

E. BOARD.
MANDREL.

APPLICATION FILED MAY 31, 1910.

979,922.

Patented Dec. 27, 1910.

Fig. 1.

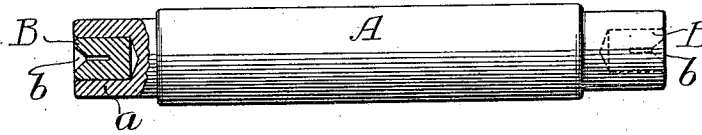


Fig. 4.

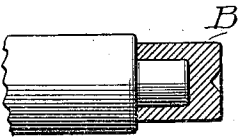


Fig. 2.

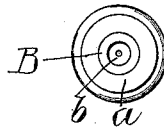


Fig. 5.

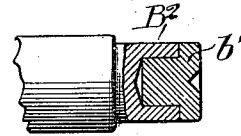
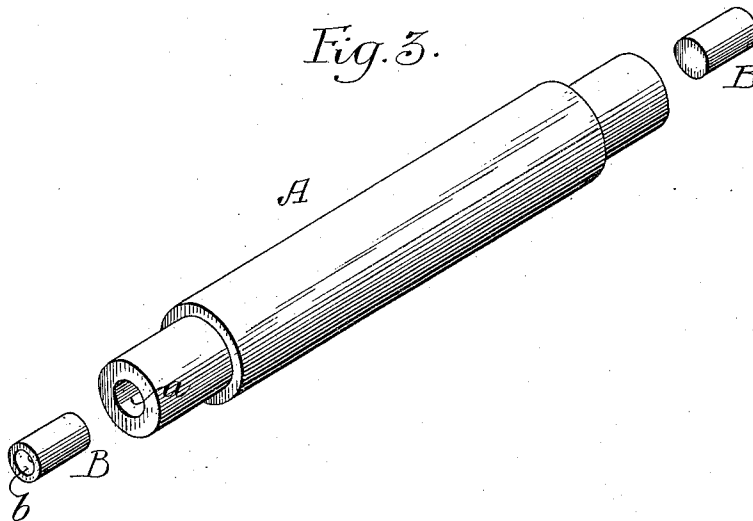


Fig. 3.



Witnesses:
Walter Chism
Titus H. Jones.

Inventor:
Edward Board.
by his Attorneys,
Kousser Kousser

UNITED STATES PATENT OFFICE.

EDWARD BOARD, OF PHILADELPHIA, PENNSYLVANIA.

MANDREL.

979,922.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD BOARD, a subject of the King of Great Britain and Ireland, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Mandrels, of which the following is a specification.

The object of my invention is to improve the construction of mandrels used in holding work in lathes. Heretofore the mandrel has been made in a single piece and hardened, so that when worn it had to be discarded or turned down to a smaller size, but by my invention I provide means whereby the centers of the mandrels can be renewed so that it is not necessary to discard them when they become out of center.

In the accompanying drawing Figure 1, is a side view, partly in section, of my improved mandrel; Fig. 2, is an end view; Fig. 3, is a perspective view of the mandrel showing the plugs detached; and Figs. 4 and 5, are views illustrating modifications of my invention.

Referring to Figs. 1, 2 and 3, A is the body of the mandrel having recesses *a* in each end. The mandrel is usually made of hard metal and can not be turned without being first softened. Mounted in the recess *a* at each end of the mandrel is a plug B of metal softer than the mandrel and in this plug is a center recess *b* for the lathe centers. When the recesses *b* in the plugs B

become worn the plug can be removed by cutting it out by boring and a new plug driven in its place and new center recesses formed therein, making practically a new mandrel with very little expense and labor. I find that all that is necessary is to make a round opening in each end of the mandrel and drive the plugs in position. They may be keyed or otherwise fastened if found necessary, without departing from the essential features of the invention.

The plugs may be of any material which is capable of being renewed, but I preferably make the mandrel itself of hard steel.

In Fig. 4, I have illustrated a modification, in which the plug is in the form of a cap B', and in Fig. 5, I have shown the plug B² having a head *b'*.

I claim:—

The combination of a solid hard metal mandrel having an opening in each end, with detachable center pieces secured to the ends of the mandrel, said center pieces being of material softer than the material of the mandrel and each center piece having a central recess therein.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

EDWARD BOARD.

Witnesses:

WM. BROWN, JR.,

WM. A. BARR.