

A. J. HAWS.

BESSEMER CONVERTER BOTTOMS.

No. 188,900.

Patented March 27, 1877.

Fig. 1

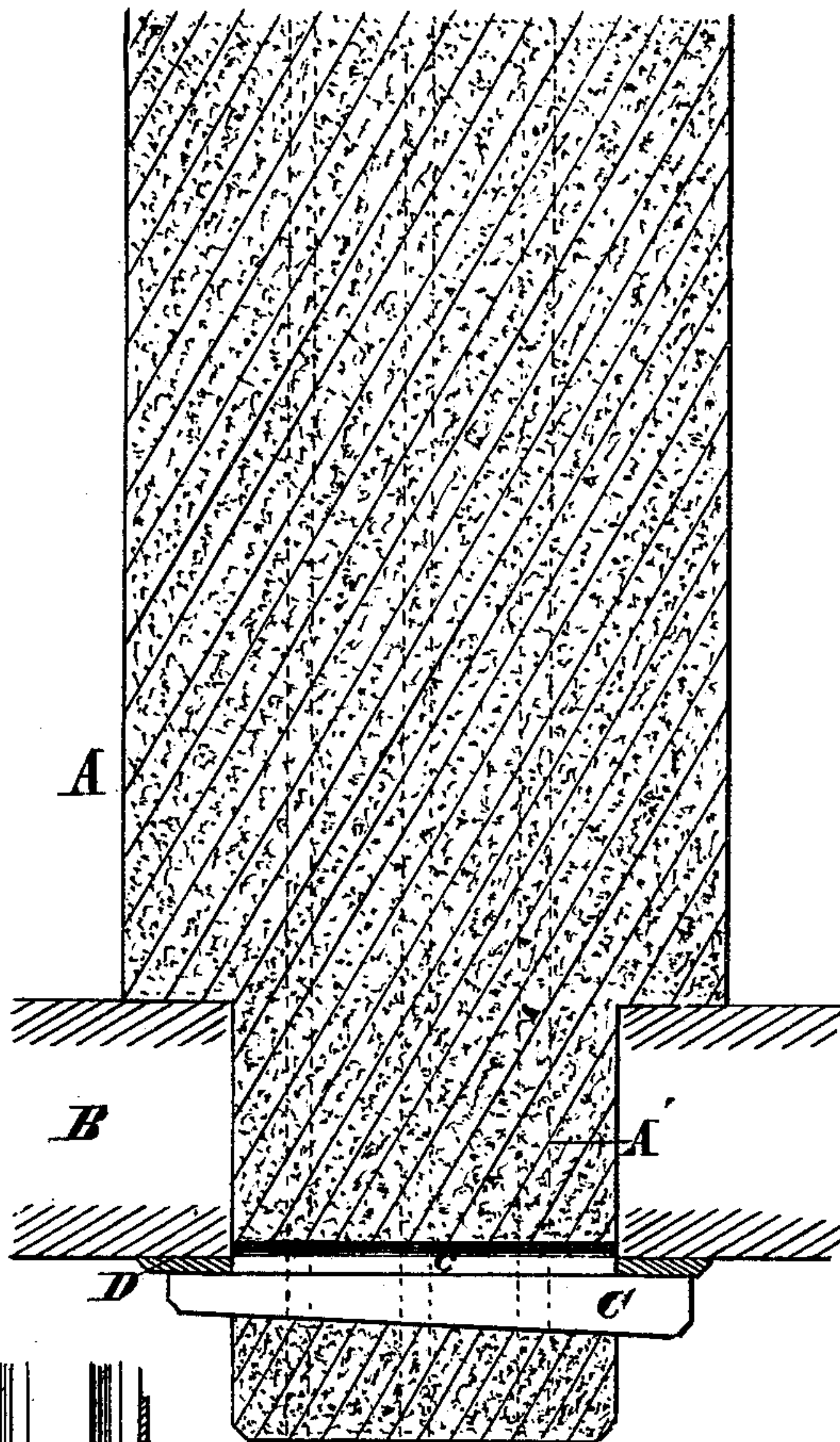


Fig. 3.

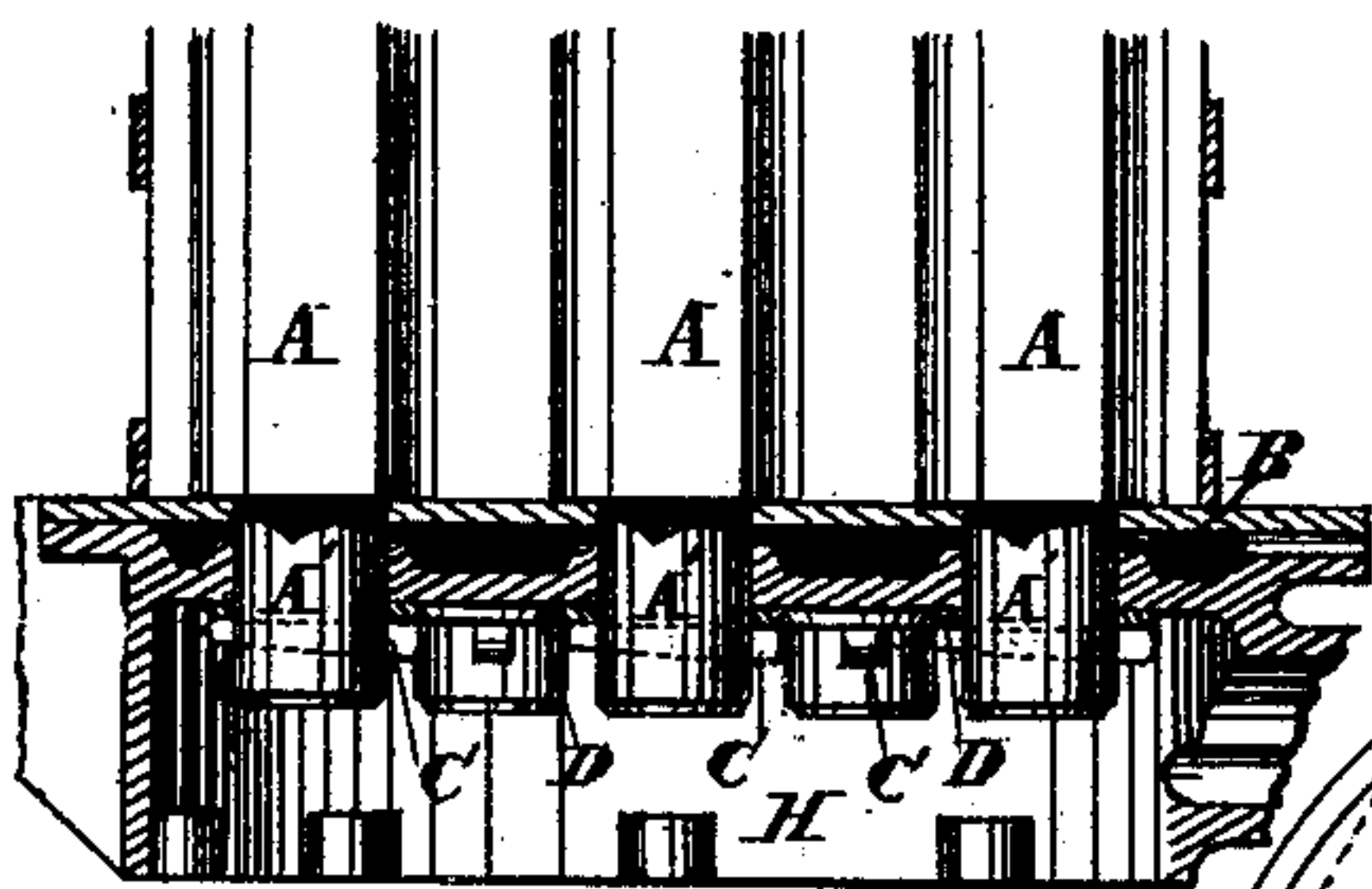


Fig. 4.

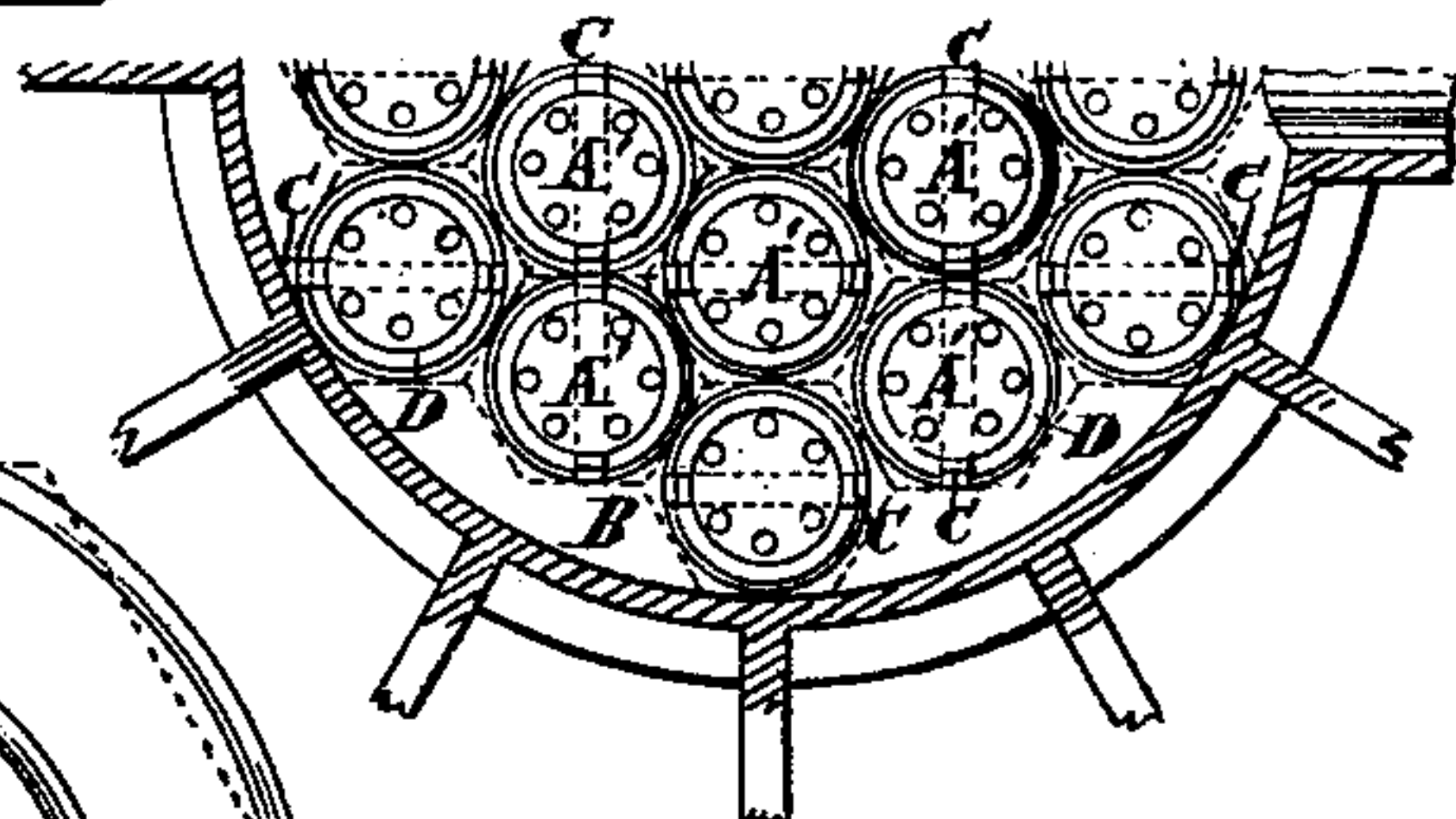
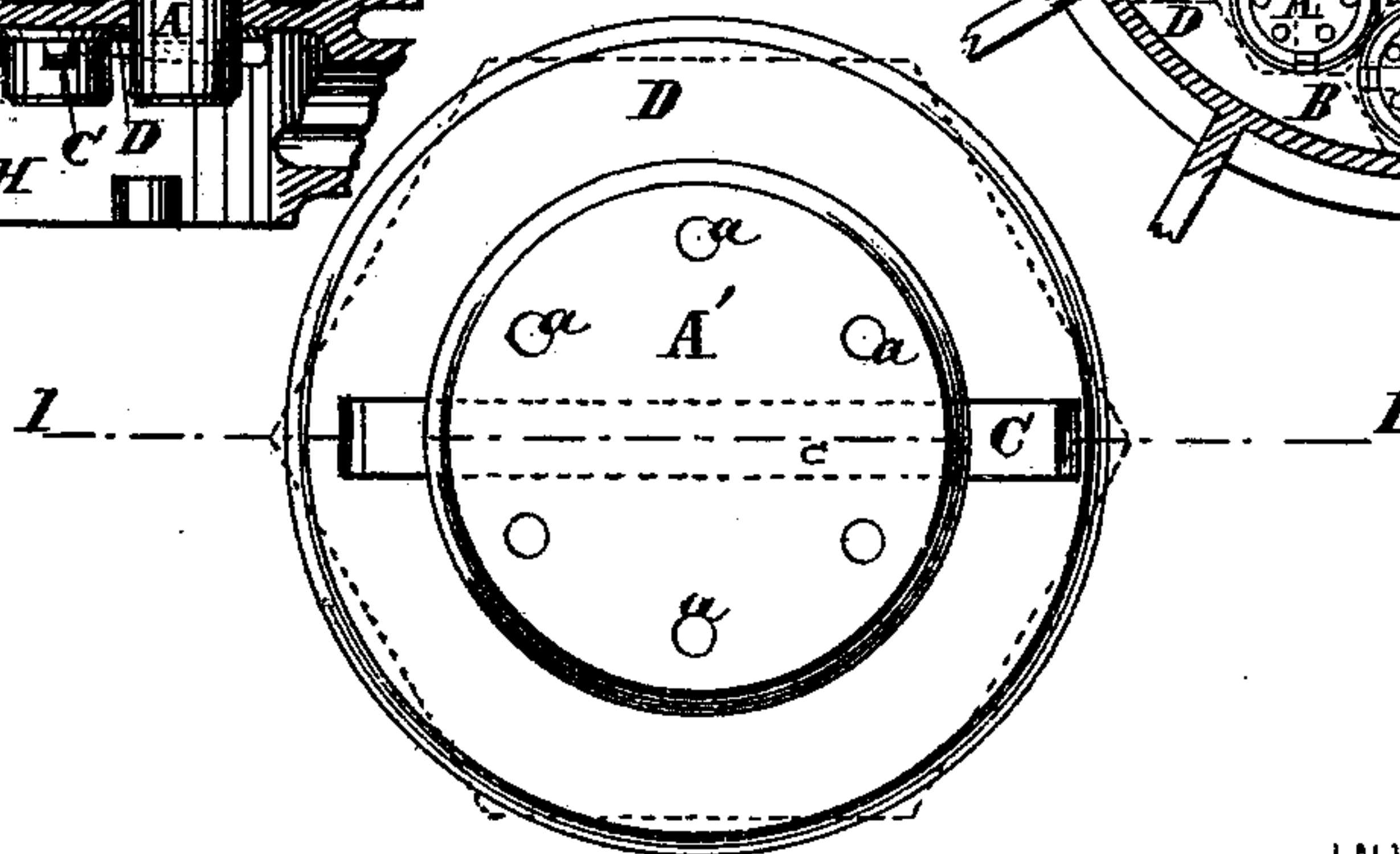


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE

ANDREW J. HAWS, OF JOHNSTOWN, PENNSYLVANIA.

IMPROVEMENT IN BESSEMER-CONVERTER BOTTOMS.

Specification forming part of Letters Patent No. **188,900**, dated March 27, 1877; application filed December 29, 1876.

To all whom it may concern:

Be it known that I, ANDREW JACKSON HAWS, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Bessemer-Steel-Converter Bottoms, of which the following is a specification:

My invention relates to converter-bottoms which are formed wholly or in part of bricks, having lugs extending down within the tuyere-box for the purpose of securing the bricks in place; and it consists in securing the bricks by means of horizontal keys passed transversely through apertures prepared for them in the respective lugs, and bearing on annular washers, which serve the further purpose of closing the joint around the brick-lugs.

In the accompanying drawings, Figure 1 is a vertical section of a tuyere-brick with the fastening applied. Fig. 2 is an under-side view of the same. Fig. 3 is a vertical section of the entire bottom, with the lower part of the tuyere-box omitted, showing some of the bricks in elevation. Fig. 4 is an under-side view of a portion of the bottom, with the lower part of the tuyere-box omitted.

A represents a brick, made preferably of hexagon form in transverse section, as shown by the dotted lines in Fig. 2, so that any necessary number of the said bricks may be fitted close together to form the bottom of a Besse-

mer-steel converter. *a a* are tuyere-openings in the said bricks. B represents the upper plate of the tuyere-box, which may be made in two parts, leaving an air-chamber between.

It will be observed that the lug A' of the brick A extends downward, so as to project within the tuyere-box H. C represents a wedge-shaped key, passed through a horizontal opening, *c*, prepared to receive it in the lug A' of the brick A, and bearing on an annular washer, D. A secure and convenient fastening is thus provided, and one which permits the very ready application and removal of the bricks. The washer D, besides its ordinary function of affording a bearing for the key C, effectually closes the joint between the brick-lug A' and the top plate B of the tuyere-box.

Having thus described my invention, the following is what I claim as new therein, and desire to secure by Letters Patent:

The combination, with the tuyere-brick A, provided with a projecting lug, A', in which the horizontal opening *c* is formed, of the key C and washer D, as and for the purpose specified.

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Witnesses:

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