C. M. KNOWLES.

Bit-Stock.

No. 210,335. Patented Nov. 26, 1878.

Fig. 1.

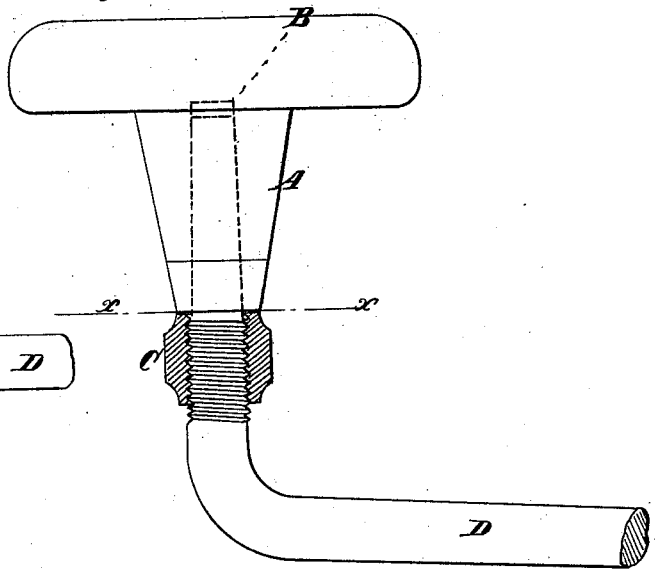


Fig. 2.

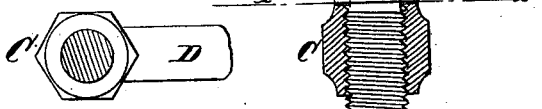
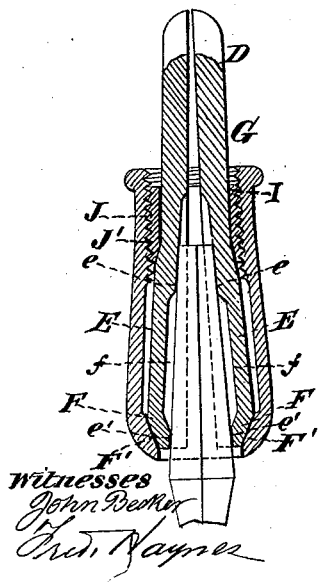


Fig. 4.



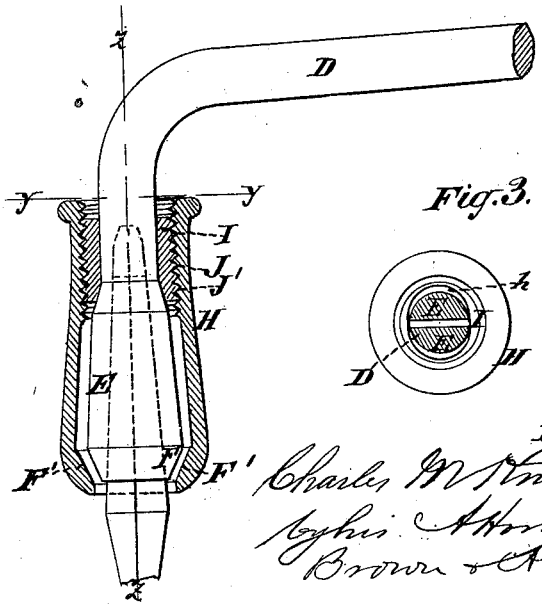


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES M. KNOWLES, OF NEW LONDON, CONNECTICUT.

IMPROVEMENT IN BIT-STOCKS.

Specification forming part of Letters Patent No. **210,335**, dated November 26, 1878; application filed August 7, 1878.

To all whom it may concern:

Be it known that I, CHARLES M. KNOWLES, of New London, in the county of New London and State of Connecticut, have invented an Improvement in Bit-Braces and Tool-Holders; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming a part of this specification.

My invention is an improvement on the bit-brace for which Letters Patent No. 205,400, dated June 25, 1878, were granted to me. In the bit-brace described in the specification of the said Letters Patent it was found that a firmer hold for the extremity of the shank of the bit was desirable, and it is one of the objects of the present invention to supply means for so clamping the shank at two places as to positively prevent any movement of the bit in the socket of the brace.

It is another object of the invention to provide means whereby, when the button or head or shield of the brace wears upon the bearing-surface upon which the same presses while the brace is in use, the said button, shield, or head may be made to fit accurately again by taking up the slack space caused by the said wear.

The invention consists in the combination, with a split spring-socket having a conical point, of a primary tightening or clamping ferrule, having an internal conical surface fitted to the conical extremity of the said split spring-socket, and a secondary clamping-ferrule fitted to slip on the shank of the bit-brace, having an external screw-thread fitted to an internal screw-thread in the aforesaid primary clamping-ferrule, and having an elongated central opening, the sides of which, bearing upon the outside of the split socket at a distance from the conical extremity of the same, causes the same to press the parts of the said socket against which it bears toward each other, and to cause the said parts to bear firmly against the shank of the bit, while at the same time it draws the primary clamping-ferrule over the conical extremity of the split socket, to make that part of said socket bear also against the shank of the bit.

The invention also consists in a screw-bearing fitted on the spindle upon which the shield, button, or head of the bit-brace turns, by which means, when the said shield, button, or head and the said bearing wear, the said bearing may be turned to take up the slack space caused by such wear, as hereinafter described.

Figure 1 of the drawing represents a side view and partial section of a bit-brace constructed in accordance with my invention, and having a portion of the middle bent part broken away. Fig. 2 is a section made on the line *x x* in Fig. 1. Fig. 3 is a section made on the line *y y* in Fig. 1. Fig. 4 is a section made on the line *z z* in Fig. 1.

A is the shield, button, or head; B, the spindle, to which the said shield, button, or head is fitted; C, the screw-bearing aforementioned and hereinafter more fully described, and D the bent part of the brace. E represents the split spring-socket, having interior rectangular bearings *e e'*, which bearings are separated from each other by recesses *f* formed in the interior of said socket. F is the conical extremity of the said spring-socket. The split of the said socket also extends a considerable distance into the shank of the brace, as shown at G in Fig. 4. H is the primary clamping-ferrule, having an interior conical bearing, F', fitted to the conical extremity of the spring-socket, as shown in Figs. 1 and 4. I represents the secondary screw clamping-ferrule, which slips easily on the exterior of the said socket and the shank of the brace, and which has an opening in the center of an oval or oblong shape, as shown in Fig. 3 at *h*. The spring-socket E is tapering on its exterior, having its larger part at the base of its conical extremity, and as there is but one split in the said socket it follows that it can expand or contract only in a line at right angles with the longitudinal axis of the said socket and at right angles with the said split G. In its normal position, the said socket has its greatest diameter in the said line of expansion, and the ferrule I has its oval or oblong central opening made of such size, and is placed in relation with the said shank in such manner, that it cannot turn on the socket or shank when it is engaged with the ferrule H. On the exterior of the said ferrule I is formed a screw-thread, J, which fits a female screw-thread, J', in the ferrule H.

It will now be seen that the turning of the

ferrule H may be made to cause the ferrule I to approach the conical extremity of the socket, or contrariwise; and that when it does so approach it will not only force the conical interior bearing of the ferrule H upon the conical extremity of the socket, but will be itself caused to press against the sides of the said socket over the bearings *e*, and press the said bearings down against the shank of the bit. The bit is thus engaged by the bearings *e* and *e'* at two places, and is, in consequence, held with positive firmness; and the relation of the parts is such that a very slight turning of the ferrule H is sufficient to clamp or release a bit properly placed in the said socket.

It will also be seen that, by turning the ferrule H before inserting the bit, the said socket may be adjusted to receive large or small bits through a wide range of sizes.

The screw-bearing C has the form of a nut, and is fitted to a male thread on the part of the brace adjacent to the spindle B and in relation with the shield, button, or head of the brace, in such manner that the said shield, button, or head presses against said screw-bearing when in use. This enables the said bearing to be constantly adjusted in proper relation with the said shield.

Having thus described my improvement, what I consider as my invention, and desire to secure by Letters Patent, is as follows:

The combination, with the tapered split spring-socket E, having a conical extremity, F, of a primary clamping-ferrule, H, having a conical interior bearing, F', and a female screw-thread, J', and a secondary screw clamping-ferrule, I, having an oval or oblong opening, *h*, and a male screw-thread fitted to the said female screw-thread, substantially as and for the purpose specified.

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Witnesses:

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