J. MILLS.

PROOF-STAVES FOR MILL-STONES.

No. 177,537 Patented May 16, 1876.

Fig. 1.

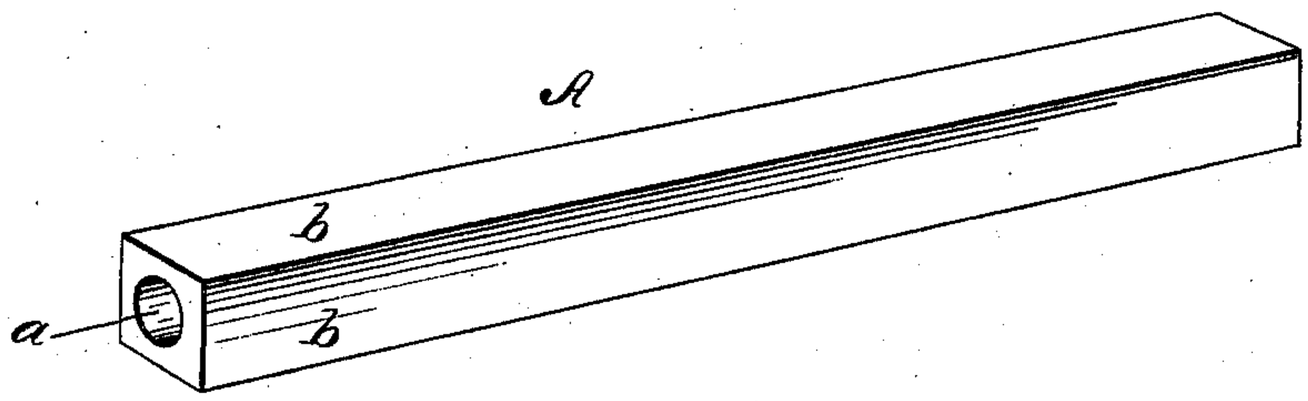


Fig. 2.

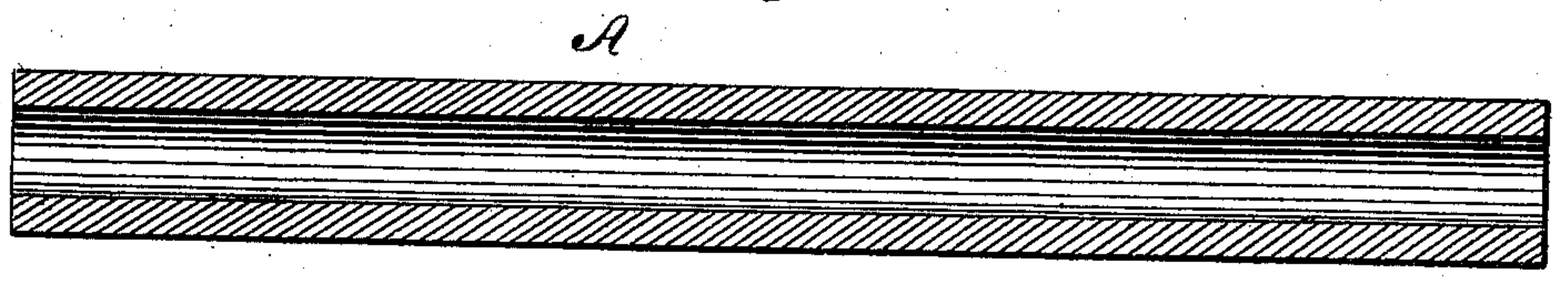
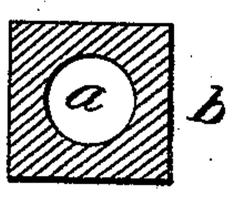


Fig. 3.



Witnesses:

Donn P. Tuttchell.
Hill & Dodge.

Inventor:

Jonathan Mills.
By his attys.
Dodge & Son.

UNITED STATES PATENT OFFICE.

JONATHAN MILLS, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO EDWARD P. ALLIS & CO., OF SAME PLACE.

IMPROVEMENT IN PROOF-STAVES FOR MILLSTONES.

Specification forming part of Letters Patent No. **177,537**, dated May 16, 1876; application filed April 15, 1876.

To all whom it may concern:

Be it known that I, JONATHAN MILLS, of Milwaukee, in the county of Milwaukee, and State of Wisconsin, have invented certain Improvements in Proof Staves for Millstones, of which the following is a specification:

My invention consists in a straight square bar having a hole through its center from end to end, and in casting this bar on end or in an upright position.

The object of my invention is to provide a cheap staff which will not have its accuracy effected by changes in the temperature; and this end I attain by making the staff of metal of a square form in cross-section, providing it with a round central hole from end to end, and planing off all four of its outer faces, thus breaking the surface all over and admitting the circulation of air through the interior as well as around the exterior, the result of which is that the staff expands and contracts equally in all directions, and remains perfectly true and straight under all circumstances.

In practice I find that the best results are attained by making the staff of cast-iron and drilling it out through the center. I also find that by casting the staff on end, or in an upright position, it is rendered more perfect than otherwise, and less liable to become untrue.

By casting the staff on end in an upright position, I render each transverse stratum of uniform density and texture from each side of the staff to the opposite side, so that upon severing the staff transversely at any point the metal will be found perfectly homogeneous from side to side, whereby the opposite sides are caused to expand and contract precisely alike, and the staff thereby kept perfectly true and straight, which would not be the case were the staff cast in a horizontal position, for the reason that the upper side would then be lighter than the lower, in consequence of which the opposite sides would expand and contract unequally and render the staff untrue.

Figure 1 represents a perspective view of the staff; Fig. 2, a longitudinal central section of the same; Fig. 3, an end view of the same.

A represents the staff; *a*, the hole through its center; and *b*, the flat planed faces.

It is obvious that the sectional form of the staff may be changed, but the square form is preferred.

What I claim as my invention is—

1. The square metal staff A, provided with the central hole *b*, and the planed faces *a*, as shown.

2. A metal proof-staff, made in one piece, of a polygonal cross-section with a hole through its center, substantially as shown and described.

3. The herein-described method or process of forming cast-metal proof-staffs—that is to say, casting them on end in an upright position, as and for the purposes described.

JONATHAN MILLS.

Witnesses:

W. H. WATSON,

WM. W. ALLIS.