

L. SCHLESINGER.
WRENCH.

No. 460,539.

Patented Sept. 29, 1891.

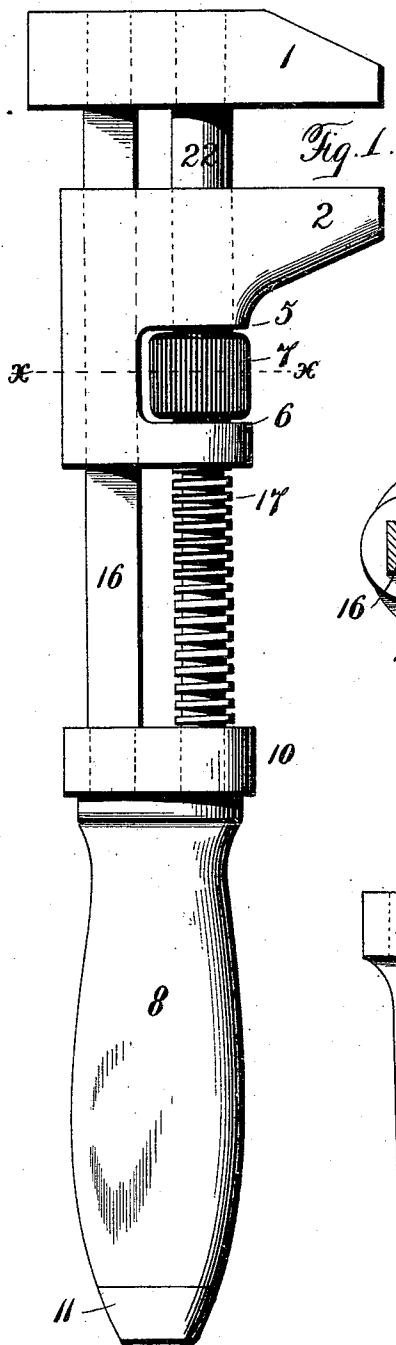


Fig. 1.

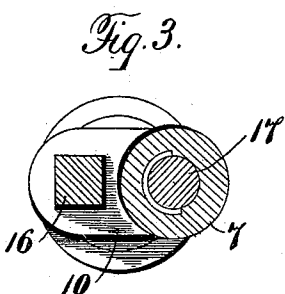


Fig. 3.

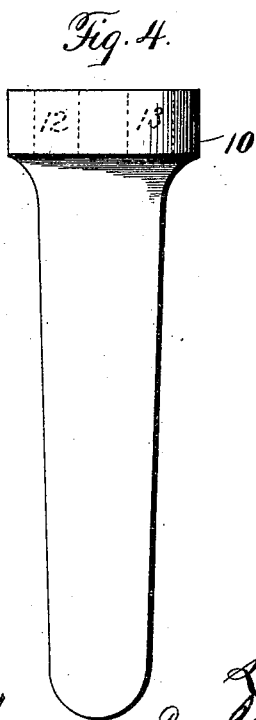


Fig. 4.

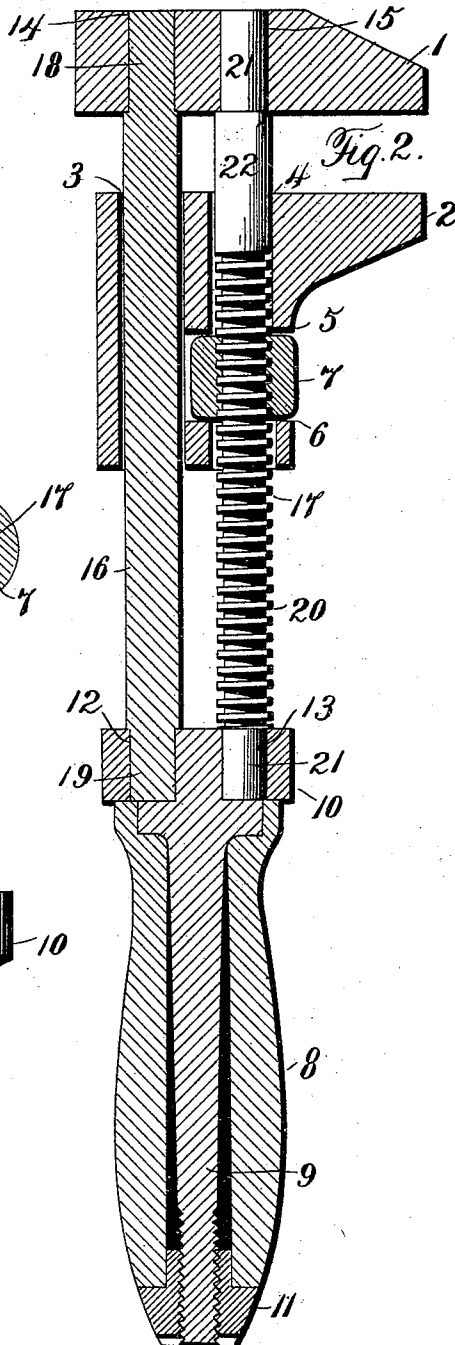


Fig. 2.

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J. A. Rutherford.

Inventor:
Louis Schlesinger,
By James L. Norris, atty.

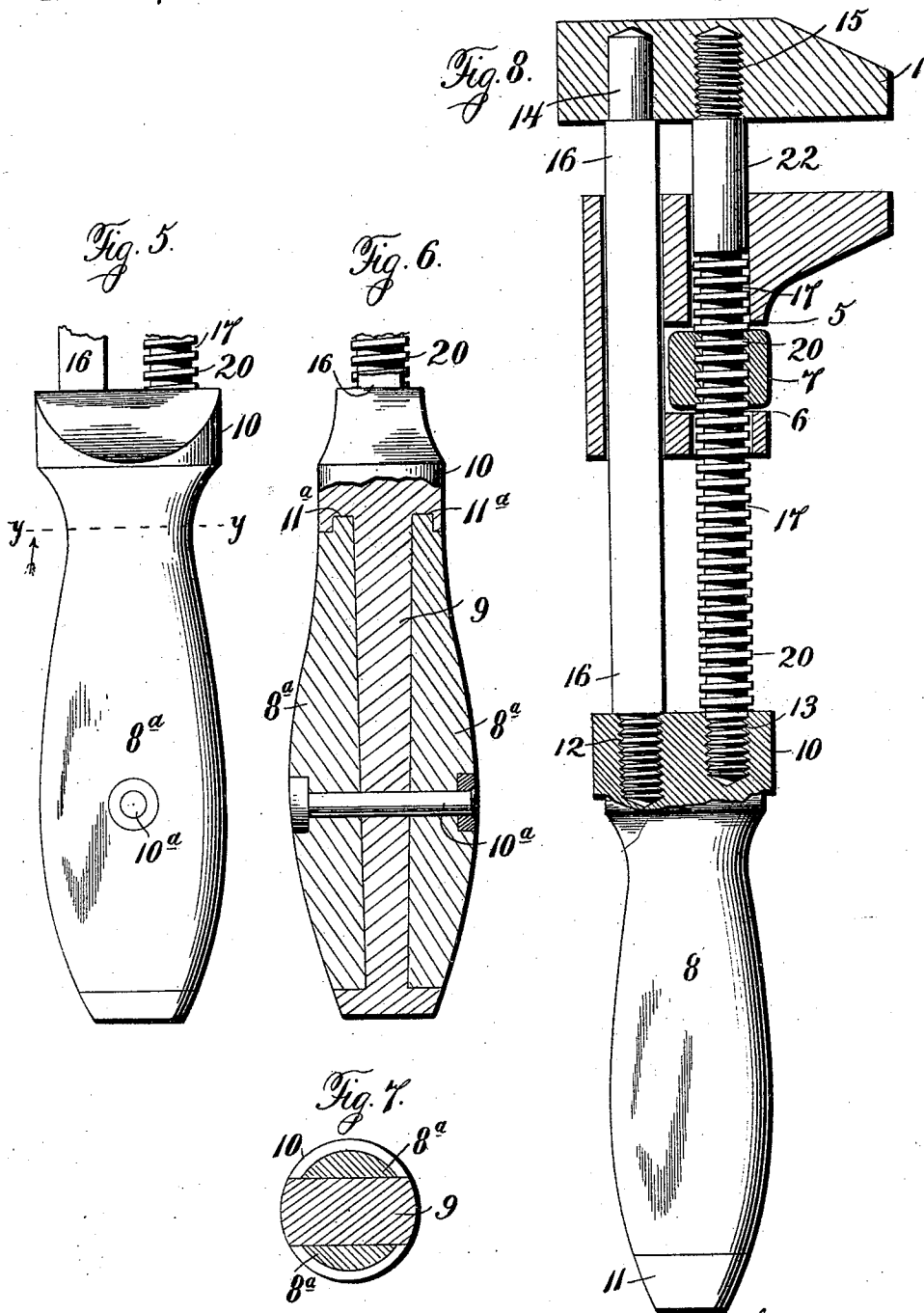
(No Model.)

2 Sheets—Sheet 2.

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Att'y

UNITED STATES PATENT OFFICE.

LOUIS SCHLESINGER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
CHARLES H. GURNEY, OF SAME PLACE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 460,539, dated September 29, 1891.

Application filed June 11, 1891. Serial No. 395,925. (No model.)

To all whom it may concern:

Be it known that I, LOUIS SCHLESINGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to that type of wrenches which comprise a stationary jaw and a sliding jaw adjusted through the medium of a nut moving therewith and engaging a screw-threaded rod or stem forming a part of the wrench.

A wrench having parallel bars connected with the handle and the stationary jaw has heretofore been constructed; but the screw-threaded bar is necessarily journaled to the handle and to the stationary jaw to render such threaded bar susceptible of axial rotation for adjusting the sliding jaw, with which the threaded bar is in threaded engagement. This construction is open to serious objections in that the wrench is weakened and rendered unsuitable for the rough usage to which this class of implements is subjected, as ordinary strains will bend the screw and render the wrench useless, while the journaled ends of the screw-bar require accurate turning to secure perfect action, which materially increases the cost of the manufacture. The journaled bearings of the screw-bar also become filled with oil, grit, and dust, and consequently it is soon difficult to turn the screw-bar for adjusting the sliding jaw. A wrench having a smooth cylindrical bar and a fixed cylindrical screw-rod having a nut engaging the sliding jaw has also been heretofore constructed; but the two bars are twisted together and then extended into a looped handle, and the parts under considerable pressure are liable to stretch, thereby permitting the wrench to bend, while on larger sizes the handle is not always convenient to manipulate.

The object of my invention is to avoid the objection stated and to provide a strong, substantial, and durable wrench of the character specified which is efficient in use and economical in construction, while the method of manufacture is materially facilitated.

The invention also has for its object to pro-

vide a novel construction whereby an ordinary grasping-handle can be employed and a screw-threaded rod made to fulfill the conditions of an immovable brace for strengthening the entire structure.

The invention also has for its object to provide the wrench with a screw-rod which is immovable in use and engages the adjusting-nut, but is so constructed as to avoid marking the screw-thread when the wrench is used.

To accomplish all these objects my invention consists in the features of construction and the combination or arrangements of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved wrench. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view taken on the line *xx*, Fig. 1. Fig. 4 is a detail view showing a modified construction of the wrench-handle. Fig. 5 is a detail side view showing another modified construction of handle. Fig. 6 is a longitudinal sectional view of the same. Fig. 7 is a transverse sectional view taken on the line *yy*, Fig. 5; and Fig. 8 is a broken sectional view showing a modified construction.

In order to enable those skilled in the art to make and use my invention I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates the stationary jaw, and 2 the sliding jaw, formed with a pair of parallel orifices 3 and 4, extending entirely through it and one of which is angular in cross-section, while the other is cylindrical. The sliding jaw is formed with a recess to form upper and lower abutments 5 and 6, between which is arranged the rotating adjusting-nut 7, which bears, respectively, at its upper and lower ends against the abutments 5 and 6. The adjusting-nut is of any desired construction on its exterior, but preferably is milled or knurled for the purpose of conveniently turning it through the medium of the thumb and finger.

The wrench-handle is preferably composed of a wooden grip 8, having an orifice extending longitudinally through its center for the reception of a metallic shank 9, formed inte-

gral with a rigid head 10, that rests upon the inner or upper end of the wooden grip. The outer or lower extremity of the shank is screw-threaded for the reception of a nut 11, by which the grip is rigidly secured in position upon the shank.

The wrench-handle may be composed of wood sections 8^a, applied to opposite sides of a metallic shank 9, which is formed integral with the rigid head 10, having its lower side undercut or recessed, as at 11^a, to receive the extremities of the wood sections 8^a, as shown in Figs. 5 and 6. The wood sections are preferably clamped to opposite sides of the metallic shank by a transverse pin or bolt 10^a, having its heads countersunk in the wood, one end being composed of a disk upon which the pin or bolt is riveted or upset. The head 10 and shank 9 being in a single piece can be made of either a forging or a malleable iron or steel casting. The rigid metallic head 10 of the handle portion is formed with a pair of separated sockets 12 and 13, arranged in alignment with the orifices 3 and 4 in the sliding jaw, and the fixed or stationary jaw 1 is also formed with a pair of separated sockets 14 and 15, also in alignment with the orifices 3 and 4. The sockets are preferably cylindrical and adapted to receive the upper and lower tenons of a pair of parallel bars 16 and 17. The bar 16 is preferably angular in cross-section between its tenons 18 and 19; but the bar 17 is cylindrical and for a portion of its length is screw-threaded, as 20, such screw-thread terminating at a point remote from the uppermost tenon 21 to provide a smooth cylindrical surface 22. The two bars are reduced at their ends to form the tenons and are fitted into the head 10 and jaw 1 in such manner that the upper side of the head and the lower side of the jaw come to square bearings on the bars. The tenons of the respective bars are preferably pressed into the stationary jaw 1 and metallic head 10 through the medium of hydraulic or other pressure, which will force the handle portion and the stationary jaw upon the two bars at the same time. Instead, however, of pressing these bars into rigid engagement the tenons may be screwed, riveted, or welded to the stationary jaw 1 and metallic head 10; but hydraulic pressure, as described, is preferred as being the most economical and desirable. By this construction the two parallel bars are rigidly and immovably fixed in position between the handle and the stationary jaw, and the angular bar 16 serves to support, carry, and guide the sliding jaw 2, while the cylindrical bar 17 serves to engage the nut, and also fulfills the conditions required of a stationary immovable brace between the stationary jaw and the handle, whereby the entire wrench structure is rendered strong, substantial, and durable, which are important features in this type of wrenches.

The smooth cylindrical surface 22 of the bar 17 is provided for the purpose of prevent-

ing the screw-thread being marred or defaced when the wrench is in use. The smooth cylindrical surface is preferably of a length corresponding with the thickness of the movable jaw, so that in forcing the wrench upon the nut the latter will come in contact with the smooth cylindrical surface 22 instead of with the screw-threaded portion of the bar 17.

The wrench-handle may be constructed of a single piece of metal, as in Fig. 4, with the metallic head 10, having the sockets 12 and 13; or the handle could be otherwise constructed without affecting the character of my invention.

The bar 16 is shown as square in cross-section, but other angular, round, or half-round form can be employed.

In the modification Fig. 8 the upper and lower extremities of the non-rotating screw-threaded bar 17 are provided, respectively, with right and left hand screw-threads engaging female screw-threads in the orifices 13 and 15 of the jaw 1 and head 10, while the smooth upper extremity of the bar 16 fits a smooth orifice 14 in the jaw 1, and its lower extremity is provided with a screw-thread engaging a female screw-thread in the orifice 12 of the head 10. The orifices may or may not extend entirely through the jaw 1 and head 10. This construction renders the parts of the wrench susceptible of being conveniently and advantageously assembled and united, while enabling the parts to be detached or separated if any part should get out of order. The construction is also such as to secure the desired strength, since both bars are rigidly secured at their extremities to the jaw and the handle-head and in the use of the wrench both of such bars remain immovable fixtures of the wrench.

The wrench constructed as described relieves the adjusting-nut almost entirely of strain, while it is stronger and more economical in manufacture than wrenches of ordinary construction, hereinbefore alluded to.

An important feature of the invention resides in the fact that the two parallel bars are composed of separate and independent pieces immovably pressed, screwed, welded, or riveted at their extremities into sockets in the stationary jaws and metallic head of the handle portion, by which means I entirely avoid the objection to the twisted-handle wrench having stationary parallel bars, one of which is screw-threaded and engages a nut swiveled to the sliding jaw.

In using the wrench most of the strain is thrown upon the front cylindrical bar, and therefore I prefer, especially in larger sizes, to construct this front bar of a greater diameter than the rear angular bar, by which construction the strength, durability, and efficiency of the wrench are materially increased.

Having thus described my invention, what I claim is—

1. A wrench consisting of a handle, a stationary jaw, a pair of stationary parallel bars

having their extremities attached to the stationary jaw and handle, a movable jaw sliding on the two stationary bars, and means for adjusting the movable jaw, substantially as described.

2. A wrench consisting of a handle having a metallic head, a stationary jaw, a sliding jaw carrying an adjusting-nut, and a pair of independent stationary parallel bars attached at their extremities to the stationary jaw and the metallic head of the handle, one of the bars having a screw-threaded portion with which the nut on the sliding jaw engages, substantially as and for the purposes described.

3. A wrench consisting of a handle having a metallic head provided with a pair of sockets, a stationary jaw having a similar pair of sockets, a sliding jaw having a pair of parallel orifices and carrying an adjusting-nut, and a pair of independent parallel bars, one of which is screw-threaded for engaging the nut and both provided with end tenons which are fixed in the sockets of the stationary jaw and the metallic head of the handle, substantially as and for the purposes described.

4. A wrench consisting of a handle having a metallic head provided with a pair of sockets, a stationary jaw having a similar pair of sockets, a sliding jaw having a pair of orifices

and carrying an adjusting-nut, and a pair of independent parallel bars having tenons rigidly and immovably fixed in the sockets in the stationary jaw and metallic head of the handle, one of the immovable bars being screw-threaded for a portion of its length only to provide the smooth cylindrical surface at one end portion for the purpose of avoiding injury to the screw-thread in the use of the wrench, substantially as described.

5. A wrench consisting of a handle having a metallic head, a stationary jaw, a sliding jaw carrying an adjusting-nut, and a pair of independent parallel bars rigidly and immovably fixed at their extremities to the stationary jaw and the metallic head, the front bar having a diameter greater than the diameter of the rear bar and provided with a screw-threaded portion with which the nut on the sliding jaw engages, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

LOUIS SCHLESINGER. [L. S.]

Witnesses:

THOS. B. BROWN,
C. KESSLER.