No. 770,574. PATENTED SEPT. 20, 1904.

M. HALSTEAD & J. CHANDLER.

SPANNER OR WRENCH.

APPLICATION FILED DEC. 24, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

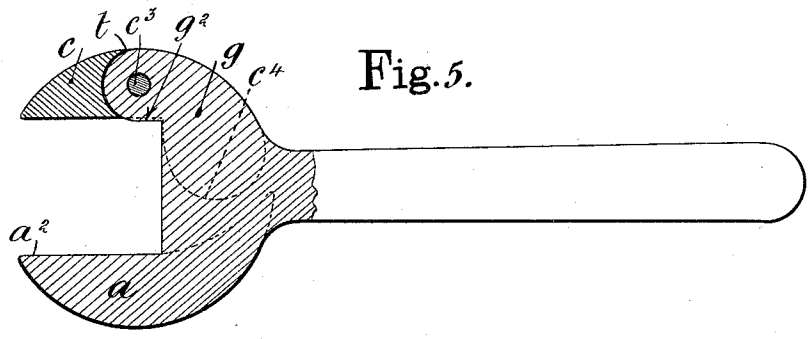


Fig. 5.

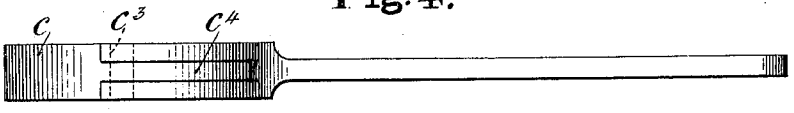


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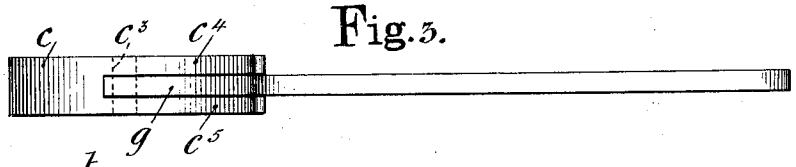


Fig. 3.

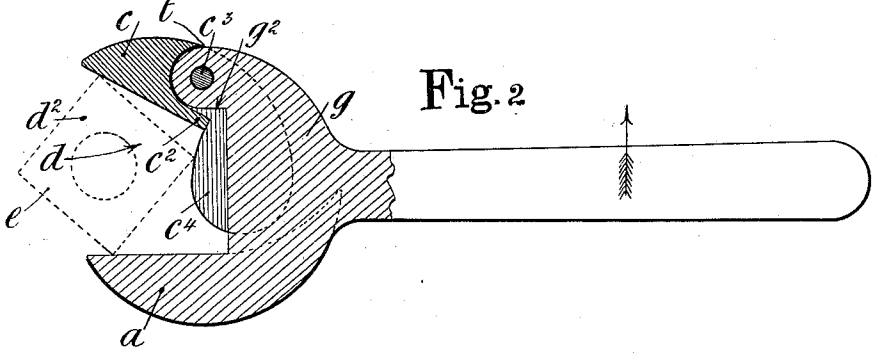


Fig. 2.

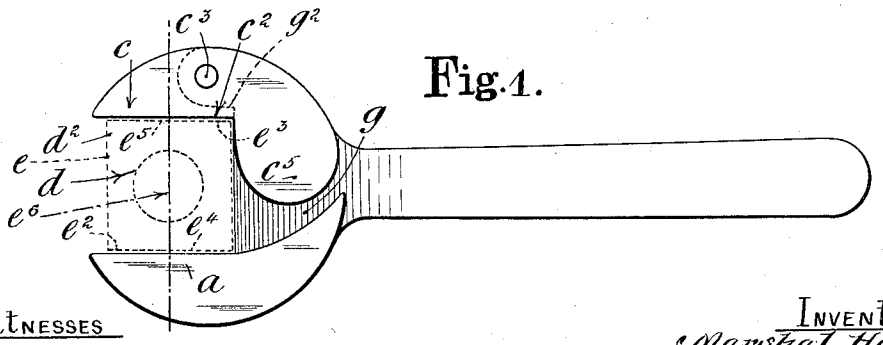


Fig. 1.

Witnesses
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NO MODEL. 3 SHEETS—SHEET 2.

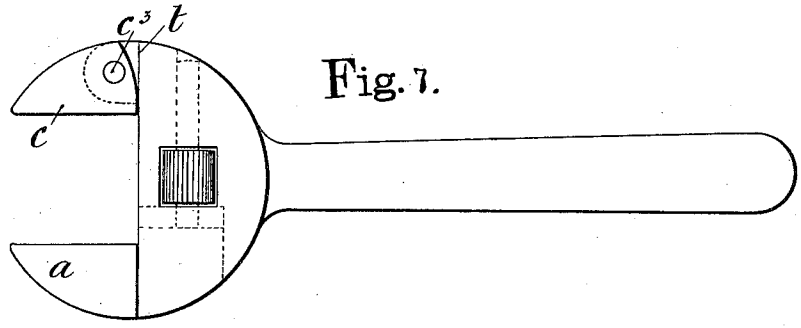


Fig. 7.

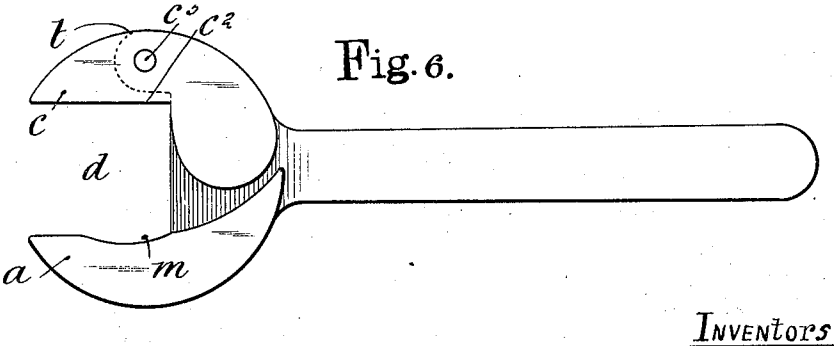


Fig. 6.

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No. 770,574. PATENTED SEPT. 20, 1904.

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NO MODEL. 3 SHEETS—SHEET 3.

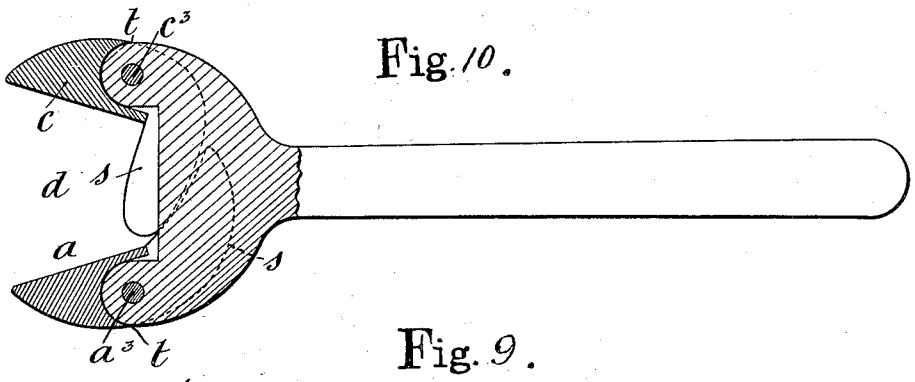


Fig. 10.

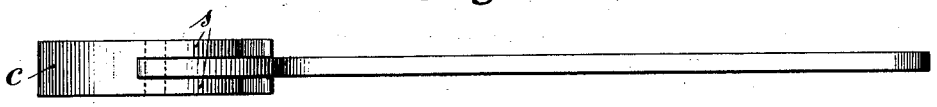


Fig. 9.

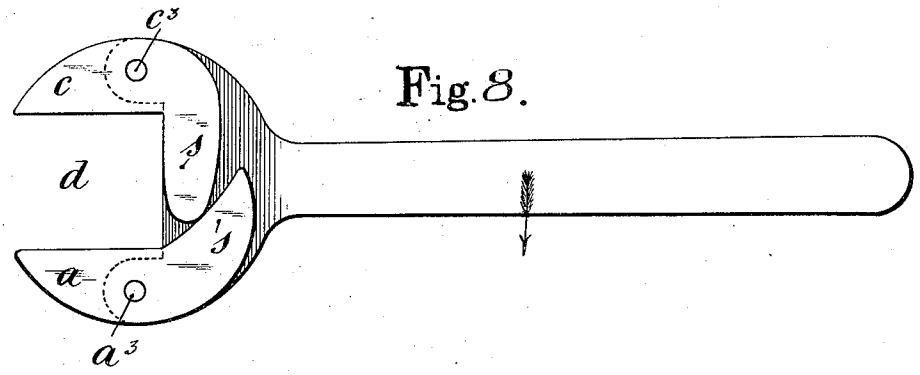


Fig. 8.

Witnesses
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Inventors
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No. 770,574. Patented September 20, 1904.

UNITED STATES PATENT OFFICE.

MARSHAL HALSTEAD AND JAMES CHANDLER, OF BIRMINGHAM, ENGLAND; SAID CHANDLER ASSIGNOR, BY MESNE ASSIGNMENTS, TO GEORGE HENRY BIDDLE, OF MOSELEY, COUNTY OF WARWICK, ENGLAND.

SPANNER OR WRENCH.

SPECIFICATION forming part of Letters Patent No. 770,574, dated September 20, 1904.

Application filed December 24, 1902. Serial No. 136,496. (No model.)

To all whom it may concern:

Be it known that we, MARSHAL HALSTEAD and JAMES CHANDLER, citizens of the United States of America, both residing at 43 Cannon street, Birmingham, in the county of Warwick, England, have invented certain new and useful Improvements in Spanners or Wrenches, of which the following is a specification.

Our invention relates to spanners or wrenches for turning faceted nuts, bolt-heads, and such like, and comprises the hereinafter-described improvements for the purpose of producing a spanner or wrench which can be changed from one pair of facets or flats of a nut or the like to another pair of facets or flats without it losing hold of or leaving the nut and by the simple turning of the spanner or wrench in the opposite direction to that in which it is turned for rotating the nut, the said nut when the changing as aforesaid is taking place remaining stationary.

According to our invention we form the jaws of a spanner or wrench and hinge either one or both of them to a part of the spanner carrying them in the manner substantially illustrated in the accompanying sheets of drawings, the change of position of the spanner upon the nut being consequent to the causing of the mouth of the opening between the jaws to enlarge sufficient to allow the diagonals of the nut to pass or turn in the opening without the nut leaving the sides of the opening and confines of the jaws.

Figures 1 and 2 denote side elevations of the spanner or wrench, showing the hinged jaw closed and opened, respectively. Fig. 3 is an edge view of the spanner or wrench. Fig. 4 is an edge view of a modified form. Fig. 5 is a side elevation of a modified form. Fig. 6 is a like view of another modified form. Fig. 7 is a side elevation of another modified form. Fig. 8 is a side elevation of another modified form. Fig. 9 is an edge view thereof, and Fig. 10 is a sectional side elevation of the modified form shown in Fig. 8.

In the illustration of the invention, Figs. 1, 2, and 3, the jaw a is rigid upon the head g of the spanner, and the jaw c is hinged upon the said head to open outwardly in the manner represented by Fig. 2, this hinging outwardly enlarging the opening d between the jaws at the mouth d. When the spanner is operated to turn the nut, the jaws a and c nip or grip the nut at diagonally opposite ends e^2 e^3 of opposite flats or facets e^4 e^5, and consequently the hinging of the jaw c in this form of the invention, where the face of the jaw c extends from the bottom of the throat of the opening d to the extremity of its mouth, must be such that the nipping or gripping part of it, c^2, is inward of the point of hinging e^3, this part c^2 when the jaw is closed, as in Fig. 1, having a solid abutment against a part g^2 of the head of the spanner. Tailpieces c^4 c^5 are formed rigid upon the hinged jaw c to serve as guides when the spanner is changed on the nut and to help in the automatic closing of the jaw c after the spanner has changed its facets or flats. The hinging of the jaw c to the head must be inward of the middle e^6 of the nut e, preferably as near as possible to the bottom of the opening d consistent with a sufficient nipping or gripping part c^2. In this form of spanner the tailpieces c^4 c^5 are not necessary, but are preferable. Fig. 2 shows how the spanner turns on the nut without leaving the latter, the direction of operation of the spanner being as indicated by the arrow, the nut e at the time being stationary.

In the form of the invention Fig. 5 the hinged jaw c does not nip or grip the nut to turn it, the said gripping or nipping being at the outer extremity a^2 of the rigid jaw a and at the part g^2 of the head g, which in the previous form of the invention constituted a solid abutment to the hinged jaw. The jaw c in this case is therefore inoperative in the turning of the nut, but hinges outwardly when the spanner changes facets. In this form of the invention the tailpieces c^4 c^5 are necessary to close the hinge-jaw c after the spanner has changed facets.

In the form of the invention Fig. 6, a very desirable form, the rigid jaw a is cut away at m; but otherwise the spanner is the same as the form Figs. 1 to 3. This cutting away

allows that corner of the nut in the adjacent part of the throat of the opening immediate freedom when the spanner is changing facets.

The invention is shown in Fig. 7 applied to a shifting spanner or monkey-wrench, the hinged jaw *c* being adapted to work in the same way as the hinged jaw, Figs. 1 to 3, but less any tailpieces. The hinged jaw *c* in this arrangement is a non-adjustable jaw, the rigid jaw *a* being the adjustable jaw. It will be understood, however, that the adjustable jaw may be the hinged jaw.

In Figs. 8, 9, and 10 both the jaws *a* and *c* of a spanner are shown hinged to the head to swing outwardly in much the same way as the hinged jaw in Figs. 1 to 3. Each of the hinged jaws, however, has a tailpiece *s*, which inward of the points a^3 c^3 of hinging of the jaws engage or contact with each other, so that the closing of the jaw *c* shall force a closing of the jaw *a*, and, further, so that so long as the jaw *c* is closed the jaw *a* cannot open, the jaw *c* being shown as the primary jaw of the two, with the spanner operating in the direction of the arrow to turn the nut.

The foregoing improved spanners in the initial taking hold of the nut will find the said nut easily and also be of a large amount of usefulness in the turning of nuts and such like which are in difficult places and awkward to get at.

Having now described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A spanner or wrench comprising a head provided with an abutment and a stop, a fixed jaw carried by said head, and unbroken hinged jaw carried by said head and provided with a nipping or gripping part extending inward past the point of hinging, said nipping or gripping part coacting with said abutment, and said stop limiting the swinging outward of said jaw.

2. A spanner or wrench comprising a head, a fixed jaw carried thereby and having its inner face suitably cut away, and a jaw hinged to said head and provided with a tailpiece adapted to be moved forwardly when the hinged jaw is swung outwardly and said tailpiece further adapted to return said jaw to its closed position.

3. A spanner or wrench comprising a fixed and a hinged jaw having their inner faces forming gripping-surfaces and arranged when in their normal positions substantially parallel to one another, said hinged jaw having its point of hinging at one side of the center of the length of its gripping-surface and adjacent to the inner end thereof, and a tailpiece carried by the hinged jaw and adapted to swing forwardly over the fixed jaw when the hinged jaw is swung outwardly, said tailpiece adapted to restore said hinged jaw to its normal position when engaged by an object.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

MARSHAL HALSTEAD.
JAMES CHANDLER.

Witnesses:
GEORGE H. BIDDLE,
GEO. SUENS