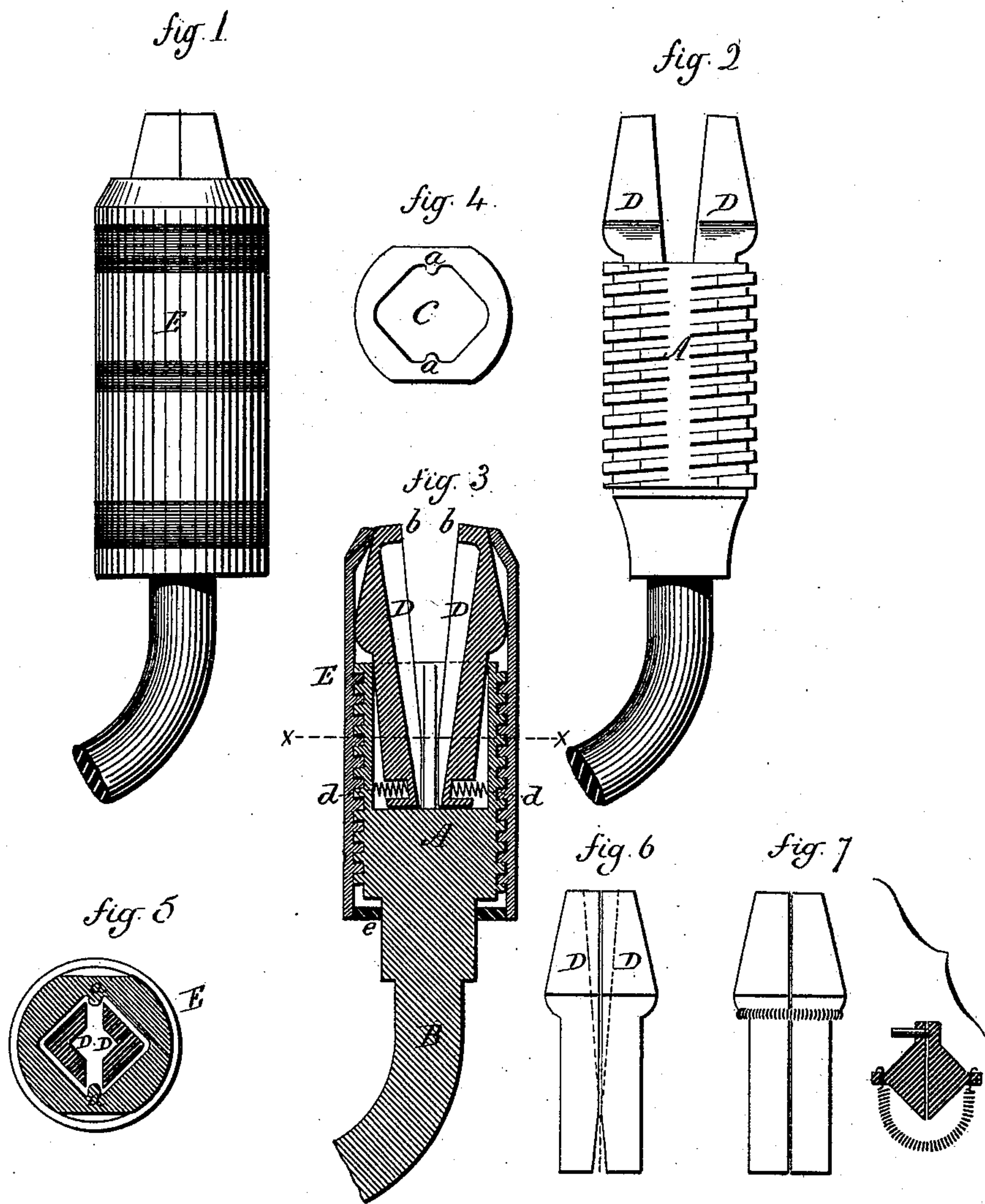


W. A. IVES.
Bit-Stock.

No. 202,548.

Patented April 16, 1878.



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UNITED STATES PATENT OFFICE.

WILLIAM A. IVES, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN BIT-STOCKS.

Specification forming part of Letters Patent No. **202,548**, dated April 16, 1878; application filed October 26, 1877.

To all whom it may concern:

Be it known that I, WILLIAM 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 the 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, side view; Fig. 2, side view with the adjusting-sleeve removed; Fig. 3, vertical central section; Fig. 4, end view of the socket; Fig. 5, transverse section on *xx*; Fig. 6, side view of the jaws; Fig. 7, modification of the spring holding device.

This invention relates to an improvement in that class of bit-braces in which a pair of jaws are arranged to close upon and grasp the tang of the bit by means of an adjusting-sleeve forced onto said jaws; and it consists in the construction and arrangement of the parts, as hereinafter described, and more particularly recited in the claims.

A is the socket, attached to or formed as a part of handle B. On its outer surface it is screw-threaded, as shown, and has a cavity, C, formed in its end. This cavity is substantially rectangular in transverse section, as seen in Fig. 4, and its bottom in a plane at right angles to the axis of the socket, and at two of its angles (opposite) a longitudinal rib, *a*, is formed, projecting inward, as seen in Fig. 4. D D are the two jaws, somewhat longer than the tang to be grasped, and recessed on these inner faces, with a projecting lip, *b*, at their outer end to grasp over the tang, in the usual manner. The outer surfaces of the jaws, for a portion of their length corresponding to the depth of the cavity in the socket, are right angular, so as to conform to that portion of the socket in which they set, as seen in Fig. 5. The remaining portions of the jaws taper outward, as seen in Figs. 2 and 3. The ribs *a* serve to separate the two jaws, and prevent either passing the center or axis of the socket.

The jaws are set loosely into their respective sides of the sockets; then the sleeve E, which is threaded upon its inside to corre-

spond to the thread on the socket, is turned onto the socket, as seen in Fig. 3. The outer end of the sleeve is contracted, so that as it passes onto the inclined sides of the jaws, as in Fig. 3, it will force the jaws together, so as to grasp the tang of the bit previously inserted between them, the jaws readily adapting themselves to the taper of the tang. These jaws rest solidly on the flat bottom of the socket, but will nevertheless slide freely thereon toward or from each other, the rib *a* limiting their movement toward each other.

The combined thickness of the jaws, at their thickened part, is greater than the diameter of the mouth of the sleeve, so that while they may, when free, move longitudinally in the socket, they will not fall out; but, to prevent accidental displacement, a small spring, *d*, is on the back of each, near the lower end, which bears against the side of the socket, creating sufficient friction to retain the jaws in place. In order that these springs *d* may also perform the office of holding the jaws open for the insertion of the tang, the lower ends of the jaws are inclined on their inner faces downward and outward from a point above the bearing-line of the springs, as seen in Fig. 6, so that the inclined portion of the faces of the jaws will be pressed against the ribs *a*, and thereby force the outer ends to open, as shown.

Instead of applying the spring near the inner end of the jaws, as shown, to produce the friction, it may be applied near the upper end, as indicated in Fig. 7, by a spring extending from the back of one jaw around and to the back of the other jaw, the tendency of which will be to hold the jaws asunder and adjust their respective angles in the socket. This spring will also serve to hold the jaws open, instead of the inclined inner surface at the inner end of the jaws.

In this class of braces the end of the sleeve around the handle portion is necessarily large enough to pass on over the socket. This leaves a recess or open space within the sleeve and around the shank, (the upper end, as generally used,) into which chips, dust, or other foreign substances are liable to fall, and choke or interfere with the proper working of the thread. In order to avoid this difficulty, a

head, *e*, is fitted into the open end of the sleeve, around the shank, after the sleeve has been placed upon the socket, and which fits closely to the shank and moves with the sleeve, so that the hitherto open space is completely closed, and the before-mentioned difficulties avoided.

I claim—

1. In a bit-brace, the combination of an outwardly-threaded socket having a central rectangular-shaped cavity formed therein, the bottom of said cavity in a plane at right angles to the axis of the socket, a pair of loose jaws resting on the bottom of said cavity, their outer ends inclined and recessed upon the faces, with an internally-threaded sleeve, contracted at its mouth, substantially as described.

2. In a bit-brace, the combination of an outwardly-threaded socket having a cavity formed therein, and a central rib upon opposite sides, a pair of loose jaws in said cavity, one each side of said rib, their outer ends inclined and recessed upon the faces, with an internally-threaded sleeve, contracted at its mouth, substantially as described.

3. In a bit-brace, the combination of an outwardly-threaded socket having a central rectangular-shaped cavity formed therein, the bot-

tom of said cavity in a plane at right angles to the axis of the socket, a pair of loose jaws in said cavity, their outer ends inclined and recessed upon their faces, with a spring or springs applied at their backs, and an internally-threaded sleeve, contracted at its mouth, all substantially as described.

4. In a bit-brace, the combination of an outwardly-threaded socket having a cavity formed therein, and with a central rib upon opposite sides, a pair of loose jaws in said cavity, their outer ends inclined, recessed upon their faces, and inclined outwardly at the lower end of their faces, with springs in rear of said lower inclines, and an internally-threaded sleeve, contracted at its mouth, substantially as described.

5. In a bit-brace having a pair of jaws arranged to gripe the tang of the bit, operated by a sleeve passing over said jaws, a head, *e*, arranged in said sleeve around the shank of the brace, above the socket, substantially as described.

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Witnesses:

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