No. 613,213. Patented Oct. 25, 1898.

W. F. MURPHY.

WRENCH.

(Application filed Jan. 12, 1898.)

(No Model.)

Fig. 1.

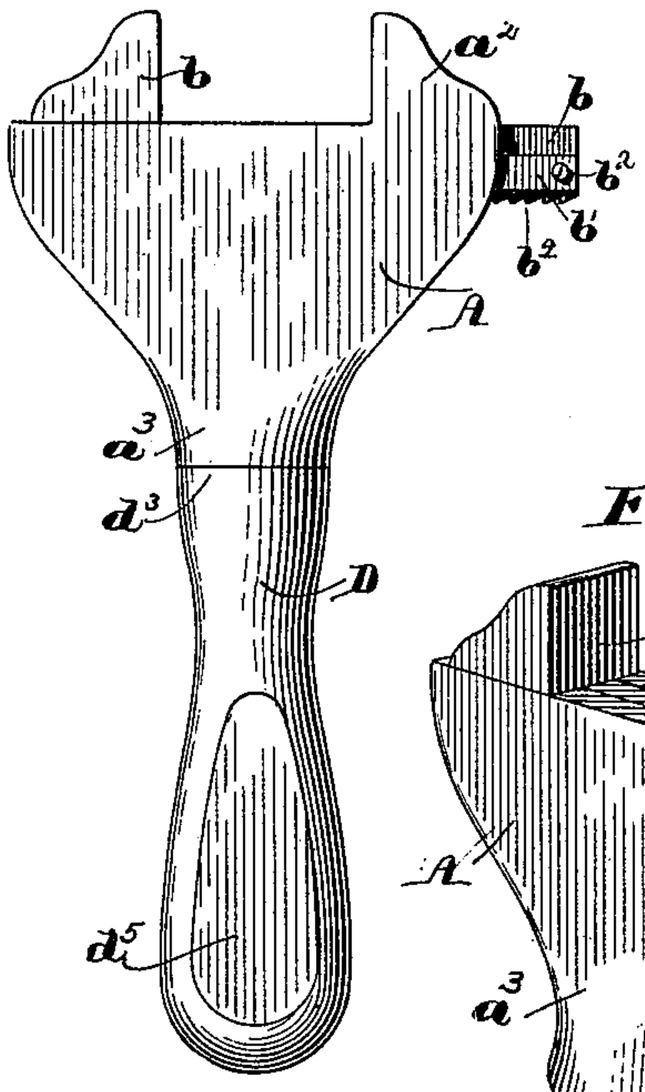


Fig. 2.

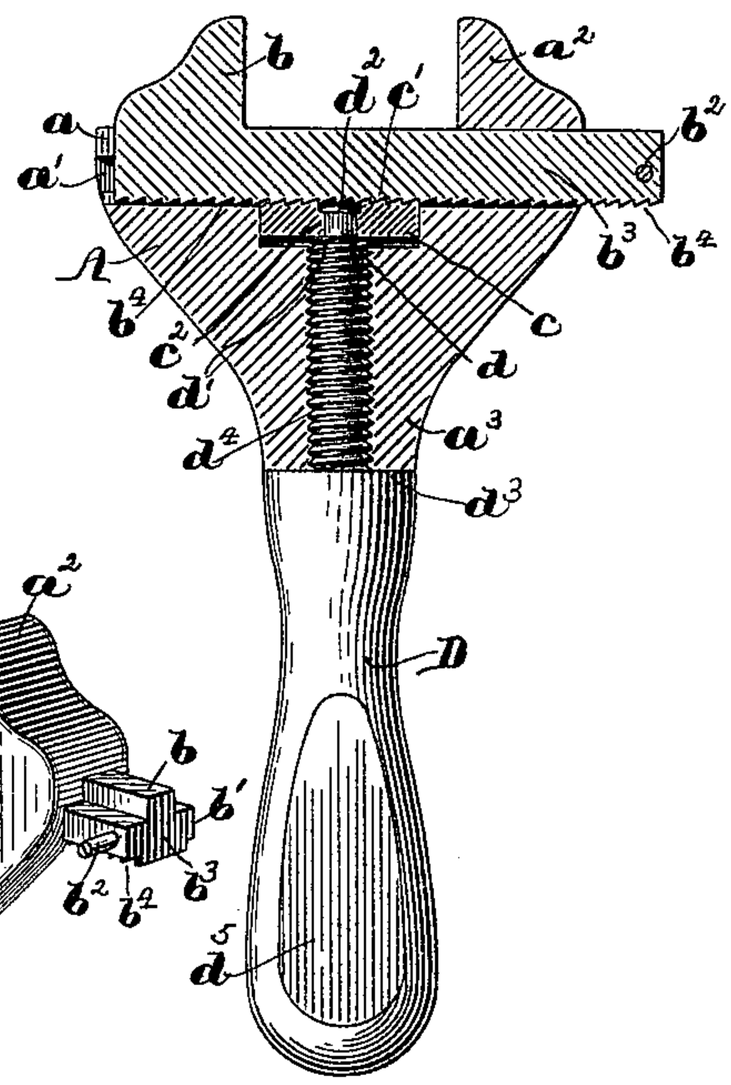
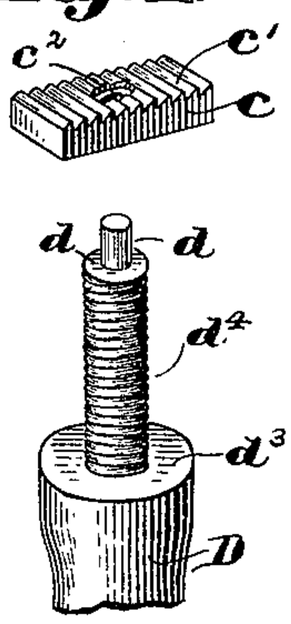


Fig. 3.

Fig. 4.



Witnesses:

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Edward F. Allen

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UNITED STATES PATENT OFFICE.

WILLIAM F. MURPHY, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-FOURTH TO THOMAS H. DOHERTY, OF SAME PLACE.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 613,213, dated October 25, 1898.

Application filed January 12, 1898. Serial No. 666,454. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. MURPHY, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Wrenches, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is an improvement in hand-wrenches, and has for its object the provision of a wrench which while positive and accurate in its adjustments is practically non-breakable, being rigid and unusually strong at every point subjected to strain and having a solid and substantial construction, the parts thereof all having considerable size and being as nearly block-like and free from cavities and accessories as possible.

Various devices have been heretofore proposed operating to accomplish in general the movements which I employ—that is to say, wrenches have heretofore been invented having a jaw movable transversely to a handle and locked and unlocked by means of a ratchet or dog contained in the handle.

My wrench in general comprises a head of solid metal and block-like form, so as to be rigid and strong at all points, this head having a transverse and preferably dovetailed way in one end, in which I mount a sliding jaw, which coöperates with a fixed jaw of said head, this sliding jaw being also block-like (I use this term to mean solid and not hollow) and having teeth or engaging portions on its under side, coöperating with a notched block permanently held in the head to interlock with said engaging portions and hold the sliding jaw in any adjustment desired, said block being swiveled on a shouldered end of the handle screwed into said head.

Further details of my invention will be pointed out in the following description, reference being had to the accompanying drawings, illustrative of a preferred embodiment of my invention.

In the drawings, Figure 1 is a view in side elevation of a wrench embodying my invention. Fig. 2 is a central vertical section thereof. Fig. 3 is a fragmentary perspective view showing the form of the jaws and the adjacent parts. Fig. 4 is a perspective view of the locking-block and handle disconnected.

Referring to the drawings, A designates a substantial solid head, which may be of cast-steel or a drop-forging, composition, or other extremely tenacious material suitable for the purpose. This head is provided across its outer end with a channel or way a, preferably having opposite grooves a' to constitute a dovetailed way, and has at one end of the way a rigid integral jaw a^2, herein shown as bridging across said way. Within the way a I mount a sliding jaw b, having lateral flanges or ribs b', fitting in the grooves a' and preferably provided with a removable pin b^2 at one end in order to prevent the accidental removal of the sliding jaw b from the head. On its under surface the jaw b, or, rather, the stem b^3 thereof, is provided with a plurality of engaging portions, herein shown as teeth b^4, although it will be understood that any other form of interlocking means may be provided. Coöperating with these notches b^4 is a locking-block c, also having teeth c', these teeth being on the upper side of the said block in order to firmly engage the teeth b^4, as is clearly shown in Fig. 2. The block c is herein shown as swiveled at c^2 on a reduced end d of a handle D, said handle having a shoulder d' next to and supporting the block c and being riveted or button-set at its extreme end d^2 in order to positively move said block when the handle is retracted. The handle D also preferably has a shoulder d^3 of suitable width, which bears against the smaller tapered end a^3 of the head, giving rigidity and strength of purchase when the handle is used as a lever for turning an object by the wrench. Beyond the shoulder d^3 the reduced portion of the handle has threaded connection in the head, as indicated at d^4, the head being properly tapped for the purpose. The handle is preferably flattened at d^5 in order to give a firm twisting grasp for the hand.

It will be evident that in operation the wrench has a considerable depth of the solid metal opposing strains in all directions, no matter what the strain may be. If it is a nut that is to be turned, the user simply ro-

tates the handle D to the left sufficiently to withdraw the locking-block *c* from locking engagement with the sliding jaw, and thereupon he slides said jaw in the head the distance required for accurately fitting the nut and then simply turns the handle to the right, thereupon immovably locking the jaw *b* as adjusted. It will be borne in mind that this locking is accomplished without the action of any springs or anything else that can possibly get out of order, but that all that is required is simply a block *c* which is positively moved into and out of engagement with a solid jaw. There is nothing to crush or get out of fit, but my wrench is reduced to the extreme of compactness, simplicity, and solidity, without sacrificing any advantage, and this is accomplished, moreover, with a material increase in strength and power. Also it will be observed that even the screw-threads d^4, which are the only feature of my invention which is remotely delicate or frail, are not depended upon for resisting any strain, but serve simply and solely to move the block *c* back and forth, and the strains that come on said block due to the tendency of the head *b* to move are received by said block and the sides of the pocket which holds it.

While I have herein described in detail the construction of my improved wrench, I wish it understood that I am not limited to the precise details thereof, inasmuch as various changes may be made without departing from the spirit and scope of my invention.

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

As an article of manufacture, the herein-described wrench, comprising a solid head A having a block-like form, provided with a transverse channel or way *a* and opposite grooves *a'* extending from one edge to the opposite edge of the head, a fixed jaw a^2 projecting from said head at one end of said channel or way and bridging the latter, a sliding jaw *b* having lateral flanges or ribs *b'* fitting in the grooves *a'*, engaging portions b^4 on the under side of said jaw, said head being centrally tapped by a threaded hole perpendicular to said channel or way, a handle D having a threaded end working therein, and provided with a shoulder d^3 abutting against the adjacent end of said head, and a shoulder *d'* within the head and at the free end of the threaded portion of said threaded end, said end being reduced beyond the shoulder *d'*, and a rectangular block *c* seated on the shoulder *d'* and loosely riveted to said reduced end, said block having teeth *c'* locking into the portions b^4, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM F. MURPHY.

Witnesses:
GEO. H. MAXWELL,
JOHN C. EDWARDS.