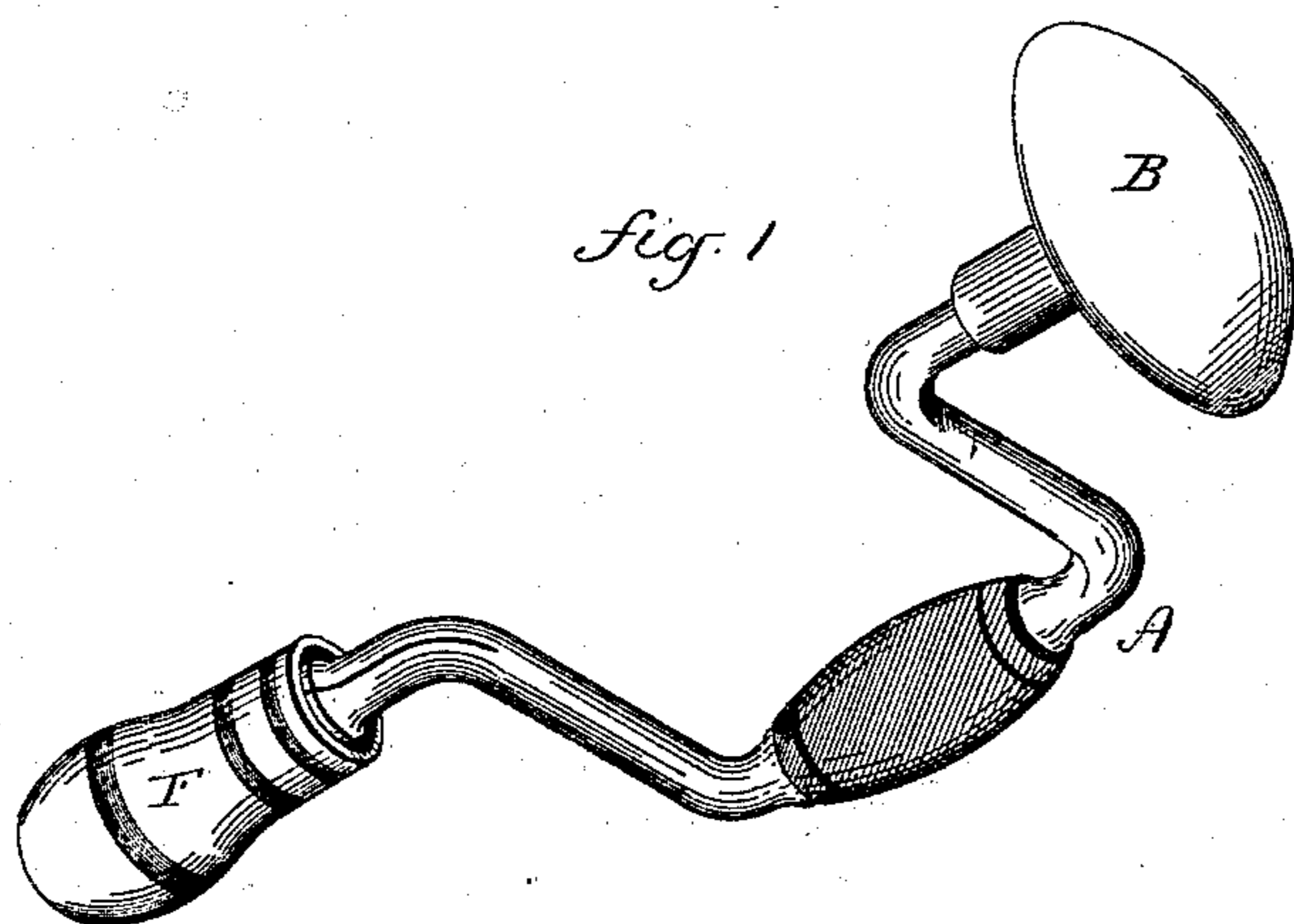
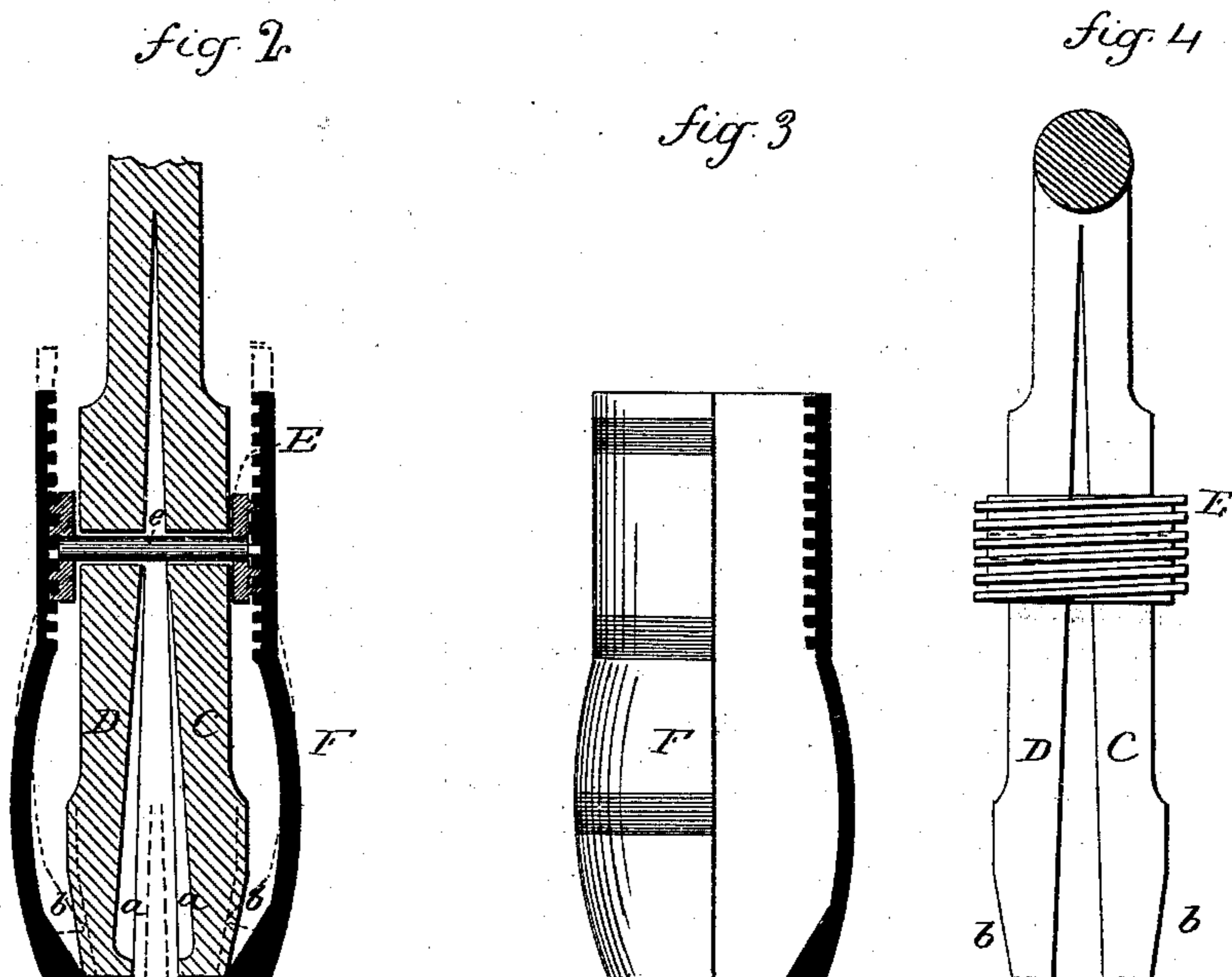


(No Model.)

W. A. IVES.
BIT STOCK.

No. 270,072.

Patented Jan. 2, 1883.



Witnesses:
J. R. Chumney
J. C. Earle

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UNITED STATES PATENT OFFICE.

WILLIAM A. IVES, OF NEW HAVEN, CONNECTICUT.

BIT-STOCK.

SPECIFICATION forming part of Letters Patent No. 270,072, dated January 2, 1883.

Application filed October 14, 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 perspective view of the brace; Fig. 2, a vertical central section through the socket; Fig. 3, a sectional side view of the outer sleeve; Fig. 4, a side view of the socket and ring with the sleeve removed.

This invention relates to an improvement in the bit-brace commonly known as the "Spofford" brace—that is to say, the brace in which the socket is split axially, the split extending up into the arm, so as to give a sufficient length to the two parts to give them the required elasticity, the meeting faces of the two parts of the socket recessed to receive the tang of the bit, and the two edges clamped upon the tang, the elasticity of the arms of the jaws serving to open them as the binding device is released.

Various devices have been employed to clamp the jaws upon the tang. That in Spofford was a thumb-screw transversely through one jaw into the other; but this was objectionable for apparent reasons. To overcome this difficulty the outside of the jaws was made tapering, increasing in diameter from the shank toward the head, and onto this taper portion of the socket a sleeve was arranged which would slide thereon, and the sleeve constructed with an external screw-thread, and then an outside sleeve was applied to the socket, by turning of which the inside sleeve would be drawn upon the larger diameter and close the jaws. In this there was a serious objection, because of the loose and shackly character of the brace when not in use. To overcome to some extent this latter difficulty a mortise was cut transversely through the two jaws, and into that mortise a bar was placed extending through on opposite sides, its outer ends screw-threaded, and then a sleeve was placed over the socket, correspondingly screw-threaded upon its inside to engage the said bar. The engagement of the bar and

sleeve would draw the bar toward the mouth of the jaws and the outer sleeve onto the jaws at the mouth end. The two combined, acting upon correspondingly-inclined surfaces, will tend to draw the jaws together both at their inner and outer ends. Considerable play was necessary for the transverse bar in its mortise, and while it overcame the previous difficulty to some extent it is still a loose and shackly affair.

The object of my invention is to completely overcome these difficulties; and it consists in a bit-brace having the socket end split on a line with the axis of the socket, the split extending up into the arm of the brace, so as to give a sufficient length above the socket to form springs, the two parts of the socket recessed on their meeting faces to form jaws to grasp the tang of the bit, and an internally-threaded ring around the body of the jaws, and secured thereto so as to prevent its possible movement in the direction of the axis of the socket, but yet allow the free play of the jaws laterally within the ring, combined with an internally-threaded screw-sleeve set over the socket and engaged with said ring, the outer end of the outer sleeve being drawn onto the inclined back of the jaws by the rotation of the sleeve, and whereby the jaws will be forced together when the sleeve is turned in one direction, and permitted to open because of the elasticity of the split portion above the socket or jaws when turned in the opposite direction, as more fully hereinafter described.

A represents the handle of the brace, terminating at one end in the head B and at the other in the divided socket C D. The socket is split axially, the split extending up into the arm of the brace, and so as to give considerable elasticity to the two parts of the socket. The inner or meeting-faces of the two parts of the socket are recessed, as at *a*, to form jaws to grasp the tang of the bit, and in the usual manner of recessing bit-brace jaws so as to grasp the tang of the bit. Upon the outside of the jaws, at the mouth end, they are inclined, increasing in diameter from the mouth toward the handle, as seen at *b*. Around the body of the socket, and distant from its mouth or lower end greater than the longest tang desired to be introduced, I place a ring, E, screw-threaded upon its outside, and secure it to the socket

by a pin, *e*, transversely through the socket and ring, as seen in Fig. 2, so as to prevent its movement longitudinally or axially on the jaws, but so as to allow the little transverse free play of the jaws required at that point—
5 that is to say, at that point the internal diameter of the ring is little greater in the direction of the pin than the external diameter of the jaws, as seen in Fig. 2. Over the jaws I
10 place a sleeve, *F*, which is internally threaded at its upper end to correspond to the screw-threaded ring, and at its mouth is constructed to bear upon the inclined backs *b* of the jaws, and so that when the sleeve is screwed onto
15 the ring it will force the jaws inward, as indicated in broken lines, Fig. 2, and securely clamp the tang of the bit. Turned in the opposite direction, the jaws are released and
20 spring outward to open and permit the withdrawal of the tang. The mouth of the outer sleeve bears constantly upon the backs of the jaws, and, being engaged with the fixed ring *E*, there is no possibility of longitudinal or axial play or movement of the outer sleeve.
25 Hence the parts are firm whether the jaws be clamped upon the tang or whether they be free, and the objections to this class of braces, as heretofore constructed, are entirely overcome.

30 While I prefer to secure the outer ring upon

the jaws by means of the pin *e* passing through both the ring and the jaws, it may be otherwise secured, it only being essential that the ring shall be prevented from longitudinal movement—that is, movement in the direction
35 of the axis of the jaws—but yet allow free transverse movement of the jaws as they are expanded or contracted in opening and closing.

I claim—

The herein-described improvement in bit-braces, consisting in the combination of the split socket *C D*, the split extending up into the arm of the brace, the meeting faces of the two jaws of the socket recessed to form jaws
40 to receive the tang of the bit, the ring *E*, screw-threaded upon its outer surface and secured to the socket so as to prevent movement in axial line of the socket, but leave the jaw free for transverse movement, the outer sleeve, *F*, internally threaded corresponding to the thread
45 on the ring *E*, and constructed at its mouth end to close or permit the opening of the jaws accordingly as the sleeve is drawn onto or moved from the socket, substantially as described.

WM. A. IVES.

Witnesses:

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