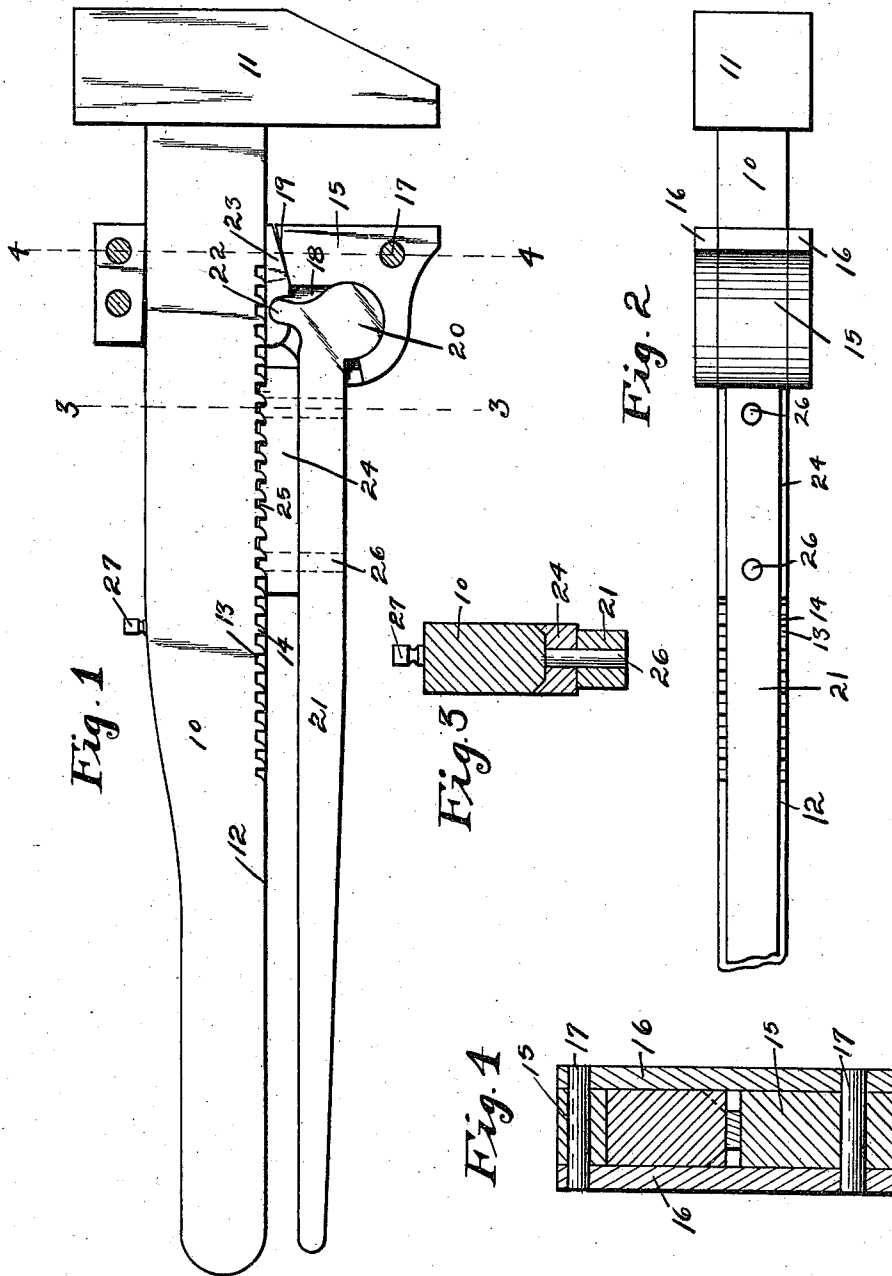


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WRENCH.

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To all whom it may concern:

Be it known that we, HIRAM MENDENHALL and BERTEL R. WONSMOS, citizens of the United States, residing at Audubon, in the county of Audubon and State of Iowa, have invented a new and useful Wrench, of which the following is a specification.

The object of our invention is to provide an adjustable wrench of simple, durable and inexpensive construction, that may be quickly adjusted to position to engage an object to be clamped, and then firmly and immovably held in said position, and further to provide a wrench in which the movable jaw will have its outer end tilted slightly in a direction toward the stationary jaw when the clamping lever is moved to position adjacent to the handle.

Our invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claim and illustrated in the accompanying drawings, in which—

Figure 1 shows a side elevation of a wrench embodying our invention, one of the sides of the movable jaw being removed to show the interior construction. Fig. 2 shows a side view of our improved wrench taken from the side on which the clamping lever is located. Fig. 3 shows a sectional view on the line 3—3 of Fig. 1, and Fig. 4 shows a sectional view on the line 4—4 of Fig. 1.

Referring to the accompanying drawings, we have used the reference numeral 10 to indicate the wrench handle. At the outer end thereof is a stationary jaw 11. The handle is formed with a straight smooth edge 12 having at the corners thereof the notches 13 forming ratchet teeth 14. These ratchet teeth on both edges of the handle have their ends below the level of the straight edge 12. The outer end of each of the teeth 14 is beveled or inclined in a direction away from the jaw 11.

The movable jaw comprises a body portion 15 having an opening designed to receive the handle 10, and having two side plates 16 connected with the part 15 by means of the rivets 17. The opening in the movable jaw member is so arranged that the said movable jaw member may tilt slightly relative to the handle 10. The object of this will be hereinafter made clear.

In the part 15 is a recess 18 and adjacent to the straight edge 12 is an inclined shoulder 19. Pivotaly mounted in the recess 18 is a rounded head 20 on the clamping lever 21, and on the clamping lever 21 opposite the rounded head 20 is a rounded lug 22. The rounded head 20 fits into the recess 18, and forms a fulcrum for the clamping lever, and the rounded lug 22 fits into a recess formed in a wedge 23. This wedge rests against the straight edge 12 between the teeth 14 thereon, and hence, does not in any way interfere with the teeth. The said wedge rests against and engages with the inclined portion 19 of the movable jaw, and as clearly shown in Fig. 1, these two surfaces diverge slightly from each other in a direction toward the jaw 11, so that when the wedge is forced into position toward the stationary jaw, it will have the effect of tilting the outer end of the movable jaw a slight distance in a direction toward the stationary jaw.

Connected to the clamping lever 21 is a block 24 having teeth 25 on its corners designed to engage and co-act with the teeth 14. The said block 24 is connected with the clamping lever 21, by means of the rivets 26. A pin 27 is placed in the handle 10 to limit the movement of the movable jaw.

In practical use, the operator first moves the clamping lever 21 to a position away from the handle 10, whereupon the movable jaw is free to slide on the handle 10. The movable jaw may then be moved to a position for clamping an article between it and the stationary jaw, and when in position, the lever 21 is moved toward the handle 10, which has the effect of first forcing the wedge 23 to position between the parts 19, and the handle 10, to thereby clamp the movable jaw to the handle. Then as the block 24 moves to position against the handle 10, the teeth 14 and 25 will interlock with each other, and positively lock the sliding jaw against movement. When said teeth 25 and 14 are being moved to the position shown in Fig. 1, the wedge 23 will cause the outer part of the jaw 15 to tilt slightly in a direction toward the jaw 11 and by having the teeth 14 tapered as shown and described, the jaw 15 will be moved slightly in a direction toward the jaw 11, as the teeth 14 and 25 come together. Under ordinary circumstances the wedge 23 is sufficient to hold the jaw 15, and therefore

the teeth 14 and 25 can be made very small, as they do not have any great amount of strain applied to them.

In a wrench of this kind it is essential
5 that the teeth on the shank 10 extend over that portion of the shank upon which the movable jaw slides and as the wedge 23 must also slide over the same part of the shank it is desirable that the teeth on the shank will
10 not in any way interfere with the sliding movement of the wedge. For this reason a straight edge is formed on the shank at its longitudinal center and the teeth are formed by notches at the sides of the straight edge.
15 These notches are inclined outwardly from the central straight edge and increase in depth toward the side edges of the shank. The teeth upon the block 24 are shaped to coact with these teeth on the shank and this
20 construction provides means whereby, when the notches between the teeth on the shank are between the teeth on the block 24 and become filled with foreign matter they will automatically clean themselves as the clamping lever moves the block 24 into position in
25 engagement with the teeth on the shank.

We claim as our invention:

30 An improved wrench, comprising a handle having on one edge a straight, smooth, central portion and also having at the corners of said edge notches inclined away from said straight central portion and toward the

center of the sides of the handle to form teeth wholly below the straight edge, a stationary jaw at the outer end of the handle, 35 a jaw slidably mounted upon the handle, a wedge between the sliding jaw and the straight edged portion of the handle, said wedge being capable in one position of being forced between said straight edge and the 40 adjacent portion of the movable jaw to firmly secure the movable jaw in position relative to the handle, said parts being so arranged that the movable jaw may be placed upon any portion of the wrench handle containing the notches and be out of engagement with the teeth, a lever fulcrumed 45 to the sliding jaw and operatively connected with the wedge, and a block on the lever having a smooth, central portion to engage the 50 straight edge on the handle and also having inclined teeth thereon to coact with the notches on the corners of the handle, said coacting teeth being so arranged that as the block is moved to position in engagement 55 with the teeth the notches between the teeth on both the block and the handle will be cleaned out.

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