J. J. WOODWARD.

SPANNER.

APPLICATION FILED MAR. 3, 1920.

1,343,882.

Patented June 15, 1920.

Fig. 1.

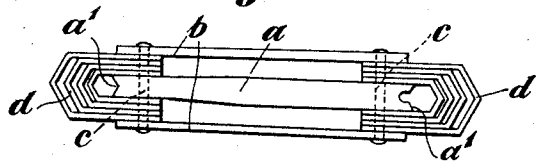


Fig. 2.

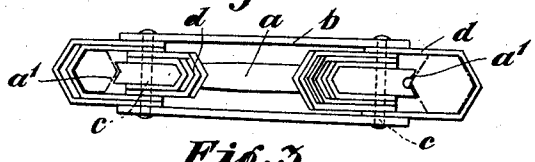


Fig. 3.

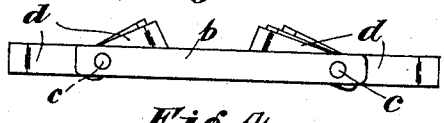


Fig. 4.

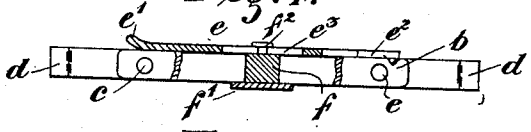


Fig. 5.

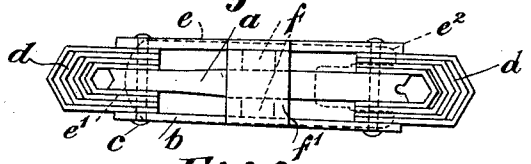
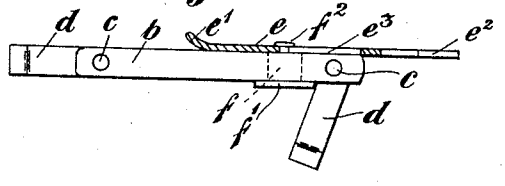


Fig. 6.



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per

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UNITED STATES PATENT OFFICE.

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SPANNER.

1,343,882. Specification of Letters Patent. **Patented June 15, 1920.**

Application filed March 3, 1920. Serial No. 363,069.

To all whom it may concern:

Be it known that I, JOHN JAMES WOODWARD, a subject of the King of Great Britain, residing at 89 Yew Tree Lane, South Yardley, Birmingham, in the county of Warwick, England, have invented a new and useful Improvement in Spanners; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to spanners, and has for its object to provide for accommodating a number of sizes of nuts in a manner which is compact, and at the same time allows of substantially resisting strain when the nut is being operated upon by the spanner, the improvements consisting of a series of channel shaped members which are adapted to fit one within the other, and which are so pivoted at the outer ends of the channel to the handle that any one channel member can be brought into position for operating the nut, while the inner or other channel members are folded back on their pivots out of the way of the channel member which is in operation, the interior of the channel end being adapted to fit two or more sides of the nut, while the handle part is adapted to bear against one or more sides of the nut which ever sized member is in use. For the purpose of increasing the numbers of members of varying sizes, such arrangement of channel members may be pivoted at each end of the handle, each of the series of sizes of nuts accommodated at one end of the handle being preferably intermediate each of the sizes of the series at the other end of the handle.

In the drawings:—

Figure 1 is a plan view of a spanner constructed according to this invention.

Fig. 2 is also a plan view of the spanner illustrating same adapted to fit two different sized nuts shown in dotted lines.

Fig. 3 is a front or edge elevation of the spanner shown in Fig. 2.

Fig. 4 is a part sectional elevation illustrating the combination of an additional tool with the present device.

Fig. 5 is a plan view illustrating the additional tool in the form of a tire lever at one extremity and a cone spanner at the other extremity, and

Fig. 6 is an edge or front elevation showing the additional tool in use.

In an embodiment of this invention the handle comprises a bar *a* having each end of square transverse section and a strip *b* at each side which is disposed in parallel or substantially parallel relation with the bar *a* and united therewith at each extremity through the medium of pivot pins *c*.

The channel shaped members *d* of which at each end of the spanner there are four, are all shaped to lie one within the other as shown in Fig. 1, twice the thickness of the metal of which the members are formed constituting the difference in the diameters of the nuts to be accommodated at each end. Both the ends of each of such channel members *d* are pierced with holes through which the pivot pin *c* is passed, and upon which pivot pin they are adapted to be capable of being turned so as to fold against the handle or bar *a* as shown in Figs. 2 and 3.

One end of the spanner is provided with four channel shaped members, each member being adapted to accommodate a nut which is of a size intermediate between two of the channel shaped members at the other end of the spanner. This is accomplished by constructing the bar *a* to a somewhat tapering formation the width thereof at one extremity being less than the width of the other extremity by the thickness of the metal which forms the channel shaped members *d*.

A square slot may be provided across the center of the end of the bar *a* instead of the two inclined faces meeting at an angle a^1 at this point, or a small circular aperture or slot may be disposed at the junction of the inclined faces as shown in Figs. 1 and 2.

In the case of square nuts or heads, the bottom of the channel *d* is adapted to accommodate one side of the nut, the opposite sides of the channel two sides of the nut, and the end of the center bar *a* the other side of the nut.

Figs. 4, 5 and 6 illustrate the combination of an additional tool *e* with the present invention. The tool *e* may be provided with a tire lever e^1 at one extremity and a cone spanner e^2 at the other extremity or same may comprise or be provided with a screw driver or any other implement or tool. This additional tool *e* conveniently has a sliding connection with the handle *a* and *b* of the spanner proper in such a manner the same normally occupies a space adjacent the said handle (Fig. 4) but when it is desired to employ same the channel shaped members *d*

are moved to an inoperative position and the additional tool *e* slid forward into operation as shown in Fig. 6. Conveniently the additional tool *e* may be slidingly connected to the handle part *a* and *b* of the spanner proper through the medium of two blocks or members *f* which slide in the recesses formed by the strips *b* and the bar *a*. These blocks *f* or members may be united on one side of the spanner small pins or set screws f^2 projecting from the blocks may work within parallel slots e^3 provided longitudinally within the additional tool *e* in such a manner that the said tool can slide longitudinally in relation to the blocks but cannot be removed therefrom on account of the heads on the pins or set screws f^2. When it is desired to utilize either extremity of the additional tool *e* it is only necessary to move the channel shaped members *d* into an inoperative position and slide the additional tool *e* longitudinally till the blocks *f* lie adjacent the pivot pins *c* or hinged extremities of the channel shaped members *d* and the small screws or set pins f^2 engage the extremities of the slots e^3 in the said additional tool (Fig. 6).

Claims:—

1. A spanner having in combination a centrally disposed member provided with a nut face engaging part in the end of same and a multiple of nut face engaging members nesting one within the other pivotally secured at the end of said centrally disposed member.

2. A spanner having in combination a centrally disposed member provided with a nut face engaging part in the two ends of same, and a multiple of nut face engaging members nesting within one another pivotally secured at each end of said centrally disposed member and being of varying sizes.

3. A spanner having in combination a centrally disposed member provided with a nut face engaging part in the two ends of same, a multiple of nut face engaging members pivotally secured at each end of said centrally disposed member and being of varying sizes and arranged to nest one within the other and two side members arranged parallel or substantially parallel to the centrally disposed member and secured thereto.

4. A spanner having in combination a centrally disposed member provided with a nut face engaging part in the end of same, a multiple of nut face engaging members nesting one within the other pivotally secured to the end of said centrally disposed member, and two side members arranged parallel or substantially to the centrally disposed member and secured thereto.

5. A spanner having in combination a centrally disposed member provided with a nut face engaging part in the two ends of same, a multiple of nut face engaging members pivotally secured at each end of said centrally disposed member, being of varying sizes and arranged to nest one within the other and to be turned back onto the centrally disposed member when not in use.

In testimony whereof, I have signed my name to this specification.

JOHN JAMES WOODWARD.