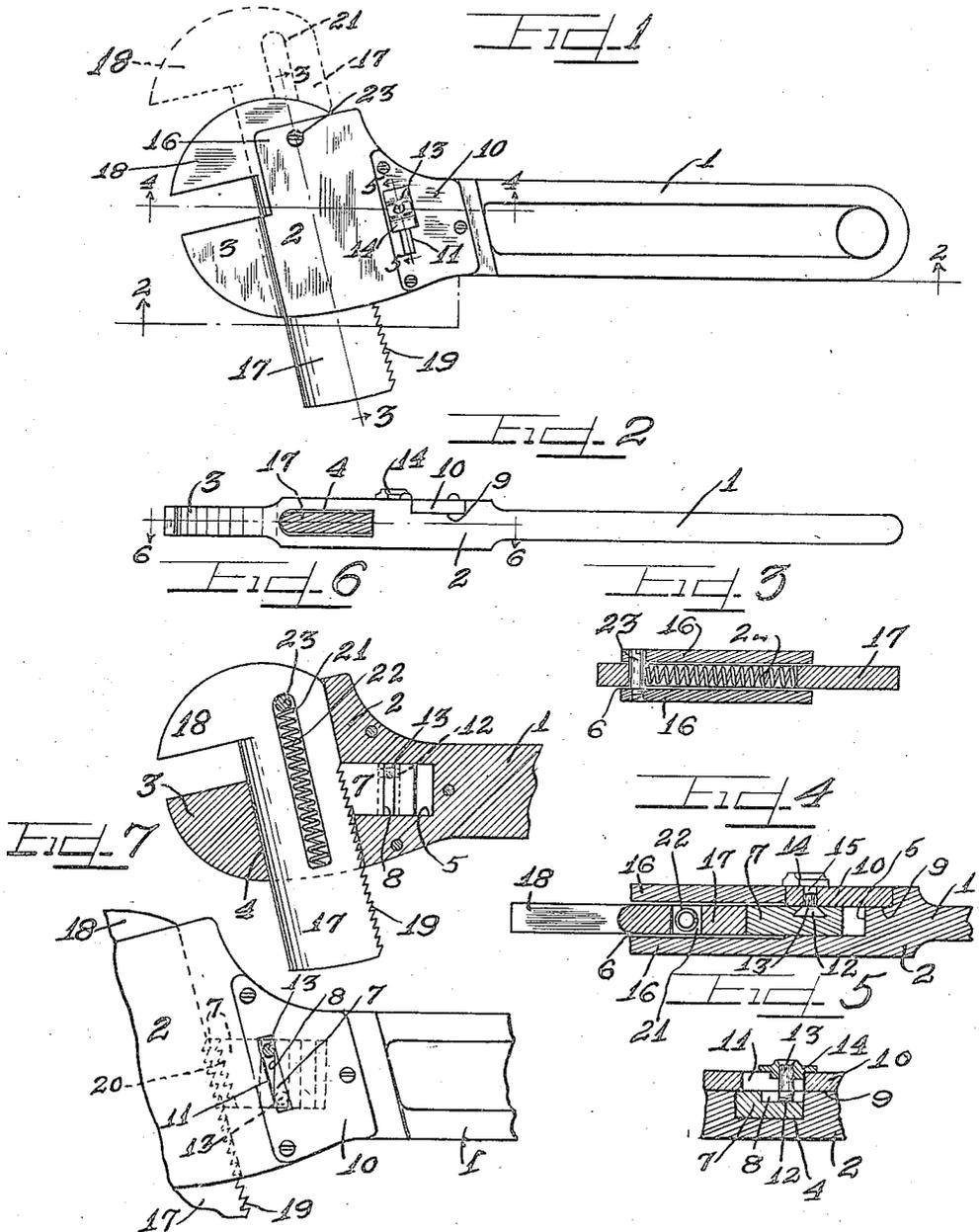


Jan. 2, 1923.

1,440,381

O. E. EDSTROM.
ADJUSTABLE WRENCH.
FILED DEC. 27, 1920.

2 SHEETS-SHEET 1



WITNESSES:
Rudolph J. Berg.
Charles W. Hill Atty.

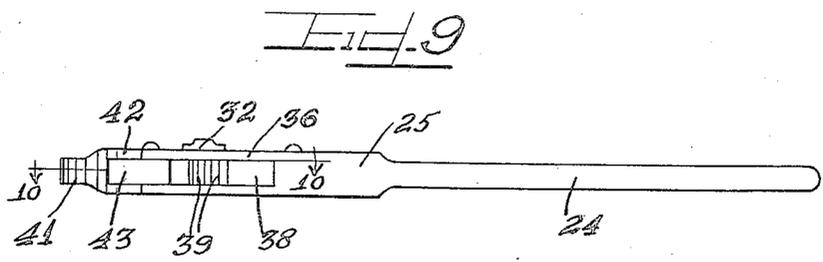
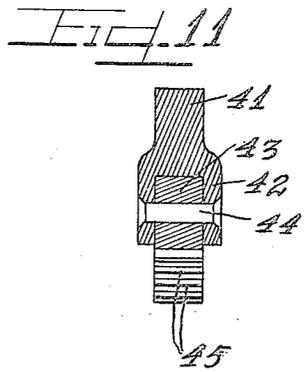
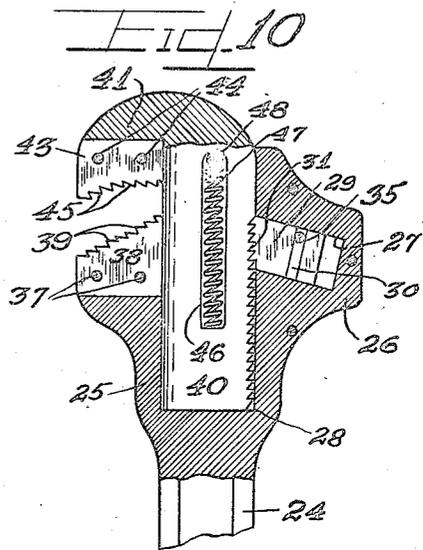
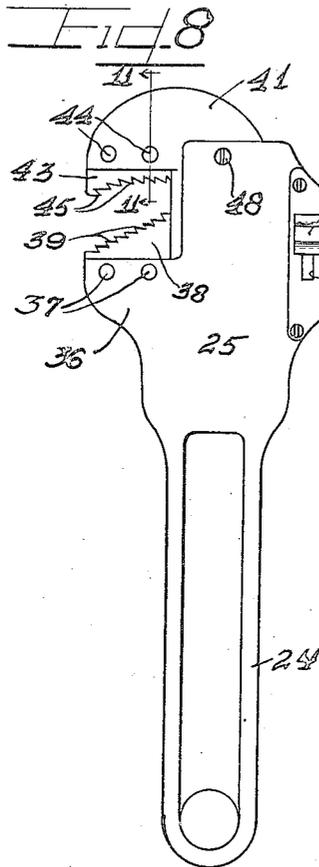
INVENTOR:
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Charles W. Hill Atty.

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2 SHEETS-SHEET 2



Witnesses
Rudolph J. Berg.
Charles W. Hill.

INVENTOR
OTTO E. EDSTROM.
Charles W. Hill
Att.

By

Patented Jan. 2, 1923.

1,440,381

UNITED STATES PATENT OFFICE.

OTTO E. EDSTROM, OF CARY, ILLINOIS.

ADJUSTABLE WRENCH.

Application filed December 27, 1920. Serial No. 433,110.

To all whom it may concern:

Be it known that I, Otto E. Edstrom, a citizen of the United States, and a resident of Cary, in the county of McHenry and State of Illinois, have invented certain new and useful Improvements in an Adjustable Wrench; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates more particularly to an improved type of an adjustable wrench wherein a spring impelled slidable jaw is adapted to be removably locked in an adjusted position by an adjustable latch.

It is an object of this invention to provide a wrench the adjustable jaw of which is adapted to be locked in a set position against accidental movement with respect to the handle jaw.

Another object of the invention is to provide an adjustable wrench the adjustable jaw of which is adapted to be locked with respect to the stationary jaw by a slidably adjustable latch bolt.

It is also an object of the invention to construct a wrench the slidable jaw of which is adapted to be automatically moved into clamping position, by a spring mechanism disposed therein.

It is a further object of this invention to provide a wrench wherein a spring controlled adjustable jaw is adapted to be locked in an adjusted position by a manually adjustable toothed latch which is adapted to be moved into position to lock with rack teeth formed on the adjustable jaw.

It is furthermore an object of the invention to construct a wrench the handle or stationary jaw of which is provided with an adjustable latch for the purpose of holding an adjustable jaw locked against movement with respect to the handle.

It is another object of the invention to construct a wrench wherein a clevised stationary jaw head and a clevised adjustable jaw head have toothed jaw members secured therein.

It is an important object of this invention to provide a wrench of simple and effective construction the movable jaw of which is provided with a spring for automatically holding the same in contact with a stationary jaw when a latch in said sta-

tionary jaw is in retracted position out of locking engagement with the adjustable jaw.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a side elevation of a wrench embodying the principles of this invention and showing the operation of the adjustable jaw in dotted lines.

Figure 2 is a section view taken on line 2—2 of Figure 1.

Figure 3 is a section taken on line 3—3 of Figure 1.

Figure 4 is a section taken on line 4—4 of Figure 1.

Figure 5 is a fragmentary detail section taken on line 5—5 of Figure 1.

Figure 6 is a section taken on line 6—6 of Figure 2 showing parts in elevation.

Figure 7 is an enlarged fragmentary side elevation of the wrench showing the adjustment of the latch in dotted lines.

Figure 8 is a side elevation of a modified form of wrench.

Figure 9 is a front view thereof.

Figure 10 is a section taken on line 10—10 of Figure 9.

Figure 11 is an enlarged detail section taken on line 11—11 of Figure 8.

As shown on the drawings:

The reference numeral 1 indicates a wrench lever or handle having integrally formed on one end thereof an enlarged head 2 on the outer end of which a main or stationary jaw 3 is integrally formed. The upper front portion of the wrench head 2 is clevised at 6 while the lower portion of said head to the inside of the stationary jaw 3 is provided with a slot 4. Also provided in the wrench head 2 is a latch recess 5 which communicates with the slot 4.

Slidably disposed within the recess 5 is a locking bolt or latch bar 7 provided with a transverse dove-tail slot 8. The head 2 is provided with an opening 9 in one side thereof to permit the latch 7 to be inserted in place. The opening 9 is closed by means of a plate 10 which is secured in place by screws or other suitable means. The plate 10 has a slot 11 therein which is disposed at an angle with respect to the latch slot 8. Engaged

transversely in the latch dove-tail slot 8 is a dove-tail guide block 12. A pin or bolt 13 is integrally formed at right angles on the dove-tail block 12 and projects outwardly through the plate slot 11. Secured on the outer projecting end of the pin 13 is a push button 14 having guide lugs 15 on the bottom thereof which slidably engage in the plate slot 11.

The slot 4 in the wrench head 2 is disposed at an angle with respect to the latch recess 5. Slidably projecting through the slot 4 and between the clevis plates 16 of the wrench head is the shank or stem 17 of a movable wrench jaw 18 which is adapted to co-act with the stationary wrench jaw 3. The inner longitudinal edge of the shank 17 is formed to afford a rack 19 the teeth of which are adapted to be engaged by teeth 20 formed on the outer inclined end of the locking latch 7. The jaw shank 17 is provided with a longitudinal slot 21 having a coiled control spring 22 engaged therein. A stop pin or screw 23 is secured transversely in the wrench head plates 16 and projects through the slot 21 of the jaw shank 17. One end of the spring 22 seats against the pin 23 while the other end of said spring seats in the lower end of the slot 21. The spring 22 normally acts to move the shank 17 and the movable jaw 18 toward the stationary jaw 3. The clamping surfaces of the jaws 3 and 18 are shown parallel to each other. The jaw clamping faces need not be parallel and if desired may be toothed or knurled.

Figures 8 to 11 inclusive illustrate a modified form of wrench adapted primarily for use on pipes. This form of the device comprises a lever or handle 24 having a head 25 integrally formed on one end thereof. A projection 26 is formed on the head and is provided with a recess 27 disposed at an angle to a slot 28 provided in the wrench head 25. Slidably engaged in the recess 27 is a locking latch 29 provided with a transverse slot 30 and with teeth 31 on the outer end thereof. The latch 29 is adapted to be operated by a push button 32 similar to the arrangements disclosed in Figures 1 to 7. A plate 33 is secured to the head projection 26 to close a cut away portion thereof. A slot 34 is provided in the plate 33 through which a pin 35 projects. The pin 35 is secured to the push button 32 and has a dove-tail block engaged on the inner end thereof. The block is slidable in the latch slot 30.

A clevised projection 36 is integrally formed on the wrench head 25, and rigidly secured in said clevised projection by pins or rivets 37 is a stationary wrench jaw 38 provided with an inclined clamping surface notched to afford outwardly directed clamping teeth 39.

Slidable in the wrench slot 28 is a shank 40 having a head 41 formed on the outer end

thereof. The head 41 is clevised as at 42 to receive the shank portion of a movable jaw 43. The jaw 43 is secured in the clevised head 42 by screws or rivets 44 or other suitable means. The clamping face is arc shaped and is provided with a plurality of inwardly directed gripping teeth 45. The shank 40 is provided with a longitudinal slot 46 having a coiled spring 47 engaged therein. A screw or stop pin 48 is secured transversely in the wrench head 25 and projects through the slot 46 to be engaged by one end of the spring 47.

The operation is as follows:

Referring to the form of wrench illustrated in Figures 1 to 7 inclusive, the spring 22 normally acts to hold the movable jaw 18 toward the stationary jaw 3. To engage a nut the wrench is held by the handle 1 and the thumb of the hand holding the wrench is pressed against the end of the shank 17 to slide the shank through the wrench head 2 thereby moving the movable jaw 18 away from the stationary jaw 3 against the action of the spring 22 which is compressed. During the above operation the latch 7 is in its retracted position. The movable jaw is moved outwardly a distance sufficient to permit the two jaws to engage a nut. When this has been accomplished the thumb is removed from the shank. As this is done the compressed spring 22 acts automatically to move the movable jaw 18 inwardly thereby causing the nut to be clamped between the wrench jaws. The push button 14 is now moved causing the pin 13 to slide the dove-tail block 12 in the groove 8 of the latch 7. Since the slot 11 and the groove 8 are disposed at an angle with respect to one another the latch is forced outwardly to move the toothed end thereof into locking engagement with the teeth of the shank rack 19.

It will thus be noted that the movable jaw 18 is held locked against movement in a predetermined set position. The wrench may now be operated to turn the nut engaged thereby. Attention is directed to the fact that the improved wrench is a one hand wrench and that the same may be conveniently operated without bringing into action both hands of an operator.

After the nut has been tightened or loosened as the case may be, the push button 14 is slid back into the normal release position shown in Figure 1. When this is done the latch is retracted out of engagement with the shank 17 thereby permitting the spring 22 to act automatically to draw the movable jaw 18 from the dotted line position of Figure 1 back into the normal full line position.

In the modified form of pipe-wrench disclosed in Figures 8 to 11 inclusive the one hand wrench is adjusted to engage a pipe by first retracting the latch 29 and then

pulling the shank 40 outwardly against the action of the spring 47. When the movable jaw has been sufficiently separated from the stationary jaw 38 the wrench is engaged on a pipe. By letting go of the shank head 41 the springs 47 acts automatically to draw the movable jaw 43 toward the stationary jaw 38 and into clamping engagement with the pipe. The push button is then actuated to force the toothed latch 29 into locking engagement with the rack teeth of the shank 40. The movable jaw 43 and the shank 40 are thus locked in adjusted position.

Particular attention is directed to the movable jaw 43 which is removably secured in the clevised head 41 of the shank 40. The gripping face of the jaw 43 is curved or arc shaped and is provided with inwardly directed teeth. This novel construction is provided for a specific purpose. The wrench is adapted to be operated by one hand to turn a pipe. With the wrench jaws engaged on the pipe as already described the wrench handle 24 is used as a lever and pulled toward the operator. This movement of the wrench causes the inwardly directed teeth 45 of the movable jaw 43 to tightly grip against the surface of the pipe and at the same time the outwardly directed teeth 39 of the stationary jaw 38 also grip the pipe to prevent slippage of the wrench on said pipe. The pipe is thus permitted to be turned. To obtain a new hold on the pipe the one hand wrench handle 24 is swung in an opposite direction away from the operator. The jaw teeth being directed as described do not grip the pipe but slide thereon until the new position is reached. The wrench handle 24 is again pulled toward the operator and the teeth 45 on the arc shaped gripping surface of the movable jaw 43, and the teeth 39 on the inclined gripping surface of the stationary jaw 38 again grip the pipe surface to permit the pipe to be turned. The jaws 38 and 43 when sufficiently worn may be removed from the wrench and replaced by new jaws, thereby permitting reuse of the remaining wrench parts.

I am aware that various details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. A wrench comprising a handle, a slotted head formed thereon, a stationary jaw on said head, a toothed shank slidable in said slotted head, a movable jaw formed on said shank, resilient means in said shank adapted to draw the movable jaw toward said stationary jaw, a toothed latch adjustably disposed in said head, and means projecting

into the latch and slidable with respect thereto for moving said toothed latch into engagement with said toothed shank to hold the movable jaw locked in a predetermined position.

2. A one hand wrench comprising a handle, a head formed thereon having a slot and a recess therein, a stationary jaw formed on said head, a movable jaw adjustably engaged in said slot, a spring in said movable jaw acting to draw the movable jaw toward said stationary jaw, a latch adjustably engaged in said recess, said latch when in retracted position adapted to permit said movable jaw to be moved away from said stationary jaw against the action of said spring, and means slidable in the slotted latch on said head connected with said latch adapted to be actuated to move said latch into locking engagement with said movable jaw to hold the same locked in a set position.

3. A wrench embracing a handle, a head formed thereon having an intersecting slot and recess therein, a jaw integrally formed on said head, a movable jaw, a shank formed thereon and slidably engaged in said slot, said shank having a slot therein, a stop pin supported in said head and projecting through the shank slot, a spring in said shank slot having one end engaged against said stop pin, said spring adapted to draw said movable jaw toward said head jaw, a rack formed on said shank, a slotted latch adjustably engaged in said recess, teeth formed thereon, a slotted plate secured to said head to close the recess, a member slidably engaged in said slotted latch and projecting through said slotted plate, and a push button secured to the projecting end of said member to permit actuation thereof to cause said latch to be projected to move the latch teeth into engagement with said shank rack to hold the movable jaw locked in a predetermined adjusted position against the action of said spring.

4. In a wrench of the class described the combination with slidably interfitting jaw members, means in one of said jaw members for automatically drawing the same inwardly with respect to the other jaw member, a slidable locking means adjustable in said other jaw member, and slidable actuating means on said other jaw member connected with said locking means adapted to be actuated to cause said locking means to be moved into locking engagement with said first jaw member to hold the jaw members locked with respect to one another.

5. A wrench comprising a handle, a stationary jaw thereon, a movable jaw slidably engaged in said handle, means in said movable jaw for drawing the same toward said stationary jaw, a latch slidably disposed in said handle, said latch having a groove therein, a block slidable in said groove, said

handle having a slot therein disposed at an angle with respect to said latch groove, a pin secured on said block and projecting through said slot, and a push button on the projecting end of said pin, said push button adapted to be actuated to cause said block to move the latch into engagement with said movable jaw member to hold the same set in an adjusted position against the action of said means.

6. A wrench comprising a handle member, a clevised projection thereon, a toothed jaw

removably secured therein, a shank slidably engaged in said handle member, a clevised head thereon, and a toothed jaw removably secured in said clevised head.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

OTTO E. EDSTROM.

Witnesses:

CHARLES W. HILLS, Jr.,
FRED E. PAESLER.