No. 806,425. PATENTED DEC. 5, 1905.

R. McMILLEN.

WRENCH.

APPLICATION FILED JUNE 23, 1905.

Fig. 1.

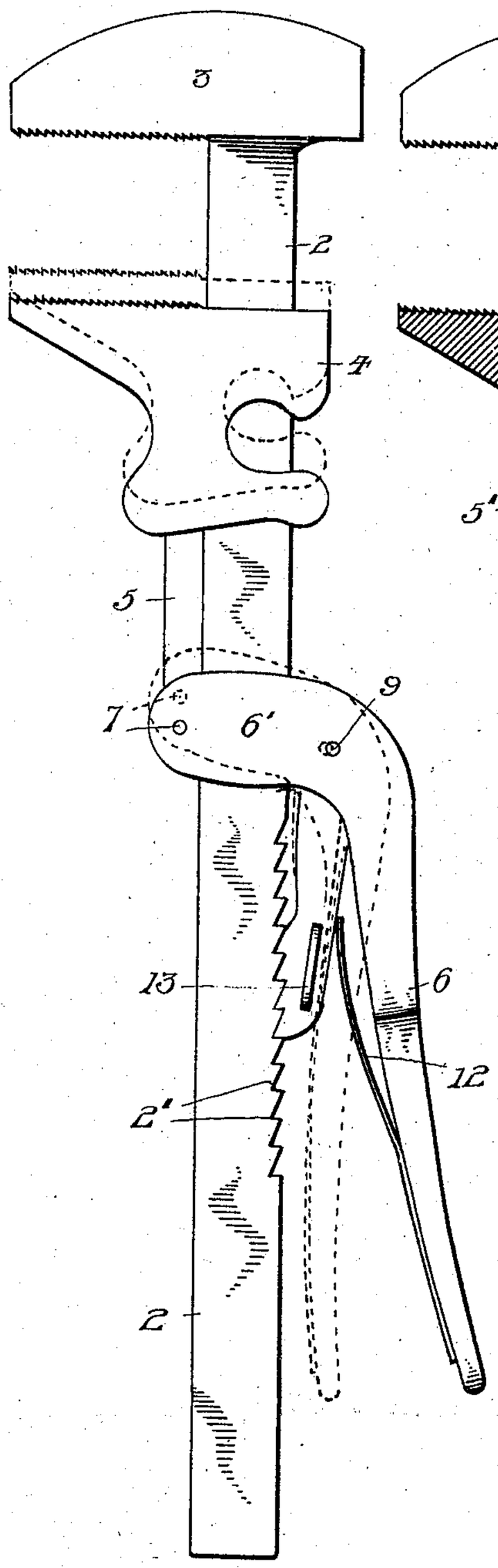


Fig. 2.

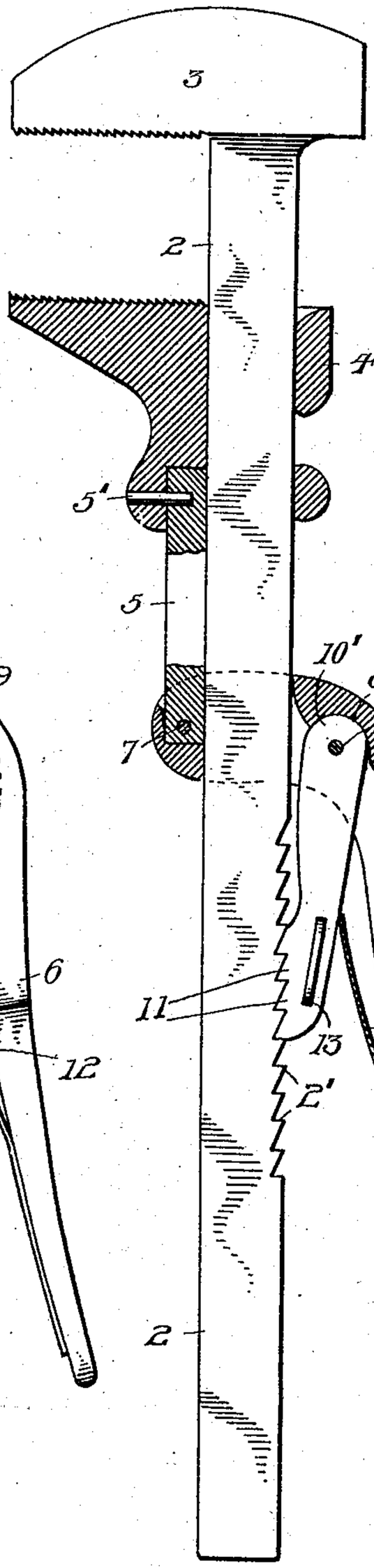


Fig. 4.

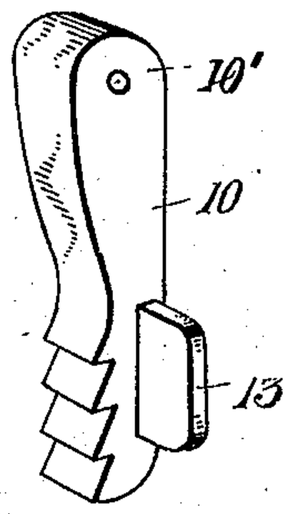
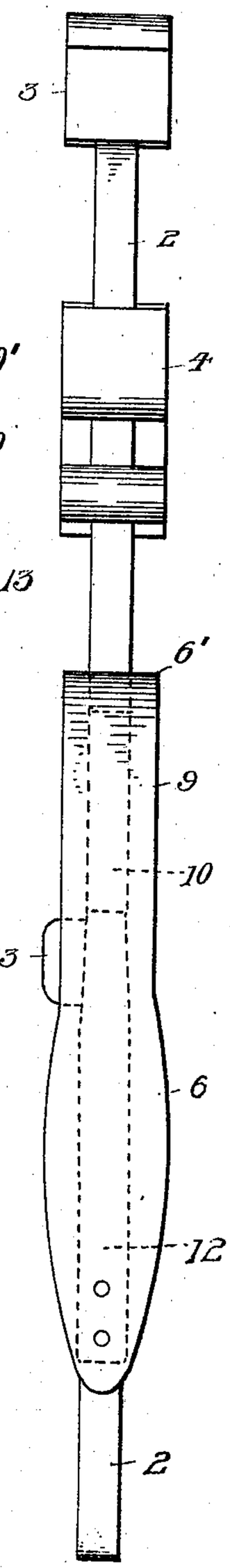


Fig. 3.



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UNITED STATES PATENT OFFICE.

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WRENCH.

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Application filed June 23, 1905. Serial No. 266,585.

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, reference being had therein to the accompanying drawings.

This invention relates to that class of wrenches wherein the grip or hold of the jaws is augmented by an appreciable movement of the adjustable jaw toward the fixed jaw, this movement being effected by the hand-hold of the operator when using the wrench.

The object of the invention is to simplify, improve, and render more efficient the type of wrench referred to and at the same time to so construct the wrench that it may be operated in comparatively inaccessible places.

In the accompanying drawings, Figure 1 is a side elevation of the improved wrench, the range of the clamping movement of the adjustable jaw being indicated in dotted lines. Fig. 2 is a longitudinal sectional view. Fig. 3 is an edge view. Fig. 4 is a detail view of the fulcrum-dog.

Referring to the drawings, 2 designates the pole of the wrench, and 3 the fixed jaw at the outer end thereof.

4 is the adjustable jaw, which is recessed to slide on pole 2 in the usual manner, and projecting therefrom along the front edge of pole 2 is bar 5. The bar is preferably formed separate from the jaw and is secured in a recess therein by a pin 5′.

6 designates a hand-lever of inverted-L form, having a passage through its short angle 6′ through which pole 2 extends, the extremity of portion 6′ being recessed to receive the inner end of bar 5, to which it is secured by pivot-pin 7. The inner edge of lever 6 is recessed or hollow, and formed therein in the relatively heavy metal occurring at the bend or angle of the lever is the rounded seat or depression 8, and pivoted in this depression on pin 9 is the rounded extremity 10′ of dog 10. Teeth 11 on the outer edge of the free end of this dog interlock with similar teeth 2′ on the back edge of pole 2, the engagement being maintained by leaf-spring 12, carried by lever 6. Teeth 11 and 2′ are preferably of ratchet form, so that when moving jaw 4 inward to a desired adjustment teeth 11 will readily slip over teeth 2′ without holding the dog disengaged. For an opposite adjustment the dog is provided with thumb-piece 13, whereby it may be conveniently held disengaged when jaw 4 is being moved away from the fixed jaw.

The wrench having been adjusted in the manner described for gripping a nut, pipe, or other object, the operator grasps lever 6, as well as pole 2, when turning the wrench, and the force thus applied so oscillates the lever as to cause the movable jaw to tightly and securely grip the object being turned. While the full range of this clamping movement is shown in dotted lines in Fig. 1, in most instances only a portion of the movement gives the tightest possible grip, and as all or practically all of the force required to turn the wrench may be applied through lever 6 it will be understood that the grip on the object being turned is most secure, the extent thereof being in proportion to the force required in turning the wrench. Lever 6 is constructed with special reference to withstanding the force transmitted through it, and for this reason the rounded depression 8 is provided for receiving the rounded dog end 10′, thereby relieving pivot 9, and for the same reason the strong interlocking connections are provided between the bar 5 and the lever and the movable jaw. When the gripping and turning force is applied, the pressure is communicated directly from lever 6 to dog 10, and with the dog lying close to pole 2 and having secure interlocking engagement therewith the construction is very strong and capable of resisting any reasonable amount of force.

The wrench may be manipulated without having access to either the movable jaw or the inner portion of lever 6, so that it may be projected into and effectually used in inaccessible places, and for the same reason the reach of the wrench may be increased as desired by lengthening bar 5 and similarly lengthening pole 2.

While I have here shown jaws having faces of conventional form for gripping nuts and other angular objects, it will be understood that jaws of such other forms may be provided as are best suited for pipes and other circular or curved objects.

I claim—

1. A wrench comprising a pole, a jaw fixed thereto, a jaw movable on the pole, lever 6

formed with the integral lateral extension 6′ having a pole-passage, a connection between the lever and movable jaw, and a detachable pivotal connection between the lever and the pole.

2. A wrench comprising a pole, a jaw fixed thereto, a jaw movable on the pole, lever 6 formed with the integral lateral extension 6′ having a pole-passage, said passage being of such form as to afford the lever slight oscillation, the extremity of extension 6′ being recessed, bar 5 at one end fitting said recess and at its opposite end secured to the movable jaw, and a dog pivoted to the lever for detachably engaging the pole.

3. A wrench comprising a pole, a jaw fixed thereto, a jaw movable on the pole, a lever having a pole-passage, a connection between the lever and the movable jaw, the lever being formed with a rounded depression, a dog having a rounded extremity pivoted in said depression, and a spring for holding the free portion of the dog normally in engagement with the pole.

4. A wrench comprising a pole, a jaw fixed thereto, a jaw movable on the pole, a lever having a lateral extension formed with a pole-passage, a connection between the lever extension and the movable jaw, the inner face of the lever on the side of the pole opposite said connection being formed with a rounded depression, a dog having a rounded extremity pivoted in said depression, the dog extending toward the outer end of the pole, cooperating teeth formed on the dog and the pole, and a spring carried by the lever for holding the dog normally in engagement with the pole.

5. A wrench comprising a pole having teeth formed on its rear edge, a jaw fixed to the pole, a jaw slidable on the pole, the sliding jaw being recessed, a bar secured in said recess and extending outwardly along the front edge of the pole, a lever having a lateral offset formed with a pole-passage, the extremity of the lever-offset being recessed to receive the outer end of said bar, a pivot for securing said bar end in said lever-recess, the inner face of the lever at the opposite edge of the pole being recessed and formed with a rounded depression, a dog having a rounded extremity pivoted in said depression, the dog extending toward the outer end of the pole and formed with teeth for cooperating with the pole-teeth, and a spring carried by the lever for holding the dog normally in engagement with the pole.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT McMILLEN.

Witnesses:
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