

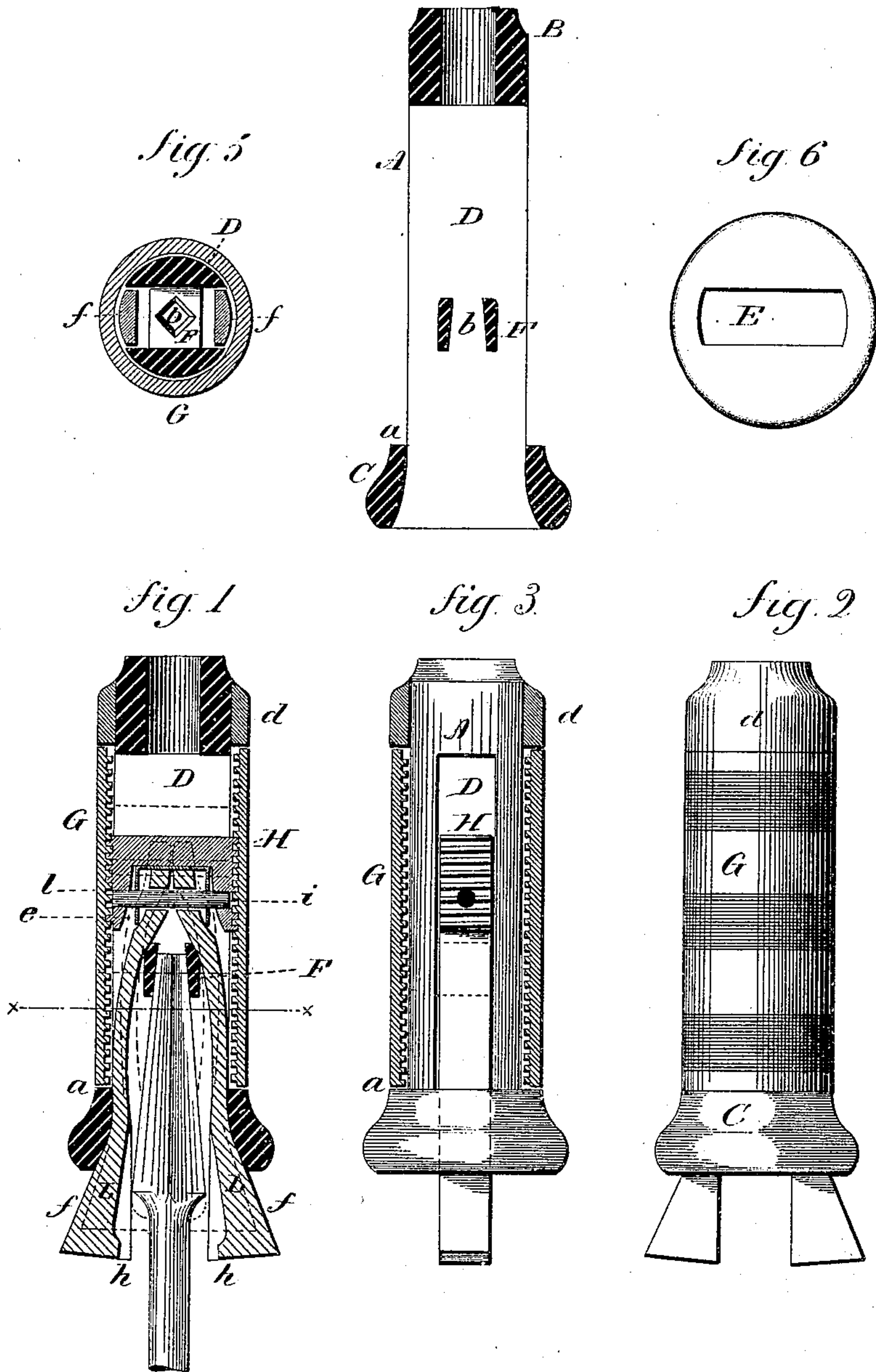
(No Model.)

W. A. IVES.

BIT STOCK.

No. 258,764.

*fig 4* Patented May 30, 1882.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## BIT-STOCK.

SPECIFICATION forming part of Letters Patent No. 258,764, dated May 30, 1882.

Application filed April 8, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, WM. A. IVES, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Bit-Braces; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a vertical central section; Fig. 2, a side view; Fig. 3, a sectional side view at right angles to the section in Fig. 1; Fig. 4, a vertical central section of the socket; Fig. 5, a transverse section on line *xx* of Fig. 1; Fig. 6, an end view of the socket.

This invention relates to an improvement in that class of bit-braces which are provided with a pair of jaws within a socket, the jaws so arranged that by a longitudinal movement they open to receive the tang of the bit, and moved in the opposite direction grasp the tang of the bit between them to hold it for boring purposes, and is an improvement upon the bit-brace for which Letters Patent were granted to me May 7, 1872, No. 126,395. In that patent an internally-threaded sleeve is arranged upon the socket so as to be free to revolve, but yet prevented from longitudinal movement, combined with a follower arranged in a longitudinal slot in the socket, its outer edges threaded and engaging with the internal thread of the sleeve, so that by rotating the sleeve in one direction the follower is moved outward, and in the reverse direction is drawn inward, and a pair of jaws hung in said follower extending through the body of the socket, so as to receive the tang of the bit, and when moved by the follower in one direction their backs ride upon an inclined surface on the inside of the socket, so as to be forced together and opened by a movement of the follower in the opposite direction by means of a spring arranged between them. This spring is objectionable because of its liability to break or become set, so as to render it useless. In that case the jaws are loose, and cannot be readily opened for the insertion of the tang. Again, in that brace, unless the tang be of a certain shape, the grip-

ping of the jaws may be harder at one end than the other, thus leaving play to the tang, which is found inconvenient in the use of the brace.

The object of this invention is to dispense with this spring, make the opening and closing of the jaws both positive, and also to form a seat within the socket for the tip of the tang, into which the jaws will draw the tang and insure the proper central position of the bit; and the invention consists in a socket constructed with a longitudinal slot extending into a central opening at the head end, with a bridge across the slot in which a seat for the tang is formed, a follower arranged in the slot in the socket above the bridge, an internally-threaded sleeve arranged upon said socket above its head, free for rotation, but held from longitudinal movement, combined with a pair of jaws arranged through the open end of the socket into the slot through the socket, between the bridge and the sleeve, and hung to the follower above the bridge, whereby the movement of said follower produced by the rotation of the sleeve will move the jaws outward or inward, their inner side riding over the bridge, their outer surface or back inclined, bearing upon the ends of the opening in the head, so that such longitudinal movement in one direction will cause the jaws to be forced open by coming in contact with the bridge, and in the opposite direction to close by their back riding against the ends of the opening in the head of the socket, as more fully hereinafter described.

A represents the socket shown detached in Fig. 4. It is fitted at one end, B, for attachment to, or is made a part of the crank part of the brace. It is cylindrical in shape, and at its lower end is constructed with a head, C, having an annular shoulder, *a*. Transversely through the socket is a slot, D, extending from the shoulder *a* upward, and opening through the head, as seen at E, Fig. 6. About midway of the length of the socket is a bridge, F, extending across the slot in the socket, and connecting the two sides, as seen in Fig. 5. In this bridge is a cavity, *b*.

G is an internally-screw-threaded sleeve, fitting the cylindrical surface of the socket and placed thereon so as to rest against the shoulder *a*, then over the other end a collar, *d*, is



placed and secured, so that the sleeve will rotate freely on the surface of the cylinder between the collar *d* and the shoulder *a*.

Within the slot D of the socket A, and above the bridge, a follower, H, is arranged, extending both sides outward and screw-threaded, corresponding to the internal thread of the sleeve G, and so that by turning the sleeve in one direction the follower will be moved outward, and in the opposite direction will be drawn inward. The follower H is constructed with a transverse recess, *e*, as seen in Fig. 1. L L are the two jaws, constructed at their outer end with an incline, *f*, on their back, their inner faces provided with a cavity and overhanging lips *h*. The jaws extend upward, and are shaped to pass the bridge F and into the recess *e* in the follower, as seen in Fig. 1, where they are secured by a pivot, *i*, extending through their tail ends and into the walls of the recess *e* in the follower. When the follower is drawn inward, as before described, the jaws will be correspondingly drawn inward, and their outer ends will approach each other, as seen in broken lines, Fig. 1, because of the incline on their backs riding inward against the ends of the opening in the head of the socket. When the follower is moved outward the inside of the jaws bear against the bridge F, which causes their outer ends to open as their inclined backs pass out from the opening in the head of the socket, the inner side of the jaws diverging from their pivoted point in the follower outward, so as to form an incline to ride over the bridge and produce the said opening movement. The tang of the bit is inserted, as seen in Fig. 1, then the jaws drawn inward until their overhanging lips *h* take upon the tang and draw it into its seat in the bridge, as shown.

I find it advantageous to allow some lateral play of the jaws on their pivot *i*. To this end I arrange a U-shaped spring, *l*, (see Fig. 1,) in the recess in the follower, within which the tails of the jaws rest, one leg bearing upon the outside of the tail of one jaw and the other upon the outside of the tail of the other jaw. This spring simply prevents the rattling of the jaws.

I do not claim in this application the bridge arranged across the slot in the socket to form a seat for the tang of the bit, as such is found

in patent granted to me October 18, 1881, No. 248,470; but

What I do claim is—

1. In a bit-brace, the combination of the socket A, constructed with a longitudinal slot, D, opening through the head, and with an annular shoulder, *d*, above the head, with a bridge, F, across the slot, an internally-screw-threaded sleeve, G, arranged upon the socket to bear against the shoulder *a*, and the collar provided at the other end to prevent longitudinal movement of the sleeve, but yet leave the sleeve free for rotation, the follower H, constructed with the recess *e*, threaded upon its ends and arranged in the slot of the socket, its threaded end engaging the internal thread of the sleeve, whereby the rotation of the sleeve imparts longitudinal movement to said follower, the jaws L L, pivoted in the recess in said follower and constructed to bear upon the bridge near their inside tail ends, and inclined upon their back at their outer ends, substantially as described.

2. In a bit-brace, the combination of the socket A, constructed with a longitudinal slot, D, opening through the head, and with an annular shoulder, *d*, above the head, with a bridge, F, across the slot, an internally-screw-threaded sleeve, G, arranged upon the socket to bear against the shoulder *a*, and the collar provided at the other end to prevent longitudinal movement of the sleeve, but yet leave the sleeve free for rotation, the follower H, constructed with the recess *e*, threaded upon its ends and arranged in the slot of the socket, its threaded end engaging the internal thread of the sleeve, whereby the rotation of the sleeve imparts longitudinal movement to said follower, the jaws L L, pivoted in the recess in said follower and constructed to bear upon the bridge near their inside tail ends, and inclined upon their back at their outer ends, with the U-shaped spring *l*, arranged in the recess in the follower and so as to bear upon the outside of the jaws, substantially as and for the purpose described.

W. A. IVES.

Witnesses:

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