(No Model.)

G. W. HUBER.

BRACE FOR SCREW DRIVERS, BITS, &c.

No. 385,414. Patented July 3, 1888.

Fig. 1.

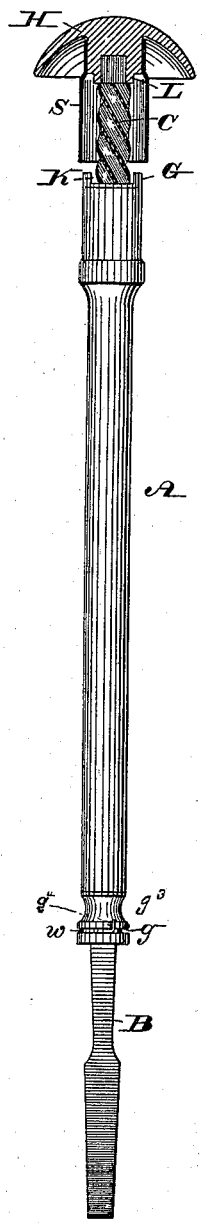


Fig. 2.

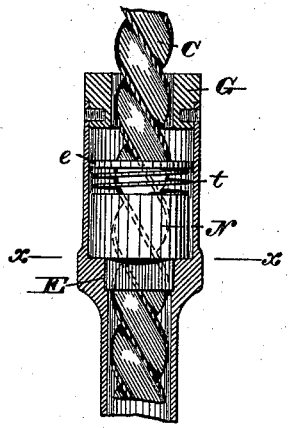


Fig. 4.

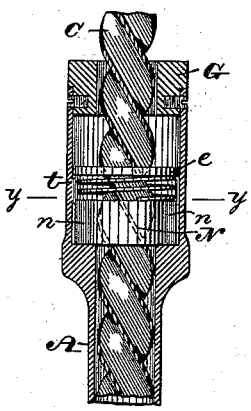


Fig. 3.

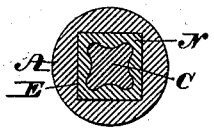


Fig. 5.

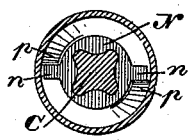


Fig. 6.

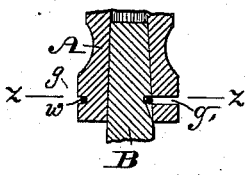
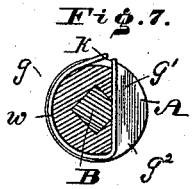


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE W. HUBER, OF PHILADELPHIA, PENNSYLVANIA.

BRACE FOR SCREW-DRIVERS, BITS, &c.

SPECIFICATION forming part of Letters Patent No. 385,414, dated July 3, 1888.

Application filed October 10, 1887. Serial No. 251,914. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. HUBER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Braces for Screw-Drivers, Bits, &c., which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to improvements in braces for screw-drivers, bits, &c.; and it consists in novel features of construction hereinafter disclosed, and particularly pointed out in the claims which follow this specification.

Figure 1 represents an elevation, partly in section, of my improved brace. Fig. 2 represents a vertical section showing the interior nut, the clutch, and connections. Fig. 3 represents a cross-section of Fig. 2 on line *x x*. Fig. 4 represents a vertical section similar to Fig. 2 of a modified form of clutch. Fig. 5 represents a cross-section of Fig. 4 on line *y y*. Fig. 6 represents a vertical section through the lower parts of the brace, showing the tool-holding attachment. Fig. 7 represents a cross-section of Fig. 6 on line *z z*.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A is the body of the brace holding the tool—in this instance a screw-driver, B. This part is hollow to admit the insertion of the screw C, which latter carries a loose nut, N, adapted to turn freely on the screw as it is withdrawn by the agency of the handle H, the latter having a protecting-sleeve, S, to protect the fingers from grease, dirt, &c., which may be on the screw.

In the upper end of the hollow tube A is a square hole, E, forming an integral part of this tube and adapted to receive the nut N, the lower extremity of which is also square, as shown in Fig. 3. This nut slides freely in a chamber in the upper end of the tube A, and is provided with a washer, *e*, and spring *t*, which latter forces the square end of the nut into the hole E when the screw-rod C is pushed inward; but this spring is sufficiently resilient to allow the withdrawal of the square head when the handle is pulled outward. The chamber containing this nut is closed at the top by a hollow plug, G, having a diametrical slot, K, adapted to receive the central shoulder or projection, L, on the handle H, so as to connect the two parts into a rigid brace when they are interlocked.

Figs. 4 and 5 show a modified form of clutch in which the nut N has two extensions or arms, *n n*, adapted to take against the beveled lugs *p p*, having flat faces on one side and beveled surfaces on the other, to allow the arms *n n* to ride over them or to bear squarely against the flat faces in a manner at once obvious. The arrangement of the other parts of the nut and its attachments is identically the same as those shown in Fig. 2.

In Figs. 6 and 7 I have shown an attachment for holding the tool. It consists of a wire spring, *w*, adapted to fit in the groove *g* and across the slot *g'*, and to take into a notch or groove, g^2, in the corner of the tool, as clearly shown. The wire spring *w* is fixed at one end to the shank A, then bent around said shank in the groove *g*, and then bent and inserted in the deeper groove or slot, *g'*, at the back of which latter there is a notch, g^2, in the shank of the tool. The free end of the wire is bent upwardly, as at g^3, making a thumb-piece, which, when not in use, rests in the groove g^4 at a right angle to the slot *g'*.

To remove the tool, one takes hold of the end K of the spring and lifts it until the notched end can be withdrawn.

The operation of the brace is as follows: On placing the screw-driver on a screw to be driven and taking the body A in one hand and the handle H in the other, the screw C is drawn out, and in the act of drawing it out the nut N is lifted from its socket or square hole E, or lugs *n n*, Figs. 3 and 5, and against the stress of spring *t*; thus the nut turns freely on the screw. On reversing the motion the nut is forced quickly into the socket E, or behind the shoulders *p p*, Figs. 3 and 5, and caused to impart a rotary motion to the part A, and hence the tool B. By this action the screw is quickly driven home. Should it be thought desirable to use the device as an ordinary hand-screw brace, the screw C is thrust entirely home until shoulder L falls into notch or groove K, whereby a lock-joint is made between the two parts.

I am aware that it is not new with me to

provide a hand-guard to a hand-brace to protect the hand from oil on the screw; nor is it new with me to provide means for locking the rotary and the fixed parts together to form a hand-brace. Neither is it new with me to provide a nut in which the spiral works.

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

1. A hand-brace consisting of a tubular body portion, A, with an angular opening in the upper part of its bore, a nut having an angular lower portion adapted to fit in said angular opening, and a rounded upper part adapted to slide in said bore, a handle with the screw C working in the said nut, and a washer with a spring bearing against the said nut, said parts combined substantially as described.

2. A hand-brace consisting of the tubular body portion A, with a portion of its bore of angular form, a nut having a lower portion adapted to fit in said angular opening in the bore, and its upper portion adapted to slide in said bore, a plug, G, with slot K, the screw C, with handle H, having the shoulder L, the said screw working in said nut, and a washer and spring bearing against said nut, said parts combined substantially as described.

3. In a hand-brace, the tubular body A, having a nut fitted therein and a screw working in said nut, the plug G, inserted in the upper end of said body A and having a diametric groove or recess on its upper face, the handle H, with depending tubular guard S, and an inner central projection or shoulder, the latter adapted to fit in said diametric groove in said plug, said parts being combined substantially as and for the purpose set forth.

4. A hand-brace consisting of a tubular body with a nut fitted therein, a screw working in said body, a handle secured to said screw and having a central shoulder and a tubular guard, a plug inserted in the end of said body, and having a diametrical recess adapted to receive said shoulder, said parts being combined substantially as and for the purpose set forth.

5. A hand-brace having a tool-holder with peripheral groove g, the slot g', and a groove, g^4, at right angles to said slot, and the wire spring w, secured at one end to the holder and adapted to fit in the groove g and across the slot g', and having a thumb-piece, the latter adapted to fit in said groove g^4, said parts being combined substantially as and for the purpose set forth.

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