

H. S. SHEPARDSON.
Improvement in Bits.

No. 124,089.

Patented Feb. 27, 1872.

Fig. 1.

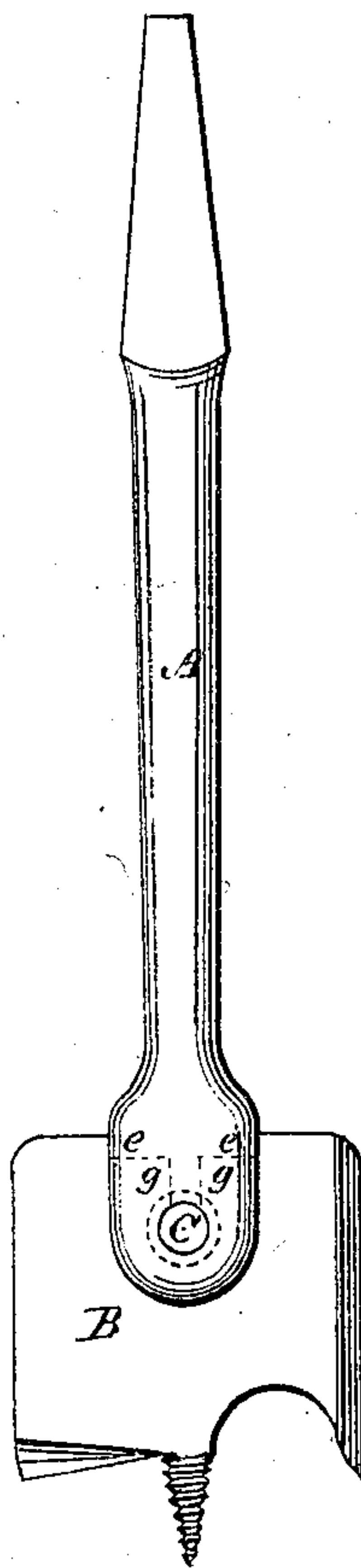


Fig. 3.

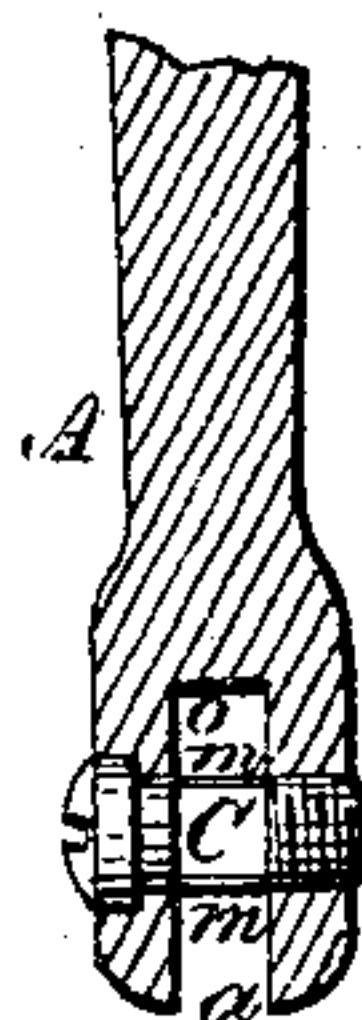


Fig. 2.

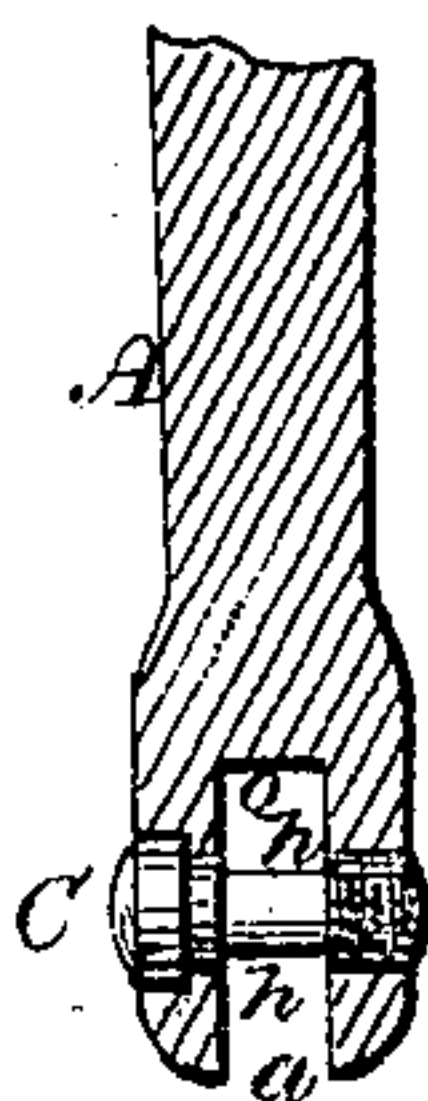


Fig. 10.



Fig. 9.



Fig. 8.

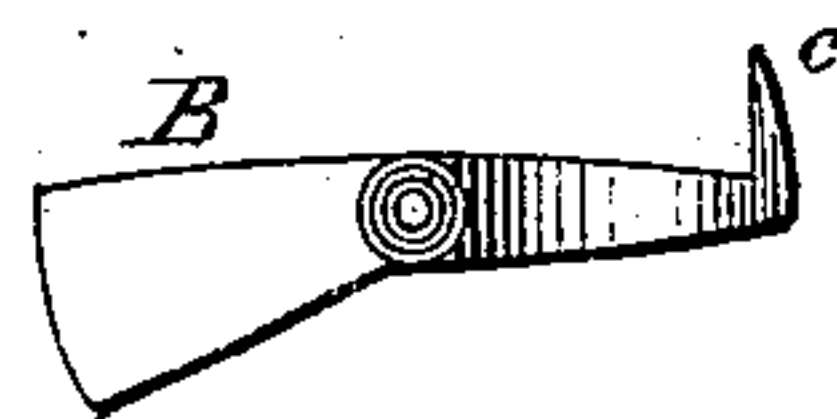


Fig. 7.

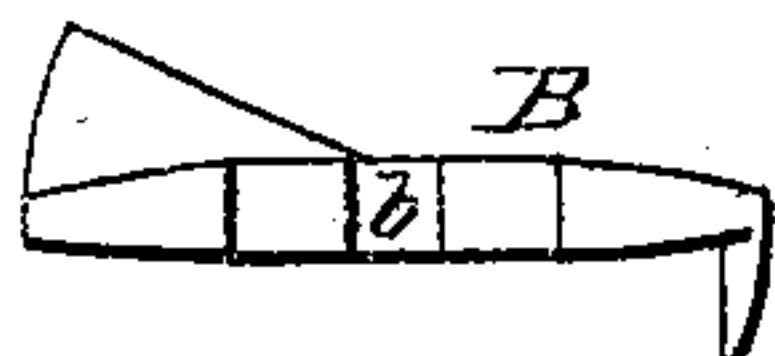


Fig. 6.

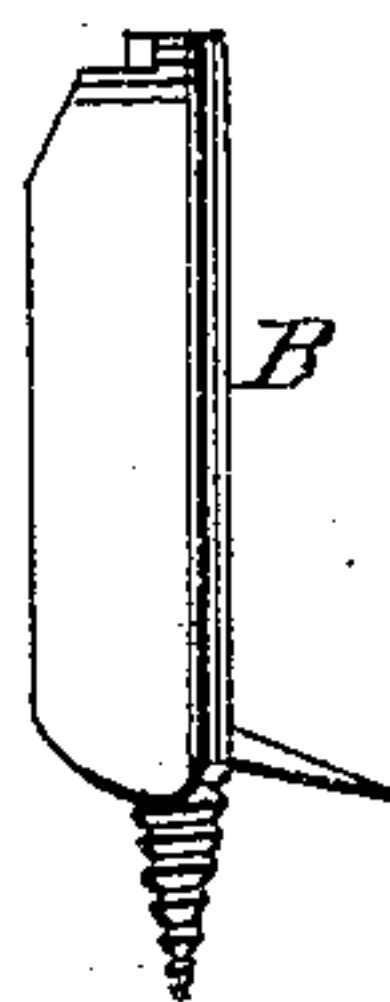


Fig. 4.

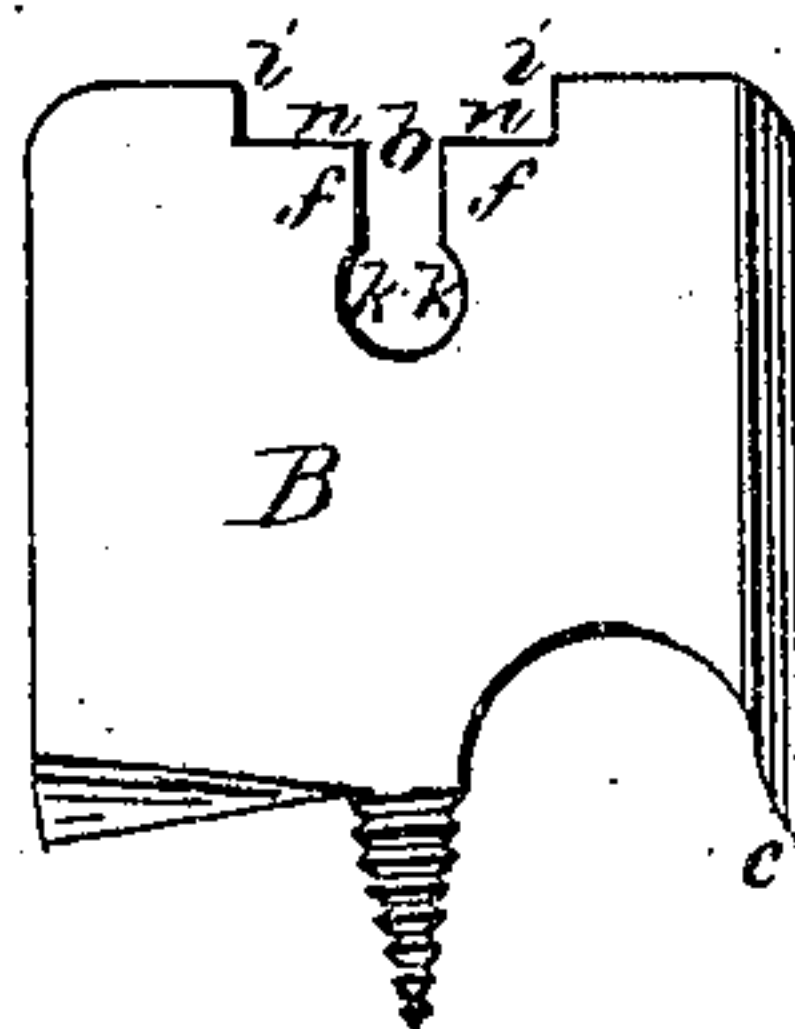
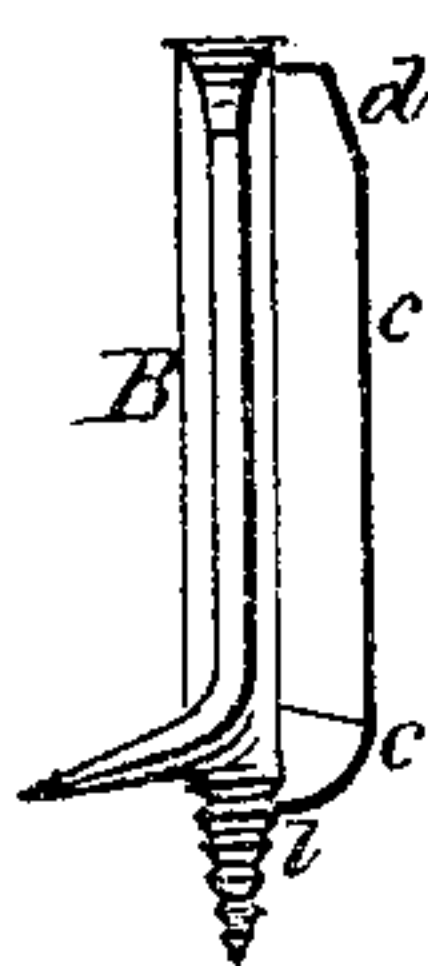


Fig. 5.



Witnesses.

Henry Wilm
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Inventor.

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UNITED STATES PATENT OFFICE.

HENRY S. SHEPARDSON, OF SHELBURNE, MASSACHUSETTS.

IMPROVEMENT IN BITS.

Specification forming part of Letters Patent No. 124,089, dated February 27, 1872.

I, HENRY S. SHEPARDSON, of Shelburne, in the county of Franklin and Commonwealth of Massachusetts, have made certain new and useful Improvements in Bits, whereof the following is a full, clear, and exact description, reference being had to the accompanying drawing.

This invention consists in a shank or holder made capable of holding interchangeable bits or cutters, whereby one shank is capable of fitting to and being used with many cutters or bits, and with cutters or bits of varying sizes and forms, thereby saving all the stock necessary for the shanks of bits, (generally of an expensive kind,) and materially cheapening the expense of bit manufacture by obviating the necessity for forging and other labor required to make the shank. Furthermore, I have improved the spur of the bit by making it of unusual width and length, thereby giving it great strength in a point where bits are usually liable to break, and adding materially to the surface of the spur exposed to wear, thereby obviating the common difficulty of wearing out the spur before the other parts of the bit, this construction being attained by turning over one edge of the bit. This construction also gives a drawing-knife edge to the spur, thereby giving a drawing cut. Also, in my bit, one portion of the extended spur is reduced and cut so as to form a screw-driver convenient for turning the screw in the shank when the cutters are to be changed.

In the accompanying drawing, Figure 1 represents the shank holding a bit or cutter ready for use. Fig. 2 represents a section of a portion of the shank containing the screw, showing the position of the screw when the bit or cutter is fastened in. Fig. 3 represents the same portion of the shank as Fig. 2 in section, but showing the position of the screw required for removing the bit or cutter. Fig. 4 is a front view of the bit or cutter. Figs. 5 and 6 are edge views of the bit or cutter, showing the opposite edges. Figs. 7 and 8 are end views of the bit or cutter, showing the opposite ends. Figs. 9 and 10 are views of adjacent sides of the screw, showing the form of the screw when removed.

In the different figures the same letters refer to the same parts.

The shank or bit-holder A is constructed with a slot, *a*, in the end, running through the

end, and of suitable thickness to fit the part *ff* of the cutter B. The end of the said shank is drilled, tapped, and countersunk, to take in the screw C, which goes through the shank in its end at right angles to the plane of the slot *a*. The screw C has its diameter reduced as shown at the points *h h* in Fig. 2, to pass through the recess *b* in the bit or cutter B, between the points *ff* of said cutter. The bit or cutter B has in its top part a recess, *b*, so constructed that the sides *i i* fit the outer part of the shank at *e e*, and that the smaller diameter *h h* of the screw C will pass through between the parts *ff* of said cutter B. The lower part of said recess is enlarged and cut in a circular form, and so constructed that after the screw C in the shank has passed through the part of the recess between *ff*, it may be turned, and the sides *k k* of the said enlarged portion of the recess will fit the circular sides *m m* of the screw on its larger diameter, and the bit or cutter will be locked into the shank tightly, so that it cannot be withdrawn until the screw C is turned again a quarter revolution, to admit of the passage of the narrow part *h h*, through the narrow part of the recess between the parts *ff* of the cutter B. The side of the cutter B is turned over, as shown in Fig. 5 at *c c*, so that the spur, instead of being a point, has the long knife-edge *l*, which is curved to give a drawing cut, and has a long edge, to furnish additional strength, and surface to prevent shortening by wear. A part of the cutter B at *d* is reduced and shaped into the form of a screw-driver, to use in turning the screw C. When the cutter B is in the shank A, and locked in, in the manner aboved specified, it is prevented from side motion on the shank by the reaction of the fitting sides *i i* of the recess acting on the parts *e e* of the shank combined with the reaction of the parts *m m* of the screw against the sides *k k* of the recess, and is held firmly by the parts *g g* of the shank fitting to and holding the parts *ff* of the said cutter B, while it is driven down by the part *o* of the shank acting on the parts *n n* of said cutter, together with the sides *m m* of the screw acting on the parts *k k* of the cutter. To change bits when one is locked in the shank, the screw C is turned a quarter revolution, when the cutter may be withdrawn by the passage of the

narrow part *h h* of the screw through the narrow part of the recess, between the parts *f f* of the cutter. Another cutter may then be introduced in the same way, and a quarter turn of the screw will lock it in, as before. Bits or cutters of all sizes and styles may be used, provided the recess *b* is the same in all.

What I claim as my invention, and desire to have secured by Letters Patent, is—

1. A bit constructed to fit and hold one of the interchangeable bits or cutters B, substantially as specified.

2. The bit B, constructed in the manner shown and described.

HENRY S. SHEPARDSON.

Executed in presence of—

HENRY WINN,
DANIEL POWERS.