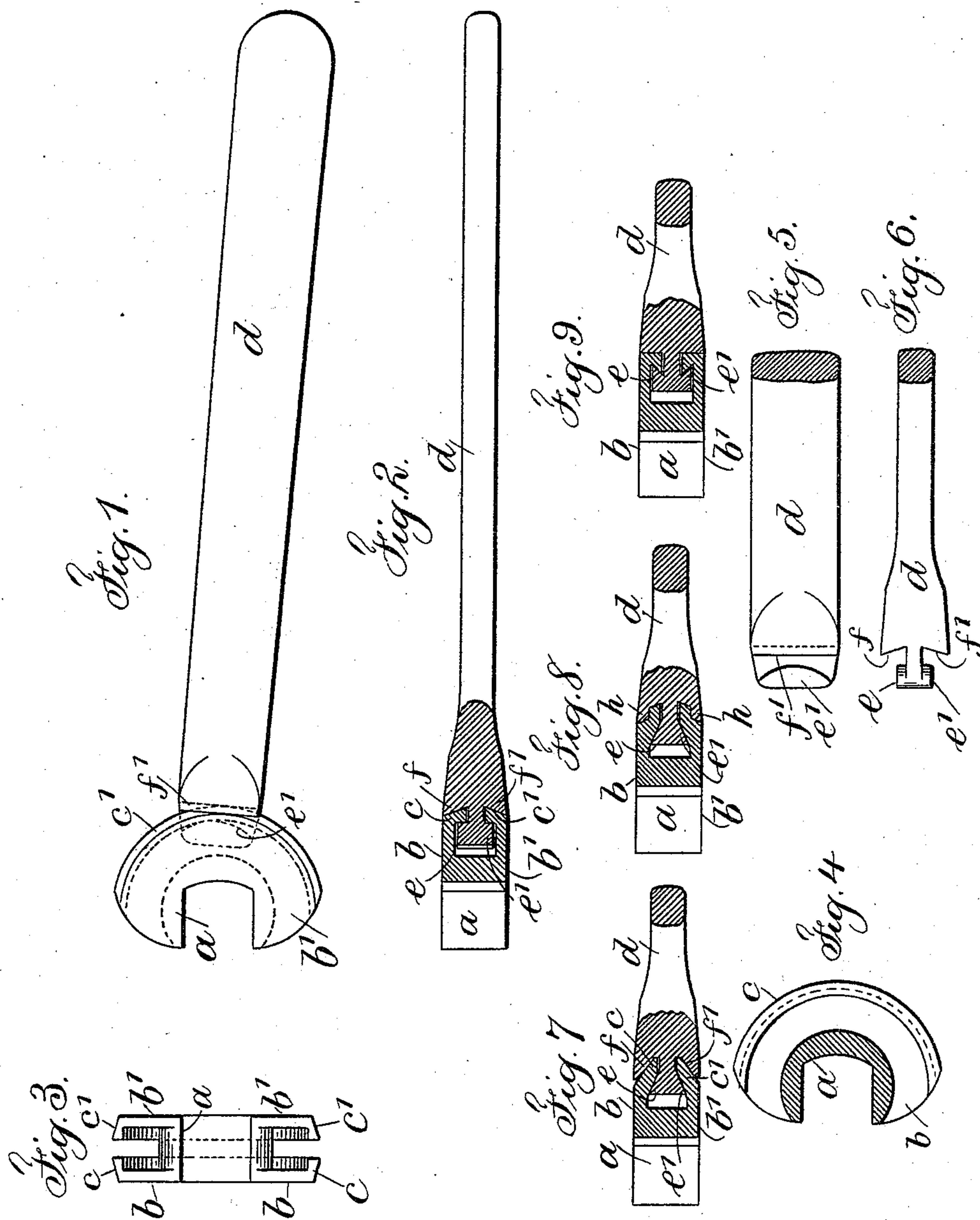


(No Model.)

J. T. PEDERSEN.  
WRENCH.

No. 539,441.

Patented May 21, 1895.



Witnesses

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# UNITED STATES PATENT OFFICE.

JOHANNES TH. PEDERSEN, OF NEW YORK, N. Y.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 539,441, dated May 21, 1895.

Application filed March 2, 1894. Renewed October 23, 1894. Serial No. 526,708. (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 present invention is designed as an improvement upon the device set forth in my Letters Patent, granted January 30, 1894, No. 513,619, and the object of my invention is to simplify the construction and improve the efficiency of the wrench.

In carrying out my invention I employ a jaw having segmental ribbed flanges between which and conforming thereto is an internal slot and a handle with a slotted end with lugs received in the slot between the segmental ribbed flanges, and these segmental ribbed flanges are gripped upon their opposite inner and outer faces between the lugs and the end of the handle at the base of the slots upon the rocking of the handle. Portions of the segmental ribbed flanges are engaged progressively by alternately releasing and moving the handle and again gripping the segmental ribbed flanges so as to rotate the nut or other article. The engaging and interlocking faces of the jaw and handle are preferably inclined so that the gripping action tends to hold the parts together.

In the drawings, Figure 1 is an elevation of a wrench illustrating my improvements. Fig. 2 is a plan and partial section of the same. Fig. 3 is an edge view of the jaw. Fig. 4 is a vertical section of the jaw. Fig. 5 is a side elevation of the engaging end of the handle, and Fig. 6 an edge view of the same; and Figs. 7, 8, and 9 are plans and partial sections of modifications hereinafter described.

The jaw *a* has a solid center, and the opposite faces are projected as segmental flanges *b b'* with ribs *c c'*, and between said flanges and ribs there is an opening or internal slot, and the outer faces of the ribs are inclined with the edges adjacent to the slot. The highest and the inner faces are parallel to the axis of the jaw.

The handle *d* is of any desired shape. The handle has a central projecting rib and lugs *e e'* formed by the opposite face slots and in-

clined and receding end faces *f f'* whose inclination conforms to the inclined faces of the ribs, and when the handle and jaw are brought together the rib of the handle passes between the ribs *c c'* of the jaw *a* and the faces of the lugs *e e'* bear against the inner faces of the ribs, and the outer inclined faces of said ribs bear against the inclined faces *f f'* of the handle, and when the handle is rocked as in Fig. 1 a gripping action takes place at the points of contact upon opposite sides of the radial line of the jaw between these meeting faces by which the jaw is turned by moving the handle in rotating a nut or other article.

Various portions of the segmental ribbed flanges are successively engaged by the progressive movement of the handle in alternately releasing, moving and again gripping by rocking so as to rotate a nut or other article.

When the handle is in the radial line of the jaw and is not rocked to cause its lugs and faces *f f'* to grip the jaw, said jaw turns freely in the handle because of a slight looseness of the parts, and the jaw may be removed from the handle and another jaw be employed with a different shaped or sized opening, according to the article being operated upon.

With the rocking of the handle *d* and the application of pressure as hereinbefore described, it will be noticed that the action of the inclined faces *f f'* upon the inner and outer faces of the ribs *c c'* is to press the segmental flanges *b b'* toward each other. Therefore a locking action is effected that insures the action of the parts and prevents the segmental flanges *b b'* and ribs *c c'* spreading apart.

In the modifications shown in Figs. 7, 8 and 9, slight features of difference exist as follows: In Figs. 7 and 8, the inner faces of the segmental ribbed flanges are made inclined, and the lugs at the end of the handle are made with inclined and outwardly flaring edges to conform thereto, while in Fig. 7 the outer faces of the ribs *c c'* and the inclined faces *f f'* of the handle are made at a greater inclination than the parts shown in Figs. 1, 2 and 3. In Fig. 8 these latter inclined faces are made staggered or with offsets at *h*. In Fig. 9 the ribs of the segmental flanges are undercut and the lugs of the handle are also undercut



to correspond therewith, the inclines producing the clamping and compressing action being located at these meeting undercut faces.

5 In my present invention the handle is more easily constructed and is stronger than the handle in my former device, and the jaw while readily made and very strong is more easily removed from the handle and provides a wider and more even bearing.

10 I claim as my invention—

1. The jaw having segmental ribbed flanges between which is an internal opening or slot, in combination with a handle having a slotted end and lugs bearing against the inner faces 15 of the segmental ribbed flanges and with end faces bearing against the outer faces of the said segmental ribbed flanges, substantially as set forth.

2. The jaw having segmental ribbed flanges 20 between which is an internal opening or slot, in combination with a handle having a slotted end forming lugs bearing against the inner faces of the segmental ribbed flanges and with end faces bearing against the outer faces of the said segmental ribbed flanges, part of said 25 meeting faces being inclined to produce a wedge-like binding action in operation to pre-

vent the segmental ribbed flanges spreading, substantially as set forth.

3. The jaw having segmental flanges *b b'* 30 and ribs *c c'* between which is an internal opening or slot and with the inner faces of the ribs parallel with the axis of the jaw and the outer faces of the ribs inclined, of the handle *d* having a projecting rib and lugs *e e'*, and inclined end faces *f f'* bearing against the inner and outer faces of the ribs *c c'*, substantially 35 as and for the purposes set forth.

4. The jaw having segmental ribbed flanges with inclined faces and between which is an 40 internal opening or slot, in combination with a handle having lugs received in said slot and having inclined faces, whereby upon the rocking of the handle a gripping action is produced that is augmented because of the inclined faces, substantially as and for the pur- 45 poses set forth.

Signed by me this 23d day of February, A. D. 1894.

JOHANNES TH. PEDERSEN.

Witnesses:

GEO. T. PINCKNEY,  
HAROLD SERRELL.