

(No Model.)

J. BALZ.
TOOL HANDLE.

No. 333,192.

Patented Dec. 29, 1885.

Fig. 1.

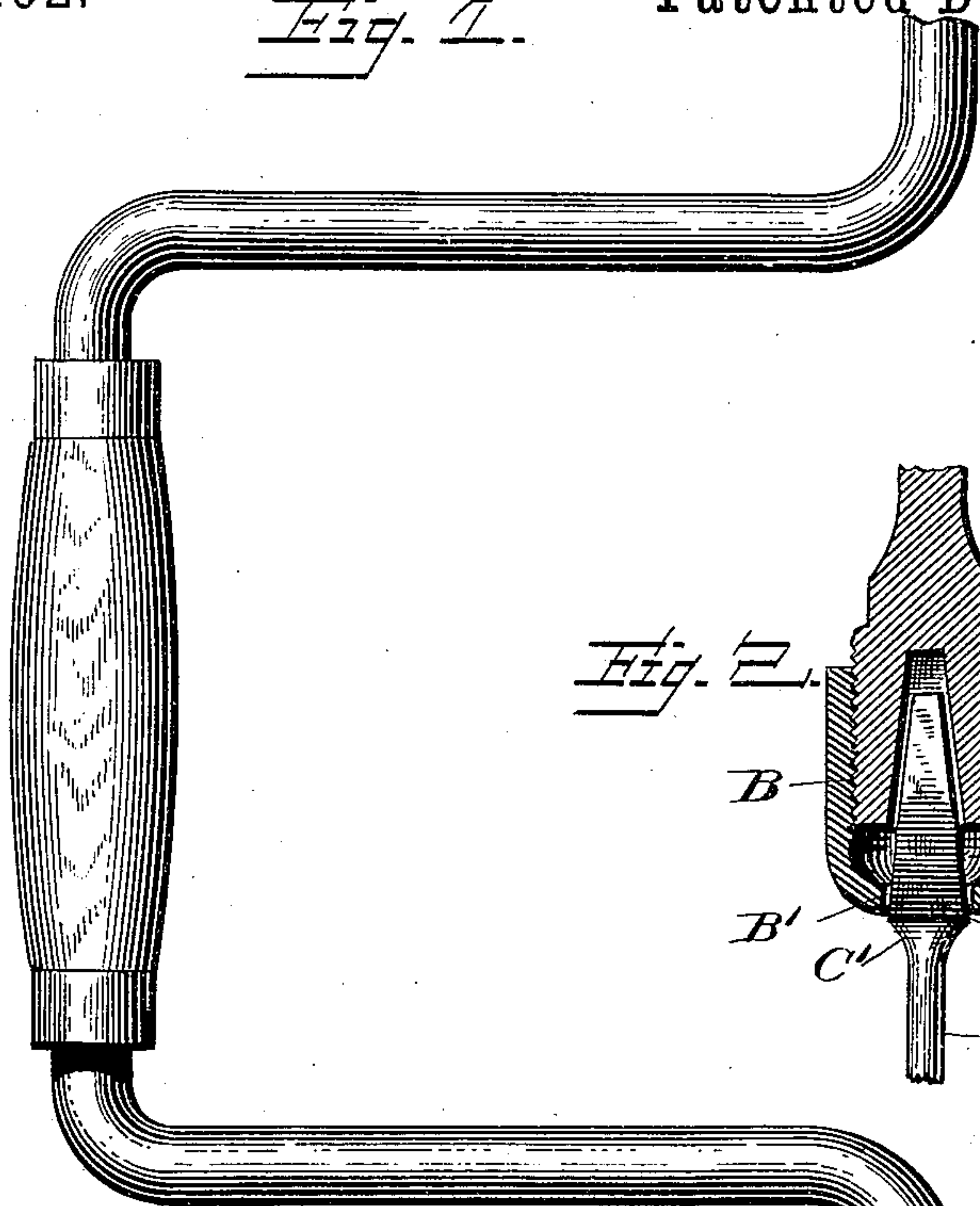


Fig. 2.

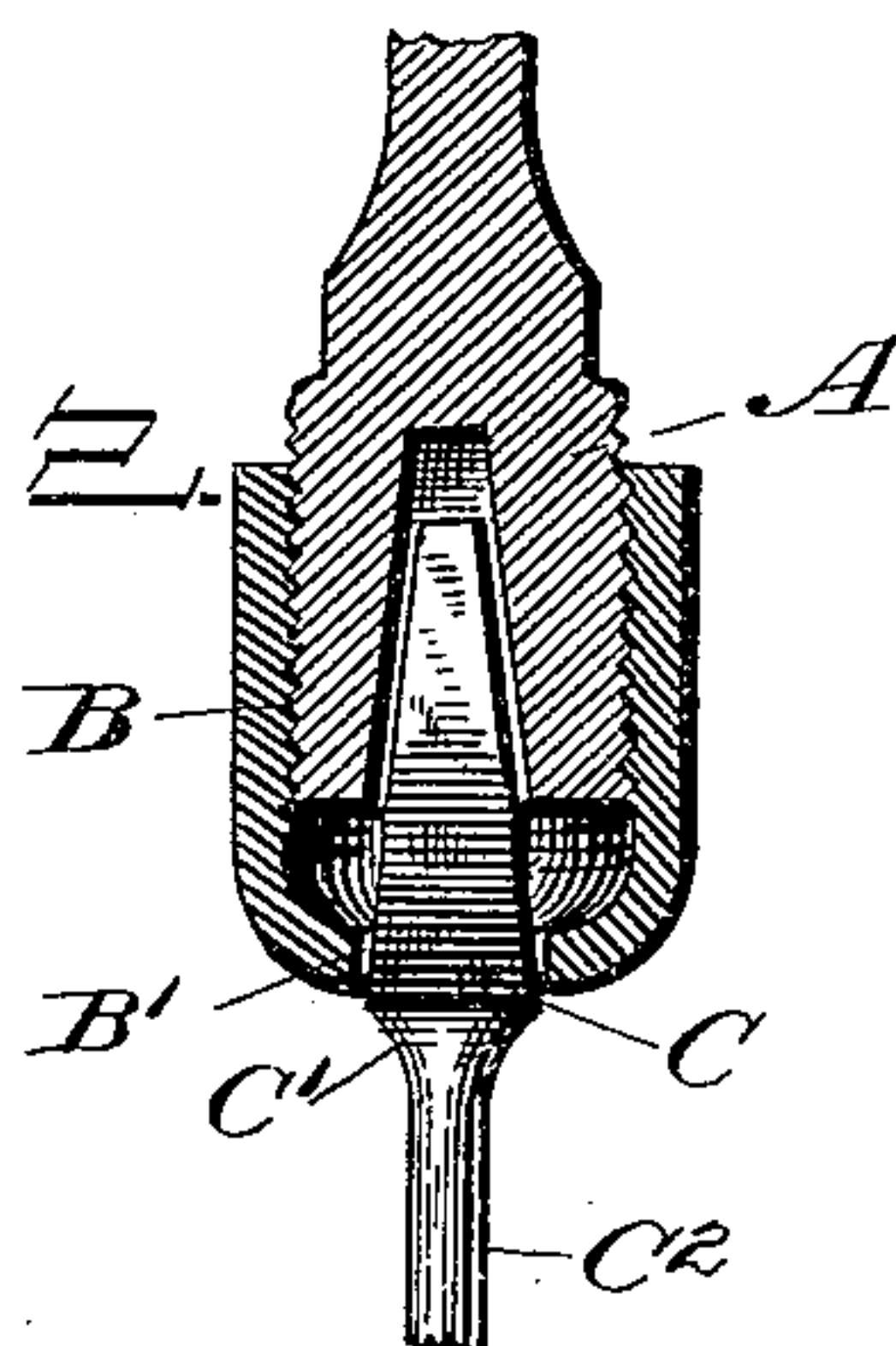


Fig. 3.

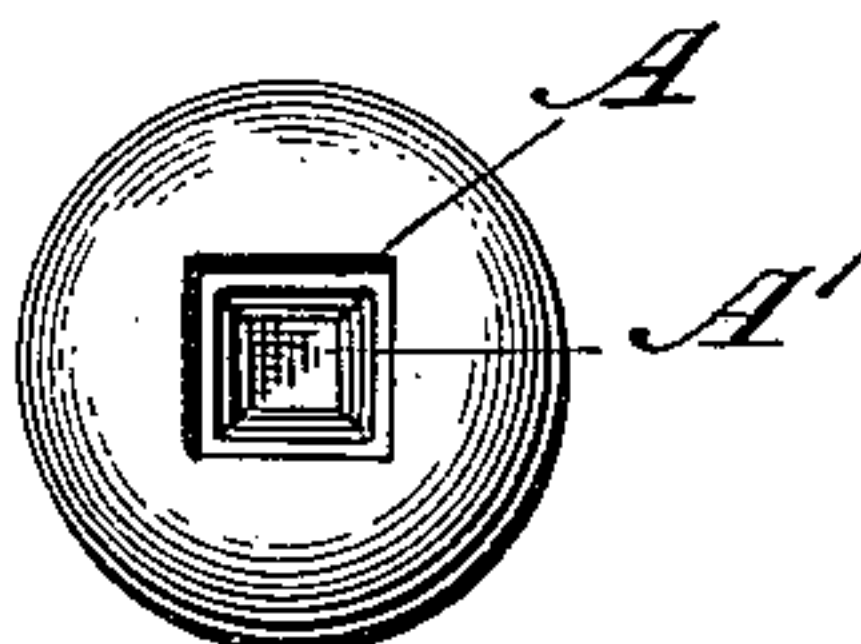
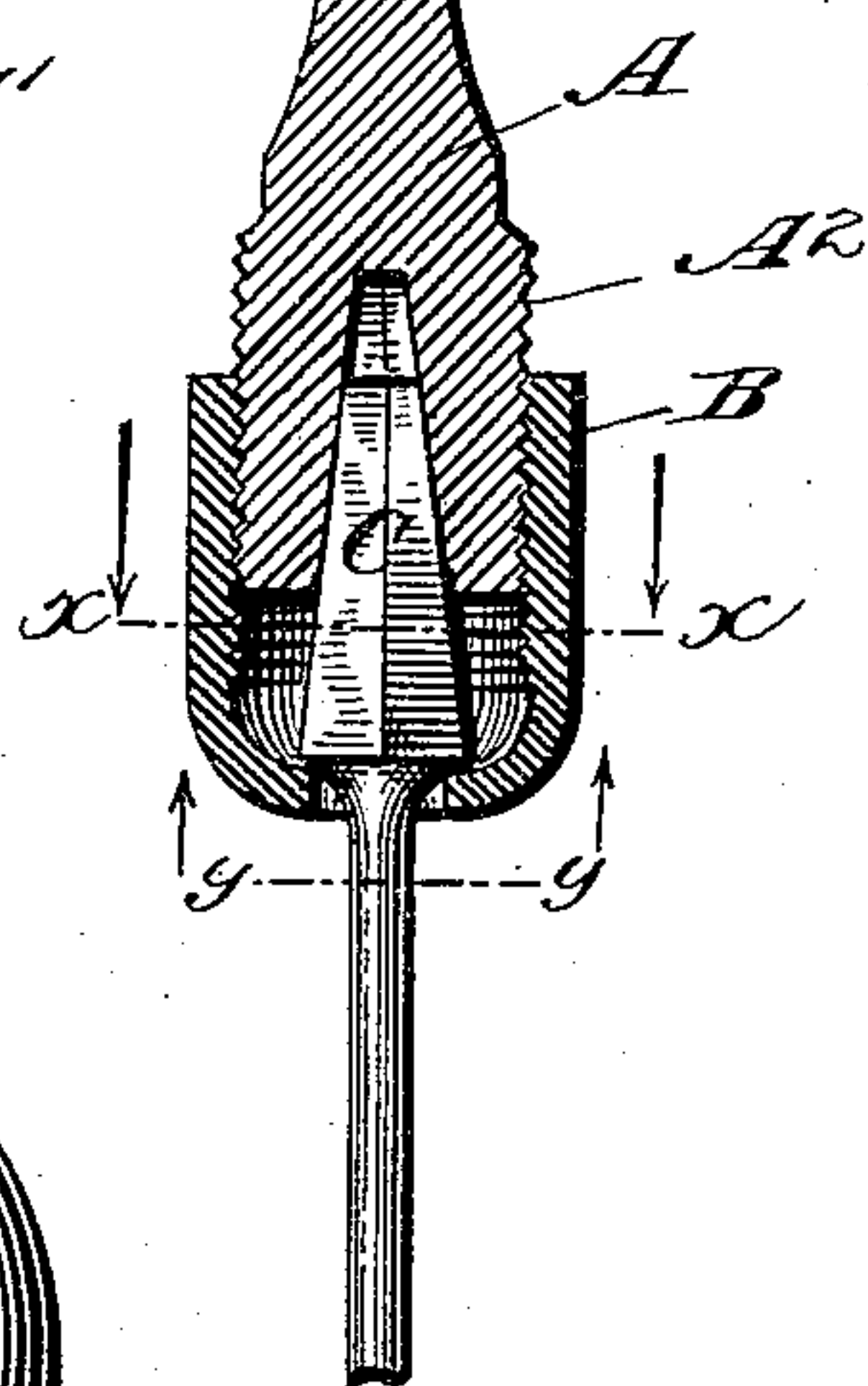
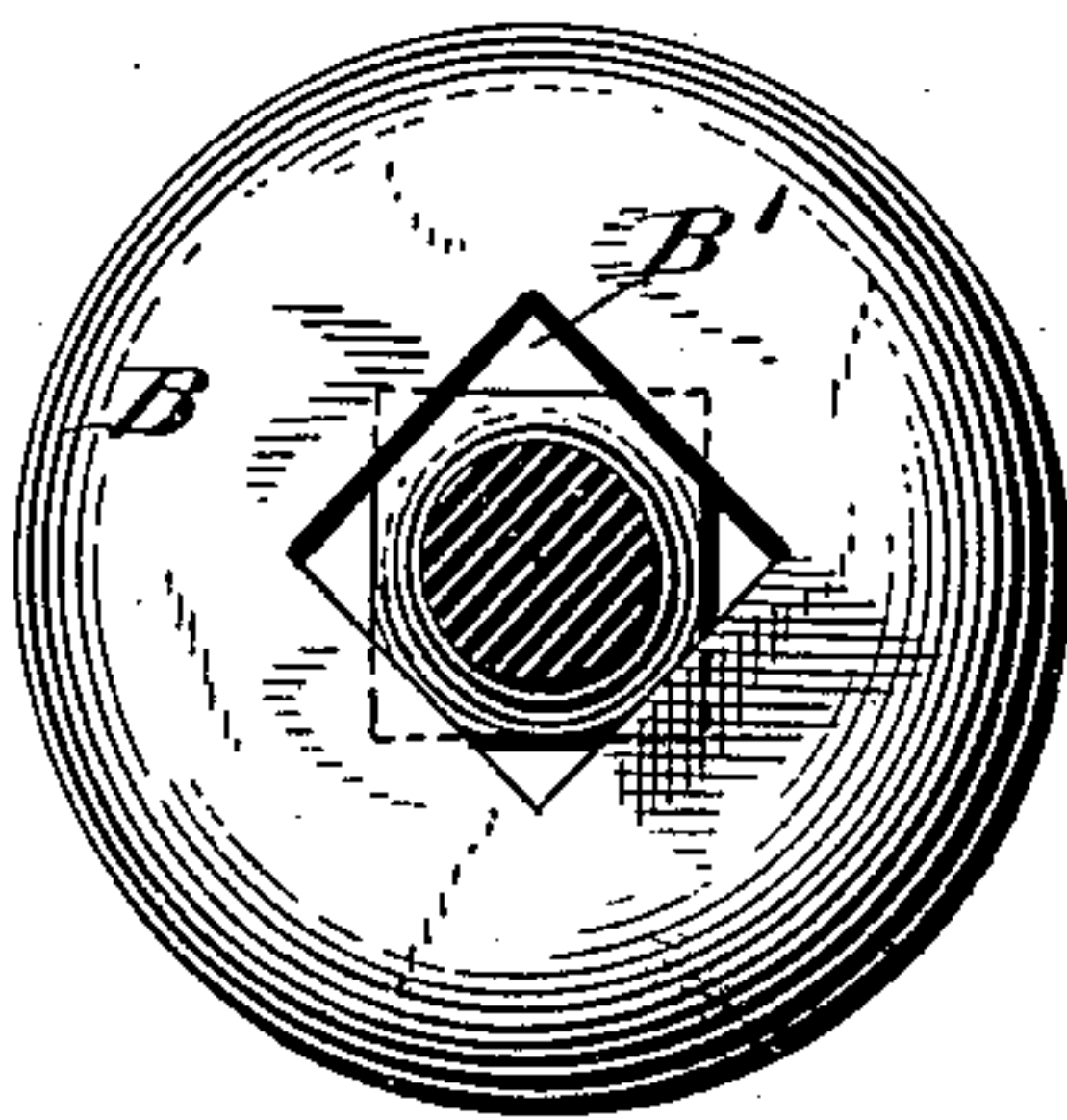


Fig. 4.



Fig. 5.



WITNESSES:
L. C. Hills,
Wm. S. Small

INVENTOR:
John Balz
BY *E. B. Stocking*
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN BALZ, OF SYRACUSE, NEW YORK, ASSIGNOR TO THOMAS HOOKER,
OF SAME PLACE.

TOOL-HANDLE.

SPECIFICATION forming part of Letters Patent No. 333,192, dated December 29, 1885.

Application filed September 12, 1885. Serial No. 176,897. (No model.)

To all whom it may concern:

Be it known that I, JOHN BALZ, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Tool-Holders, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to tool-holders, and has reference to a clamping device secured to a handle and adapted to be used in connection with tools of various kinds and sizes which have at their ends a tapered enlargement or head.

The tool-holder is illustrated in the present instance as applied to a bit-stock, the tapered enlargement or head required in the tool being such as is common in bits.

The invention consists in certain features of construction hereinafter described, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 represents in side elevation, partly in section, a bit-stock provided with a tool-holder constructed in accordance with my invention. Fig. 2 is a central vertical section of the tool-holder portion. Fig. 3 is an end elevation of the tool-holder. Fig. 4 is a section on the line $x x$ of Fig. 1, looking in the direction of the arrows; and Fig. 5 is an enlarged end elevation, with the tool in section on the line $y y$, looking in the direction of the arrow.

Like letters indicate like parts in all the figures.

The body portion A of the tool holder is provided with a pyramidal cavity, A', axially disposed in the body, and having its largest diameter at the end thereof. The outline of this cavity A' in cross-section may be square or polygonal to agree with the various shaped heads formed on tool-shanks. In this instance it is shown as being square in cross-section at all points. The body portion is exteriorly screw-threaded, as at A². The cap B is interiorly screw-threaded to fit the body A, and is provided at its end with a square aperture, B', the dimensions of which from either side to the other is greater than similar dimensions of any tool-head intended to be clamped by the cap, and slightly greater than the dimen-

sions of the cavity A' at its outer end, as hereinafter described.

The relative dimensions of the tool-head and aperture B' will be clearly understood by reference to Fig. 2, where the tool-head C is of such dimensions on each of its four faces as will freely pass through the aperture B' of the cap B when the sides of the head C are parallel with the sides of the opening B'. Therefore, when the sides of the aperture A' and those of the tool-head C and of the opening B' are all parallel with each other, the head C may be readily introduced through the cap into the cavity A', so that the shoulder C', intervening between the shank C² and the head C of the tool, will be between the end of the body A and the inner surface of the end of the cap B, so that somewhere during the travel of the nut B on the threads A² the sides of the opening B' of the cap will come in contact with and be disposed across the shoulders C² of the tool, while the sides of the head C of said tool will bear against the inclined walls of the cavity A' of the head, so as to center the tool in the holder and to resist the draft of the cap on the shoulders, and thus centrally and firmly bind the tool to the handle.

It will be noticed that it requires an eighth of a turn of the cap B to throw the sides of its aperture across the shoulders of the tool. Now, if the threads on the body be sixteen (16) to the inch, an eighth of a turn would carry the cap longitudinally on the body one one hundred and twenty eighth of an inch, so that a pressure of a tool-head into a cavity A' sufficient to cause the shoulder to move about one one-hundredth of an inch will permit of an eighth of a revolution of the cap, to bring the sides of its perforation across the shoulders, when without said pressure the desired relative position of the parts might not be secured; but, as such shoulders are usually tapering, the cap will surely engage therewith.

I am well aware that heretofore caps with angular openings in their ends have been mounted upon screw-threaded bodies, so as to bring the sides of their openings across the shoulders of bits and other tools; but, so far as I am aware, such caps have been slotted at a

side thereof, the slot communicating with the opening in the end of the cap, in order that the head of the tool might be introduced laterally into the cavity of the head and so as to bring its shoulders inside of the cap, when a partial turn or turns thereof would cause it to bind on the walls.

In addition to the above construction, other devices—as a sliding plate—have also been employed; but I am not aware of any tool-holder wherein the cavity in the body portion and the opening in the completely-cylindrical head have been proportioned to each other as hereinbefore described and capable of the operation mentioned.

By retaining the completely-cylindrical form in the cap it is clear that greater strength is secured, less expense in the manufacture is necessary, and a firmer, truer, more central attachment of a tool to a handle results.

If desired, the body portion may be formed as a ferrule or tip, into which any desired form of handle may be inserted, or as a round shank forming a drill-chuck, and I therefore do not wish to limit my invention to any exact means of connecting the body portion A to any desired tool.

It is not absolutely essential that the tool-

head should bear completely along the walls of the cavity A', as, if it bears at the mouth only of said cavity, it will be firmly bound by the cap; hence tool-heads of varied or various tapers may be clamped.

Having described my invention, what I claim is—

1. The combination, with the exteriorly-screw-threaded body having the central cavity of the character described, of a completely-cylindrical cap, B, having a polygonal opening, B', in its end, and interiorly screw-threaded to fit the body A, substantially as specified.

2. The combination of the exteriorly-screw-threaded body A, having the polygonal central cavity, A', of the completely-cylindrical cap B, mounted directly upon the body A, and having the central polygonal opening, B', at least equal in dimension to that of the cavity at the end of the body, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN BALZ.

Witnesses:

THOMAS HOOKER,
E. C. WRIGHT.