July 28, 1925. 1,547,565

O. DUDA

WRENCH

Filed Jan. 9, 1923

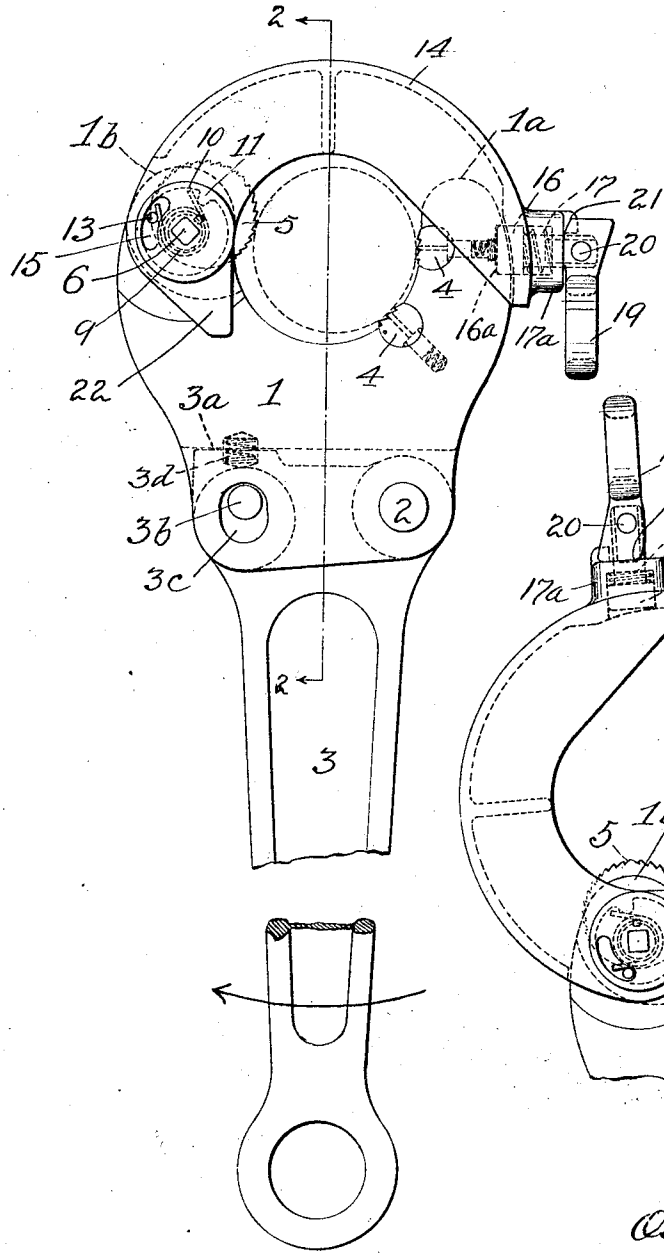


Fig. 1.

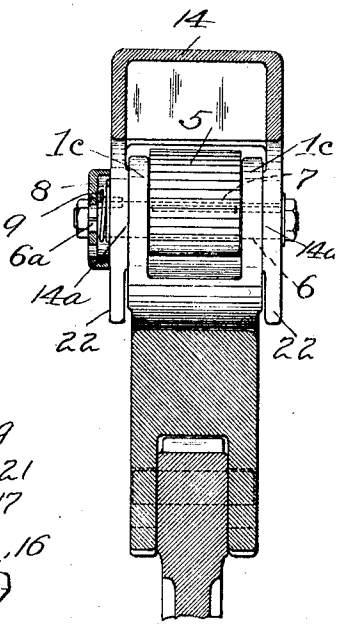


Fig. 2.

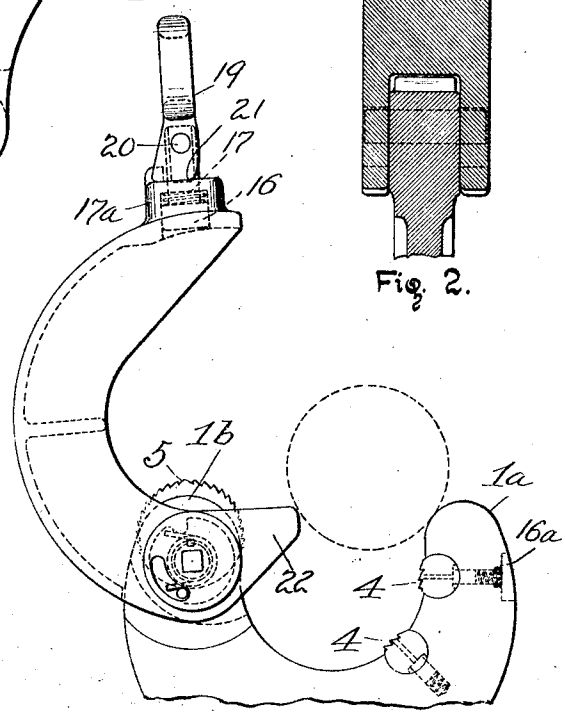


Fig. 3.

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Patented July 28, 1925. 1,547,565

UNITED STATES PATENT OFFICE.

OSWALD DUDA, OF HOUSTON, TEXAS. ASSIGNOR, BY MESNE ASSIGNMENTS, TO REED ROLLER BIT COMPANY, OF HOUSTON, TEXAS, A CORPORATION OF TEXAS.

WRENCH.

Application filed January 9, 1923. Serial No. 611,579.

To all whom it may concern:

Be it known that I, OSWALD DUDA, a citizen of the United States, and resident of Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

The invention relates to wrenches of the general character used in connection with deep well drilling operations for placing or removing sections of the drill stem, though, of course, it will be understood that the invention is not limited in this respect.

The invention is shown in the accompanying drawings in which—

Figure 1 is a side elevation with the wrench in position on the object which is indicated by a dotted line,

Fig. 2 is a sectional view on line 2—2 of Fig. 1, and

Fig. 3 is a detail side elevation of the head portion of the wrench with the parts in position, ready to be placed on the object which is to be manipulated.

In these drawings the head 1 of the wrench is provided with jaws 1^a, 1^b. This head has pivoted to it at 2 a handle 3 adapted to impose a hammer blow upon the head of the wrench for which purpose the pivot 2 is off to one side of the center line of the head and the handle has a hammer portion 3^a provided with a pin 3^b passing through a slot or slots 3^c in the head. A light spring 3^d is interposed between the hammer portion and the head. The head adjacent the jaw 1^a is provided with fixed grips 4 and the jaw 1^b is provided with a movable grip 5. This is of circular form and is toothed for the major portion of its periphery to provide a gripping surface. This grip 5 is mounted between the ears 1^c of the head upon a pin 6 passing through the said ears, said grip being keyed at 7 to the said pin or shaft. The pin 6 also serves as a pivot for a strap 14 which has its sides 14^a as shown in Fig. 2 mounted upon the portions of the pin which project beyond the ears 1^c. This shaft or pin is provided with nuts at its ends for holding the parts in place. A washer 8 is mounted on the pin, the latter having a square portion at 6^a to receive the washer whereby the latter is fixed against rotation relative to the pin and this washer provides a recess for the reception of a spring 9 which is coiled about the pin, one end 10 of said spring bearing upon a lug 11 on the inner side of the washer and the other end of said spring bearing upon a pin 13 fixed in the strap 14 and passing through a slot 15 in the washer. The grip 5 it will be noticed, though circular, is eccentrically mounted upon the pin 6 and it projects from the jaw 1^b into the open space between the jaws so as to act upon the object which is to be manipulated. The strap 14 is of segmental form and it is held locked in position by a bolt 16 adapted to enter a recess 16^a in the jaw 1^a, this bolt being pressed by a spring 17 in a cavity of the lug 17^a, carried by the strap.

The bolt 16 is controlled by a handle 19 which is pivoted at 20 to the bolt and has a cam surface 21 which, when the handle 19 is turned into the position shown in Fig. 3, will work upon the face of the boss 17 and retract the bolt from the recess 16^a so that then the strap 14 can be swung back to the position shown in Fig. 3. The strap is provided with an extension 22 adjacent its pivot end which, when the strap is thrown back as shown in Fig. 3, will be in position to engage the object, so that in thrusting the wrench into place, this extension will engage the objection, and throw the strap into closed position.

It will be noticed from Fig. 3 that the grip 5 has been moved by the spring 9, pressing against the lug 11 of the washer 8 at one end, and against the fixed pin 13 at the other end, into a position of maximum protrusion beyond the inner face of the jaw or strap 14, and this is the position of the grip when not in action against the object. Fig. 1 shows that the grip has receded outwardly slightly against the pressure of the spring 9, but is exerting its gripping action upon the object.

In order to place the wrench on the object, assuming that the parts are in the position of Fig. 3, with the strap 14 thrown back, the wrench is pushed forwardly to make its jaw embrace the object, and in this action the extension 22 of the strap will contact with the object, and the strap will be thrown to closed position, and if this action is performed with speed, the momentum of the handle 19 when the end of the strap hits the jaw 1^a, will be such as to snap the handle

19 from the position shown in Fig. 3 into the position shown in Fig. 1, thus allowing the spring pressed bolt 16 to seat itself in the socket 16ª and retain the strap in closed position.

In this placing action also, the eccentrically mounted grip jaw 5 will recede on contacting with the object due to the yielding of the spring 9 and when the wrench is fully seated on the object, movement of the handle 3 in the arrow direction will cause the object to be gripped and turned, the eccentrically mounted grip 5 gripping the object harder according to the degree of pressure exerted on the handle.

It will be noticed that the handle will have some movement before the hammer portion 3ª strikes the head and thus a hammer blow will be delivered when the handle is quickly moved in the direction of the arrow and then continued pressure will turn the object as desired.

In releasing the wrench from the object the handle will be moved in a direction opposite to that of the arrow in Fig. 1, the grip 5 receding because the spring will allow this action to take place, and in this releasing action the strap remaining closed, will prevent the wrench from flying off and injuring the derrick or attendants.

The position of the grip 5 shown in Fig. 3 which is its extreme protruded position, is limited by the end wall of the slot 15 of the washer 8 coming against the pin 13.

The grid member 5 may be turned over when one side is worn to present the other part of its toothed periphery for use.

The grips 4, 4 while in a sense unyielding, are yet adapted to have slight oscillating movement in their sockets.

The strap 14 is of channel form and there is one of the projections 22 at each side thereof. The channel form of the strap provides a structure which will embrace the jaw 1ª and sustain the strap laterally in position because the side walls of this channel construction reach down along side of the jaw 1ª and find a lateral bearing thereagainst. The circular form of the grip 5 and its eccentric means provides in fact a nearly involute curved edge for gripping the object.

I claim:

1. In combination, a wrench having jaws with a strap pivoted to one jaw and extending across to the other jaw, and detachably connected thereto, a pin on which said strap pivots, a grip jaw fixed to said pin and having a curved edge protruding into the space between the jaws, a washer also secured to said pin and a spring for turning the washer and the grip, said spring being coiled about the pivot pin of the strap, bearing against the washer at one end and against a pin on the strap at its other end, substantially as described.

2. In combination in a wrench having jaws to receive the object between them, a strap pivoted to one jaw and adapted to extend across the space between the jaws to enclose the object, and a gripping jaw movable with the strap to clear the space when the strap is thrown back and to protrude into said space to engage the object when the strap is closed, said jaw being movable relative to said strap to recede relative to said space when it contacts with the object, and gripping the object when the wrench is turned to turn said object, substantially as described.

3. In combination in a wrench having jaws to receive the object between them, a strap pivoted to one jaw and adapted to extend across the space between the jaws to enclose the object and a gripping jaw movable with the strap to clear the space when the strap is thrown back and to protrude into said space to engage the object when the strap is closed, said jaw being movable relative to said strap, to recede relative to said space when it contacts with the object and gripping the object when the wrench is turned to turn said object, said strap having a heel extension to be engaged by the object for automatically closing the strap and thus bringing the said grip automatically against the object, substantially as described.

4. A wrench having jaws with a space between them for receiving the object, a strap pivoted to a jaw and adapted to extend over the space between the jaws, means to hold the strap in closed position over said space and a grip to project into the space between the jaws to engage the object, said grip being moved in relation to the said space by the movement of the strap away from said space when the strap is thrown back, and into said space when the strap is closed, said grip being yieldingly mounted to accommodate itself to the size of the object, substantially as described.

5. In combination in a wrench, jaws with a space between them for receiving the article, a strap pivoted to one jaw to extend over said space, means for locking the strap when closed over said space, a grip arranged adjacent the pivoted end of said strap and movably mounted to assume different positions relative to said space, and a spring connection between the said strap and the said grip for pressing said grip yieldingly to project into said space when the strap is closed, substantially as described.

In testimony whereof, I affix my signature.

OSWALD DUDA.