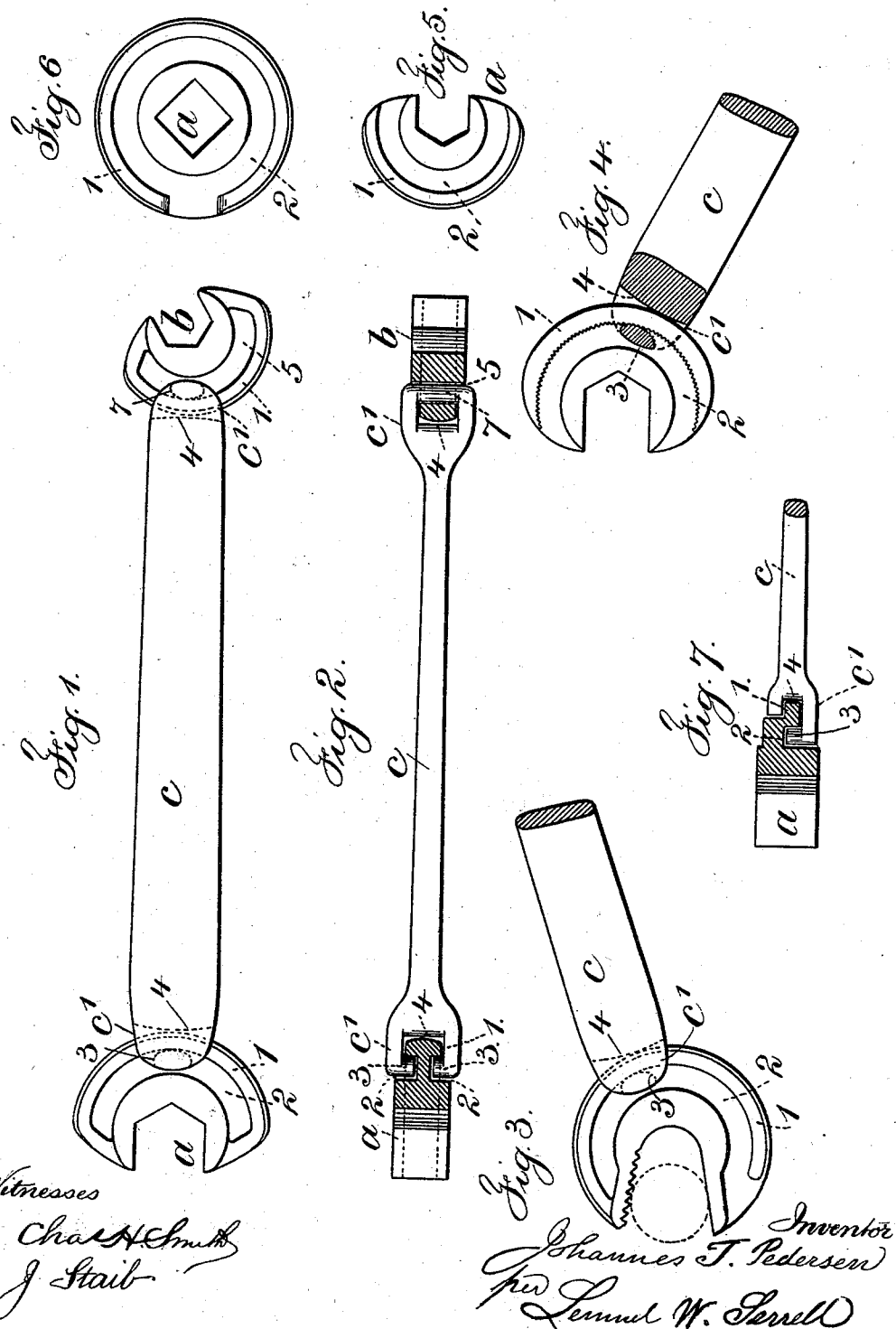
(No Model.)

J. T. PEDERSEN.

WRENCH.

No. 513,619. Patented Jan. 30, 1894.



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WRENCH.

SPECIFICATION forming part of Letters Patent No. 513,619, dated January 30, 1894.

Application filed March 10, 1893. Serial No. 465,450. (No model.)

To all whom it may concern:

Be it known that I, JOHANNES THEODOR PEDERSEN, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Improvement in Wrenches, of which the following is a specification.

My invention relates to a simple, efficient and inexpensive wrench.

In carrying out my invention I employ a jaw having a segmental ribbed edge, and a handle having a slotted end receiving the segmental ribbed edge. One or more lugs or pins are provided as part of the slotted end and the segmental ribbed edge is gripped upon its opposite faces between the lug or pin and the end of the handle at the base of the slot upon the rocking of the handle. Portions of the segmental ribbed edge are engaged progressively by alternately releasing and moving the handle and again gripping the segmental edge, so as to rotate the nut or other article.

In the drawings, Figure 1 is an elevation of a wrench illustrating my improvement. Fig. 2 is a plan and partial section of the same, and Figs. 3, 4, 5, 6 and 7 illustrate details and modifications hereinafter more fully described.

a, *b*, are jaw heads at the respective ends of the handle *c*. The jaws are each provided with a segmental ribbed edge 1 and a groove or mortise 2. The handle *c* has a slotted end *c'* which receives the segmental ribbed edge of the jaw head and said slotted end is provided with one or more inwardly projecting lugs or pins 3 which are preferably rounded and the end of the handle at the base of the slotted end is preferably convex at 4. The segmental ribbed edge is between the said lug or pin and the end 4 of the handle, and the inner and outer surfaces of said ribbed edge are gripped between these parts by rocking the handle, and when thus gripped and the handle moved the jaw is turned to rotate the nut or other article. Different portions of the segmental ribbed edge are engaged progressively by alternately releasing and moving the handle and again gripping the segmental edge so as to rotate the nut or other article. The jaw turns freely in the slotted end of the handle because there is a looseness where the segmental ribbed base 1 passes through between the lug or pin 3 and convex end 4. This freedom exists when a straight handle such as shown is in a radial line from the center of the jaw head, but as soon as such handle is rocked and moved out of this radial line the lug 3 binds against the inner face of the base and the convex end 4 against its outer face and the jaw is gripped in this manner, and the greater the pressure the tighter the gripping action and this feature is availed of in operating the jaw head to turn a nut, pipe, bar or similar article.

In Figs. 1 and 2 the jaw *a* has an arc or segmental groove 2 in each face and the slotted end of the handle has two lugs 3 passing into these grooves. The jaw *b* has an arc or segmental mortise 5 in lieu of the groove 2 and a pin 7 passing through said mortise is the equivalent of the lugs 3. The jaws have open centers adapted to engage nuts of different sizes. A handle *c* with only one jaw *a* may be employed to advantage.

The segmental ribbed base may not be continued all around the jaw but one or both ends next the jaw may be cut away as shown in Figs. 3, 4, 5 and 6, so that the jaw can be removed from the handle and another jaw inserted adapted to take a different sized nut.

In Fig. 3 the jaw is shown as adapted to take a pipe or bar.

In Fig. 4 the inner face of the segmental ribbed base is shown with fine serrations or teeth and the face of the lug 3 that bears against the said portion is also shown with serrations or teeth, the object of which is to assist the gripping action. In this case, however, there is a looseness corresponding to slightly more than the depth of the teeth.

Fig. 5 shows a removable jaw adapted to be disengaged from the handle at either end of the segmental ribbed base.

Fig. 6 shows a circular removable jaw adapted to engage a square bar.

Fig. 7 is a sectional plan showing the slotted end of the handle with one lug 3 and the jaw with a single segmental groove 2 in one side.

While I have shown the handle *c* as straight, it is obvious that it may also be of other

shapes, the essential feature of the handle being the slotted end to receive the segmental ribbed base of the jaw and the lug or pin projecting into the segmental groove or mortise of the jaw.

It is obvious that the jaw is free to turn in the slotted end of the handle when imaginary parallel lines drawn through the slotted end at the surfaces of the lug 3 and convex end 4 are at right angles to the radial line of the jaw and that when the handle is rocked to either side to disturb this condition there is a gripping action by the lug 3 and end 4, against the inner and outer faces of the segmental ribbed base 1.

I claim as my invention—

1. The jaw having a segmental ribbed base and segmental groove or mortise, in combination with the handle having a slotted end to freely receive the said segmental ribbed base and an inwardly projecting lug or pin moving in said groove or mortise, the surface 4 at the base of the slot being part of and rigid in relation to the handle itself and bearing against the segment to produce a gripping action upon the opposite-faces of the segmental ribbed base as the handle is actuated substantially as specified.

2. The jaw having a segmental ribbed base and segmental groove or mortise, in combination with the handle having a slotted end to freely receive said segmental ribbed base and having a lug or pin with a curved surface and a convex surface at 4, whereby the jaw is normally free to be turned and a gripping action is produced upon the rocking of the handle, substantially as set forth.

3. The jaw having a segmental ribbed base and segmental grooves in its opposite faces, in combination with the handle having a slotted end to freely receive the segmental ribbed base and having two inwardly projecting lugs in said grooves, said lugs having curved surfaces and the end of the handle at the base of the slot being convex, substantially as and for the purposes set forth.

Signed by me this 27th day of February, A. D. 1893.

JOHANNES TH. PEDERSEN.

Witnesses:

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