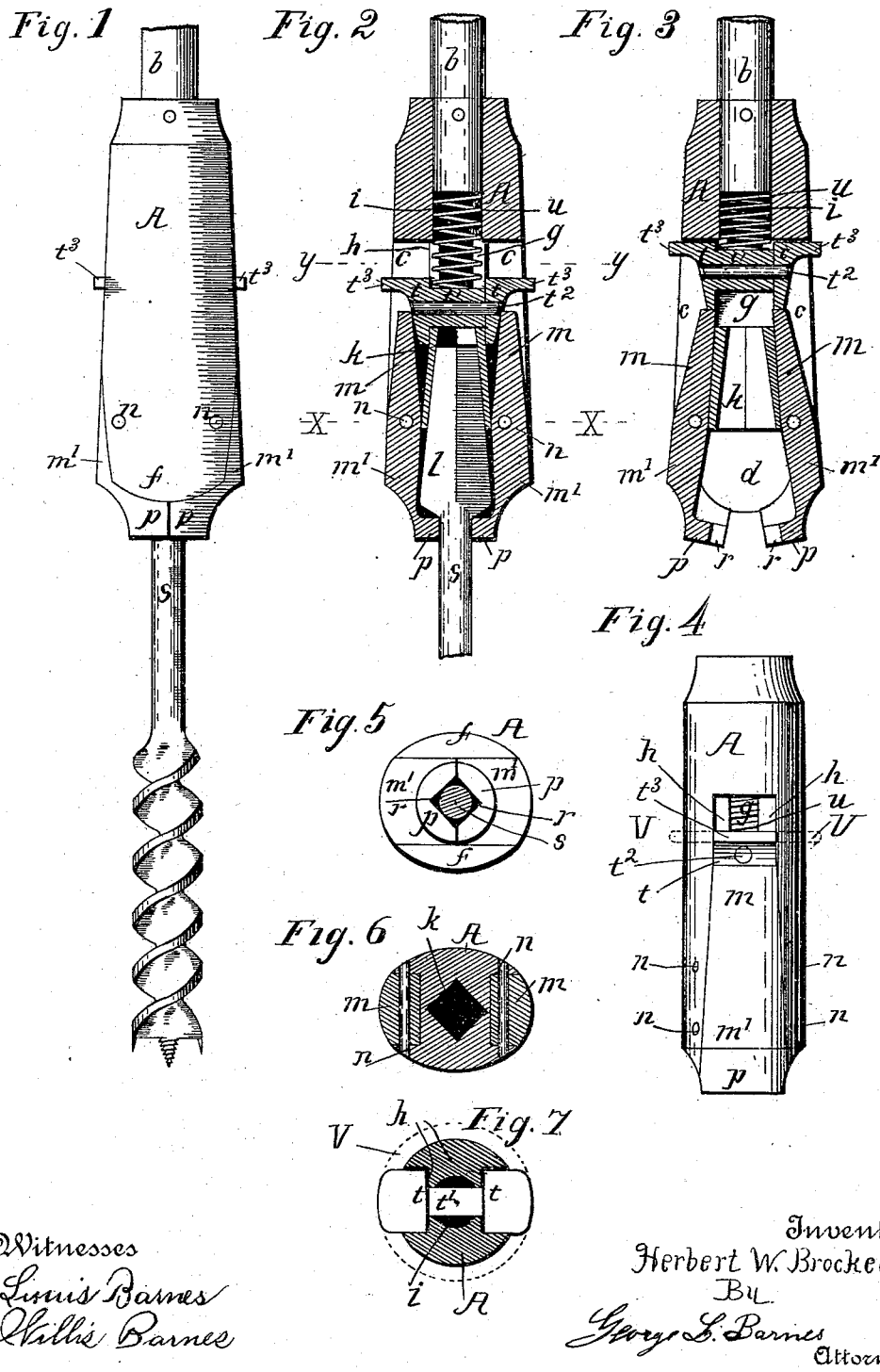


(No Model.)

H. W. BROCKETT.
BIT BRACE.

No. 553,226.

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UNITED STATES PATENT OFFICE.

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BIT-BRACE.

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To all whom it may concern:

Be it known that I, HERBERT W. BROCKETT, a citizen of the United States, residing in the town of Hamden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Bit-Braces, of which the following is a specification.

My invention relates to an improved brace or bit holder, the object being to provide a brace which shall be adapted to securely hold a bit or other similar tool both against rotating and lengthwise strain, the bit being also easily inserted into and removed from the socket of the brace.

The invention consists in the novel combination, with the socket or holder, of the pivoted holding-jaws and their spring-pressed forcing-wedge, and in the construction of parts, as hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a front elevation of my improved brace with a bit secured therein. Fig. 2 is a vertical central section through Fig. 1. Fig. 3 is a similar section showing the parts in position for receiving the bit. Fig. 4 is a side view of Fig. 1. Fig. 5 is an end view of Fig. 2, viewed from the lower end. Fig. 6 is a cross-section on line X X, Fig. 2. Fig. 7 is a cross-section on line y y, Fig. 2.

Referring to the drawings, A designates the bit stock or body of the holder, which is received and pinned upon the lower end or shank *b* of the brace, as shown. In opposite sides of the holder are channels or grooves *c*, which flare out or increase in width toward the bottom of the holder, where they are joined by a cross-slot *d*, which forms the ears *f* between which the holding-jaws are pivoted, as hereinafter described. At the upper end said recesses connect with a cross-slot *g*, preferably of less width than the recesses, thereby providing the parallel seats *h*, for the purpose hereinafter described. The central hole *i* in the holder, for the reception of the shank *b*, is extended downward to the lower side of the cross-slot *g*, below which point to the end the holder is axially perforated by a square tapering hole or socket *k*, adapted to receive

the square and tapering shank *l* of the bit or operating-tool, as shown in Fig. 2.

In the recesses *c* are pivoted or fulcrumed the levers *m*, by means of the pins or pivots *n* inserted through the ears *f*, just above the line of the lower end of the body of the holder, and on the opposite side of the said fulcrums the levers extend to provide holding-jaws *m'*, as shown. The upper ends or levers of the holding-jaws reach nearly to the lower side of the cross-slot *g*, leaving a space between said ends and the upper ends of the recesses, for the purpose hereinafter set forth. The lower ends of the holding-jaws are provided with inwardly-projecting flanges *p*, which are notched, as shown, to form a rectangular hole *r* when the jaws are closed together, and are thereby adapted to embrace the cylindrical part *s* of the shank of the bit below the head or part *l* thereof, as shown in Fig. 2. The levers are so shaped or proportioned that when they are in such position there will be a certain amount of clearance or space between their upper ends and the adjacent core or central body part of the holder, sufficient to permit the lower ends of the jaws to be opened for removal of the bit, as shown in Fig. 3.

In the upper ends of the recesses or grooves *c* are fitted the sliding cams *t*, one of which is preferably formed with a lateral projection *t'* adapted to pass through the cross-slot *g* and abut against the opposite cam, a rivet *t²* being fitted through both cams and adapted to connect them both rigidly together in a single piece or wedge, forming a double-faced cam *t t'*, which construction is necessary for inserting the parts in place. The backs of the cams rest against the aforesaid seats *h*, and their vertical length is such that they will fit between the levers *m* of the holding-jaws and corresponding extremities of the recesses when the jaws are expanded at their lower ends for removal of the bit, as shown in Fig. 3. The outer sides of the cams are inclined from vertical planes parallel to the axis of the holder, forming together a wedge-shaped slide having its smallest end adjacent to the upper ends of the levers and adapted to enter between them to force the said levers outward, and the opposite ends holding jaws corre-

spondingly inward to hold the bit or tool in place, as shown in Fig. 2.

A coil-spring *u* is placed in the central hole *i* in the holder between the end of the shank of the brace and the part *t'* of the double-faced cam *t t t'*, normally adapted to force the wedge downward. The wedge is provided with flanges *t^s* projecting slightly beyond the external surface of the holder to form projecting points, by means of which the cam may be pushed upward in its seat against the tension of the spring to release the holding-jaws. The said flanges may comprise two opposite points simply, as shown by the full lines in the drawings, or they may entirely encircle the holder, as shown by the dotted lines in Figs. 4 and 7, each of semi-annular shape, and together forming a ring V, which is without projecting corners or points and may readily be grasped for operating the cam *t t t'* to release the bit from the holder.

Constructed as above described, the operation of my improved bit-holder is as follows: The cam *t t t'* being pushed to the upper end of its travel and the levers *m* of the holding-jaws being pushed inward under the lower end of the cam, thereby holding the cam in said position against the force of the spring *u*, the holding-jaws will remain expanded, as shown in Fig. 3, readily permitting the insertion of a bit or other tool between the jaws into the square socket *k* in the body of the holder. If the lower ends of the jaws be then pressed together, sufficiently to remove their opposite ends from under the cam *t*, the spring *u* will then force the cams bodily downward back of and between the upper ends of the levers and thus automatically cam them outward and correspondingly compress the opposite ends of the holding-jaws upon the shank of the bit, below the square tapering-head *l* thereof, thus holding the bit securely in place, as shown in Fig. 2. To remove the bit it is only necessary to push the cam *t t t'* upward by means of the projections *t^s* until it clears the ends of the holding-jaws, then by pressing said ends together and into their recesses the lower ends of the jaws will open and release the bit or tool, afterward remaining in said open position for successive use by supporting the cam upon the upper ends of the levers, as shown in Fig. 3. The device is simple in construction, easily manufac-

tured and put together, and is adapted to hold tools very securely while permitting ready insertion and removal thereof.

I claim as my invention—

1. In a brace or bit holder the combination of the holder secured upon the end or shank of the brace, having a seat or socket for the reception of the tool shank, a central chamber above the same, and opposite external grooves or channels, the holding jaws pivoted in said grooves and provided with levers on the opposite side of their fulcrums fitting said grooves, a wedge or double faced cam fitted and guided to slide in said groove and chamber between and adapted to spread the levers to correspondingly compress the holding jaws, and a spring seated within said central chamber adapted to force the cam between the levers, said levers being adapted to swing beneath and support the cam when the same is withdrawn from between them, and the cam having the external flanges or projections whereby it may be slipped from between the levers, substantially as and for the purpose specified.

2. In a brace or bit holder the combination of the holder secured upon the end or shank of the brace, having a seat or socket for the reception of the tool shank, a central chamber above the same, and opposite external grooves or channels, the holding jaws pivoted in said grooves and provided with levers on the opposite side of their fulcrums fitting said grooves, a wedge or double faced cam fitted and guided to slide in said grooves and chamber between, and adapted to spread the levers to correspondingly compress the holding jaws, and a spring seated within said central chamber and adapted to actuate the cam between the levers, said levers being adapted to swing beneath and support the cam when the same is withdrawn from between them, and the cam being composed of two parts riveted or fastened together, to provide for ready insertion in its seat, and having the external flanges or projections whereby it may be operated reversely to the actuating force of the spring, substantially as and for the purpose specified.

HERBERT W. BROCKETT.

Witnesses:

HORACE E. BROCKETT,
WILLIS BARNES.