the combination with a fixed jaw and a casing connected therewith, of a longitudinally-movable jaw having a shank which fits and slides within the casing, a handle pivoted within the casing and constructed and adapted to impart a longitudinal sliding movement to the movable jaw, and springs located within the casing and arranged to bear upon the opposite sides of the handle-lever at a point in rear of its pivotal bearing, substantially as set forth.

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

JOHN ELMER WOOD.

Witnesses:

JOSEPH WOOD,  
FRANK L. HOBBS.