O. PECK & D. POWERS.

Bit-Stock.

No. 212,110. Patented Feb. 11, 1879.

Fig. 2.

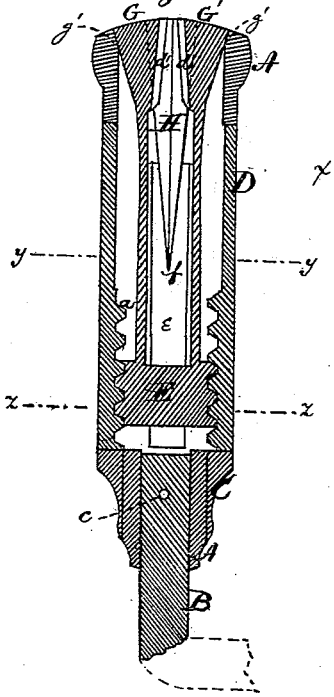


Fig. 1.

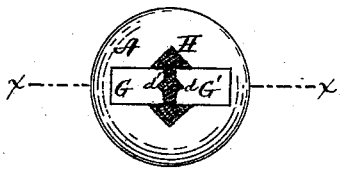


Fig. 3.

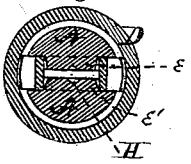


Fig. 4.

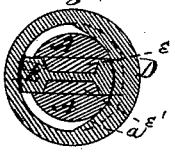


Fig. 5.

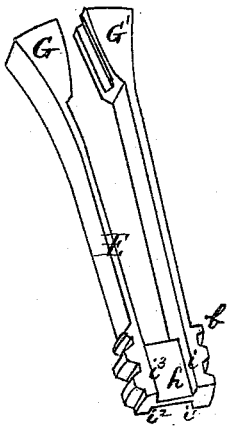
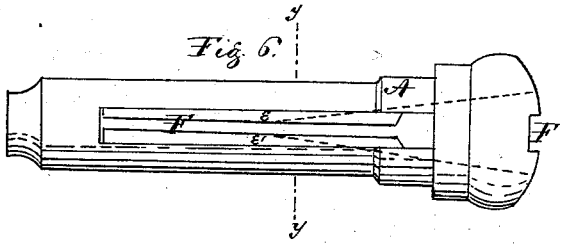


Fig. 6.



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UNITED STATES PATENT OFFICE.

OBED PECK, OF ROWE, AND DANIEL POWERS, OF SHELBURNE, MASS.;
SAID POWERS ASSIGNOR TO SAID PECK.

IMPROVEMENT IN BIT-STOCKS.

Specification forming part of Letters Patent No. **212,110**, dated February 11, 1879; application filed August 21, 1878.

To all whom it may concern:

Be it known that we, OBED PECK, of Rowe, and DANIEL POWERS, of Shelburne, both of the county of Franklin and State of Massachusetts, have made certain new and useful Improvements in Bit-Braces, whereof the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the front end of our improved bit-brace. Fig. 2 shows a longitudinal section of the same, taken through the lines *x x* of Fig. 1. Fig. 3 shows a cross-section of the same, taken through the lines *y y* of Figs. 2 and 6. Fig. 4 shows a cross-section of the same, taken through the line *z z* of Fig. 2. Fig. 5 shows in perspective the spring jaw-piece. Fig. 6 shows in perspective the shell in which the jaws work, being a part of the body of the bit-brace.

In the drawings, the common sweep, the head, and the other parts of a bit-brace (not shown) are supposed to be added to the parts shown in Fig. 2, being connected to the part B, but are omitted to save space as being well known; also, any other form of tool-holder may be added at part B.

A is the outside shell, being a part of the body of the bit-brace. B is the part of the sweep connected with shell A, and C is a ring put over the shell A to hold in place the sleeve D, which surrounds shell A, as shown in Fig. 2, and has on its interior surface a screw-thread, *a*, which takes into and operates the jaw-piece E, by its screw-thread *b*, backward and forward in the slot F.

The parts A, B, and C are made one by a pin through them, passing through the pin-hole *c*, though any construction may be used to keep the sleeve in place, and said parts may be of one piece.

G G′ are the jaws, which unite and are part of the jaw-piece E. In said jaws are the indentations *d d′*, which fit upon the shanks or sides of tools, and, together with the rectangular tapering socket H, hold them in place when the jaws are drawn inward. In the slot F, and made a part of the shell A, are the projections *e′ e*, into which projects the rectangular tapering socket H, the point *f* of which is in the axis of revolution of the shell A, and the axes of revolution of shell A and socket H are identical, while the jaws G G′ are always equidistant from said axes. The jaws G G′ are made of steel or other spring metal, and have a tendency to spring apart when drawn together. The socket H is partially cut away by the slot F, but enough is left on each side thereof to fit one of the two opposite corners or sides of a tool-shank or tool, while the two other corners or sides are held in the indentations *d d′*. The socket H is shown by the dotted lines coming toward a point in the projections *e e′* in Fig. 6.

The device operates as follows: The parts are supposed to be together, as shown in Fig. 2, except that the jaws are supposed to be screwed out until sprung apart, as in Fig. 5. The shank of the tool (or, if without a shank, then the tool itself) is placed into the socket H, and two sides or corners find a bearing in said socket. The sleeve is then turned, and, by its screw, draws in the jaws by their reaction against the inclined planes *g g′*, and the grooves or indentations *d d′* fit themselves to the other two opposite corners of the tool-shank or surfaces of the tool, and, as the jaws G G′ are flexible, they fit themselves, by the indentations, to any taper of the shank, or to the sides of a tool with a long bearing and friction surface instead of simply touching in opposite points, and draw down the tool with great force to a bearing in the socket H and center, and hold it central for its work.

The union of the two jaws into one piece keeps them in place much better than distinct or independent jaws could be held, and requires much less fitting for bearings, thereby cheapening construction. In fact, the united jaws being each kept in place by the connecting-film *h* would operate with very little bearing, except a slot to keep them from turning and the inclines *g g′*.

The independent jaws require sockets or bearings accurately made (if they are required to be drawn in and out for the purposes described) or they will not move and act uniformly and together, and, being confined, as is therefore necessary, they are much more liable to stick or break.

The portion of part A containing the socket

H must have a solid connection to and union with the sweep, and the united jaw-piece must rotate with it, because the tool in said socket and jaws is turned by the sweep. Also, the united jaw-piece cannot rotate with the sleeve while being retracted or projected by its thread. The sleeve has, therefore, a different rotation from part A and the sweep. We have located the sleeve between the end of part A containing socket H and the junction of part A with the sweep to enable us to use the sweep in tightening a tool in the jaws, and also to be out of the way of the hand operating the brace. This location of the sleeve also enables us to make the jaw-piece operated on by the sleeve shorter than the length of part A from its end containing socket H to its junction with the sweep, to save material and be out of the way of the operating hand. To enable us to make said location of the sleeve while, at the same time, it turns on part A as aforesaid, we have made the connection of that portion of part A containing socket H with the sweep through the inside of the sleeve, having slabbed off the united jaw-piece, as shown, so that it occupies only a portion of the section inside the sleeve, while the said connection of the sweep is made, beside the jaw-piece in the same section, inside the sleeve. Thus the parts A A in Figs. 3 and 4 are the connection inside the sleeve between the sweep or body of the brace and the part holding the socket, wherefore in this device a threaded united jaw-piece is used in combination with a threaded sleeve to draw it inward and outward, located between the junction of the sweep with the part containing the socket H and that portion of part A which contains said socket.

The construction of the projections *e e'* in the slot F serves the purpose of strengthening the sides of shell A, thereby enabling the construction to be smaller and more compact. Again, the projections *e e'* enable the construction of the rectangular tapering socket H, to be continued into the slot F to a very fine point, so that (inasmuch as the jaws come also almost together) much smaller tools can be brought home and held centered in the socket than can usually be used in a brace having a united jaw-piece operating as described. To enable the use of the projections *e e'*, the jaw-piece is reduced in the part connecting the two jaws to the thin film *h*, which, although sufficient for strength, is thinner than the thickness of the jaws, and passes freely between said projections. If the film *h* were entirely removed the brace would still operate, for the parts of the jaws *i* i^1 i^2 i^3 would find their bearings against the projections *e e'* and in the thread of the shell.

If, instead of the solid union of identity shown, the jaw-piece were united by a pivot or hinge, a similar effect to the one produced with this jaw-piece might be had; but an additional spring would be necessary, which is now superseded by the spring of the jaws—a much more efficient spring than can otherwise be put in the small space which can be allowed for the purpose in a convenient tool. The spring of the jaw itself may be used in independent jaws operated similarly; but the jaw must then be very accurately fitted, as above described, and will also be very liable to break.

What we claim as our invention, and for which we pray that Letters Patent may be granted to us, is—

1. A shell attached to the sweep of a bit-brace containing a united jaw-piece having two jaws constructed as described, and having also a threaded portion whereby said jaws are driven forward and backward in said shell by a threaded sleeve operating on the same, when the cross-section of said threaded portion, perpendicular to the axis of the rotation of said threaded sleeve operating the same, is less in area than the circle of the thread on said threaded portion.

2. The united jaw-piece E, having two jaws connected together by a threaded portion operated on by the sleeve D to draw them into the shell A, when each of said jaws is a part of a spring tending to throw it apart from the other jaw, and when said united jaw-piece is shorter in length than the portion of the part A which lies between its end containing the socket H and the junction of the part A with the sweep of the brace, all said parts being combined and operating as described.

3. The threaded united jaw-piece E, slabbed off as described, and having two jaws operating as described, and the part A, with its socket H, combined with a threaded sleeve located between the end of part A containing the socket H and the junction of part A with the sweep of the brace, all operating as described.

4. The shell A, having projections *e e'* around the slot F, in combination with the jaw-piece E and sleeve D, constructed substantially as described.

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DANIEL POWERS.

Witnesses to signature of Obed Peck:
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