

J. & M. M. MAHER.
WRENCH.
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1,057,250.

Patented Mar. 25, 1913.

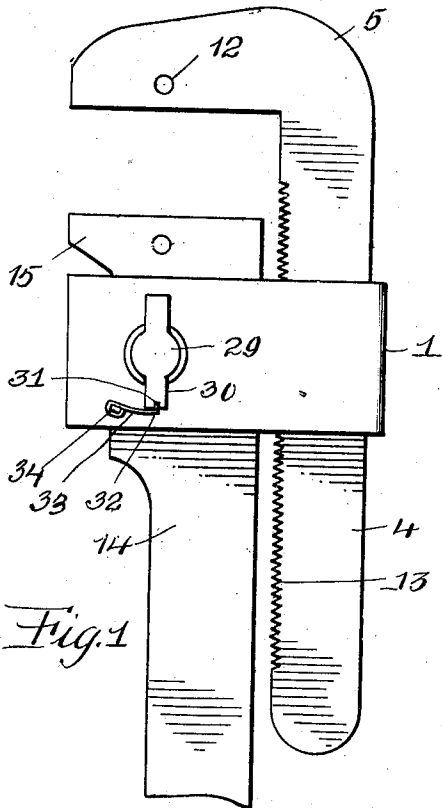


Fig. 1

Fig. 2.

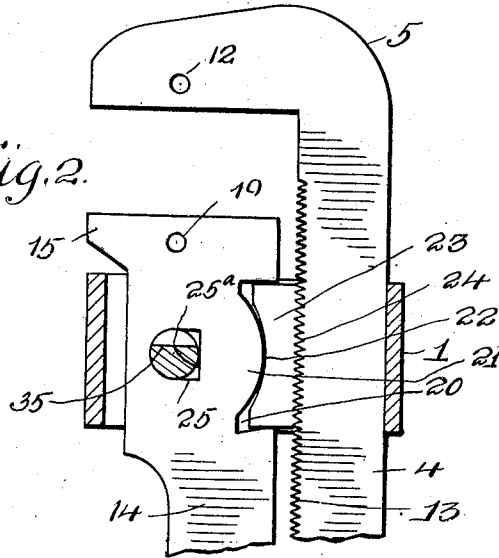


Fig. 3.

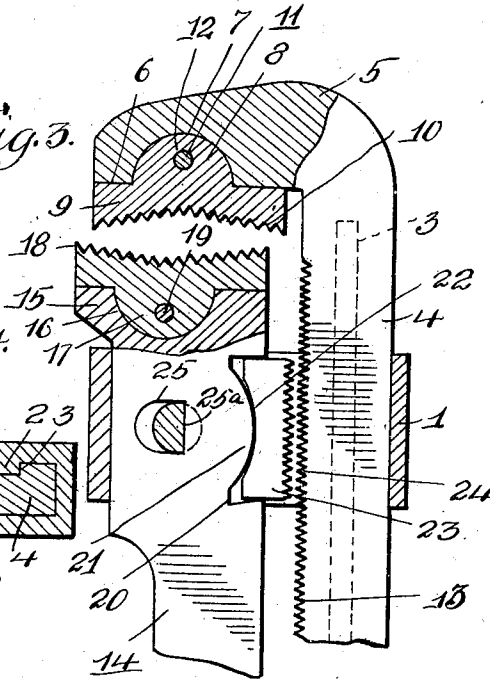
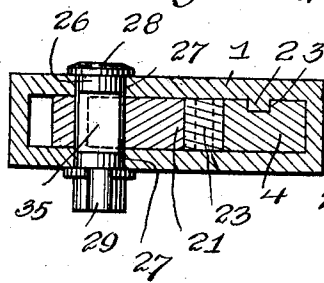


Fig. 4.



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WRENCH.

1,057,250.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JAMES MAHER and MERCHEY M. MAHER, citizens of the United States of America, residing at East Liverpool, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to wrenches and more particularly to a combined pipe and nut wrench that can be utilized for rotating nuts or bodies having flat surfaces or pipes or bodies having rounded or curved surfaces.

The primary object of our invention is to furnish a wrench with simple and effective means for locking the adjustable jaw of the wrench relatively to the handle thereof, whereby the wrench can be used without slipping and without causing any accidents to the operator of the wrench due to any lost motion between the jaws of the wrench.

Another object of this invention is to provide a wrench with an adjustable jaw that can be set in engagement with a body and then as the wrench is placed in operation a more positive grip can be obtained due to the leverage of the wrench and the arrangement of the adjustable jaw relatively to the handle or lever of the wrench.

A further object of the invention is to provide a wrench of the above type consisting of comparatively few parts easily and quickly assembled and maintained in an operable condition.

We attain the above objects by a mechanical construction that will be hereinafter specifically described and then claimed, and reference will now be had to the drawing, wherein there are illustrated the preferred embodiments of the invention, but it is to be understood that the structural elements thereof are susceptible to such variations as fall within the scope of the appended claims.

In the drawing:—Figure 1 is a side elevation of the wrench partly broken away, Fig. 2 is a similar view of the wrench partly broken away and partly in section, Fig. 3 is a similar view showing the wrench provided with attachments whereby it can be used as a pipe wrench, and Fig. 4 is a horizontal sectional view of the wrench.

A wrench in accordance with this inven-

tion comprises a band or strap 1, rectangular in plan and having the inner wall thereof, upon one side and at one end of the strap provided with a vertical rib 2 adapted to engage in a longitudinal groove 3 provided therefor in the shank 4 of an adjustable jaw 5. The adjustable jaw 5 has a flat gripping surface 6 provided with a socket 7 adapted to receive the tongue 8 of a pipe gripping jaw 9, said jaw having angularly disposed gripping surfaces provided with serrations or teeth 10. The pipe gripping jaw is detachably retained in engagement with the jaw 5 by a pin 11 arranged transversely of the jaw 5 and extending through an opening 12 provided therefor in the tongue 8. The front side of the shank 4 is provided with transverse teeth 13, for a purpose that will presently appear.

Movably arranged in the strap 1 is the upper end of a handle or lever 14, the upper end of said handle or lever having a gripping jaw 15 and this jaw has the gripping surface thereof provided with a socket 16 to receive the tongue 17 of a pipe gripping jaw 18 adapted to cooperate with the jaw 9 in gripping a pipe. The tongue 17 is detachably retained within the socket 16 by a pin 19, similar to the pin 11. The handle or lever 14 within the strap 1 has the rear face thereof cut away to provide a recess 20 having the bottom thereof provided with a curved enlargement 21 adapted to engage in a cavity 22 provided therefor in the front face of a gripping member 23 arranged within the recess 20, said member having teeth 24 to engage the teeth 13 of the shank 4.

The upper end of the handle or lever 14 extends through the strap 1 and is secured therein against longitudinal movement by means of a pin 26 extending through openings 27 in the strap and an opening 25 in the handle. The pin 26 has one end headed as at 28, and has its opposite end provided with a detachable winged knob 29, the head and knob being on the outer sides of the strap 1. The portion of the pin which extends through the handle is formed with a cutaway portion providing a flat face 35 which corresponds to the chord of a circle forming the periphery of the pin. The opening 25 has one portion of its wall curved in correspondence with the periphery of the pin, and has that portion adjacent to the enlargement 21, extending on a line substan-

tially in correspondence with the direction of length of the handle, said line being tangent to and intersecting the line of an arc which would complete the circle of which the remaining portion of the wall of the opening 25 would form a part, thus forming a flat faced wall 25^a for the opening 25 against which the flat face 35 can abut. As seen in Fig. 2, when the pin is in a position where the flat face 35 is angular with respect to the flat face 25^a of the opening, the handle is held against any movement on the strap excepting a slight pivotal movement, the normal diameter of the pin extending from wall to wall of the opening; when the pin is turned to the position shown in Fig. 3, bringing the face 35 in parallelism with the flat wall 25^a, the handle may be moved transversely and thus permit member 23 to pass out of engagement with the teeth of the shank 4, but without permitting a relative longitudinal movement of the handle and strap. As will be readily understood, a movement of the pin to destroy the parallelism or contact of the flat faces 35 and 25^a will cause the handle to return to the position shown in Fig. 2 and cause the member 23 to grip the teeth of the shank. One of the wings 30 of the knob is provided with a notch 31 which is adapted to receive the angular end 32 of a spring 33 carried by lug 34 on the outer side of the strap 1. As the spring is adapted to engage the knob 30 when the parts are in the position shown in Fig. 2, it will be readily understood that the means for releasing the handle and gripping member may be locked in position so as to prevent longitudinal or transverse movement of the handle.

When the parts are in the position shown in Fig. 2, it will be readily understood that the strap and shank are practically locked together against relative movement, while the handle is permitted to have a slight pivotal movement on the pin. By reason of the contacting faces of the enlargement 21 and the member 23, such slight pivotal movement of the handle relative to the shank and strap tends to cause the shank to be slightly moved in a direction to cause the jaw 5 to approach the jaw 15, due to the pressure placed on the end of the gripping member 23 and the tendency to move the shank through said member 23, the opposing curved faces of the enlargement and member 23 providing the necessary movement in this respect. In making the lower wall of the recess 20 inclined, sufficient clearance is provided for this relative movement of the member 23.

What we claim is:—

1. A wrench embodying a strap, a toothed shank slidably mounted in said strap, a jaw carried by said shank, a handle having the

upper end thereof arranged in said strap, a jaw carried by said handle, a pin rotatably mounted in said strap and extending through said handle, and a toothed gripping member arranged in said strap and adapted to be moved into engagement with said shank by a movement of said handle, said pin and handle being complementally formed to normally limit the handle and shank to pivotal movements and to permit relative transverse movement of said parts at will independently of the pivotal movements to engage and disengage said member and shank.

2. A wrench embodying a strap, a toothed shank slidably mounted in said strap, a jaw carried by said shank, a handle having the upper end thereof arranged in said strap, a jaw carried by said handle, a pin rotatably mounted in said strap and extending through said handle, said pin and handle being complementally formed to normally limit the handle and shank to pivotal movements and permit relative transverse movement of said parts at will independently of the pivotal movements, a toothed gripping member arranged in said strap and adapted to be moved into engagement with said shank by a movement of said handle, and means carried by the outer side of said strap and adapted to lock said pin in an adjusted position.

3. A wrench embodying a strap, a shank slidably mounted in one end of said strap, a jaw carried by said shank, a handle having the upper end thereof fulcrumed in said strap in a manner to permit relative transverse movement of handle and strap at will independently of such pivotal movements, a jaw carried by the upper end of said handle, and a gripping member movably mounted in the upper end of said handle within said strap and adapted to be shifted into engagement with said shank and then to move said shank by a further movement of said handle.

4. A wrench embodying a strap, a shank slidably mounted to move in a single plane in one end of said strap, a jaw carried by said shank, a handle having the upper end thereof fulcrumed in said strap in a manner to permit relative transverse movement of handle and strap at will independently of such pivotal movements, a jaw carried by the upper end of said handle, a gripping member movably mounted in the upper end of said handle within said strap and adapted to be shifted into engagement with said shank and then to move said shank by a further movement of said handle.

5. In a wrench, a fixed jaw carried by the handle, a movable jaw, a support for both of said jaws, and within which the movable jaw is moved solely in the direction of length of its shank, means for normally limiting the handle jaw to pivotal movements relative to the strap, said means per-

mitting transverse movement of said jaw at will independently of such pivotal movements, and a block interposed between the shank of the movable jaw and said handle jaw adapted to engage and disengage the shank of the movable member to secure and hold the movable jaw in position, the movements of said block being controlled by the transverse movements of the handle jaw.

6. In a wrench, a movable jaw, a jaw carried by the handle, a member adapted to support said jaws, the connection between the handle jaw and said member being in the form of a rotatable device extending through the handle jaw, the jaw and device being complementally formed to normally limit relative movement of the member and jaw to pivotal movements and permit transverse movement of the jaw and member at will independently of such pivotal movements, and means interposed between the handle jaw and movable jaw for engaging or disengaging the shank of the movable jaw, such engagement and disengagement being controlled by the transverse movement of the handle jaw.

7. In a wrench, a movable jaw, a jaw car-

ried by the handle, a member adapted to support said jaws, the connection between the handle jaw and said member being in the form of a rotatable device extending through the handle jaw, the jaw and device being complementally formed to normally limit relative movement of the member and jaw to pivotal movements and permit transverse movement of the jaw and member at will independently of such pivotal movements, and means interposed between the handle jaw and movable jaw for engaging or disengaging the shank of the movable jaw, such engagement and disengagement being controlled by the transverse movement of the handle jaw, said device forming a means by which the handle jaw may be rocked pivotally with respect to the remainder of the wrench structure.

In testimony whereof we affix our signatures in the presence of two witnesses.

JAMES MAHER.
MERCHEY M. MAHER.

Witnesses:

CLARA RAHE,
EDNA HENDERSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."