Dec. 16, 1924. 1,519,175

G. B. TRÈW

WRENCH

Filed Oct. 23, 1922 2 Sheets-Sheet 1

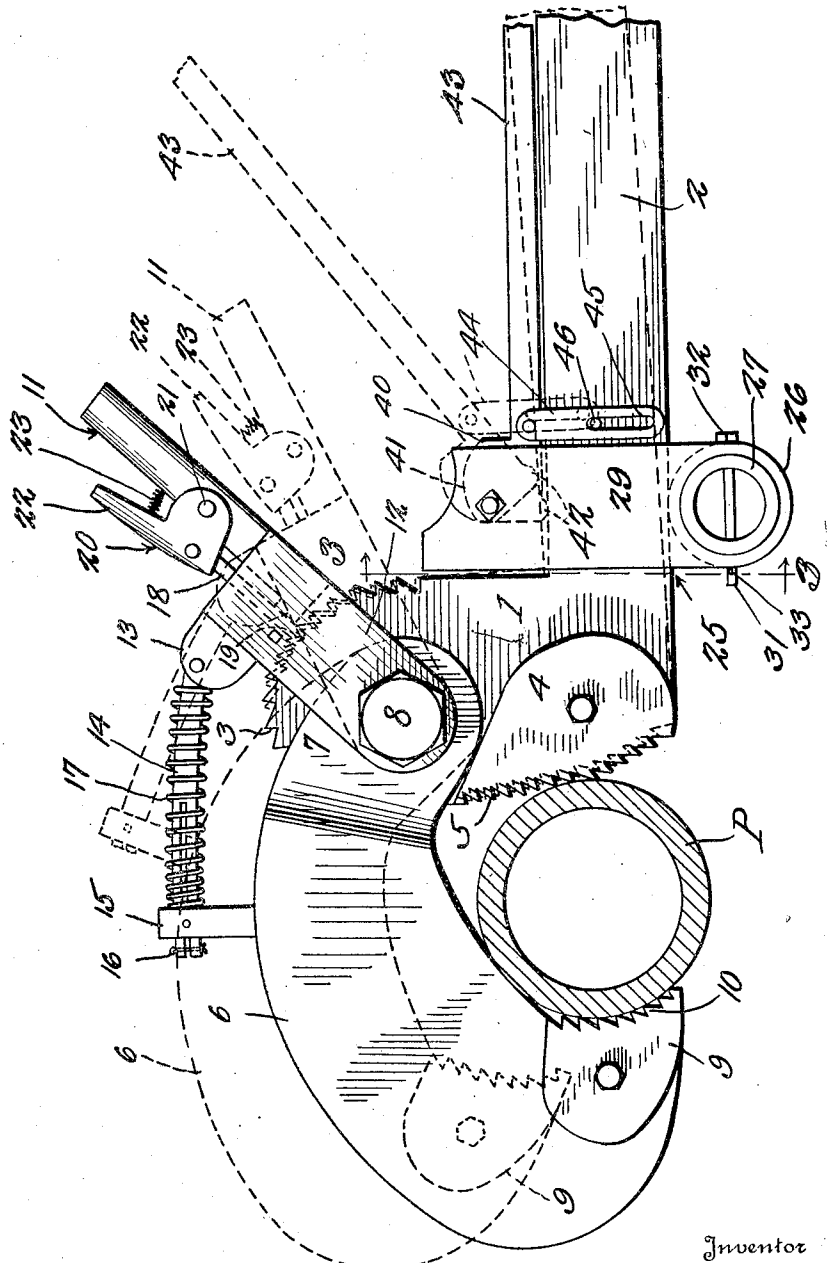


Fig. 1.

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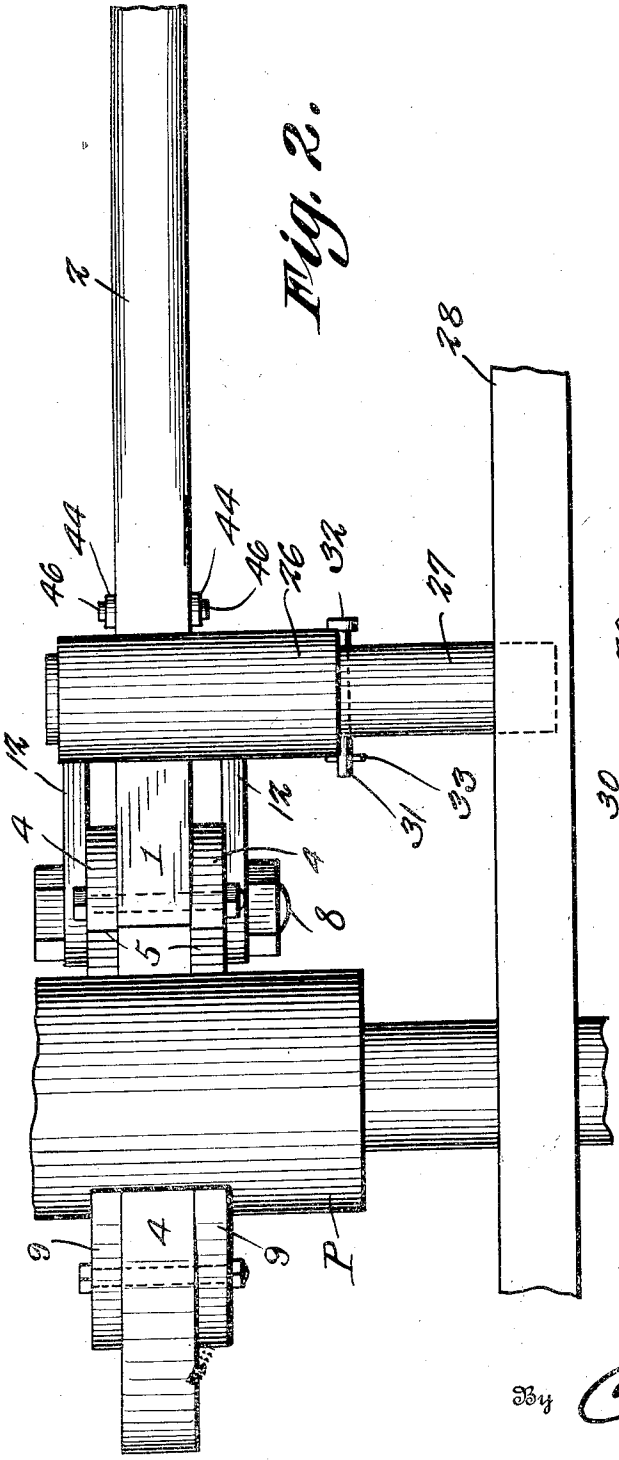
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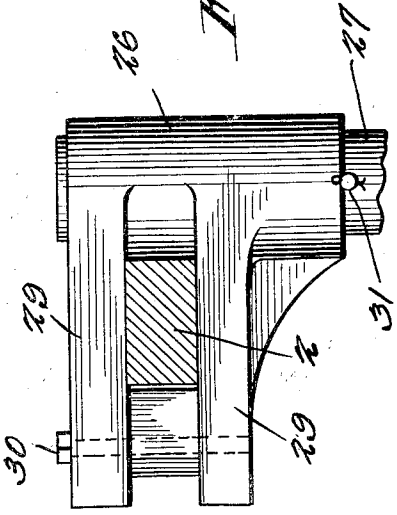
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G. B. TREW

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Patented Dec. 16, 1924. 1,519,175

UNITED STATES PATENT OFFICE.

GEORGE BARNETTE TREW, OF SHREVEPORT, LOUISIANA.

WRENCH.

Application filed October 23, 1922. Serial No. 596,319.

To all whom it may concern:

Be it known that I, GEORGE B. TREW, a citizen of the United States, residing at Shreveport, in the parish of Caddo and State of Louisiana, have invented new and useful Wrenches, of which the following is a specification.

This invention relates to wrenches, and more particularly to pipe wrenches.

The object of the invention is to provide a wrench of this character constructed so as to reliably grip and hold a pipe to be turned.

Another object is to provide a wrench of this character having cam locking means which can only be released on the release of the locking mechanism.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 represents a side elevation of the wrench constructed in accordance with this invention shown applied and in locking position in full lines and in released position in dotted lines, parts of the handle being broken off for convenience in illustration, and the pipe gripped shown in transverse section.

Fig. 2 is a side elevation showing the mounting of a wrench on the rotating table of a drilling machine, an edge view of the wrench being shown, and

Fig. 3 is a detail transverse section taken on the line 3—3 of Fig. 1.

In the embodiment illustrated, the wrench constituting this invention comprises a body member 1 having a handle 2 extending rearwardly at right angles therefrom, said member having a curved ratchet 3 at its outer end.

This body member 1 is equipped with a pivoted gripping jaw 4, the biting edge of which is toothed as shown at 5, said toothed edge being preferably convex as is shown clearly in Fig. 1. A movable jaw member 6 has its inner or rear end bifurcated, with the furcations 7 thereof straddling the body member 1 in rear of the gripping jaw 4. This member 6 is arcuate or hook-shaped in form and at its free end is equipped on its opposed faces with pivoted biting elements 9, the biting edges 10 of which are preferably concave and toothed with the teeth extending in a direction opposite to the teeth of jaw 4.

The bifurcated end of the jaw member 6 is pivotally connected with the body 1 by a bolt 8 which also connects a lever 11. The front end of this lever is bifurcated and straddles the body member 1 and the pivoted end of the jaw 6 and is secured by the bolt 8.

The lever 11 is provided at the base of its furcations 12 with a laterally extending ear 13 on which is pivotally mounted a rod 14 which rod slidably engages a lug 15 which projects laterally from the rear edge of the jaw member 6 and is secured thereto by a cotter pin 16 or otherwise. A coiled spring 17 is mounted on the rod 14 between the ear 13 and lug 15 and operates to normally force the lever 11 away from lug 15.

A pawl 18 is carried by the lever 11 and the beveled free end 19 thereof is designed to engage with the teeth 3 on the body 1 to lock the jaw 6 in gripping position in a manner presently to be described. This pawl 18 is equipped with a handle 20 in the form of a bell crank which is fulcrumed at 21 to the lever 11 with one arm 22 extending rearwardly and between which and the lever 11 is mounted a coiled spring 23. It will thus be seen that when the lever 11 is pushed forward, the coiled spring 17 is compressed and the pawl 18 drops into the notches formed by the teeth 3, thus causing the biting elements 9 of the jaw 6 to grippingly engage the object to be held which is shown in the form of a pipe P which is also engaged by the biting elements 4 carried by the body member or fixed jaw of the wrench.

A hanger 25 is mounted on the handle 2 arranged adjacent the body portion thereof and the opening in the hanger through which the handle 2 passes is sufficiently large to permit the handle to have a laterally swinging movement within the hanger for a purpose presently to be described. This hanger 25 is made in the form of a sleeve 26 which is designed to be mounted on a post 27 carried by the rotating table 28 of a rotary drilling machine. Extending laterally from the sleeve 26 are vertically spaced arms 29 which are designed to straddle the handle 2 of the wrench and have their free ends

connected by a bolt 30 which also forms the pivot for a cam lock lever 40 which is mounted between the arms 29 beyond the space in which the handle 2 is located. This lever 40 has a head 41 which is here shown substantially rectangular in form and is fulcrumed at its outer corner on the bolt 30. The opposed corner of the head 41 is equipped with a cam 42 which is designed to abut the inner edge of the handle 2 when the lever is in closed locking position. A handle or bar 43 extends at right angles from the head 41 and is designed normally when in locking position to lie parallel with and close to the handle 2 as is shown in full lines in Fig. 1. A pair of links 44 are pivotally connected at one end with the lever handle 43, one being arranged on each face of the lever. The other ends of said links are longitudinally slotted as shown at 45 with a pin 46 extending transversely through the handle 2 and through the slots 45, said links being arranged transversely of the handle.

A pin or rod 31 extends transversely through the post 27 and projects at its opposite ends beyond the opposed faces of the post, being designed to form a stop or a support for sleeve 26 when the wrench is to be mounted for rotation with table 28. This pin 31, as shown, has a head 32 at one end and a cotter pin 33 extended through its other end to hold it in operative position and between which head and cotter pin the sleeve normally rests as shown clearly in Fig. 2.

In the use of this wrench, the dogs 4 and 9 having been engaged with the pipe P to be turned, the sleeve 26 also having been first slipped over the upper end of the post 27 which is mounted on the table 28, forward movement of the table causes the handle 2 to move forward and thereby reliably grip the pipe P between the biting elements 4 and 9. When in this position, the handle 43 of the lever 40 lies in close proximity and parallel with the handle 2 as shown in full lines in Fig. 1. In this position the cam 42 of the head 41 of the lever forcibly engages the rear edge of the handle 2 and locks it between it and the sleeve 26. To release the wrench from the pipe P, the handle 43 is grasped and forcibly moved away from the handle 2. This outward movement of the handle 43 operates to turn the head 41 on the bolt 30 disengaging the cam 42 from the wrench handle 2, leaving a space between the handle 2 and said cam. The outward movement of the lever 43 operates to move the links 44 which travel on the pin 46 until the outer ends of the slots 45 engage said pin. When this occurs, the handle 2 is moved away from sleeve 26 and thus releases the dogs 4 and 9 from the pipe P. The lever 11 may then be grasped, the handle 22 being depressed against the tension of the spring 23 whereby the pawl 18 is disengaged from the teeth 3. The movement of the lever 11 toward the handle 2 of the wrench 1 causes the rod 14 to actuate the movable jaw 16 opening said jaw in the dotted line position shown in Fig. 1 and thus releasing the pipe P.

From the above description it will be obvious that when the wrench is mounted on the post 27 and the jaws of the wrench engaged with the pipe P, the turning of the rotary drilling table 28 will carry the wrench with it, and thus screw up the end screw according to the direction in which the table is turned.

After the pipe P has been disconnected, the wrench is moved away by turning the sleeve 26 a quarter turn on the post 27. To replace the wrench on the pipe, it is again moved forward a quarter turn on said post which will position it in contact with the pipe, ready for operation.

I claim:—

1. A wrench of the class described comprising a body member having a fixed jaw equipped with a pivoted gripping element and having a handle, a movable jaw pivoted to said body and having a pivoted gripping element for cooperation with the gripping element of the fixed jaw, a pawl and ratchet mechanism between said body and movable jaw or locking the movable jaw in operative position, and a spring pressed lever to hold said pawl engaged with said ratchet.

2. The combination with a post for mounting on a support; of a wrench having a handle with a sleeve to fit over said post, a pair of parallel arms extending laterally from said sleeve and between which said handle is loosely mounted, a lever having a head eccentrically pivoted between said arms, said head being adapted to engage said wrench handle when the lever is swung inwardly to lock said handle engaged with said post.

3. The combination with a post for mounting on a support; of a wrench having a handle with a sleeve to fit over said post, a pair of parallel arms extending laterally from said sleeve and between which said handle is loosely mounted, a lever having a head eccentrically pivoted between said arms, said head being adapted to engage said wrench handle when the lever is swung inwardly to lock said handle engaged with said post, a link carried by said lever and having a pin and slot connection with said handle whereby the outward swinging of said lever beyond a predetermined point will release the wrench from the sleeve.

4. The combination with a post for mounting on a support; of a wrench having a handle with a sleeve to fit over said post, a pair of parallel arms extending laterally from said sleeve and between which said

handle is loosely mounted, a lever having a head eccentrically pivoted between said arms, said head being adapted to engage said wrench handle when the lever is swung inwardly to lock said handle engaged with said post, a pair of links straddling said wrench handle and pivotally connected at one end with said lever, said links being longitudinally slotted, and a pin extending through said wrench handle and through the slots in said links to operate as a stop for limiting the outward swinging movement of the lever.

5. A wrench of the class described comprising a body member having a handle extending at right angles therefrom and provided with a curved ratchet, said body member having a fixed jaw equipped with a pivoted gripping element, a hook-shaped movable jaw having its inner end bifurcated and straddling said body and pivotally connected therewith, said movable jaw having a gripping element to cooperate with the element on the fixed jaw, and a pawl carried by said movable jaw to engage the ratchet on said body for locking the movable jaw in adjusted position.

6. A wrench of the class described comprising a body member having a handle extending at right angles therefrom and provided with a curved ratchet, said body member having a fixed jaw equipped with a pivoted gripping element, a hook-shaped movable jaw having its inner end bifurcated and straddling said body and pivotally connected therewith, said movable jaw having a pivoted gripping element to cooperate with the element on the fixed jaw, a lever fulcrumed at one end of said body and having a spring-pressed pawl for engaging said ratchet, and a spring-pressed rod carried by said lever and slidably engaged with said movable jaw to hold the lever in operative position.

7. A wrench of the class described comprising a body member having a handle extending at right angles therefrom and provided with a curved ratchet, said body member having a fixed jaw equipped with pivoted gripping elements, a hook-shaped movable jaw having its inner end bifurcated and straddling said body and pivotally connected therewith, said movable jaw having a gripping element to cooperate with the element on the fixed jaw, a lever fulcrumed at one end on said body and having a spring pressed pawl for engaging said ratchet, an ear and a lug extending laterally from said lever and movable jaw respectively, a rod pivotally mounted on said ear and slidably engaged with said lug, and a coiled spring on said rod between said ear and lug operating to normally hold the jaw in operative position.

8. A wrench of the class described comprising a body member having a handle extending at right angles therefrom and provided with a curved ratchet, said body member having a fixed jaw equipped with pivoted gripping elments, a hook-shaped movable jaw having its inner end bifurcated and straddling said body and pivotally connected therewith, said movable jaw having a gripping element to cooperate with the element on the fixed jaw, a lever fulcrumed at one end on said body and having a spring pressed pawl for engaging said ratchet, and a yielding connection between said lever and movable jaw whereby the jaw is normally held in operative position.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE BARNETTE TREW.

Witnesses:

B. H. VAUGHAN,

J. S. BELCHER.