

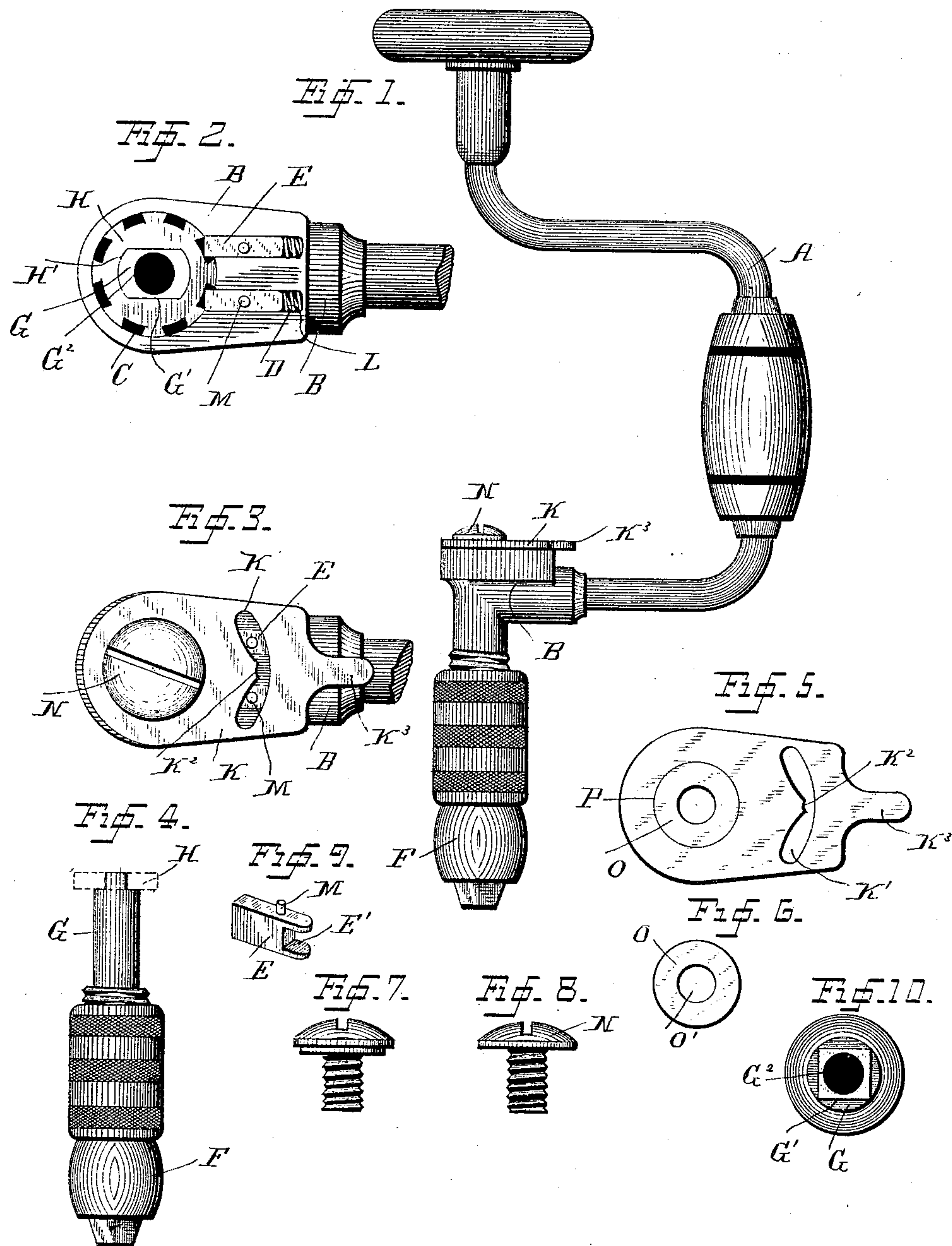
(No Model.)

J. CHANTRELL.

BIT BRACE.

No. 328,649.

Patented Oct. 20, 1885.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN CHANTRELL, OF BRIDGEPORT, CONNECTICUT.

## BIT-BRACE.

SPECIFICATION forming part of Letters Patent No. 328,649, dated October 20, 1885.

Application filed March 9, 1885. Serial No. 158,145. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN CHANTRELL, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain 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 same.

My invention relates to bit-braces of the class illustrated in my former Patents No. 286,683, granted October 16, 1883, and No. 302,320, granted July 22, 1884; and it has for its object to simplify and improve their construction. With these ends in view I have devised the the simple and novel construction which I will now describe in connection with the accompanying drawings, forming part of this specification, in which similar letters indicate like parts in all the figures.

Figure 1 is an elevation of a brace complete; Fig. 2, a plan view of the top of the stock with the shifting-cap removed; Fig. 3, a similar view with the shifting-cap in place; Fig. 4, an elevation of the chuck detached, the dotted lines indicating the ratchet-wheel; Fig. 5, a view of the shifting-cap and washer; Fig. 6, the washer detached; Fig. 7, the old form of screw; Fig. 8, the new form of screw; Fig. 9, one of the dogs detached; and Fig. 10, a plan view of the end of a chuck-shank made square to engage the ratchet-wheel.

A is the brace of ordinary construction, and B the stock, which is provided at its upper end with a recess, C, which just receives the ratchet-wheel and allows it to turn freely, and with slots D, in which the dogs E slide.

F represents the chuck, whose shank G passes up through the stock, and to which the ratchet-wheel H is secured, as shown in Fig. 2. The upper end of the shank is cast with flat sides G', and the ratchet-wheel is cast with a central opening, H', which corresponds in shape with the end of the shank. I thus avoid the expense of providing the end of the shank with splines, and of cutting slots in the ratchet-wheel to engage them, as is necessary when the ratchet-wheel is keyed upon the shank, as in my former patents referred to. The engagement of the ratchet-wheel with the end of

the shank is clearly shown in Figs. 2 and 4, the latter being half size, and the ratchet-wheel being indicated by dotted lines. In Fig. 10 I have shown the end of the shank made angular instead of flat upon two sides. It will of course be understood that the exact shape of the end of the shank is a matter of no consequence whatever, the gist of my invention lying in casting the shank with an angular end, or with any number of flat sides, and in casting the ratchet-wheel with a central opening corresponding therewith.

E represents the dogs which engage the ratchet-wheel, and K the shifting-cap having a curved slot, K', and a notch, K<sup>2</sup>, at the center of the inner side of the curve. The dogs are cast with openings E' through their rear ends, in which the springs L rest, and are provided with pins M, which engage slot K' in the shifting-cap. When in operative position, the dogs lie flush with the surface of the stock with the pins projecting upward far enough to engage the slot. The shifting-cap substantially conforms in shape with the top of the stock, and is provided with a projecting thumb-piece, K<sup>3</sup>, for convenience in manipulating it. The shifting-cap is secured in position upon the top of the stock by means of a screw, N, which passes through it and engages a correspondingly-threaded hole, G<sup>2</sup>, in the end of the shank.

Heretofore it has been my practice to make a shoulder upon the under side of the head of the screw (see Fig. 7) of equal thickness with the shifting-cap, and of proper size to fit in the opening in the shifting-cap, leaving the latter free to turn upon said shoulder. In my present construction I wholly do away with the shoulder and use an ordinary screw, as shown in Fig. 8, and to compensate for the shoulder I use a washer, O, which just fits the hole P, through the shifting-cap, the washer being provided with a central hole, O', sufficiently large to permit screw N to pass through it without engagement therewith. In practice I use for the washer the piece of metal which is struck out from the shifting-cap to make hole P, and which of course fits the hole perfectly without any finishing whatever.

It will be observed in Fig. 2 that I have shown the notches in the ratchet-wheel as some-



what shallower than in my Patent No. 302,320 referred to, and that the ends of the dogs are not necessarily curved, as in my former device, but are preferably left square. The result of the change is to both cheapen the construction and improve the operation of the brace.

It will of course be understood that when the parts are in the position shown in Figs. 2 and 3 the ratchet-wheel and with it the chuck are locked against movement in either direction, and the brace operates as an ordinary brace. Should, however, the shifting-cap in Fig. 3 be moved upward until the upper pin rested in the notch K<sup>2</sup>, the upper dog would be released from its engagement with the ratchet-wheel, which would leave brace and stock free to be turned toward the right independently of the ratchet-wheel and chuck. To permit the same movement to be made toward the left, the shifting-cap would be moved downward until the lower pin rested in the notch, &c.

Having thus described my invention, I claim—

1. In a bit-brace of the class described, the chuck-shank G, cast with flat sides G' at its end, in combination with a ratchet-wheel cast with a central opening, H', with flat sides corresponding to those upon the chuck-shank, whereby said ratchet-wheel is held from turning upon said shank, and the stock having a recess to accommodate the ratchet-wheel.

2. The shifting-cap having a hole, P, and slot K', the shank, and the ratchet-wheel, in combination with the dogs having pins which engage said slot, washer O, which is struck out from the shifting-cap to form hole P, and is itself provided with a central hole, O', and a screw, which passes freely through the washer and engages the end of the shank.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN CHANTRELL.

Witnesses:

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WM. A. JONES.