L. S. WHITEHEAD.

WRENCH.

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1,015,659.

Patented Jan. 23, 1912.

Fig. 1.

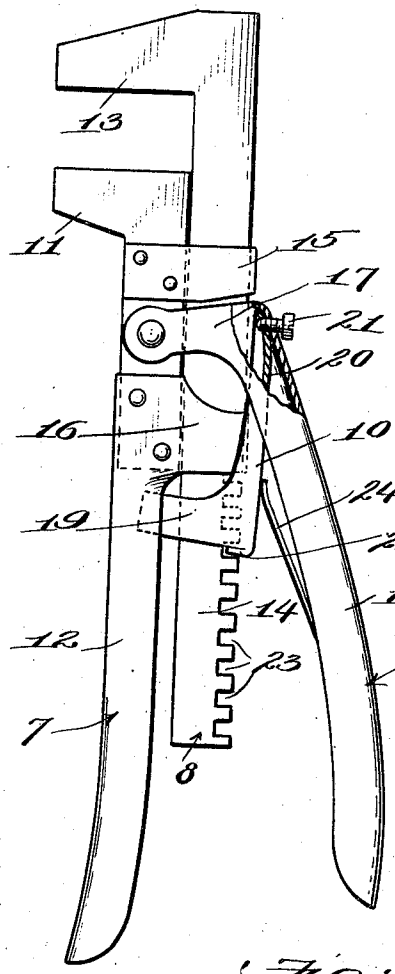


Fig. 2.

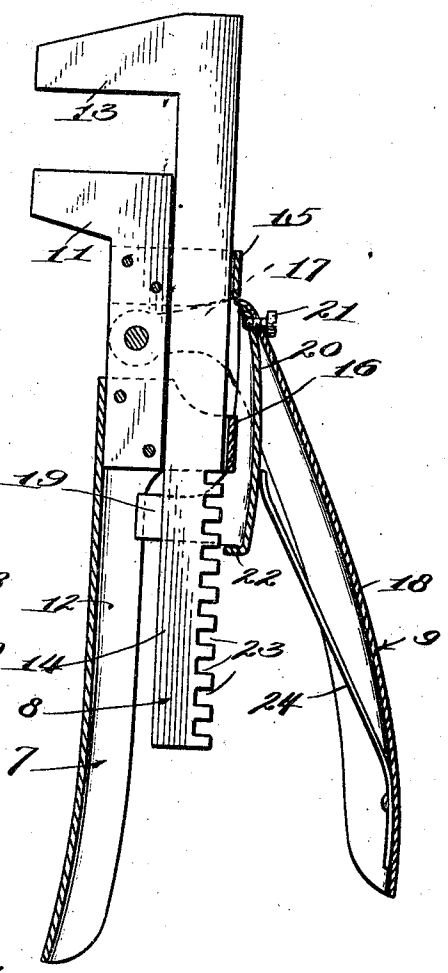
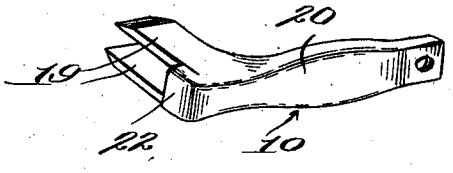


Fig. 3.



Witnesses

Inventor

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UNITED STATES PATENT OFFICE.

LEO S. WHITEHEAD, OF WHEELING, WEST VIRGINIA.

WRENCH.

1,015,659. Specification of Letters Patent. Patented Jan. 23, 1912.

Application filed September 1, 1911. Serial No. 647,227.

To all whom it may concern:

Be it known that I, LEO S. WHITEHEAD, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to wrench constructions, and its principal object comprehends, briefly, the production of an improved wrench whose component parts are so arranged as to insure a powerful gripping action between the fixed and movable jaws, and an exact, easy and rapid adjustment of the latter jaw. More especially, the invention resides in the particular construction of the lever for actuating the aforesaid movable jaw, and of the member which connects said jaw and lever together.

A structural embodiment of the invention is illustrated in the accompanying drawing, whereof—

Figure 1 is a face view, partly in section, of the improved wrench, showing the connecting member in normal position; Fig. 2 is a similar view showing said member disengaged from the movable jaw to permit the adjustment of the latter; and Fig. 3 is a perspective view of the above mentioned connecting member.

As shown in said drawing, the wrench consists preferably of the following main parts, viz., the fixed jaw-carrying member 7, the movable jaw-carrying member 8, the lever 9 for operating the second-named member, and the connecting member 10 between that member and the lever.

All of the members specified are stamped from sheet steel, whereby the cost of manufacturing the wrench is reduced to a minimum.

The member 7 is composed of a thin flat jaw portion 11 of the usual type, and a shank 12, the latter having a trough-shaped or channeled lower portion which constitutes a handle and merges gradually at its upper end into a flat part that directly joins the above-named jaw. The member 8 likewise comprises a thin flat jaw portion 13, and a shank 14 which is also flat and of the same thinness as the jaw. To connect the members 7 and 8 there is preferably employed a yoke 15 formed by a flat looped strap of sheet metal which is bolted or riveted at its ends to the jaw part of the former member, the eye part of the yoke serving as a guide for the shank portion 14 of the movable member 8. An additional guide, in the nature of a yoke-like extension 16 of the flat part of shank 12, may also be provided, if desired, the arrangement of the yoke being similar to that of yoke 15.

The requisite movements of member 8 are effected through the agency of the lever 9 and the link 10 which connects said member and lever together, as has already been stated. In the construction illustrated, the lever is of the bell-crank type, and its shorter upper arm 17 is pivoted at the free end thereof to the fixed jaw 11, said arm being split or bifurcated throughout its entire length, to permit the two parts resultant from such bifurcation to straddle said jaw, and, also, the shank 14. Arm 17 is disposed substantially transversely of the wrench, and the longer arm 18 of the lever substantially longitudinally thereof, the latter arm being likewise of trough-shaped or channeled formation and constituting the handle portion of the lever. Link 10 comprises, preferably, a yoke portion 19 and a tongue or link proper 20 that projects upwardly from the rear or outer end member of the yoke and is attached to lever 9 at the junction of arms 17 and 18, the upper portion of said tongue being tapered gradually to permit its extension into the channel in arm 18. In the present construction, the attachment referred to is effected by a screw 21, or the like, which passes through an opening in lever 9 at the point indicated, and through an opening in the free end of tongue 20. At its lower end said tongue is formed with a tooth 22 which is bent flat against the lower edges of the side members of yoke 19, so as to be supported thereby, this tooth being designed for interchangeable engagement with a longitudinal series of notches 23 formed upon the lower portion of the rear or outer edge of shank 14.

The movable member 8 is adjustable relatively to the fixed member 7, and is held normally in position, when adjusted, by means of a leaf spring 24 which is carried by the former member and is secured at its lower end in the channel portion thereof, being disposed between that member and shank 14, so as to exert the pressure of its free upper end upon the yoke portion 19 of link 10 and retain tooth 22 in engagement in the corresponding notch 23. To release said tooth from its notch, it is neces-

sary merely to shift yoke 19 bodily toward lever arm 18. When thus released, member 8 may be moved endwise in either direction to the extent desired, after which tooth 22 will seat itself automatically in the proper notch upon the removal of pressure from said yoke.

In the operation of the device, assuming that the movable member has first been adjusted relatively to the fixed member, in the manner above described, the object to be turned or gripped is passed between the jaws 11 and 13, and the lever 9 then forced inwardly; this movement of the lever will produce a rearward movement of link 10, thereby drawing the movable member 8 in the same direction and, obviously, causing the object to be tightly gripped between said jaws. Outward movement of the lever, *i. e.*, away from the movable member, will force said link and, in consequence, said movable member to move forwardly, thus releasing the object.

It is to be noted that the member 8 is designed to move endwise relatively to the fixed member 7 and the operating lever, both during its adjustment and during the actual operation of the device; also, that member 8 is securely locked in its adjusted position by the action of spring 24 upon tooth 22 and the notch with which the latter is engaged, but may be readily unlocked and then adjusted by merely shifting yoke 19 laterally toward the lever; and, finally, that during adjustment and operation, the movable member is entirely out of contact with the hand of the operator, thus precluding injury at such time.

I claim as my invention:

1. A wrench comprising, in combination, connected fixed and movable members each provided with a jaw and a shank, the shank of the movable member having a series of notches formed in one edge thereof, an operating lever pivoted to the fixed member; a link connection between said lever and the shank of said movable member composed of a yoke slidably fitted on said shank for lateral and longitudinal movement, and a tongue extending from said yoke and attached to said lever, said yoke being provided with a tooth interchangeably engaged in said notches; and a spring associated with said yoke, for yieldingly holding said tooth in such engagement.

2. A wrench comprising, in combination, connected fixed and movable members each provided with a jaw and a shank, the shank of the movable member having a series of notches formed in one edge thereof; an operating bell-crank lever having one arm pivoted to the fixed member and the other coöperating with the shank of that member in producing a pair of handles, the shank of the movable member being interposed between that of said fixed member and the second-named arm of the lever; a connection between said lever and the shank of said movable member for imparting to the latter an endwise movement relative to said fixed member and said lever when the lever is actuated, said connection comprising a yoke slidably fitted on said shank for lateral and longitudinal movement, and a tongue extending from said yoke and pivoted to said lever at the junction of said arms, said yoke being provided with a tooth interchangeably engaged in said notches; and a spring interposed between said lever and the adjacent edge of said shank and bearing against said connection, for normally holding said tooth in such engagement.

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

LEO S. WHITEHEAD.

Witnesses:
W. R. Dudley,
Clyde F. Amos.