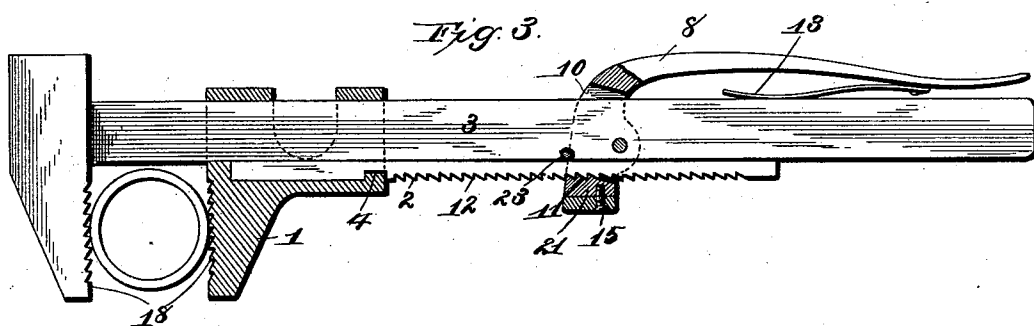
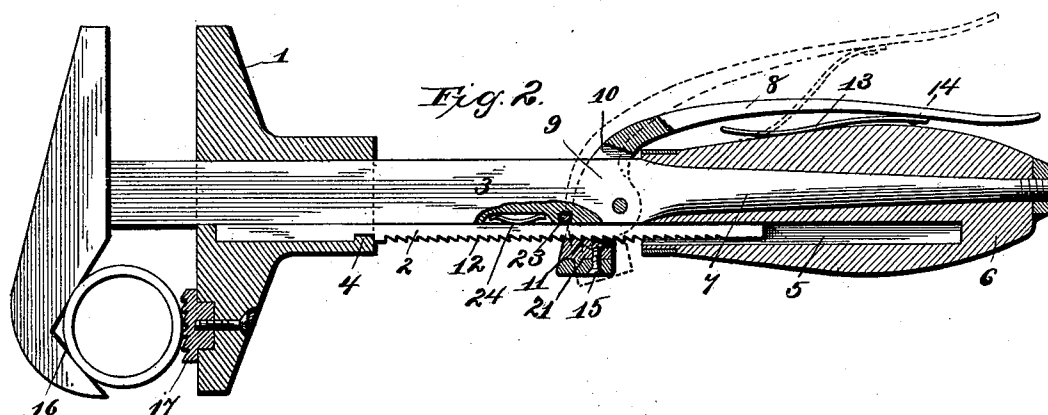
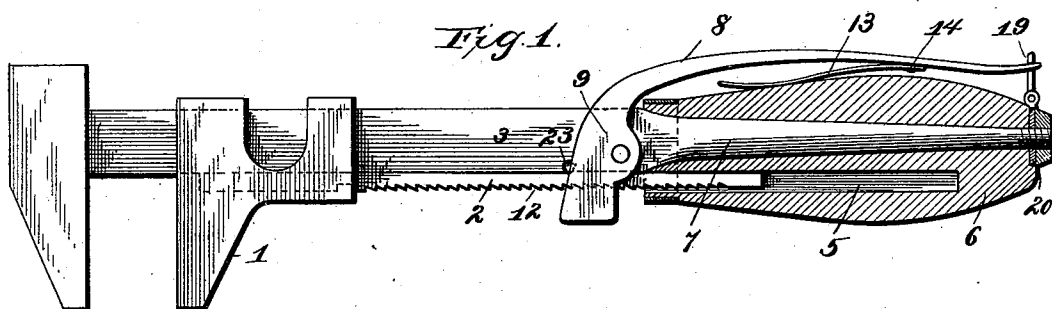


(No Model.)

R. McMILLEN.
WRENCH.

No. 568,365.

Patented Sept. 29, 1896.



Witnesses

E. C. Wurdeman
S. J. Williamson

Inventor

Robert M. Millen
by *Geo. H. Hogue*
Attorney

UNITED STATES PATENT OFFICE.

ROBERT McMILLEN, OF PITTSBURG, PENNSYLVANIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 568,365, dated September 29, 1896.

Application filed January 2, 1896. Serial No. 574,143. (No model.)

To all whom it may concern:

Be it known that I, ROBERT McMILLEN, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to a new and useful improvement in wrenches, and especially to that class known as "monkey-wrenches," and has for its object to so construct such a device as to enable the sliding jaw to be quickly moved to and fro in adapting the wrench to different sizes of nuts and the like.

With these ends in view the invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which my invention appertains may understand how to make and use the same, I will describe its construction and operation in detail, referring by numbers to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation of my improvement, showing the sliding jaw clamped in one position; Fig. 2, a similar view of a wrench having a pipe-jaw attachment, and Fig. 3 a similar view of an all-metal wrench for pipe purposes.

Similar numbers denote like parts in the views of the drawings.

Heretofore considerable difficulty has been encountered in the use of this class of wrenches from the fact that the movement of the sliding jaw required considerable time to bring about, either from the necessity of revolving a slow-threaded screw or the manipulation of complicated parts; but I have overcome these disadvantages and produced an efficient and cheap wrench which permits of the sliding jaw being adjusted to any point within the limits of its movements with but little effort upon the part of the operator, and when thus adjusted it will be firmly held against displacement when in use. This I accomplish by securing to the sliding jaw 1 a toothed bar 2, held in place against one edge of the handle-bar 3 by a suitable notch formed therein and adapted to engage with the lug 4, projecting into the opening in the

sliding jaw. This rack-bar extends rearwardly, and in the construction shown in Figs. 1 and 2 fits and slides in a suitable opening 5 in the wooden handle 6. This handle is secured in the usual manner upon the shank 7.

24 is a flat spring seated within a suitable slot formed in the edge of the handle-bar, so as to give the rack-bar a tendency to move outward for the purpose hereinafter set forth, and 23 is a three-cornered hand-plug secured in the handle-bar near its lower edge in such a manner that one of the wedge-shaped edges of said plug will project below the lower edge of the handle-bar.

8 is a hand-lever pivoted at 9 to the handle-bar and so formed as to lie in close proximity to the handle. An opening 10 is formed in the head of the lever 8, and this opening is adapted to embrace the handle-bar. The lower inner wall of said opening is provided with serrations or teeth 11, adapted to engage with the teeth of the rack-bar, so that it will be seen that when sufficient pressure is brought to bear upon the lever to overcome the resiliency of the spring 13, which is secured to said lever at 14 and bears against the handle, the teeth 11 will be forced into engagement with the teeth 12, and the bar 2 will be forced against the lower edge of the handle-bar 3 by the compression of the spring 24, this latter movement will bring the bar 2 into engagement with the protruding edge of the plug 23, thus firmly locking the sliding jaw in any given position, and bringing any strain which may be imparted to the sliding jaw almost entirely upon the plug 23. To adjust this jaw back and forth for varying sizes of work, it is only necessary to release the lever and permit it to be moved upward by the action of its spring to the position shown in dotted lines in Fig. 2, thereby disengaging the teeth and permitting the spring 24, by its resilient action, to move the bar 2 clear of the protruding point of the plug 23, when said jaw may be moved to any desired position and again secured against further movement by depressing the lever.

One of the decided disadvantages attendant upon the use of sliding-jaw wrenches as heretofore constructed is the fact that in adjusting the sliding jaw to various sizes of

bolts and the like the position of said jaw was determined by predetermined spottings, and this precluded the possibility of taking a firm hold upon the bolt unless said bolt chanced to be of a size which exactly fitted between the jaws when adjusted, and, as this condition seldom occurs, such a wrench is practically worthless for other than rough work and could never be used as a pipe-wrench, which requires a firm gripping hold to be taken upon the pipe; but my improvement accomplishes this result, since the bar 2 is held at a slight distance from the handle-bar 3, as before described, so that when the sliding jaw has been adjusted to the approximate size of the work to be clamped and the handle-lever operated to bring the teeth into engagement, the bar 2, when being moved toward the handle-bar 3, will also be moved forward, due to the relative position of the pivot-point 9 and said engaging teeth. This forward movement of the bar is sufficient to force the sliding jaw against the work with a pressure equal to the gripping of the hand upon the hand-lever multiplied by the leverage gained between the relative length of the two ends of the handle-bar.

While the teeth 11 may be formed directly upon the inner wall of the opening in the lever I prefer to form said teeth upon a suitable steel block 14, and secure said block within the opening by means of the screw 15.

In the construction shown in Fig. 2 the stationary jaw is provided with a V-shaped notch 16, and a serrated block 17 is secured to the movable jaw in order that a pipe-wrench may be provided in connection with the monkey-wrench; or in case the wrench is to be used only for pipework the stationary and movable jaw may be serrated, as shown in Fig. 3, at 18, and the bar 3 extended, so as to provide a handle without the use of wood, but in all other respects these constructions are the same as that described in connection with Fig. 1.

Sometimes it becomes necessary in large wrenches of this class, after having adjusted the sliding jaw, to retain it in this position after the handle has been released, in which

case I may provide a link 19, pivoted to a suitable washer 20, secured upon the shank back of the handle.

Other slight modifications might be made in the construction here shown and described without departing from the spirit of my invention.

What I claim as new and useful is—

1. In a wrench of the character described, a stationary jaw, and handle-bar formed with said jaw, a sliding jaw adapted to move to and fro upon said bar, and a rack-bar secured to said sliding jaw having teeth formed upon its outer edge, a spring interposed between said handle-bar and rack-bar, whereby the latter is held normally distended from said handle-bar, a plug secured within the handle-bar and having an edge protruding therefrom, a lever pivoted to the handle-bar and projecting within easy reach of the operator when grasping the handle, teeth projecting from within the inner wall of said lever for engagement with the teeth of the rack-bar, whereby said rack-bar is given a forward movement when being forced toward the handle-bar, substantially as and for the purpose set forth.

2. In a wrench a stationary jaw and handle-bar, a sliding jaw adapted to slide thereon, a rack-bar having a notch to engage a lug projecting into the opening of the sliding jaw said rack-bar being provided with teeth on its outer edge, a spring interposed between said handle-bar and rack-bar, a triangular plug secured in an aperture of the handle-bar and having an edge protruding therefrom, a lever pivoted to the handle-bar and provided with teeth adapted to engage the teeth of the rack-bar and press the rack-bar forward and against the plug when the lever is operated, as and for the purpose described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

ROBERT McMILLEN.

Witnesses:

S. S. WILLIAMSON,
GEORGE M. SCHMIDT.