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# UNITED STATES PATENT OFFICE.

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& CHANTRELL, OF SAME PLACE.

## BIT-BRACE.

SPECIFICATION forming part of Letters Patent No. 284,276, dated September 4, 1883.

Application filed March 22, 1883. (No model.)

*To all whom it may concern.*

Be it known that I, JOHN CHANTRELL, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain  
5 new and useful Improvements in Bit-Braces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the  
10 same.

My invention relates to an improvement in bit stocks or braces, the object of the same being to provide a device of few parts that will combine simplicity and economy in construction with durability in use; and with these  
15 ends in view my invention consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of my improved brace. Fig. 2 is a longitudinal view through the socketed end or head thereof; and Fig. 3 is a detached view of the bit-holder, the followers, and screw, all of the parts being in their proper  
20 relative positions.

A represents the handle of the bit-stock, which is of ordinary shape, the outer or free end being enlarged and provided with a socket for the reception of the parts shown in Fig.  
30 3. This hollow end or head is open on opposite sides nearly throughout its entire length, and is provided with the oblong slots *a*, through which the milled edges of the operating-wheel C project, to enable the operator to adjust the  
35 parts when desired. This head is provided, near its outer end, on opposite sides, with the inclined planes *c*, against which the outer beveled ends of the holders E E' bear, while the inner end of the said head is provided with  
40 the inwardly-converging inclined planes *d d*, against which the lower beveled ends of the followers D D' bear, and against which they move. The inclined planes *c* and *d* come, respectively, above and below the large side  
45 opening in the head and form the limits of said opening. The outer open end of the head is sufficiently large for the insertion of the shank of a bit, but is too small for the passage of the bit holders or jaws, which latter are

introduced in position through the large side  
opening. The wheel C is provided centrally with an angular opening, into which the right-  
and-left-hand screw D<sup>2</sup>, which is provided centrally with an angular portion corresponding  
55 C, is secured. This wheel C is first placed in position within the head, and the screw driven therein until the angular portion thereof rests within the angular opening of the wheel. The opposite ends of the screw D<sup>2</sup>, after the latter  
60 is secured in position, project from both sides of the wheel and control the movements of the followers D D', which latter rest in the large openings on opposite sides of the head and on opposite sides of the wheel. These follow-  
65 ers D D' are provided with the beveled ends *g* and central hubs, *h' h*, one of which latter is provided with a right-hand female screw, and is consequently adapted to register with the end of the screw having the right-hand  
70 threads thereon, while the other follower, D', is provided centrally with left-hand female screw-threads adapted for the end of the screw having the left-hand screw-threads thereon. These followers are each provided on their inner  
75 face with a central depression, *i*, which, when the two followers are brought together and the two depressions combined into one, a space sufficiently large is formed, into which the wheel C rests. This construction enables the  
80 followers to be drawn sufficiently close together to clamp a small bit-shank therein.

The bit-holders E E' are shaped alike, each being provided on its outer side with the beveled ends *j j'*, the outer beveled ends, *j*, bearing against the inclined planes *c*, while the inner beveled edges, *j'*, rest between the beveled  
85 edges *g* of the followers D D'. The inner faces of both holders E E' are grooved for the reception of the end of the bit-shank, and each  
90 is also provided with a shoulder, *k*, adapted to firmly embrace the bit above its shoulder *l* and prevent it from being accidentally withdrawn from position. The holder E is provided on opposite sides with the arms *m*, 95  
which latter rest in the grooves *n*, formed in the sides of the holder E', and hold both jaws in the same horizontal position, which prevent

one jaw or holder from falling down lower than the other.

The wheel C is first placed in proper position and the screw D<sup>2</sup> inserted therein. The 5 jaws or holders are then introduced through one of the large side openings in the head and moved upward into position, and finally the followers are placed against the opposite ends of the screw. Now, by turning the wheel C, 10 both followers engage with their respective screws and are drawn toward each other, maintaining, however, their parallelism throughout their entire movement. As the screw is turned the followers are, by their contact with 15 the inclined planes *d*, forced toward the outer end of the head. This outward movement of the followers also causes the holders or jaws to move lengthwise or endwise in the same direction. As the jaws are moved outward their 20 upper beveled ends come in contact with the inclined planes *c*, which latter, together with the beveled ends *g* of the followers, force the holders or jaws together and firmly clamp the shank of the bit therein irrespective of the shape 25 of the latter. When it is desired to release the bit, the wheel C is turned in the opposite direction, which allows the followers to move down the inclined planes *d* and the jaws to move back between the ends *g* of the followers and 30 away from the inclined planes *c*. After the jaws leave the inclined planes *c*, they separate or fall apart and leave the bit free to be withdrawn.

Instead of providing the socket with the inclined surfaces *c* and *d*, pins, with or without 35 friction-rollers thereon, can be passed transversely through the head and perform the functions of the inclined planes, my main object being to clamp the jaws together and center the bit, and both can be accomplished as 40 well with one as the other.

This device is exceedingly simple in construction, is durable and effective in use, can be manufactured at a small initial cost, and 45 can be quickly and easily operated.

It is evident that slight changes in the construction and relative arrangement of the several parts might be resorted to without departing from the spirit of my invention; and 50 hence I would have it understood that I do not confine myself to the exact construction shown, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention. 55

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bit-brace, the combination, with the

socket and holding-jaws, of followers constructed to engage the holding-jaws and impart lengthwise movement thereto, and means for operating the followers, substantially as set forth. 60

2. In a bit-brace, the combination, with the 65 socket and holding-jaws, having inclined or beveled rear ends, *j'*, of followers provided with beveled ends that engage the rear ends of the holding-jaws, and means for drawing the followers together, substantially as set 70 forth.

3. In a bit-brace, the combination, with the socket and holding-jaws, having inclined or beveled rear ends, *j'*, of followers, each having its opposite ends beveled or inclined, one 75 inclined end of the follower arranged to engage the beveled end of the holding-jaw and the opposite end thereof to engage an inclined bearing-face on the socket, and means for drawing the followers together and imparting 80 endwise movement to the holding-jaws, substantially as set forth.

4. In a bit-brace, the combination, with the socket having inclined bearing-faces at its outer end, and holding-jaws constructed with 85 inclined faces on their opposite ends, of followers provided with inclined ends, and a right-and-left-hand screw for forcing the followers toward and away from each other, substantially as set forth. 90

5. In a bit-brace, the combination, with a socket having inclined faces at its opposite ends, and holding-jaws arranged to engage the inclined faces on the outer end of the socket, 95 of followers constructed to engage the inner ends of the holding-jaws and the inner inclined faces on the socket, and a right-and-left-hand screw for operating the followers, substantially as set forth.

6. In a bit-brace, the combination, with a 100 slotted socket, holding-jaws, and followers, of a right-and-left-hand screw and a thumb-wheel that projects through the slots in the socket, substantially as set forth.

7. In a brace-bit, the combination, with a 105 socketed head, of the clamping-jaws, one of which is provided with side arms which rest in corresponding grooves in the other jaw, and devices for clamping a bit-shank between the said jaws. 110

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN CHANTRELL.

Witnesses:

G. F. DOWNING,  
S. G. NOTTINGHAM.