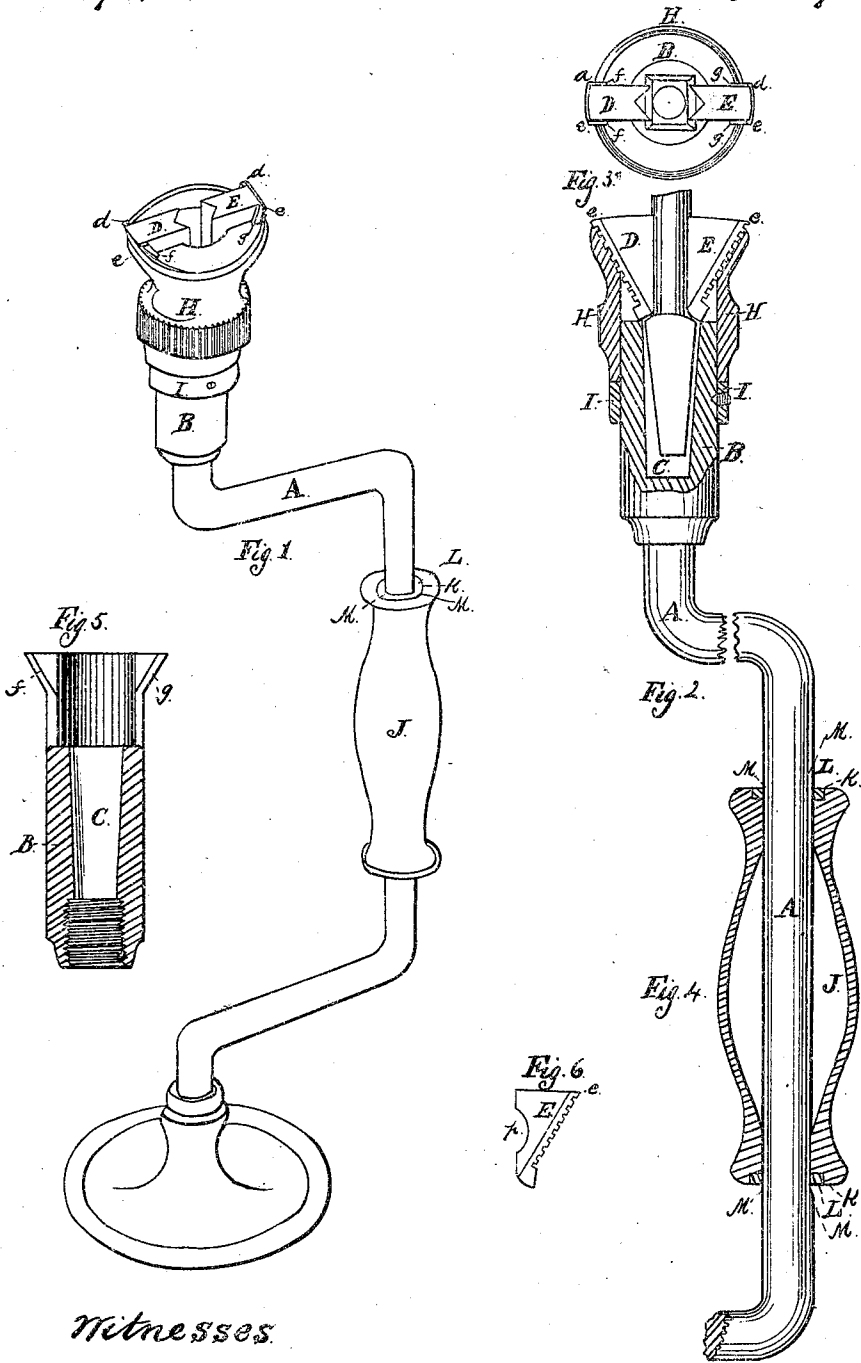


*C. L. Butler*  
*Bit Brace.*

*No. 96,881. Patented Nov. 10, 1869.*



*Witnesses*

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# United States Patent Office.

CALVIN L. BUTLER, OF GREENFIELD, MASSACHUSETTS.

Letters Patent No. 96,881, dated November 16, 1869.

## IMPROVEMENT IN BIT-BRACES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CALVIN L. BUTLER, of Greenfield, in the county of Franklin, and State of Massachusetts, have invented a new and useful Improvement in Bit-Braces; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my invention.

Figure 2 is a central longitudinal view, through the jaws of the same.

Figure 3 is a plan of the same.

Figure 4 is a longitudinal section of handle.

My invention relates to that class of bit-braces which have movable jaws to seize and hold the bit; and

It consists, first, in constructing said jaws to be operated along inclined guides, by a female-screw socket of corresponding shape, so that said jaws shall be always parallel to each other, and seize the bit by the cylindrical portion or shaft in front of the head.

That others may understand the construction and operation of my invention, I will particularly describe it.

The crank of the brace is made of a cylindrical rod of iron, A, which is bent to the proper form after the handle is secured in place.

The head B is, for reasons of convenience, made separately, and is secured upon the end of the rod A by a screw, or some other convenient and efficient means.

The head B is made cylindrical, except at its front end, where it expands, in the form of a frustum of a cone.

The central portion of the head B is bored out, or, if it is made of cast-metal, the central hollow is made by using a core.

The lower part of said central hollow is made rectangular, so as to form a socket, c, to receive the rectangular head of the bit; but said socket is not intended to fit said head, but merely to accommodate it, and prevent the bit from revolving, if the jaws do not chance to be clamped tightly enough for that purpose.

The front portion of the head B is divided, longitudinally, by a slit, within which the jaws D E rest, one on either side.

These jaws are so formed, that when in position, their opposite faces are parallel with each other, and with the axis of the brace, and their outer edges correspond to the surface of the conical part of the head B.

Upon this inclined portion of each jaw, segments of a screw-thread are cut, and small ledges *d e* are

made, up and down each side, parallel with said angular face.

The ledges *d e* rest in corresponding guides *f g*, made in the sides of the slot which divides the head B.

A sleeve, H, is fitted snugly to the outer surface of the cylindrical head B, with a flaring socket, exactly corresponding to the conical end of the same, and upon the inner surface of said socket, a screw-thread is cut, to mesh with and operate the screw-segments upon the edges of the jaws.

A collar, I, is fitted to the cylindrical surface of B, below the end of the sleeve H, and is fastened there by a pin or screw, so that said sleeve is kept accurately in place.

From the above description, and the accompanying drawings, it will be seen, that as the sleeve H is rotated, the jaws D E will be caused to traverse their guide-ways, moving out and into the socket of said sleeve, and receding from or approaching each other in parallel lines, so that any cylindrical body, which may be introduced between them, will be met and grasped equally by said jaws, through their whole length.

In order to apply this principle of operation to the holding of bits as they come from the hands of the maker, it is necessary that the head of the bit shall be received freely in some place where it will not influence the grip of the jaws.

This place is the socket c, which is rendered necessary, because, as bits are manufactured, the heads are left rough, and their sides never present equal angles to the axis of the bit-shaft.

It is therefore indispensable in any implement, designed to hold a bit truly centred, that it should be held independent of said head.

The handle J is cast hollow, but is bored at each end, so as to fit the rod A, and a recess, k, is also bored in each end, to receive the washer L.

This washer is fitted accurately to the surface of the rod A, and fits snugly, but easily, within the recess k.

When the handle J is in place, and the washers L inserted in their seats, they are secured there by raising the metal of the rod directly beneath and in contact with the washer, by means of a sharp-pointed punch, the same being applied at not less than three points, M, around each washer.

By these means, the handle is made to rotate with perfect freedom, while it is, at the same time, securely and easily held in place.

The collar I may be dispensed with, and a simple screw or pin employed in its place, but that would be an inferior mode.

In figure 6 is represented a jaw, which will only engage with the shaft of the bit at its two extremities, the central portion being cut away, as at *p*, to obviate the effects of a little untruth in the facing of the jaw.

Having described my invention.

What I claim as new, is—

The jaws D E, constructed to operate in inclined

guides *d e*, by means of a conical female-screw socket H, so as to be at all times parallel with each other, and to seize the bit by its cylindrical portion in front of its head.

CALVIN L. BUTLER.

Witnesses:

BELA KELLOGG,

J. H. FLAGG.