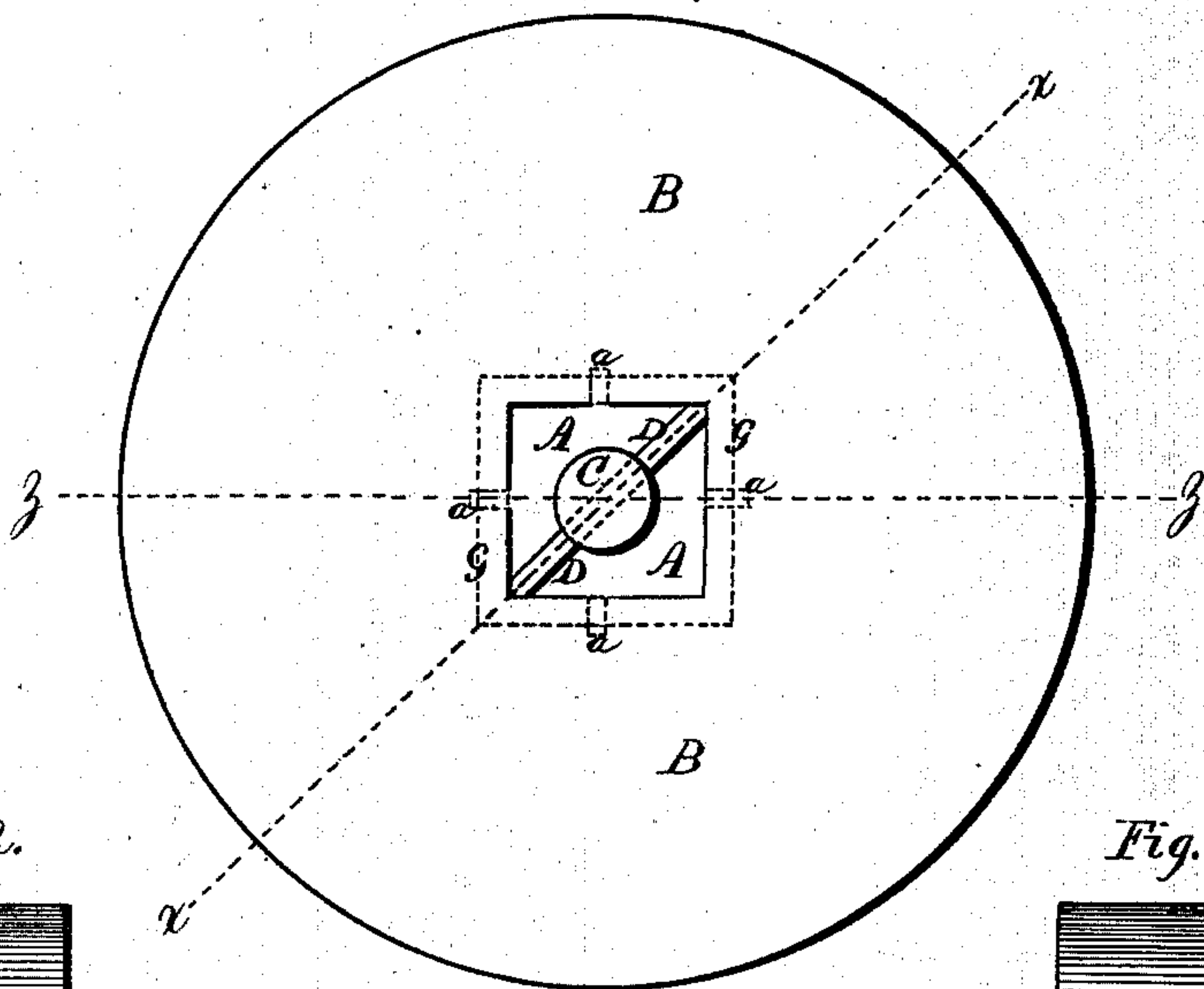


**A. W. WINALL.**  
**Hanging Mill-Stones.**

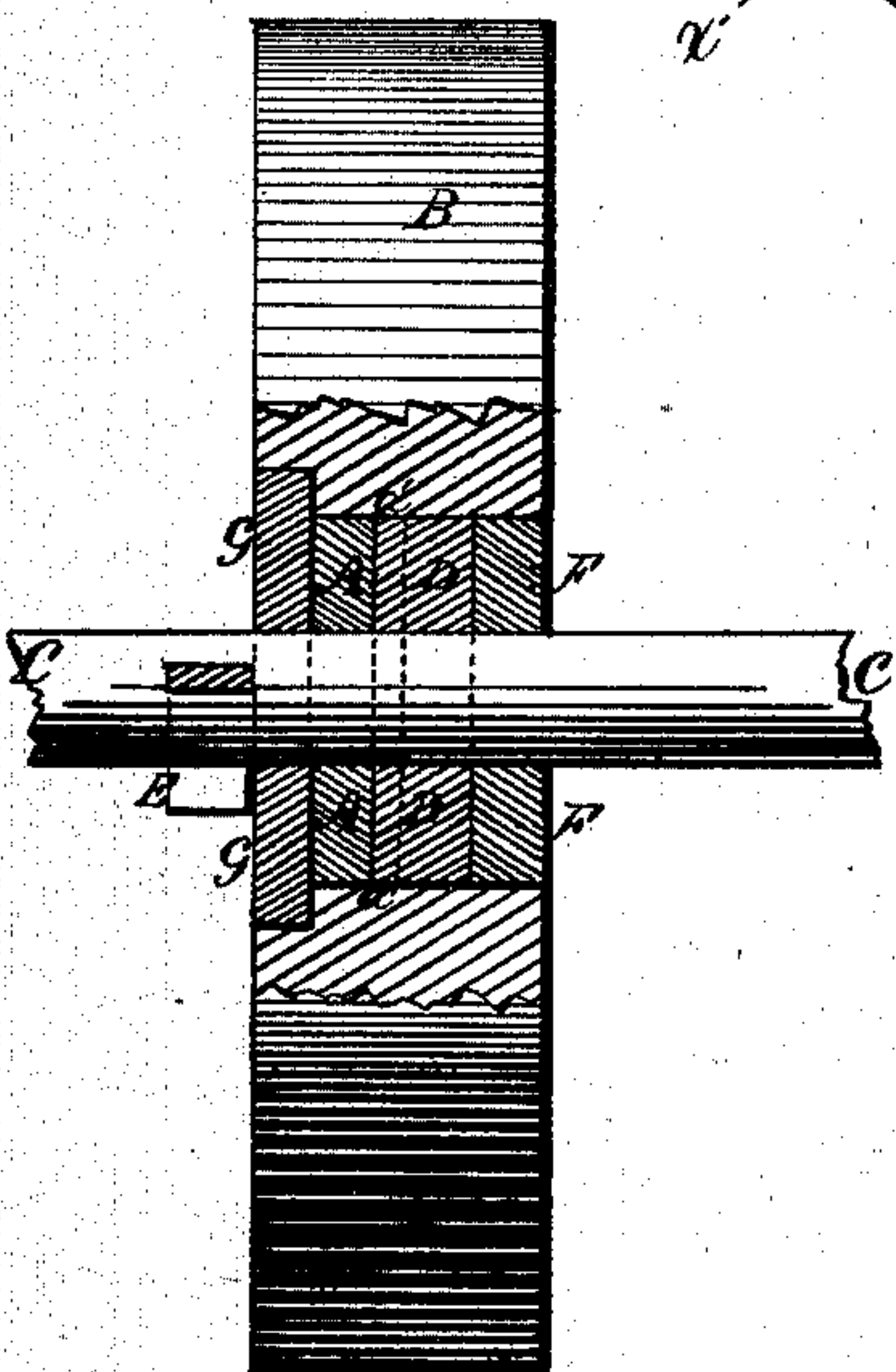
No. 139,642.

Patented June 3, 1873.

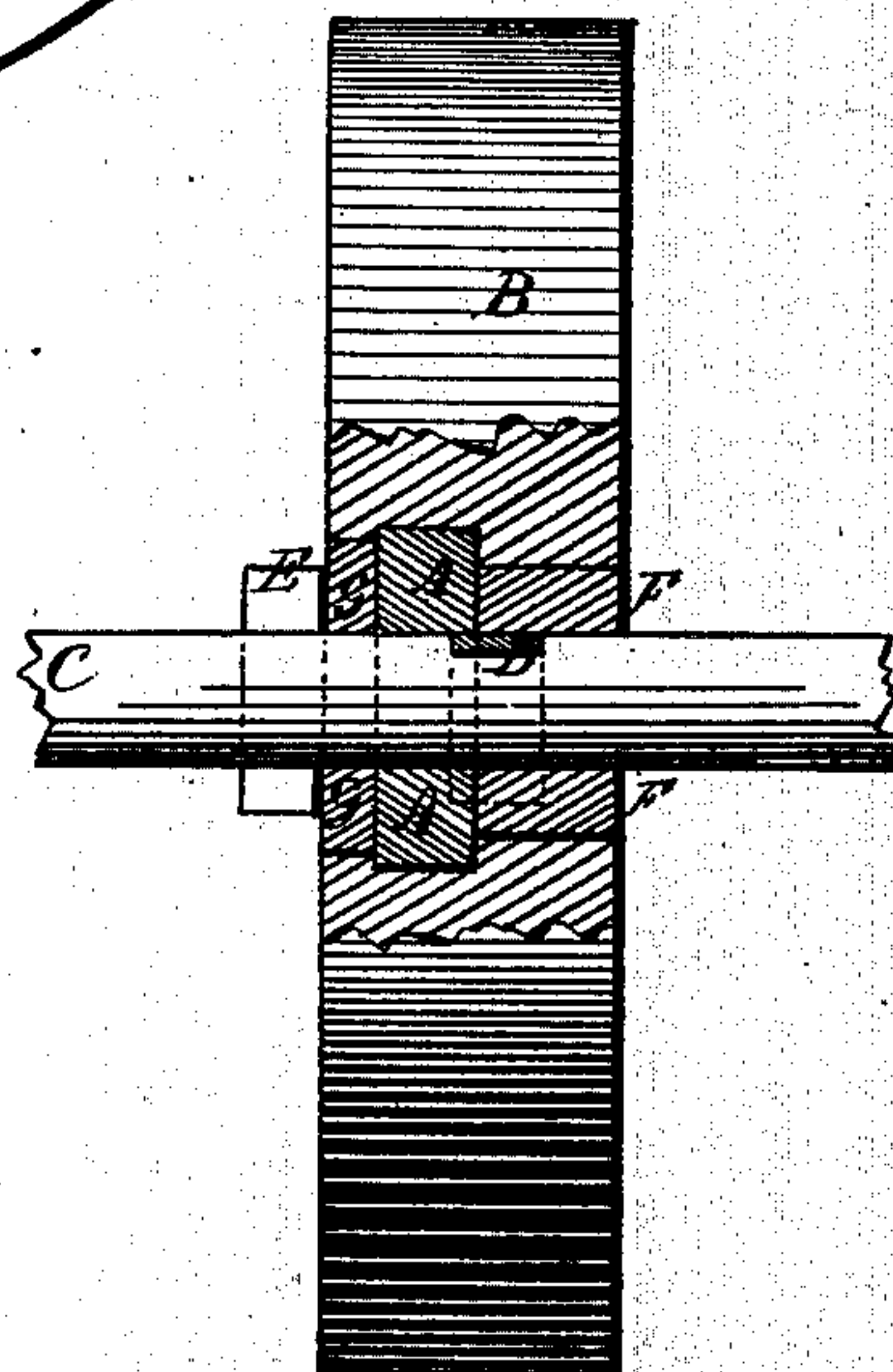
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses:*

*Jas. O'Hutchinson*

*John R. Young*

*Inventor:*

*Alex. W. Winall, by  
 Prindle and Co. his Attys.*



# UNITED STATES PATENT OFFICE.

ALEXANDER W. WINALL, OF CINCINNATI, OHIO.

## IMPROVEMENT IN HANGING MILLSTONES.

Specification forming part of Letters Patent No. **139,642**, dated June 3, 1873; application filed April 9, 1873.

*To all whom it may concern:*

Be it known that I, ALEX. W. WINALL, of Cincinnati, in the county of Hamilton and in the State of Ohio, have invented certain new and useful Improvements in Hanging Millstones; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view of my improved fastening in place, and before the introduction of the lead filling; and Figs. 2 and 3 are, respectively, vertical central sections upon lines *x x* and *z z* of Fig. 1.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to enable a spindle and running-stone to be easily and securely connected together; and it consists principally in combining the bushing and spindle by means of a key passing horizontally through the latter and resting within a groove in the upper surface of the former, substantially as and for the purpose hereinafter shown. It consists, further, in combining, with the bushing, spindle, and key above named, a second key, passing through said shaft immediately below the stone, substantially as and for the purpose hereinafter set forth. It consists, finally, in combining, with the running-stone, bushing, spindle, and keys, a filling of molten metal, substantially as and for the purpose hereinafter shown and described.

In the annexed drawing, A represents a metal bushing having, preferably, a rectangular form horizontally, and provided at equidistant points upon its sides with four lugs or flanges, *a*, which project radially outward, as shown in Fig. 1.

The bushing, thus formed, is placed within the center of a millstone, B, either at the time said stone is built, or by introducing said bushing into a corresponding opening cut within the back of said stone after the completion of the latter, after which the spindle C is introduced and connected with said bushing by means of a key, D, that passes radially

through said spindle and rests within a groove, *a'*, cut within the upper surface of the former.

A second key, E, is now passed through a suitable opening in the spindle, immediately below the lower side of the stone, and, bearing against the latter, locks said spindle and the bushing firmly together, after which molten lead F, or other suitable metal, is poured into the upper end of the central opening in said stone, and all of the space around and between said parts closely filled, by which means said parts and stone are securely locked together and not liable to displacement.

The lower end of the bushing may be enlarged horizontally and its lower face made flush with the corresponding face of the stone; or, if desired, said enlargement may be omitted, and said bushing raised sufficiently to admit of the insertion of a separate plate, G, having a size and shape corresponding to that of said enlargement.

The attachment thus shown is simple, efficient, and durable, and can be readily placed in or removed from position when desired.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The combination of the bushing A provided with the groove *a'*, and the spindle C provided with the radial key D, substantially as and for the purpose shown.

2. In combination with the bushing A, spindle C, and key D, the key E, substantially as and for the purpose set forth.

3. In combination with the stone B the bushing A provided with the flanges *a* and groove *a'*, the spindle C, and the key D, the lead filling F, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of March, 1873.

ALEXANDER W. WINALL.

Witnesses:

J. R. SAYLER,

W. H. PARSHALL.