

(No Model.)

A. MÜLLER  
WRENCH.

No. 541,668.

Patented June 25, 1895.

Fig. 1.

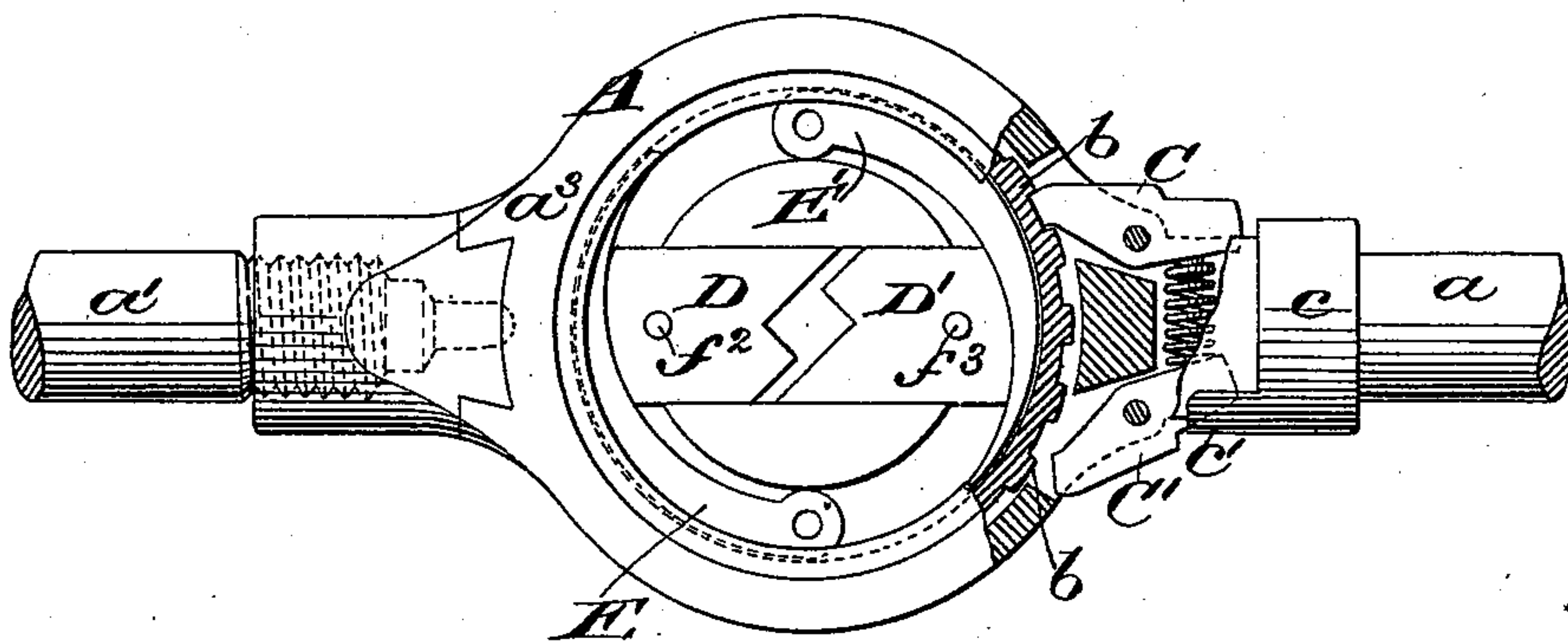


Fig. 2.

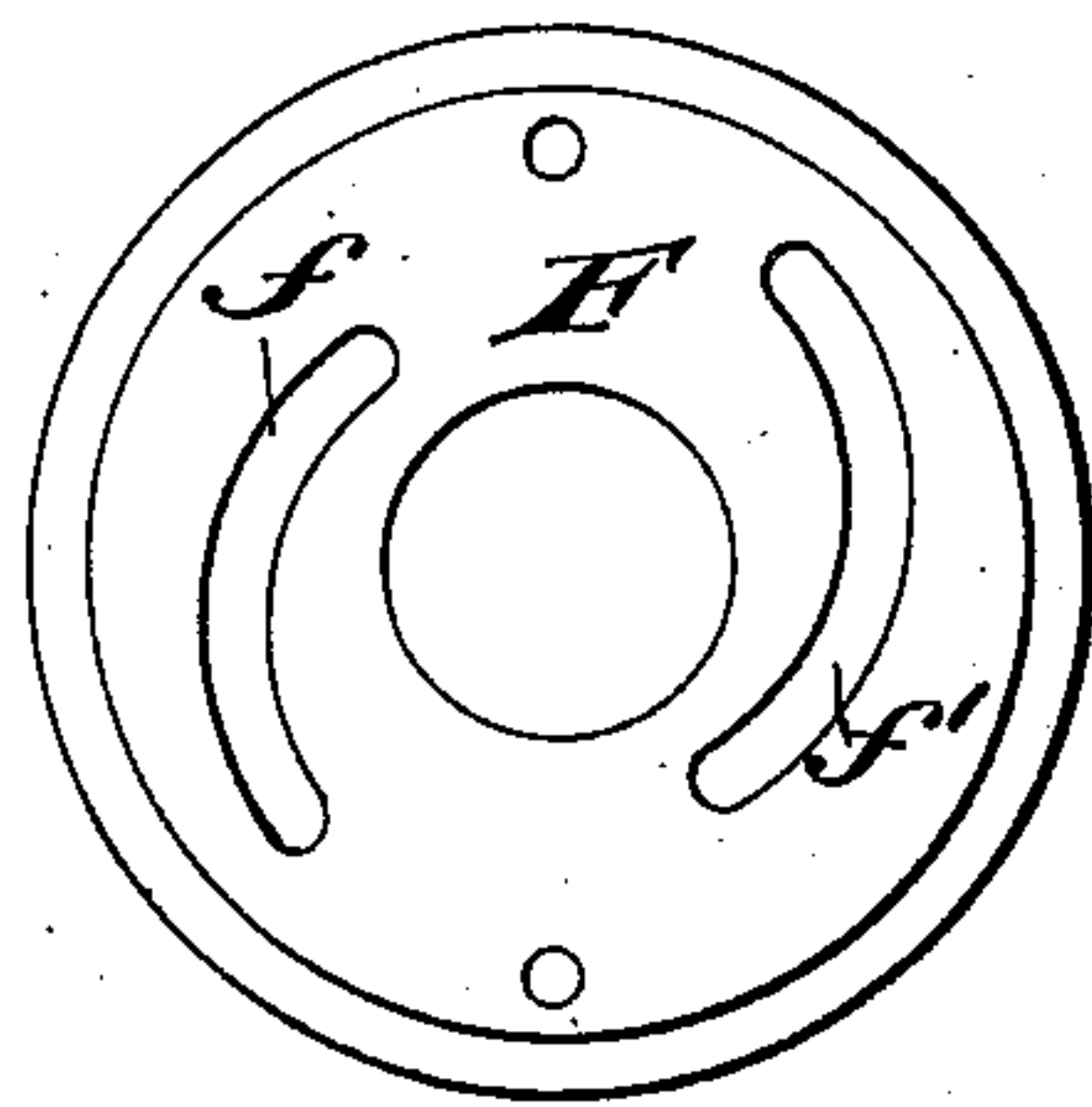


Fig. 3.

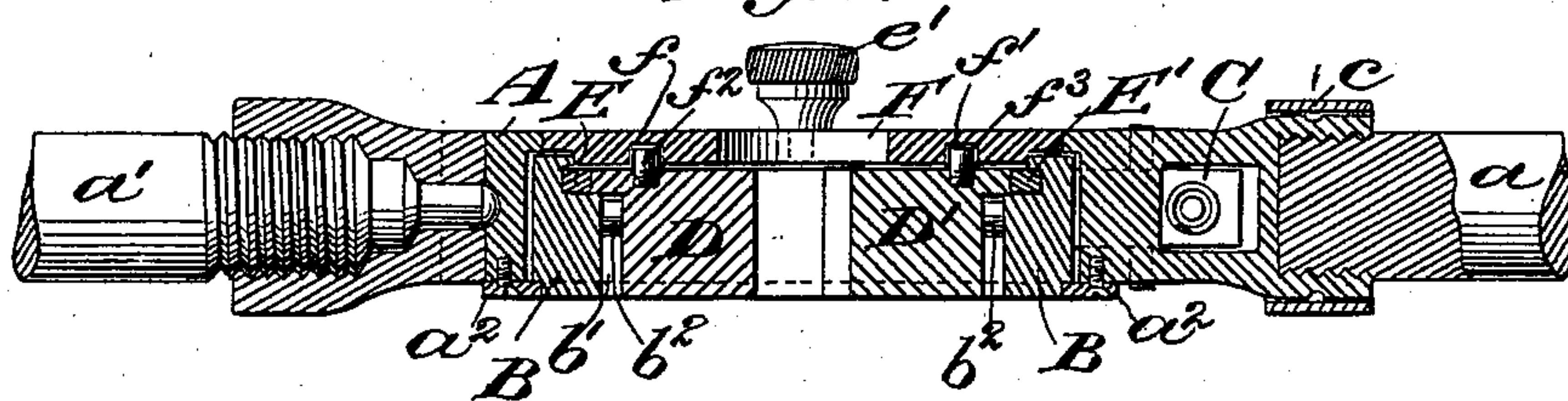
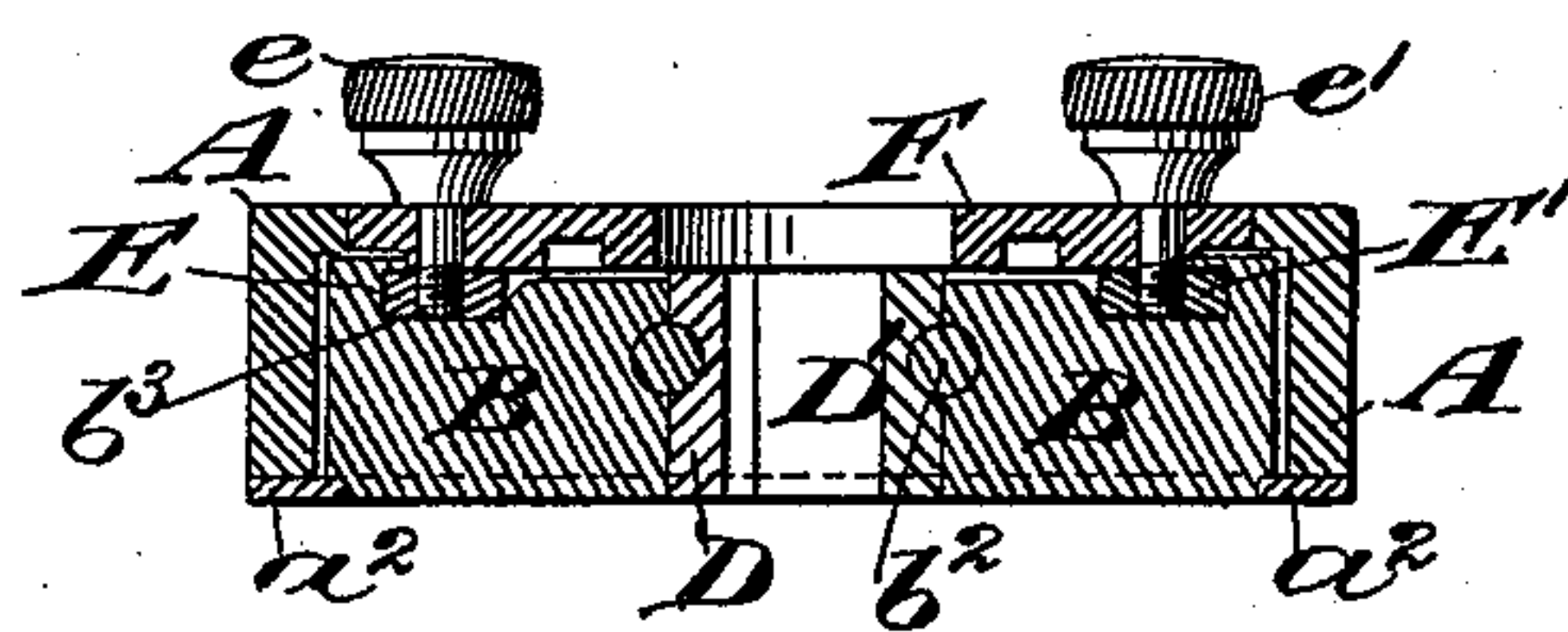


Fig. 4.



Witnesses:-  
George Barry  
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Inventor:-  
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by attorneys  
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# UNITED STATES PATENT OFFICE.

ADAM MÜLLER, OF WALLINGFORD, CONNECTICUT.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 541,668, dated June 25, 1895.

Application filed July 21, 1894. Serial No. 518,185. (No model.)

*To all whom it may concern:*

Be it known that I, ADAM MÜLLER, of Wallingford, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Wrenches, of which the following is a specification.

My invention relates to an improvement in wrenches and more particularly to that class of wrenches commonly known as "tap-wrenches" in which a pair of movable jaws for gripping the head of the tap are caused to move toward and away from one another to suit different sized heads.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a plan view, partially in section, of the wrench, the cap-plate being removed to show the operating parts more clearly. Fig. 2 is an under side view of the top plate. Fig. 3 is a view in transverse section taken about centrally through the wrench-head in the plane of the axes of the handle; and Fig. 4 is a transverse section through the wrench-head, taken at right angles to the section shown in Fig. 3.

The wrench which I have chosen to illustrate my invention is of the double ratchet type, and the movable jaws for gripping the head of the tap are mounted in the ratchet disk.

The head of the wrench, denoted by A, is provided with a circular cavity in which is fitted, in rotary adjustment, a disk B having on its exterior ratchet teeth  $b$  for engaging the spring actuated pawls C, C' which may be provided in any well known or approved manner with means for holding the one or the other of them out of engagement with the teeth on the disk B to reverse the ratchet effect of the wrench. In the present instance I have shown a collar  $c$  provided with a projecting lip  $c'$ , which is located on one of the handles  $a$  in position to be turned to engage and hold either one of the pawls out of engagement with the ratchet teeth while the other is permitted to engage them.

The gripping jaws are denoted by D and D' and are mounted in sliding adjustment within an elongated opening  $b'$ , formed in the disk B. They are held in position by means of ways  $b^2$  along the sides of the opening  $b'$ , which

ways may be formed by circular pins inserted partly in grooves in the sides of the movable jaws and partly in grooves formed in the walls of the opening  $b'$ . Within a circular, undercut recess  $b^3$  in the face of the disk B, I locate a pair of curved wedges E, E' in position to be forced between the outer ends of the movable jaws D, D' and the wall of the undercut recess  $b^3$ . The wedges E, E' are operated by a circular cap plate F located within the cavity in the head A in proximity to one face of the disk B and having extended through it and into the heels of the wedges operating screws  $e, e'$ . The wedges E, E'—when in position—are partially covered by the outer wall of the undercut recess  $b^3$  and the screws  $e, e'$  work loosely within the cap plate and have a screw-threaded engagement with the wedges so that, while serving to rock the plate and hence the wedges, when they are slightly loosened, they serve at the same time to clamp the wedges in position by screwing them up and thereby drawing the wedges toward the cap plate into frictional contact with the upper wall of the undercut  $b^3$ .

The gripping jaws D D' are forced toward each other to diminish the opening between their gripping ends by means of the advance of the circular wedges between their outer ends and the disk and the said gripping jaws are separated from one another to increase the opening between their gripping ends by means of cam grooves  $f, f'$  in the under side of the cap plate F, which grooves engage studs  $f^2, f^3$  projecting from the faces of the jaws D, D'. The cam grooves operate upon the jaws to separate them simultaneously with the withdrawal of the wedges from between their outer ends and the disk B.

The disk B may be conveniently held in its position in the head A by a rim  $a^2$  which projects slightly over the edge of the disk. One of the handles  $a$  is made removable by a dovetailed connection  $a^3$  with the head, so that the wrench may be operated by one handle where the space is too limited for utilizing the two.

What I claim is—

1. A wrench, comprising a head, a handle, gripping jaws mounted in the head to move toward and away from one another, curved wedges for sliding the jaws toward one another, a rocking cap plate and operating screws

extending through the rocking cap plate into engagement with the curved wedges for moving and locking the wedges, the cap plate and the jaws being provided, the one with projections and the other with grooves adapted to engage the projections for separating the jaws as the wedges are withdrawn, substantially as set forth.

2. A wrench, comprising a head, a handle, gripping jaws mounted in the head to move toward and away from each other having studs or projections thereon, curved wedges for slid-

ing the jaws toward one another, a rocking cap plate having cam grooves therein for engaging the studs on the gripping jaws, to slide the jaws away from each other and operating screws extending through the rocking cap plate into engagement with the wedges for moving and locking them in their adjusted positions, substantially as set forth.

ADAM MÜLLER.

Witnesses:

CHAS. PADEN,  
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