Aug. 26, 1924. 1,506,643

J. J. JOHNSON

WRENCH

Filed June 1, 1923

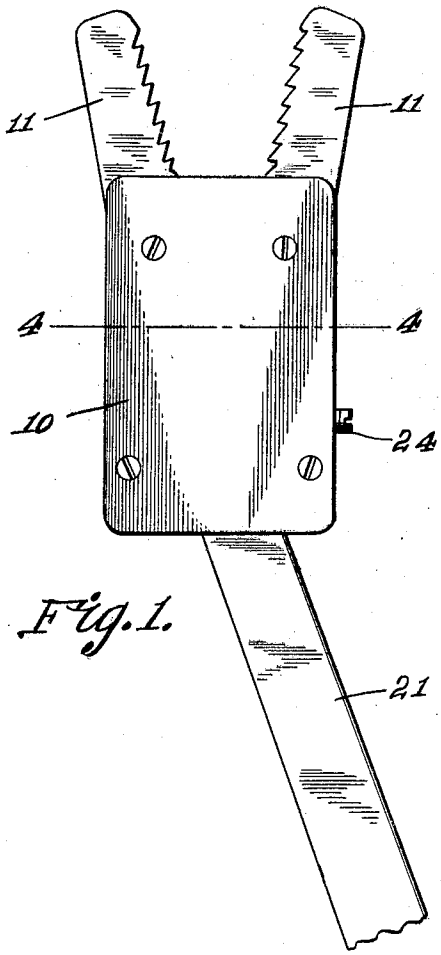


Fig. 1.

Fig. 2.

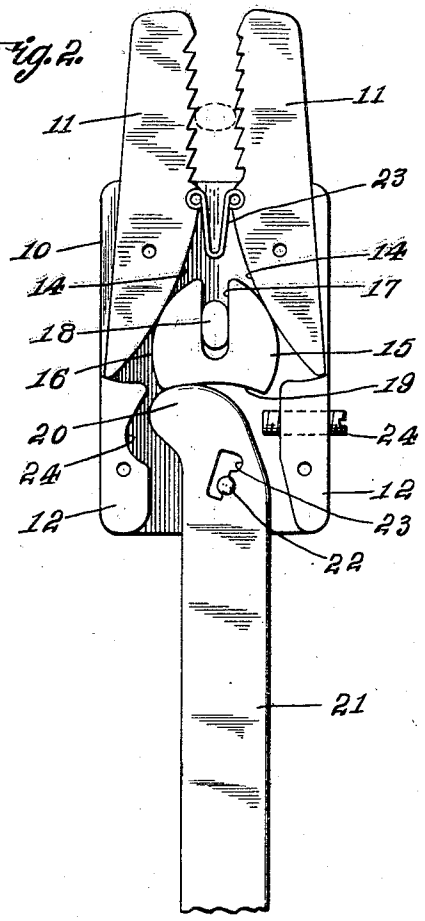


Fig. 3.

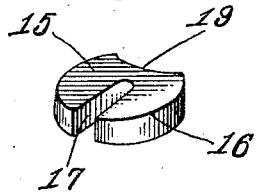
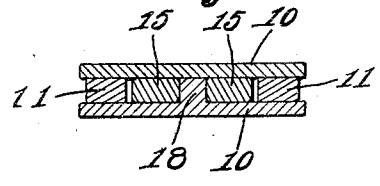


Fig. 4.



WITNESS:

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Patented Aug. 26, 1924.

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UNITED STATES PATENT OFFICE.

JOSEPH J. JOHNSON, OF SAVANNAH, GEORGIA.

WRENCH.

Application filed June 1, 1923. Serial No. 642,837.

To all whom it may concern:

Be it known that I, JOSEPH J. JOHNSON, a citizen of the United States, residing at Savannah, in the county of Chatham and State of Georgia, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention contemplates the provision of a pipe wrench designed to be quickly and easily adjusted, and operated with one hand, and also to prevent slipping of the wrench while in use.

The invention further embodies the desired features of simplicity and durability, the construction of the wrench being such that it may be quickly and easily released when necessary, the wrench being operated in the manner similar to a ratchet wrench.

Another object of the invention resides in the provision of means whereby the movements of the jaws into gripping relation can be limited to regulate the pressure upon the object gripped thereby.

The nature and advantages of the invention will be better understood when the following detailed description is read in connection with the accompanying drawings, the invention residing in the construction, combination and arrangement of parts as claimed.

In the drawing forming part of this application, like numerals of reference indicate similar parts in the several views, and wherein:

Figure 1 is a side elevation of a wrench.

Figure 2 is a similar view with one of the side plates removed.

Figure 3 is a detail view of the sliding block.

Figure 4 is a sectional view taken on the line 4—4 of Figure 1.

Referring to the drawing in detail, 10 indicates spaced plates between which the gripping jaws 11 are pivoted. The plates 10 are connected together in any suitable manner and are preferably thickened adjacent the lower corners thereof as at 12 for the purpose of spacing the plates apart. The jaws 11 project an appreciable distance. The corresponding ends of the respective plates are serrated for a portion of their length so that the jaws may obtain an effective gripping purchase on the object being dealt with. The confronting faces of these jaws which are disposed between the plates 10 are oppositely curved as at 14 and these curved surfaces cooperate with a sliding block 15 also positioned between the plate 10 and controlled by a suitable handle. This block 15 has its opposed edges curved as at 16, and these curved edges engage the curved surfaces 14 of the gripping jaws.

One end of the block is bifurcated as at 17 to receive a lug 18 carried by one of the plates 10, so that the block is guided in its movement and operatively held associated with the cooperating parts of the structure. The other end of the sliding block is slightly arched or curved as at 19, and this end is engaged by the cam like extremity 20 of an operating handle or lever 21, the latter being pivoted between the plates by a slot and pin connection 22. Also arranged between these plates 10 is a substantially V-shaped spring 23, the limbs of which are received by notches formed in the confronting faces of the gripping jaws, an arrangement allowing the spring to normally hold the jaws open, when the handle or lever 21 is moved in one direction, the sliding block 15 is formed between the gripping jaws in a way to move the jaws into gripping relation which can be easily released by reversing the movement of the handle 21. Consequently, the wrench can be operated similar to a ratchet wrench, to allow a new grip to be obtained upon the object being dealt with at any time desired, and yet prevent slipping of the wrench when the jaws are in gripping relation.

It will be noted that one wall of the inclined slot with which the lever is provided, is formed with spaced notches 23 either of which may accommodate the pivot 22, so that the handle may be moved toward or away from the block 15 to allow the jaws 11 to be opened a greater or less degree as the occasion may require. Furthermore this construction permits the wrench to be quickly and easily adjusted to accommodate itself to pipes of different diameters, thus rendering a final operation of the wrench more prompt, and with a consequent increase of power for a large pipe, and a reduction of power on a small pipe. To prevent crushing of a small pipe between the gripping jaws 11, by the application of too much power, I provide a means whereby the pressure of the jaws when in gripping relation can be regulated, and this means preferably consists of a threaded element 24 which is supported by one of the thickened

portions 12 above referred to. The threaded element 24 moves in a plane substantially at a right angle to the adjacent end of the handle or lever 21, and serves as an abutment for the handle to limit its movement in one direction for the purpose of moving the jaws into gripping relation. It will be further noted that the wrench is designed to allow it to be manipulated by one hand, the wrench being simple in construction, and both strong and durable.

Again, the wrench is particularly advantageous in use on pipes or fittings located against a wall or other flat surface, it being possible to use the wrench in corners and other restricted places where it is more or less impossible to use any other kind of wrench.

While it is believed that from the foregoing description, the nature and advantages of the invention will be readily apparent, I desire to have it understood that I do not limit myself to what is shown and described and that such changes may be resorted to when desired as fall within the scope of what is claimed.

Having thus described the invention, I claim:

A pipe wrench comprising opposed side plates, gripping jaws pivoted between the plates, resilient means for normally holding said jaws spread apart, said jaws having oppositely curved surfaces, a lug projecting from one plate, a sliding block arranged between the jaws and having cam like edges cooperating with curved surfaces of the jaws, whereby the latter are moved into gripping relation when the block is shifted in one direction, said block being bifurcated to receive said lug, and a lever pivoted between said plates, said lever having a cam like extremity controlling the movement of said sliding block as and for the purpose specified.

In testimony whereof I affix my signature.

JOSEPH J. JOHNSON.