

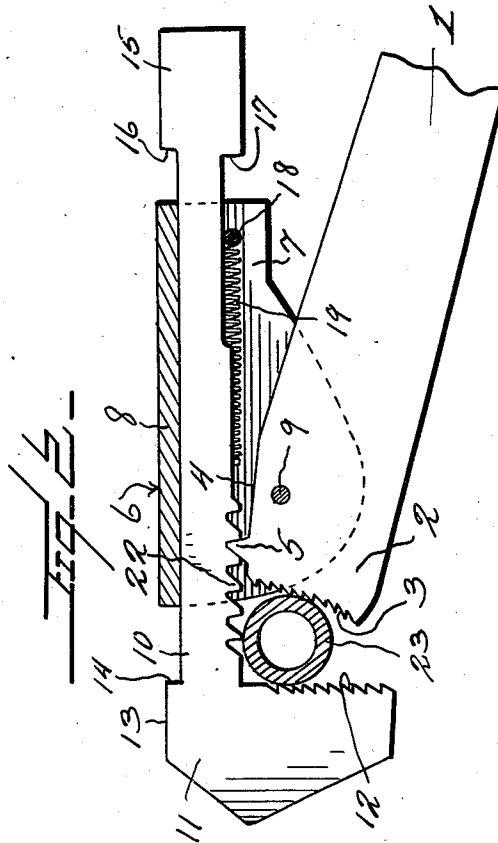
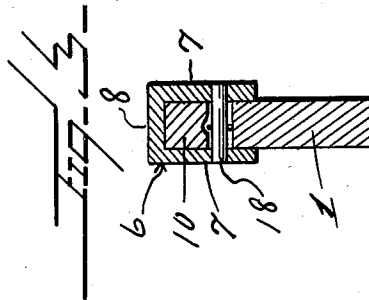
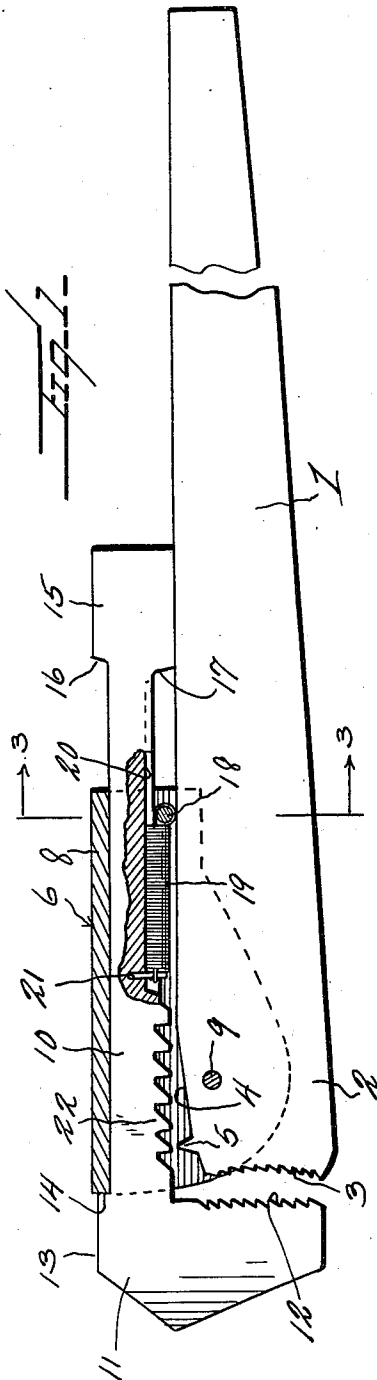
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WRENCH

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WRENCH

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3 Claims. (Cl. 81—102)

This invention relates to the class of tools and pertains particularly to improvements in wrenches.

The primary object of the present invention is to provide a wrench which is constructed in such a manner that by the use of one hand only, an easy and quick adjustment may be accomplished between the cooperating jaws, means being provided whereby the jaws are constantly urged toward one another so that after the jaws have been separated to the proper extent to receive an object, they will automatically close on the object to grip the same.

Another object of the invention is to provide a wrench in which means is provided for constantly urging the jaws to move together or toward one another and in which the construction is such that when the wrench is idle, there will be no direct contact between the serrated or toothed faces of the jaws.

A further object of the invention is to provide a wrench structure of the character stated in which the cooperating jaws are coupled together in such manner that after an object has been gripped between the jaws and the necessary force applied to the handle of the wrench, the jaws will be rocked relatively to close in upon or tighten their grip on the interposed object.

Still another object is to provide a wrench of the character above stated in which the construction is such that when the wrench is applied to an object and pressure is brought to bear upon the handle of the wrench, the jaws will be automatically coupled together so that the force applied to the handle will be transmitted to the jaw opposing the one which is directly connected with the handle to pull the jaws toward one another and into tight engagement with the said interposed object.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing, it being understood, however, that the invention is not to be considered as limited by the specific illustration or description but that such illustration and description constitutes a preferred embodiment of the invention.

In the drawing:

Fig. 1 is a view in side elevation of the wrench embodying the present invention, a portion of the wrench body being in section.

Fig. 2 is a view similar to Fig. 1, but showing the parts of the wrench in operative engagement with a body interposed between the jaws.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Referring now more particularly to the drawing, the numeral 1 generally designates the handle of the wrench, the forward end portion of which is slightly enlarged, as indicated at 2, to form a head. The forward end of this head is toothed or cut to form a jaw 3. One longitudinal edge of the head portion of the handle adjacent the jaw is angled or cut back from the line of the adjacent edge of the handle, as indicated at 4, and this edge has formed integral therewith the single tooth 5, which operates to couple the handle jaw with the shiftable jaw of the wrench in the manner shown in Fig. 2.

The numeral 6 designates an elongated frame body which is substantially U-shaped in cross-section whereby there are provided the spaced parallel side walls 7 and the cross top wall 8. As stated, the body 6 is of substantial length and adjacent one end it carries a pivot pin 9, which extends across between the walls 7 and which passes through the head end of the handle 1 in relatively close proximity to the edge 4 and slightly to the rear of the tooth 5. The handle 1 is supported between the sides of the frame 6 in a position to leave a space between its top edge and the under side of the top wall 8 of the frame. Extending through this space between the top edge of the handle 1 and the wall 8 of the frame is a long shank 10 which at one end is integrally joined to the shiftable jaw head 11 which extends laterally therefrom across the jaw face 3, and has a serrated jaw face 12 which is in opposed relation with the jaw 3. The top of the shank 10 is set in from the back face 13 of the shiftable jaw head, thus forming a shoulder 14 which abuts against the adjacent end of the wall 8 of the frame body to limit the movement of the head 11 toward the jaw 3. At its opposite end the shank 10 has formed integral therewith the enlarged tail piece 15 which has the inner and outer shoulders 16 and 17, the shoulder 16 being in opposed relation with the shoulder 14 and functioning as a stop for the forward movement of the shank through contact with the adjacent end of the wall 8.

Interposed between the shank 10 and the adjacent or top edge of the handle 1 is a pin 18 which extends across between the sides 7 of the frame body. This pin is at the end of the frame remote from the pivot pin 9 and in addition to forming an abutment against which the inner shoulder 17 engages when the shank is pushed forwardly, it serves as an anchor for an actual-

ing or control spring 19, one end of which is attached to the pin 18, as shown.

The inner side of the shank 10 is cut out or channeled slightly, as indicated at 20, in which the spring 19 positions and at the forward end of this channel is fixed a pin 21 to which the opposite end of the spring 19 is attached. This spring is of the contractile type and, therefore, constantly tends to draw the shank 10 back from the forward end of the tool so as to move the head 11 toward the jaw face 3.

Forwardly of the spring 19, the shank 10 is provided upon its inner face with the transverse teeth 22, with which the single tooth carried by the handle head 2 cooperates in the use of the tool.

In the use of the wrench, the operator while grasping the handle 1 in his hand, employs the thumb of that same hand to force the shank 10 forwardly, the thumb being placed against the tail piece 15 for this purpose. In this way, the proper separation of the jaws 3 and 12 can be obtained to receive an object such as the pipe 23 shown in Fig. 2. The tail piece 15, as shown, slides upon the back edge of the handle 1 and the back or outer edge of the shank slides along the inner face of the wall 8 of the frame body. Thus the shank and handle are moved relatively in parallel planes. After the jaws have been separated sufficiently to receive the object, the operator releases the tail piece, thus permitting the stretched or tensioned spring to react and draw the jaw head 11 back, thus bringing about the grasping of the object between the jaws. When the handle 1 is then forced in a direction to turn it or tend to turn it on its pivot pin 9 in a clockwise direction, it will be seen that the handle tooth 5 will be rocked into engagement between a pair of teeth 22, thus coupling the head 2 with the shank 10 in such way as to draw the head 11 toward the jaw 3 and into engagement with the interposed object, thereby insuring a firm grip upon the object even though the same may be of circular form such as the pipe shown. Release of the object is, of course, obtained by pulling the handle back to its former position, which movement will tend to separate the jaw faces so that they will assume substantially a parallel relation, as shown in Fig. 1. The spring 19 will then fully react to draw the jaw 11 back as far as it is permitted to come by the adjacent end of the frame body.

What is claimed is:

1. A wrench, comprising an elongated handle having a jaw at one end, a frame enclosing an edge of the handle adjacent said end and having the said end of the handle pivotally attached thereto, the said end of the handle having said edge cut obliquely across the handle, a movable jaw head having a shank slidably extended between the said edge of the handle and the frame, said head having a jaw face in cooperative relation with the handle jaw, resilient means coupling said shank with the frame and tending to draw said jaws together, means for establishing a locking connection between said shank and the handle jaw when the handle is oscillated in one direction with respect to the frame, comprising a plurality of teeth formed along the shank in advance of said resilient means and directed toward the said one edge of the handle, and a single

tooth carried by said handle upon the oblique portion of said edge, said handle carried tooth being separated from the teeth of said shank when the handle and shank are in substantially parallel relation whereby free sliding movement of the shank on said edge of and with respect to the handle is possible.

2. A wrench of the character stated, comprising an elongated handle having a gripping jaw at one end, a frame enclosing one edge of the handle adjacent the jaw end thereof, said frame including spaced side portions between which the said end of the handle is disposed, a pivot pin extending through the said jaw end of the handle and coupling the same with said side portions, the said one edge of the handle being in spaced relation with a portion of the frame to form a guide, the said one edge of the handle adjacent the jaw end being cut obliquely away from the overlying portion of the frame, a tooth upon the said obliquely cut edge of the handle, a shiftable jaw having a shank extending through said guide, said shank having stop shoulders at each end for engagement with the adjacent end of the body, said shiftable head having a jaw face in opposed relation with said handle jaw, a plurality of teeth formed transversely of the shank adjacent the shiftable head for selective engagement by said tooth, and spring means disposed between the shank and the said one edge of the handle and having one end connected with the frame and having its other end connected with the shank and normally tending to move the shiftable head toward the handle jaw.

3. A wrench of the character stated, comprising an elongated handle having a gripping jaw at one end, a frame enclosing one edge of the handle adjacent the jaw end thereof, said frame including spaced side portions between which the said end of the handle is disposed, a pivot pin extending through the said jaw end of the handle and coupling the same with said side portions, the said one edge of the handle being in spaced relation with a portion of the frame to form a guide, the said one edge of the handle adjacent the jaw end being cut obliquely away from the overlying portion of the frame, a tooth upon the said obliquely cut edge of the handle, a shiftable jaw having a shank extending through said guide, said shank having stop shoulders at each end for engagement with the adjacent end of the body, said shiftable head having a jaw face in opposed relation with said handle jaw, a plurality of teeth formed transversely of the shank adjacent the shiftable head for selective engagement by said tooth, spring means disposed between the shank and the said one edge of the handle and having one end connected with the frame and having its other end connected with the shank and normally tending to move the shiftable head toward the handle jaw, and a tail piece carried by said shank and having sliding movement upon the said one edge of the handle when the shank and handle are substantially parallel, the said first tooth and the teeth of the shank being separated when the shank and handle are substantially parallel whereby free sliding movement of the shank lengthwise of the handle is made possible.

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