J. H. COLLISTER.

COMBINED ADJUSTABLE PLIERS AND WRENCH.

APPLICATION FILED APR. 12, 1911.

1,027,693. Patented May 28, 1912.

Fig. 1.

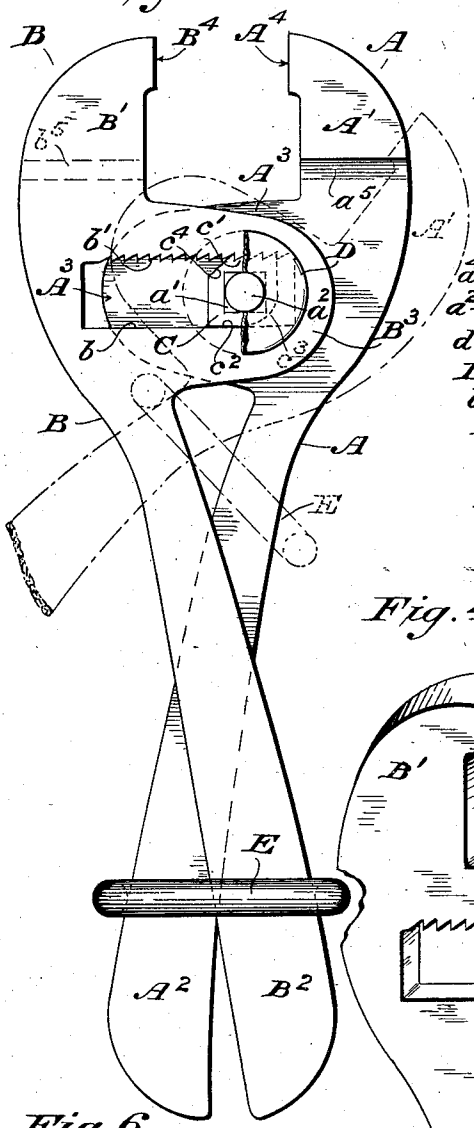


Fig. 5.

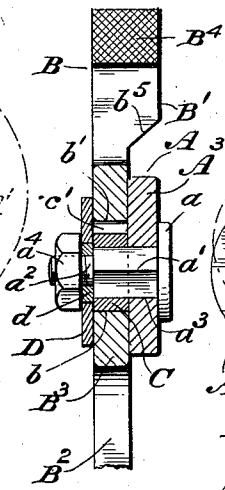


Fig. 2.

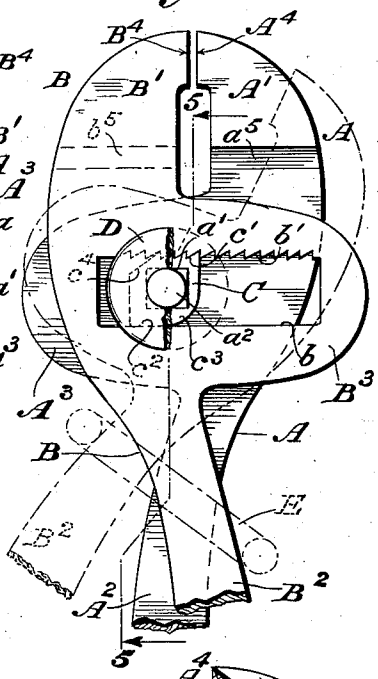


Fig. 4.

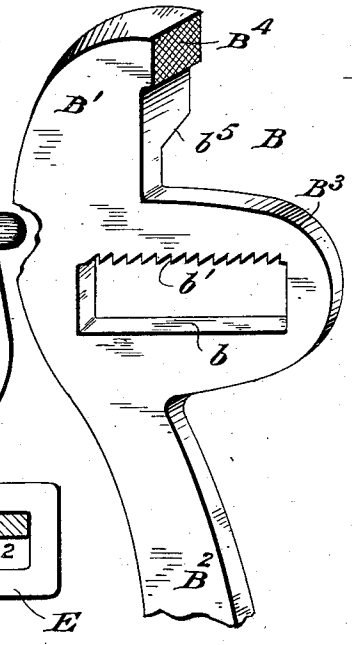


Fig. 3.

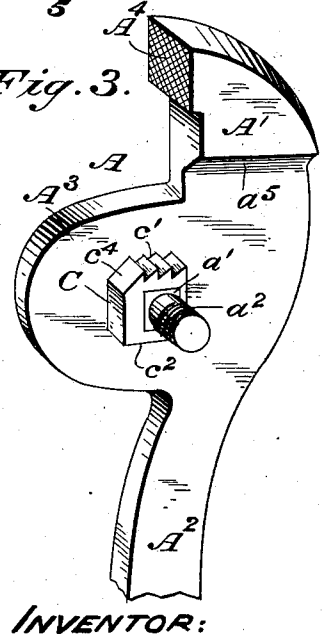
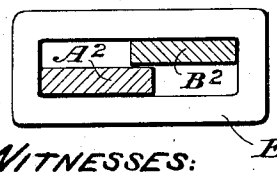


Fig. 6.



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UNITED STATES PATENT OFFICE.

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COMBINED ADJUSTABLE PLIERS AND WRENCH.

1,027,693. Specification of Letters Patent. Patented May 28, 1912.

Application filed April 12, 1911. Serial No. 620,590.

To all whom it may concern:

Be it known that I, JOHN H. COLLISTER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Combined Adjustable Pliers and Wrenches, of which the following is a full, clear, and exact description.

This invention relates to a combined plier and wrench, or a tool which may be used in either of these capacities. Its object is to connect the two members, each of which includes the usual jaw and handle, upon a pivot in such manner that the distance between the jaws may be varied within a wide range; and at all points of adjustment the jaws, when closed, are substantially parallel to each other on their working faces.

A further object is to so construct and arrange the several parts of the tool that the said adjustments of the jaws may be quickly and easily effected, without the necessity for loosening any special pivot fastenings or the manipulation of any pivot-locking devices.

A further object is to produce a plier-wrench in which the jaws, at any point of separation, may not be closed beyond the point of parallelism and to provide means, if desired, for holding them securely in such position.

A further object is to produce a tool of the character described which shall be simple in construction, cheap to make and easy to manipulate,—these and other objects being carried out in a satisfactory manner by that embodiment of the invention shown in the accompanying drawings. This showing, however, is that of the now preferred forms of details and assemblage of the parts which may be varied, doubtless, in certain respects without material departure from the spirit of the invention, as set forth in the claims at the end of this specification.

In the drawings, Figure 1 is a side elevation of the preferred form of wrench-and-plier with the members so set upon the pivot that the jaws are in their most widely separated or distant positions. Fig. 2 is a similar view, showing the pivot adjusted to a position where the jaws are brought into their closest closed relation,—the dotted lines in both of these figures indicating the positions of one of the jaws relatively to the other when swung open. Fig. 3 is a perspective view of one of the jaw heads detached. Fig. 4 is a similar view of the other jaw head. Fig. 5 is a vertical section on the line 5—5 of Fig. 2, showing the preferred form of details of the pivot construction. Fig. 6 illustrates a simple form of link which may be used on the handles of the instrument to prevent them from separating when the jaws are set parallel in any adjustment.

In this preferred construction the pivot is mounted upon one of the members A which comprises a jaw A′, a handle A^2 below it, and between them a side lug or extension A^3 upon which the pivot is permanently secured. The member B comprises a similar jaw B′ and handle B^2 with lug extension B^3 in which a rectangular slot b is formed substantially at a right angle to the plane of the jaw face, and provided with ratchet teeth b' along its upper edge.

The pivot in the construction shown consists of a bolt having an enlarged flat head a and a square shank a' which extends through both of the main members of the tool and terminates at its end in a reduced screw threaded portion a^2. This squared shank is adapted to fit snugly in a corresponding opening a^3 in the jaw A, and upon it is mounted a ratchet lug C provided with a square aperture which fits over the squared body of the bolt to hold it from turning. Upon the round screw threaded portion of the bolt is mounted a spacing thimble d and a washer D of considerable size to partly cover the aperture b in the opposed member B of the tool. A nut a^4 on the end of the bolt clamps the parts securely together, the member B lying between the washer and opposed member A. The aperture b in the member B is preferably rectangular and provided on its upper edge with a series of serrations or ratchet teeth b'. The lug C is provided on its upper side with a series of ratchet teeth c' adapted to engage the teeth of the member B, and, when in operative position, the lug is of sufficient depth to completely fill the aperture from top to bottom and prevent the disengagement of the ratchet teeth.

The lower flat face c^2 of the lug bears against the lower side of the slot when the ratchet teeth are engaged and the jaws in parallelism. One lower corner c^3 and the diagonally opposite upper corner c^4 of the lug are beveled or cut away in order to afford space for swinging the slotted member B to a position where the ratchet teeth

of said member may be disengaged from those of the pivot lug and space is provided to free the lug and permit of its being moved along in the slot to some new position of adjustment. It is preferred that the lower cut-away corner c^3 be curved concentrically about the axis of the pivot. The lower flat portion c^2 of the lug lies on the opposite side from the jaw face A^4 of a longitudinal line through the pivot axis, and it bears against the lower side of the slot stopping the closing movement of the members at that stage where the jaws arrive at parallelism and preventing further movement in this direction. Means may be employed, if desired, to lock the main members in this position, that is to prevent them from opening, and thus better fit the implement for use as a wrench. Any desired means to this end may be employed; as for example, a simple rectangular loop E, Fig. 6, adapted to be raised to a contracted point on the handles close under the side extensions A^3 and B^3 to release the handles, and then, after the jaws are adjusted, to be slipped down over the expanding part of the handles to hold them in closed relation with the flat portion c^2 of the lug bearing against the bottom edge of the slot.

By these means the pivot point may be shifted to any position along the aperture b that will give the desired opening between the jaws, and it will be noted that when these jaws are closed in any of these positions their working faces are substantially parallel with each other, so that they may properly grip without injury any article between them; or, if used as a wrench, they will grip flatly upon the sides of the nut without injury to its corners.

Each of the jaws A′ and B′ have faces A^4 and B^4 as wide as the combined thickness of both handles, the jaws being offset as at a^5 and b^5 to effect this purpose.

The ratchet lug C may, if desired, be made integral with the member A, and therefore be independent of the pivot bolt shank a', for compelling it to turn with said member. In such event, the main shank a' of the bolt may be round instead of square, but it must be larger than the threaded end a^2 in order to form a shoulder against which the spacing thimble d will bear.

The construction above described affords an instrument in which the space between the jaws may be quickly changed without in any way affecting the parallelism of the jaws when they are closed to operative position.

Having thus described the invention what is claimed as new and useful is:

1. In a combined plier and wrench comprising two pivotally connected members each having a jaw and a handle on opposite sides of the pivot, the combination of said members with overlapping side extensions on each, a rectangular slot in the side extension of one member with ratchet teeth formed along one of its long sides, a pivot lug on the other member having at one side a series of teeth adapted to engage those in one side of said slot while the opposite flat side of the lug bears against the opposite side of the slot, whereby the ratchet teeth of the lug and slot are held in engagement, with two diagonally opposite corners of the lug cut away to permit of the disengagement of said ratchet teeth and freeing the lug.

2. In a combined plier and wrench comprising two pivotally connected members each having a jaw and a handle on opposite sides of the pivot, the combination of said members with overlapping side extensions on each, a rectangular slot in the side extension of one member with ratchet teeth formed along one of its long sides, a pivot lug on the other member having at one side a series of teeth adapted to engage those in one side of said slot while the opposite flat side of the lug bears against the opposite side of the slot, whereby the ratchet teeth of the lug and slot are held in engagement, with two diagonally opposite corners of the lug cut away to permit of the disengagement of said ratchet teeth and freeing the lug, said slot lying at substantially a right angle to the length of the member and to the working face of its jaw, whereby the jaws of both members are parallel when closed in any position of pivotal adjustment along the slot.

3. In a combined plier and wrench comprising two pivotally connected members each having a jaw and a handle on opposite sides of the pivot, the combination of said members with overlapping side extensions on each, a rectangular slot in the side extension of one member with ratchet teeth formed along one of its long sides, a pivot lug on the other member having at one side a series of teeth adapted to engage those in one side of said slot while the opposite flat side of the lug bears against the opposite side of the slot, whereby the ratchet teeth of the lug and slot are held in engagement, with two diagonally opposite corners of the lug cut away to permit of the disengagement of said ratchet teeth and freeing the lug, said slot lying at substantially a right angle to the length of the member and to the working face of its jaw, that portion of the lug which bears upon the lower edge of the slot being upon the opposite side of the pivot axis from the jaw of its member, whereby it stops further closing movement of the jaws when they arrive at parallelism.

4. In a combined plier and wrench comprising two pivotally connected members each having a jaw and a handle on opposite

sides of the pivot, the combination of said members one of which has a slot which lies substantially at a right angle to the length of the member and is provided at one side with a series of ratchet teeth, the other member having a rigid lug which is provided with ratchet teeth to enage those of the slot and is adapted, when the jaws are closed, to engage both sides of the slot, cut-away corners on the lug to permit the members to swing to open the jaws, with means which stop the closing movements of the members when the jaws arrive at parallelism.

5. In a combined plier and wrench, the combination of two pivotally connected members each having a jaw and a handle on opposite sides of the pivot, a slot in one member lying at substantially a right angle to the length of the member and provided with ratchet teeth along one edge, a rigid pivot lug on the other member adapted to lie in and be adjusted along said slot, ratchet teeth on said lug to engage those of the slot, means to prevent the jaws from being closed past positions where their working faces are parallel, and means to lock the members against opening movements in any position of adjustment.

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

JOHN H. COLLISTER.

Witnesses:
H. R. SULLIVAN,
WM. A. SKINKLE.