J. Mix,

Bit Stock.

No. 35,618. Patented June 17, 1862.

Fig. 1

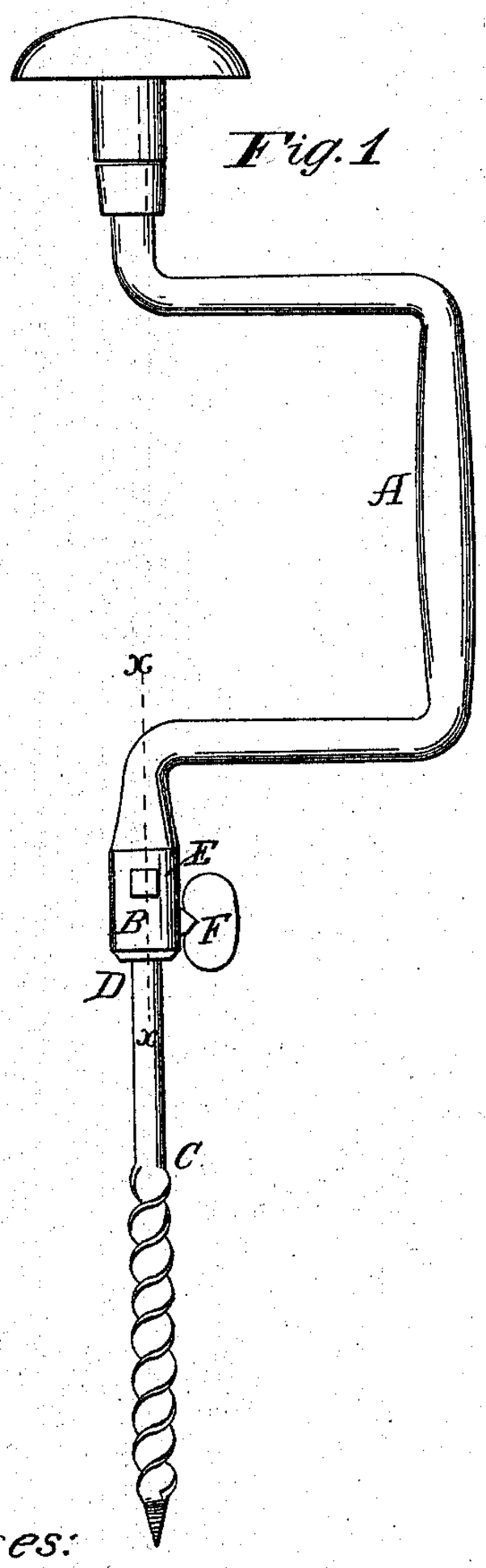


Fig. 2

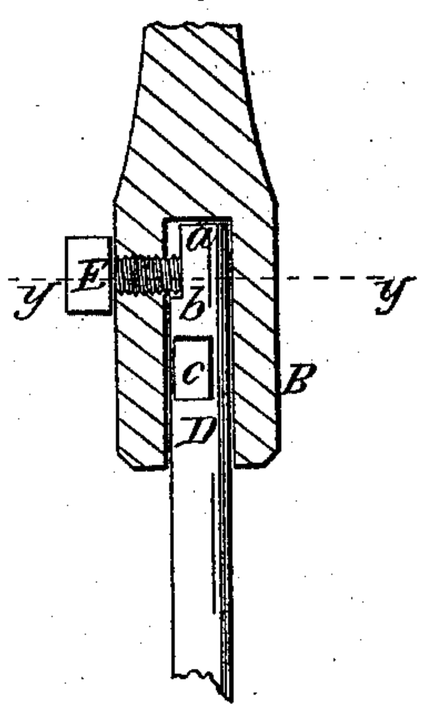
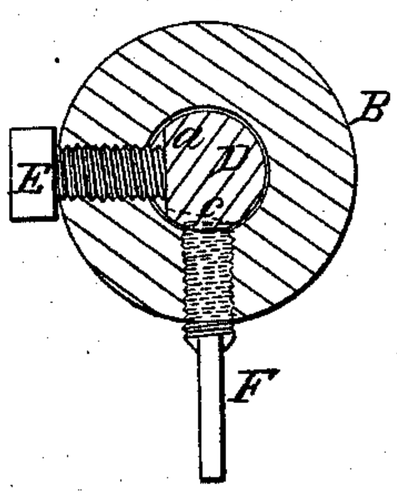


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN MIX, OF WEST CHESHIRE, CONNECTICUT.

IMPROVEMENT IN SECURING BITS IN BRACES.

Specification forming part of Letters Patent No. **35,618**, dated June 17, 1862.

To all whom it may concern:

Be it known that I, JOHN MIX, of West Cheshire, in the county of New Haven and State of Connecticut, have invented a new and Improved Mode of Securing Bits in Braces, Lathe-Mandrels, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of a joiner's brace with a bit secured in it, according to my invention; Fig. 2, an enlarged section of a portion of the same taken on the line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to secure bits with cylindrical shanks in braces or mandrels in such a manner that they will be firmly secured therein and still be capable of being very readily adjusted in the braces or mandrels and very readily detached therefrom, and thereby not only effect a great saving in the manufacture of the bits, but also insure a more perfect or truer adjustment of the bit in the brace or mandrel.

The ordinary bits are constructed with taper square shanks to fit in the socket of the brace or mandrel. These shanks are much thicker than the other portions of the bit, and the forming of them is attended with considerable labor and expense, and even when made by experienced workmen are very generally untrue or out of center with the axis of the brace or mandrel, causing the drilling or boring to be attended with considerable friction and rendering the bits liable to be bent or broken. These difficulties are fully obviated by my invention.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents an ordinary joiner's brace provided with a socket, B, in which the bit C is secured. This bit is provided with a cylindrical shank, D, of equal diameter throughout, and at its end there is a portion filed or cut off to form a plane surface, *a*, and a shoulder, *b*, which, when the shank is inserted in the socket B, rests or bears against a stop, E, said stop being a screw, which passes laterally through the socket and bears against the plane surface *a*, as shown clearly in Fig. 2.

The screw or stop E is not designed to be adjustable, but to remain permanently in the socket. Just above the plane surface *a* there is filed or cut in the shank D another plane surface, *c*, which is not at right angles with it, but forms an obtuse angle, as clearly shown in Fig. 3, in which *c* is indicated by dotted lines.

F is a set-screw, which passes laterally into the socket B and bears against the plane surface *c* near the edge of it, which is farthest from the screw or stop E, as shown clearly in Fig. 3. By this arrangement it will be seen that when the screw F is screwed into the socket B and against the edge of the plane surface *c* that the plane surface *a* will be cramped or pressed firmly against the inner end of the screw or stop E, and the bit thereby firmly secured in the socket, so that it cannot turn therein nor be casually withdrawn from it.

By having the bits provided with cylindrical shanks they may be constructed at a comparatively small expense. The stock may be obtained in the form of cylinder rods cut into proper lengths, and the cutting portion of the bit formed at one end and the plane surfaces filed or cut at the opposite end. The forging hitherto required in forming the square taper shanks is dispensed with, and the cylindrical shanks may be fitted truly in the socket B, so as to be in line with the axis of the socket, a result not attained with the square shanks without great difficulty.

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

The cylindrical shank D, provided with plane surfaces *a c*, as shown, in connection with the stop or bearing E, and the set-screw F, all arranged substantially as and for the purpose herein set forth.

JOHN MIX.

Witnesses:
JAMES LAIRD,
EDW. W. HODGSON.