Nov. 17, 1942. S. L. E. FALK 2,302,199

WRENCH

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Fig. 1.

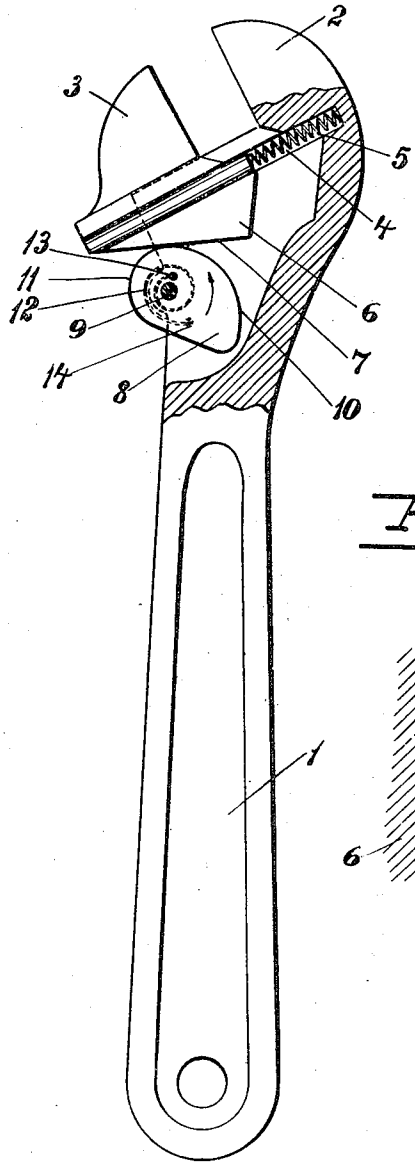
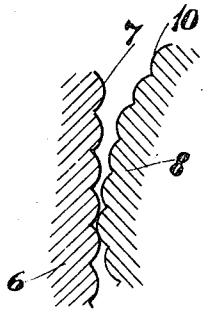


Fig. 2.



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WRENCH

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3 Claims. (Cl. 81—128)

My invention relates to improvements in wrenches, and more particularly in wrenches of the type having a fixed jaw attached to a handle, a movable jaw shiftable relatively to the fixed jaw and means for locking the movable jaw relatively to the fixed jaw. The object of my invention is to provide a wrench of this type which can easily and quickly be set to any desired opening, the movable jaw remaining in this position, and which is reliable in operation.

In order that my invention be more clearly understood an example embodying the same has been shown in the accompanying drawing, in which the same reference characters have been used in all the views to indicate corresponding parts. In said drawing

Fig. 1 is a side view of the wrench, partly in section, and

Fig. 2 is a section, on a larger scale, through a detail.

In the example shown in the drawing my improved wrench consists of a handle 1 having a jaw 2 made integral therewith. A movable jaw 3 is mounted in a guideway 4 in the handle so as to be movable at an angle relatively to the direction of the handle 1. A coiled spring 5 is mounted in the guideway 4 so as to bear with one end on the bottom of the guideway 4 and with its opposite end on the movable jaw 3, thus tending to move the latter in a direction away from the fixed jaw. The movable jaw 3 is provided with a wedge-shaped member 6 having a working face 7. A spiral-shaped cam disc 8 is pivotally mounted on a pin 9 in the handle and the cam face 10 thereof cooperate with the face 7 of the member 6. Between the cam disc 8 and the handle 1 is provided a spring 12 of the shape shown, one end of which enters a hole 13 in the cam disc and the other end of which enters a hole 14 in the handle 1. The object of the spring 12 is to turn the cam disc in the direction indicated by the arrow shown thereon and thereby normally hold the cam face 10 in engagement with the wedge face 7. The faces 7 and 10 may be roughened, finely-toothed or milled, etc., as shown in Fig. 2, so as to increase the friction between the same.

The operation of the wrench is as follows. By turning the cam disc 8 by means of the thumb holding the wrench in a clock-wise direction in Fig. 1, the thumb gripping the projecting part 11 of the cam disc, smaller radii of the cam disc are turned against the point of engagement between the movable jaw and the cam disc and the movable jaw is moved by the spring 5 in a direction away from the fixed jaw. The wrench is then applied to the nut or other object to be gripped and by pressing the movable jaw inwards by means of the thumb the jaws are made to bear on the nut. At the same time the cam disc 8 is turned by the spring 12 in the direction of the arrow so that larger radii thereof are turned against the point of engagement between the movable jaw and the cam disc, thereby preventing the movable jaw from moving in a direction away from the fixed jaw. The movable jaw also remains in this position when the wrench is removed from the nut, owing to the pressure of the spring 5, which holds the movable jaw in engagement with the cam disc. It will thus be seen that by operating the cam disc 8 and the movable jaw 3 by the thumb the wrench can be easily and quickly set to any desired position and that the movable jaw is securely locked in the position to which it has been set.

The clamping face 10 of the cam disc 8 preferably has the shape of a logarithmic spiral.

What I claim as new and desire to secure by Letters Patent of the United States of America is:

1. A wrench comprising a head with a fixed jaw, a movable jaw shiftable relatively to the fixed jaw, the movable jaw at least in the open position projecting from the head in the direction of travel of the movable jaw and having a stop face inclined to the direction of travel of the movable jaw, and a spiral-shaped cam disc rotatably mounted in the head on a line intersecting the stop face at right angles thereto for engagement with the stop face and so as to project from the head in the same direction as the movable jaw, the stop face extending and the radii of the cam disc increasing in such direction as to produce a jamming action for stopping movement of the movable jaw in a direction away from the fixed jaw.

2. A wrench comprising a head with a fixed jaw, a movable jaw shiftable relatively to the fixed jaw, the movable jaw at least in the open position projecting from the head in the direction of travel of the movable jaw and having a stop face inclined to the direction of travel of the movable jaw, a spring for moving the movable jaw in a direction away from the fixed jaw, a spiral-shaped cam disc rotatably mounted in the head on a line intersecting the stop face at right angles thereto for engagement with the stop face and so as to project from the head in the same direction as the movable jaw, the stop face extending and the radii of the cam disc increasing in such direction as to produce a jamming action

for stopping movement of the movable jaw in a direction away from the fixed jaw and a spring for turning the cam disc in a direction in which larger radii thereof are turned against the point of engagement between the stop face and the cam disc.

3. A wrench comprising a head with a fixed jaw and a guideway, a movable jaw with a guide face corresponding to and cooperating with the guideway for permitting sliding movement of the movable jaw relatively to the fixed jaw, the movable jaw at least in the open position projecting from the head in the direction of travel of the movable jaw and having a stop face extending from the outer end of the guide face at an angle thereto towards the plane of the jaw face of the movable jaw, a spring mounted in the guideway for moving the movable jaw in a direction away from the fixed jaw, a spiral-shaped cam disc rotatably mounted in the head on a line intersecting the stop face at right angles thereto for engagement with the stop face and so as to project from the head in the same direction as the movable jaw, the stop face extending and the radii of the cam disc increasing in such direction as to produce a jamming action for stopping movement of the movable jaw in a direction away from the fixed jaw, and a spring for turning the cam disc in a direction in which larger radii thereof are turned against the point of engagement between the stop face and the cam disc.

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