No. 788,772. PATENTED MAY 2, 1905.

I. F. JOHNSON.

WRENCH.

APPLICATION FILED JUNE 3, 1904.

Fig. 1.

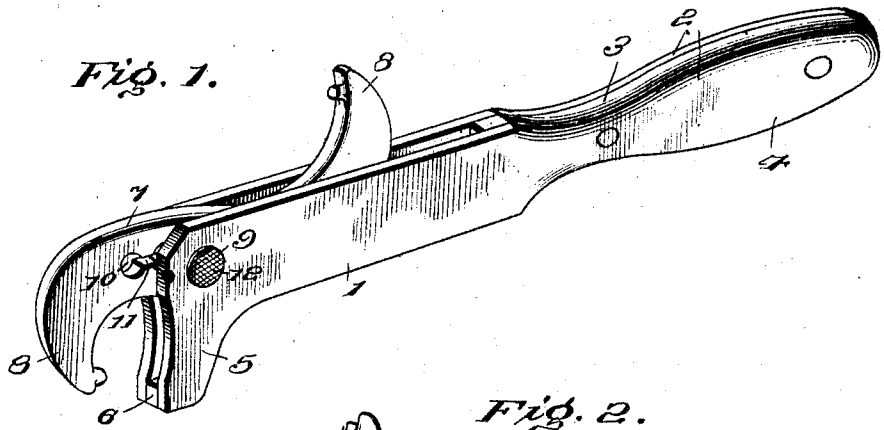


Fig. 2.

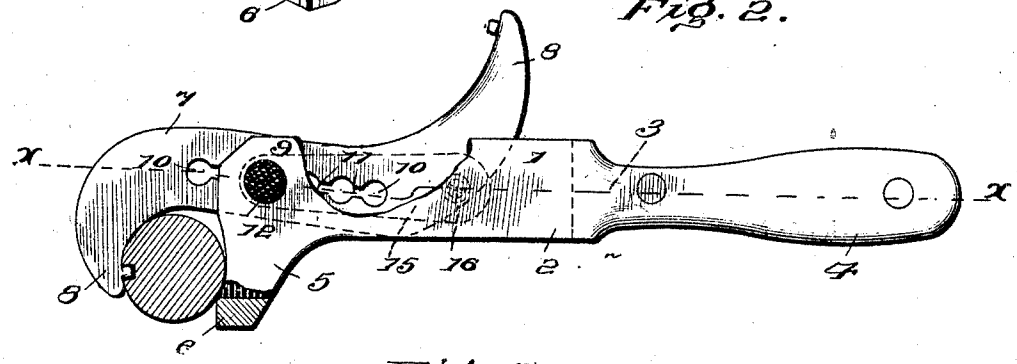


Fig. 3.

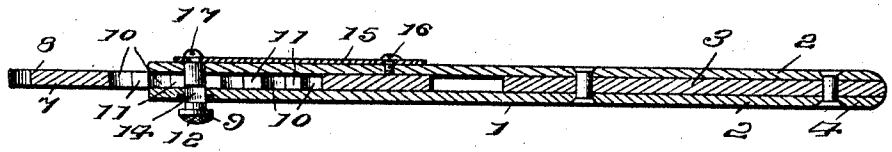
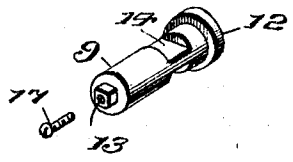


Fig. 4.



Witnesses

Inventor

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By Rhodes Macey, Attorneys

No. 788,772. Patented May 2, 1905.

UNITED STATES PATENT OFFICE.

IRA F. JOHNSON, OF SIOUX FALLS, SOUTH DAKOTA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 788,772, dated May 2, 1905.

Application filed June 3, 1904. Serial No. 211,013.

To all whom it may concern:

Be it known that I, IRA F. JOHNSON, a citizen of the United States, residing at Sioux Falls, in the county of Minnehaha and State of South Dakota, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to improvements in that class of wrenches embodying a shank provided with a fixed jaw and an arm provided with reversely-arranged jaws for coöperation with the fixed jaw aforesaid.

The essential feature of the invention consists of a peculiar form of pivot pin or stud which carries the arm aforesaid and which is adapted to admit of adjustment of the said arm, so as to thereby adjust the jaws thereof relative to the fixed jaw of the wrench.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a wrench embodying the invention. Fig. 2 is a side elevation. Fig. 3 is a vertical sectional view. Fig. 4 is a detail view of the pivot pin or stud alone.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The shank 1 of the wrench preferably consists of spaced plates 2, and between corresponding ends of the plates 2 is disposed a filler-block 3 or intermediate spaced plate, which forms, in connection with the ends of the plates 2, the handle 4 of the wrench. The ends of the plates 2 opposite to those forming the handle are formed so as to provide the rigid jaw 5, which extends angularly from the shank in the ordinary manner. The spaced portions of the jaw 5 may be connected rigidly by the securance of a filler-block 6 therebetween. The arm 7, which is provided with the reversely-arranged jaws 8, is mounted upon the pivot-pin 9. The pivot-pin 9 is of a peculiar form and is mounted in openings in the spaced plates 2 of the shank 1 for slidable transverse movement. The jaws 8 of the arms 7 are designed to be of different degree of curvature, and said jaws are adapted to be independently brought into coöperation with the fixed jaw 5 in the practical use of the device, the adjustment of the arm being dependent, of course, upon the size of the object which is being operated upon. The arm 7 is also provided longitudinally of the body portion thereof with a plurality of openings 10, leading transversely therethrough, and an ascertained one of these openings receives the pivot-pin 9 when the arm is in operative position. In order that the arm 7 may be adjusted, so as to adjust the pivot-pin in any one of the openings 10 therethrough without necessitating the removal of the pivot-pin from the shank 1, the several openings 10 are connected by means of slots 11, the use of which will appear more fully hereinafter.

The pivot-pin 9 is provided at one end with a head 12 and at the other end with an internally-threaded boss 13. Adjacent the head 12 of the pin 9 the body thereof is cut away to form an approximately rectangular portion 14, which is of a size sufficient to admit of passage of said portion 14 through the slots 11, which connect the openings 10 of the arm 7. The major portion of the body of the pin 9, however, is of circular form, so as to form a perfect bearing for the openings 10 of the arm 7, and under normal conditions the circular portion of the pin 9 is received in one of the openings 10 above mentioned, admitting of free pivotal movement of the arm 7. In order to hold the circular portion of the pin 9 in the opening of the arm 7, through which the pin passes when the arm is in an ascertained adjusted position, a spring 15 is utilized, and this spring is secured to one of the plates 2 of the shank of the wrench upon the outer side thereof, said spring being of a flat type. The spring 15 is secured to the plate 2, above mentioned, by means of a screw 16 or analogous fastening passing through

one end thereof. The opposite end of the spring 15 is likewise screwed to one end of the pin 9, a screw 17 being threaded into the boss 13, before described, in attaching the spring to the pin. The spring 15 normally assumes a position in contact with the plate 2 adjacent, so as to hold the circular portion of the pin 9 in the opening 10 of the arm which receives the pin. However, when it becomes necessary to either reverse the jaws 8 of the arm 7 or to adjust one of said jaws relative to the fixed jaw 5 the user of the wrench presses upon the head 12 of the pin, so as to impart a slidable transverse movement thereto, and such movement disposes the rectangular portion of the pin in line with the slots 11 of the arm 7. When the portion 14 of the pin is in line with the slots 11 of the arm 7, it will be readily seen that the arm may be moved longitudinally, so as to throw the pivot-pin 9 into any selected one of the openings 10 to thereby adjust the point of pivotal support of the arm and at the same time the coöperation of the jaw 8 adjacent the fixed jaw 5.

In reversing the jaws 8 the pivot-pin is caused to pass into the end opening 10 near the smaller jaw 8 to admit of a free arcuate movement of the arm 7. In adjusting the arm 7 by operation of the pivot-pin 9 as soon as pressure upon the head of the pivot-pin is removed this pin instantly assumes its normal position to throw the circular portion thereof within one of the openings 10.

In view of the arrangement of the openings 10 at intervals along the length of the arms 7 various adjustments of the position of either of the jaws 8 may be obtained as regards the disposition of these jaws when coöperating with the fixed jaw 5. The entire revolution of the arm 7 may also be quickly performed, so as to effect the reversal of the jaws 8 whenever necessary, and the various parts of the device are always maintained in their proper and relative positions.

Having thus described the invention, what is claimed as new is—

1. In a wrench, the combination of a shank having a relatively fixed jaw, a pivot-pin transversely slidable upon the shank and provided with a pivot portion and a cut-away portion, an arm mounted upon the pivot-pin and having a jaw coöperating with the fixed jaw aforesaid, said arm being provided with a plurality of openings adapted to receive the pivot-pin and connected by slots through which the cut-away portion of the pivot-pin is adapted to pass, and means for holding the pivot portion of the pivot-pin within an ascertained one of the openings aforesaid.

2. In a wrench, the combination of a shank having a relatively fixed jaw, a pivot-pin transversely slidable upon the shank and provided with a pivot portion and an approximately rectangular portion, an arm mounted upon the pivot-pin and having a jaw coöperating with the fixed jaw aforesaid, said arm being provided with a plurality of openings adapted to receive the pivot-pin and connected by slots, and a spring bearing against the pivot-pin so as to hold the pivot portion thereof within an ascertained one of the openings in the arm.

3. In a wrench, the combination of a shank having a relatively fixed jaw, a pivot-pin transversely slidable upon the shank and provided with a pivot portion and an approximately rectangular portion, an arm mounted upon the pivot-pin and having a jaw coöperating with the fixed jaw aforesaid, said arm being provided with a plurality of openings adapted to receive the pivot-pin and connected by slots, and a spring secured at one end to the shank and at its opposite end to one end of the pivot-pin, said spring normally bearing against the pivot-pin to hold the pivot portion thereof within an ascertained one of the openings in the arms aforesaid.

In testimony whereof I affix my signature in presence of two witnesses.

IRA F. JOHNSON. [L. S.]

Witnesses:

J. M. O'NEILL,

E. D. ALDRICH.