

J. S. FRAY.
Bit-Brace.

No. 219,574.

Patented Sept. 16, 1879.

Fig. 1.

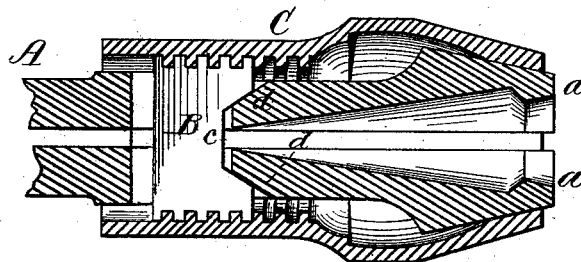


Fig. 2

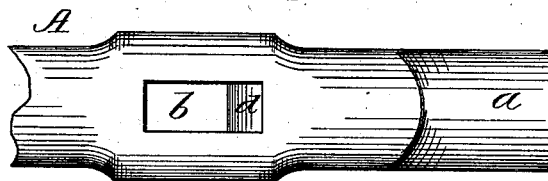
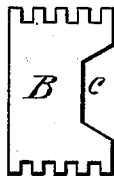


Fig. 3



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

JOHN S. FRAY, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN BIT-BRACES.

Specification forming part of Letters Patent No. **219,574**, dated September 16, 1879; application filed June 13, 1879.

To all whom it may concern:

Be it known that I, JOHN S. FRAY, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and valuable Improvement in Bit-Braces; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a sectional view of that portion of a bit-brace embodying my invention; Fig. 2, a side view of one of the spring-jaws. Fig. 3 is a side elevation of the binder.

The present invention has relation to that class of bit-brace where the expanding socket is a part of the lower arm, and both socket and lower arm being divided, the springing apart of the lower arm by the proper shaping thereof and the elasticity of the metal causes the socket to expand when free to do so. The usual method employed to bring together the jaws of this class of brace has been a thumb-screw, (as in the Spofford patent, November 1, 1859.) This is objectionable, inasmuch as it brings the pressure on one side, and not directly over the center of the socket and bit-shank. Another device is that of employing two sleeves, the inner sleeve or ferrule fitting over the upper part of the jaws, and having screw-threads upon its exterior to engage with screw-threads upon the interior of an outer sleeve, by which construction the inner sleeve is made to move lengthwise upon the upper portion of the jaws by the rotation of the outer sleeve and cause the jaws to be pressed toward each other and against the bit-shank.

Although the means above referred to were successful in clamping and holding the jaws in position against the bit-shank, yet a bit-brace of such construction was open to many objections, particularly in its manufacture, as the inner sleeve or ferrule will not pass over the largest part of the brace or outer end of the expanding or divided jaws, as were it made sufficiently large it would then fail to close the jaws against the bit-shank and hold them there; consequently it must be put on from the other end of the brace or back of the jaws.

To accomplish this it was necessary to make the brace in several parts and afterward join them, as were the brace completed the inner sleeve or ferrule could not be passed over the handle or swell on the same.

It will therefore be seen that with the employment of the inner sleeve or ferrule for closing the jaws of the brace against the shank of the bit it is necessary, in order to place the sleeve on the brace, to make the latter in several parts, which of course increases the cost of production, and in joining the parts or putting them together necessarily weakens the brace where the most strength is needed.

It is therefore the purpose of the present invention to provide means for operating the expanding jaws and admit of the brace being formed in the usual way, thereby securing full strength in casting, or otherwise producing it in one piece, and at the same time not increase the cost in their manufacture, as will be hereinafter described.

In the accompanying drawings, A represents the handle or bent portion of the brace, with expanding jaws *a*, each of which is formed with a V-shaped groove, so that the cavity produced by the combined grooves will be of the required shape to receive the tapered shank of the bit. These jaws *a* are provided with rectangular slots *b*, and these slots, when the jaws *a* are brought together, register with each other and form a continuous opening for the reception of a gib-shaped binder, B, formed with a beveled recess, *c*, to correspond with the beveled shoulder formed by the lower inclined ends, *d*, of the slots *b*.

The binder B is threaded upon its outer edges to engage with screw-threads upon the interior circumference of a sleeve, C. This sleeve is conical or tapering upon its lower end, to act on tapering or beveled outside faces of the expanding jaws *a*. The sleeve C, when screwed up, brings the binder B, with its inclined planes or beveled edges of the recess *c*, against the inclined faces or ends *d* while the conical or tapering end of the sleeve is moving in a direction toward the binder B, thus bringing the two closer together, and closing the expanding jaws *a* against the shank of the bit. The binder B passing through the jaws, or through the openings thereof, prevents

them from sliding or passing by each other when the brace is subject to heavy strain, and firmly locks both jaws together.

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

1. A bit-brace having a pair of expanding jaws formed by the divided lower arm and a sleeve passing around said jaws, in combination with a binder passing through openings in said jaws, and constructed to operate in connection with the sleeve, substantially as and for the purpose set forth.

2. The divided arm or jaws of a bit-brace having openings through the same, and a binder loosely fitting within said openings, in combination with means, substantially as de-

scribed, and independent of the binder, for operating it to close or open the jaws, substantially as and for the purpose described.

3. The combination, with the divided jaws of a bit-brace, of a binder passing through openings in the jaws, and means for causing said binder to move lengthwise in the openings, to close or open the jaws, substantially as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOHN S. FRAY.

Witnesses:

L. S. CATLIN,

J. F. FAYERWEATHER.