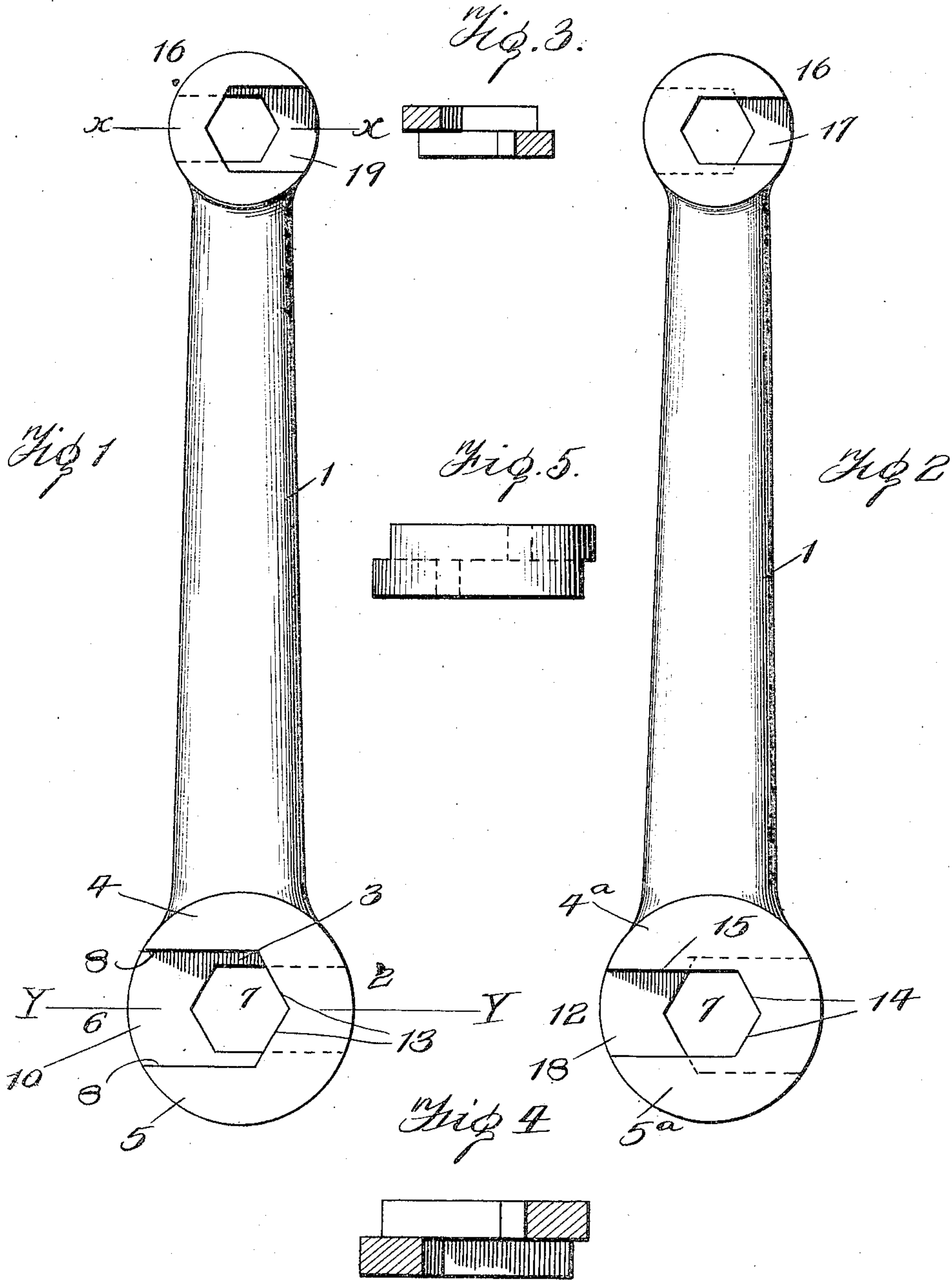


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WRENCH.

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UNITED STATES PATENT OFFICE.

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WRENCH.

No. 916,951.

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To all whom it may concern:

Be it known that I, HARRY JEFFREY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a combined spanner and socket wrench having all parts formed in a single piece of metal; and has for its object to provide a wrench, that can be easily and quickly placed upon any one of a number of differently sized nuts or bolt-heads and can be engaged with one of such differing nuts either by moving the wrench head axially of the nut, while in position of engagement, or by moving it transversely of the axis of the nut; and the wrench itself in all cases having a continuity of metal extending around the nut or bolt-head so that all of the parts subjected to strain shall be integral, and immovably tied together permanently, whereby great strength and durability are secured without increasing the thickness of the metal over that used in making the ordinary, open-jaw solid wrenches.

Figure 1 is a face view of a wrench constructed with my improvements. Fig. 2 is a face view taken from the opposite side. Fig. 3 is a cross section on the line X X of Fig. 1. Fig. 4 is a cross section on the line Y Y of Fig. 1. Fig. 5 is an end view.

The wrench shown in the drawings is constructed with a shaft or handle 1, having an extension or head 2 at the end. This head is integral with the handle, and is so shaped as to have four jaw-like parts, 4, 5, 4^a, 5^a, which are integral with the head and handle, and are of substantially the same thickness as the head.

Upon the face of the wrench shown in Fig. 1 there is formed in the head 2 a cavity indicated by 3, having walls 13, this being at the inner end and communicating with a groove 6 which extends outward from the walls 13, 13, to the periphery of the head. This groove is of such nature that the wrench can be applied to a nut having parallel sides of the width of the groove. If it be a hexagon nut of the right size, the wrench can be engaged therewith at the walls 8, 8, 13, 13. Such engagement can be effected either by bringing the wrench to the nut on lines

parallel to the axis of the nut, or, in places where this can not be done, engagement can be attained by sliding the wrench along the nut, the latter entering the groove at the periphery of the head. By forming a groove such as described, a web 10 of metal is left which is integral with jaw-like parts 4, 5, and being integral with them insures that when they are subjected to strain they shall not be broken or spread apart. In the other face, shown in Fig. 2, of the wrench, there is formed a groove 12 having side walls 15, which extend into inclined walls 14. The metal at 4^a, 5^a, on the sides of this groove 12, provides two jaw-like parts, connected at the bottom of the groove by a tie-web or plate 18, which is integral with the jaws. This groove is narrower than that at 6 on the opposite face of the tool and is adapted to engage with and rotate nuts or bolts of smaller cross dimension. The groove 12 extends from the periphery inward to points beyond the inner end of the groove 6, and they are of such depth that there is at their inner ends a through aperture 7. It will be seen that, in all cases, after a nut or bolt-head is engaged by the wrench, it will be surrounded by a continuous integral mass of metal, so that whether the jaw-like parts at 4, 5, or those at 4^a, 5^a, are in use, they will be strengthened by the metal of the head and handle. At the opposite end the wrench is shown as provided with a smaller head, 16, which, upon one face is formed with a groove 17, and upon the other face with a groove 19, similar except in their dimensions, to those at 6 and 12. This shows how a single piece of metal can be formed, in accordance with my invention, so that it can be utilized to engage with and rotate (either as a spanner wrench or as a socket wrench), nuts or bolt-heads of any of four sets.

I have not herein claimed this wrench broadly, such claims having been presented in my application Ser. No. 438,439, for the reissue of Patent No. 873,437.

What I claim is:

1. A wrench for engaging nuts and bolt-heads comprising a handle having integral therewith a head, having a central nut-receiving aperture extending through the head and formed with a recess or groove in one of its faces, extending from the periphery of the head inward to the nut-receiving aperture

and with a groove upon the opposite face extending from the periphery of the head inward to the nut-receiving aperture and alining with opposite faces thereof and narrower than the first aforesaid groove, said grooves providing two pairs of jaw-like parts in the head, each pair having integral with said jaw-like parts and with the handle a tie-web or plate, substantially as set forth.

2. A wrench for nuts and bolt-heads comprising a handle having integral therewith a head having a nut-receiving opening extending therethrough and formed with two pairs of jaw-like nut engaging parts, each jaw extending from the periphery of the head inward to the opening and each pair of jaws being connected by an integral web, or tie-plate, the jaws of one pair being closer together than the jaws of the other pair and the pairs of jaws being arranged on opposite side faces of the head, substantially as set forth.

3. A wrench for nuts and bolt-heads comprising a handle, having integral therewith a head having a nut-receiving opening and formed with two pairs of jaw-like parts integral with the head and handle and each pair of said parts having a relatively thin tie-web or plate integral therewith, and the jaw-like parts of one pair extending from the periphery inward to the opening on lines parallel to the jaw-like parts of the other pair and the pairs of jaws being arranged on opposite side faces of the head, substantially as set forth.

4. A wrench for nuts and bolt-heads comprising a handle, having integral therewith a head formed with two pairs of jaw-like parts integral with the head and handle and each pair of said parts having a relatively thin tie-web or plate integral therewith, and the jaw-like parts of one pair extending from the pe-

riphery inward on the same center line with the jaw-like parts of the other pair, the openings of the jaw-like parts being directed oppositely from each other and the pairs of jaws being arranged on opposite side faces of the head, substantially as set forth.

5. A wrench for nuts and bolt-heads, comprising a handle having integral therewith a head formed with two pairs of jaw-like parts integral with the head and handle, one pair on each side of the head and each pair having a relatively thin tie web or plate integral therewith, the inner face of one tie web lying in the same plane with the inner face of the other tie web and the pairs of jaws being arranged on opposite side faces of the head.

6. A wrench for nuts or bolt-heads comprising a handle, having integral therewith a head formed with two pairs of jaw-like parts integral with the head and handle, each pair of said parts having a relatively thin tie web or plate integral therewith, one pair of jaw-like parts being disposed on each side of the head, the two pairs extending toward the periphery in diametrically opposite directions, the sum of the thickness of the two pairs of jaw-like parts being as great as the thickness of the head, the metal of the head being shaped to provide nut-receiving faces between the inner ends of the two jaw-like parts of each pair, the said nut-receiving faces of one pair being so related to the nut-receiving faces of the other pair as to be adapted to receive a nut or bolt-head between them.

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

HARRY JEFFREY.

Witnesses:

FERD. H. HEYWOOD,
F. F. HOFFLE.