(No Model.) 2 Sheets—Sheet 1.

R. F. HALL.

ADJUSTABLE SPANNER WRENCH.

No. 595,473. Patented Dec. 14, 1897.

Fig. 1.

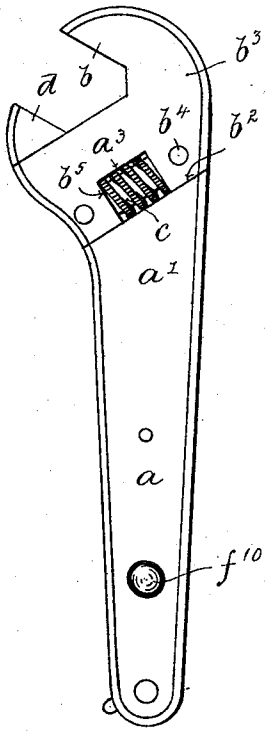


Fig. 2.

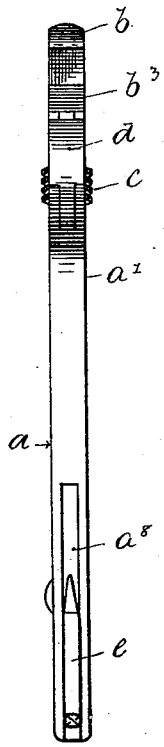


Fig. 3.

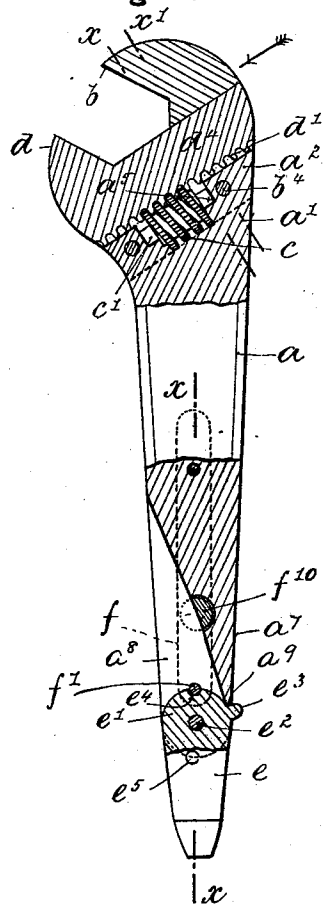
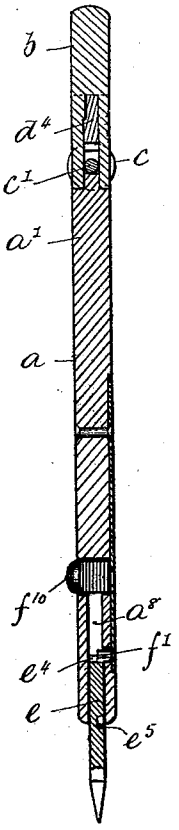


Fig. 4.



WITNESSES

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ADJUSTABLE SPANNER WRENCH.

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Fig. 5.

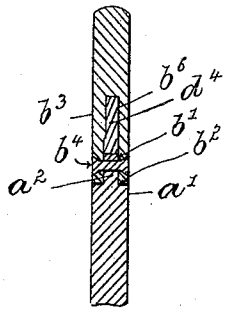


Fig. 9.

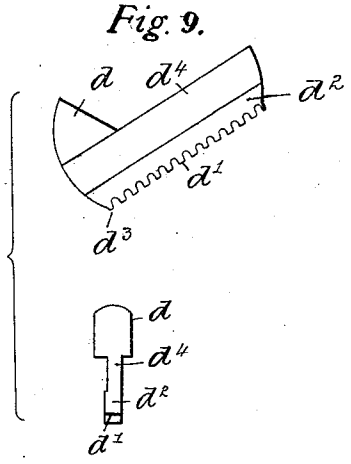


Fig. 6.

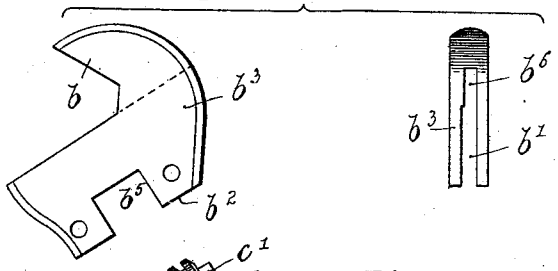
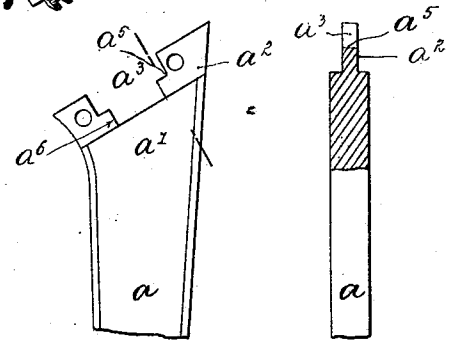


Fig. 7



Fig. 8.



WITNESSES.

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UNITED STATES PATENT OFFICE.

ROBERT FREDERICK HALL, OF BIRMINGHAM, ENGLAND.

ADJUSTABLE SPANNER-WRENCH.

SPECIFICATION forming part of Letters Patent No. 595,473, dated December 14, 1897.

Application filed September 4, 1897. Serial No. 650,651. (No model.) Patented in England July 24, 1897, No. 17,432.

To all whom it may concern:

Be it known that I, ROBERT FREDERICK HALL, a subject of the Queen of Great Britain, residing at Birmingham, England, have invented certain new and useful Improvements in Adjustable Spanner-Wrenches, of which the following is a full, clear, and exact specification, and for which invention I have obtained Letters Patent of Great Britain dated the 24th day of July, 1897, and numbered 17,432.

This invention relates to adjustable spanners of that type in which a movable jaw is propelled and repelled in an oblique direction across a fixed head or jaw terminating the forward end of a handle. Usually the head or fixed jaw and the handle part are made all in one piece, and the operation of fitting the nut by which the movable jaw is actuated is complicated and costly.

The object of my invention is to simplify the construction and manufacture of such spanners and to reduce the cost of their production.

Figure 1 of the accompanying drawings represents an elevation of an adjustable spanner (with screw-driver attachment) of a simplified construction made according to my invention. Fig. 2 is a front edge view of the same. Fig. 3 is a vertical section of the said spanner, also showing the screw-driver part of the instrument turned into its position of use. Fig. 4 is a vertical section of the spanner, taken upon the dotted line x, Fig. 3, and looking in the direction of the arrow. Fig. 5 represents a section of the head, taken upon the dotted line x', Fig. 3. Fig. 6 represents side and end elevations of the fixed-jaw part separately. Fig. 7 represents the screw-nut or worm separately. Fig. 8 represents an elevation and an edge view, partly in section, of the upper end of the handle part. Fig. 9 represents the movable jaw separately in side and end elevation.

The same letters of reference indicate corresponding parts in the several figures of the drawings.

In constructing an adjustable spanner according to my invention I take a fixed handle part a, with the forward or upper end a', which is preferably broadened out, terminated by a tongue or middle rib a^2, adapted to take within a like groove or middle channel b', sunk within the opposed edge b^2 of the head b^3, carrying a fixed jaw b, which head is made separate from the handle part, but is secured thereto by cross-rivets b^4 after the tongue of the handle part has been inserted into the groove of the head part.

The middle part of the rib and likewise the middle part of the lower edge of the fixed-jaw head are coincidently gapped at a^3 b^5, respectively, to receive a corded screw-nut or worm c, which is greater in diameter than the breadth of the head and whose worm is adapted to engage the tangential teeth d' of a rack d^2, formed upon the under edge d^3 of a flat and sliding diagonal bar d^4, carrying a movable jaw d and working within a like-sectioned and obliquely-directed plain and thoroughfare slot or raceway d^6, formed lengthwise across the fast head, so that when the corded nut is rotated in one or other direction the said flat bar or stem is propelled or repelled, and the movable jaw mounted thereon is made to approach or recede from the fixed jaw.

The movable jaw is kept in its position by the corded nut c, having journaled or pivot ends c', which drop into stepped sinkings or bearing-gaps a^5, formed at the upper ends of the two opposite sides a^6 of the gap a^3 at the fore end of the handle.

By making the head-piece separate from the handle I am able to greatly facilitate the machining or milling operation of the parts, and by such milling processes I am able to retain the corded nut in its assigned position without the employment of loose pieces.

The after or lower end a^7 of the handle of the aforesaid implement is fitted with a folding screw-driver e, with the joint end e', which works in a gap a^8, between a pair of cheeks formed by the slotting of the said end, and is mounted upon a cross-pin e^2, provided with a snug or ear stop e^3, which when the screw-driver is open comes against a shoulder a^9 or an abutment end terminating the said gap a^8, between the cheeks of which the screw-driver end lies when folded. A spring-catch f is provided with a stud f', which engages either in a recess e^4 at the edge of the screw-driver for retaining the same in its position of use or in the recess e^5 for holding it closed.

Pressure of the finger upon the protruding button f^{10} disengages the said stud and admits of the screw-driver being folded up or placed in its position of use as required, and on such pressure being relieved the driver is locked.

As an alternative arrangement the tongue part may be formed upon the handle and the groove for the reception of the said tongue may be cut along the top edge of the handle.

Having fully described my invention, what I desire to claim and secure by Letters Patent is—

1. A spanner-wrench, consisting of a handle a, having a tongue a^2 on one end, a fixed jaw b having a head b^3 constructed with a groove b' receiving said tongue, means for rigidly attaching the head of the fixed jaw to the tongue, said tongue and the grooved part of the head of the fixed jaw having recesses or gaps, a worm-nut c lying in said recesses or gaps, and a movable jaw d constructed with a diagonal bar d^4 slidable centrally in the head of the fixed jaw and having a rack d^2 engaging the worm-nut, substantially as described.

2. An adjustable spanner-wrench, consisting of a handle, a fixed head having a tongue on one end, a fixed jaw having a head constructed with a groove receiving said tongue, means for attaching the head of the fixed jaw to the tongue, said tongue and the grooved part of the head of the fixed jaw having coincident recesses or gaps, a worm-nut c fitted in the said recesses or gaps, and a movable jaw mounted on the head of the fixed jaw and having a rack engaging the worm-nut, substantially as described.

3. An adjustable spanner-wrench, consisting of a handle having a tongue on one end, a fixed jaw having a head constructed with a groove receiving said tongue, the tongue and the grooved part of the head of the fixed jaw having coincident recesses or gaps and the recess or gap in the tongue having seats for the journals or pivots of a worm-nut, a worm-nut fitted in the recesses or gaps and having journals or pivots lying in said seats, and a movable jaw having a rack engaging the worm-nut, substantially as described.

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

ROBERT FREDERICK HALL.

Witnesses:
ERNEST HAROLD BROWNHILL,
WILLIAM H. LONG.