

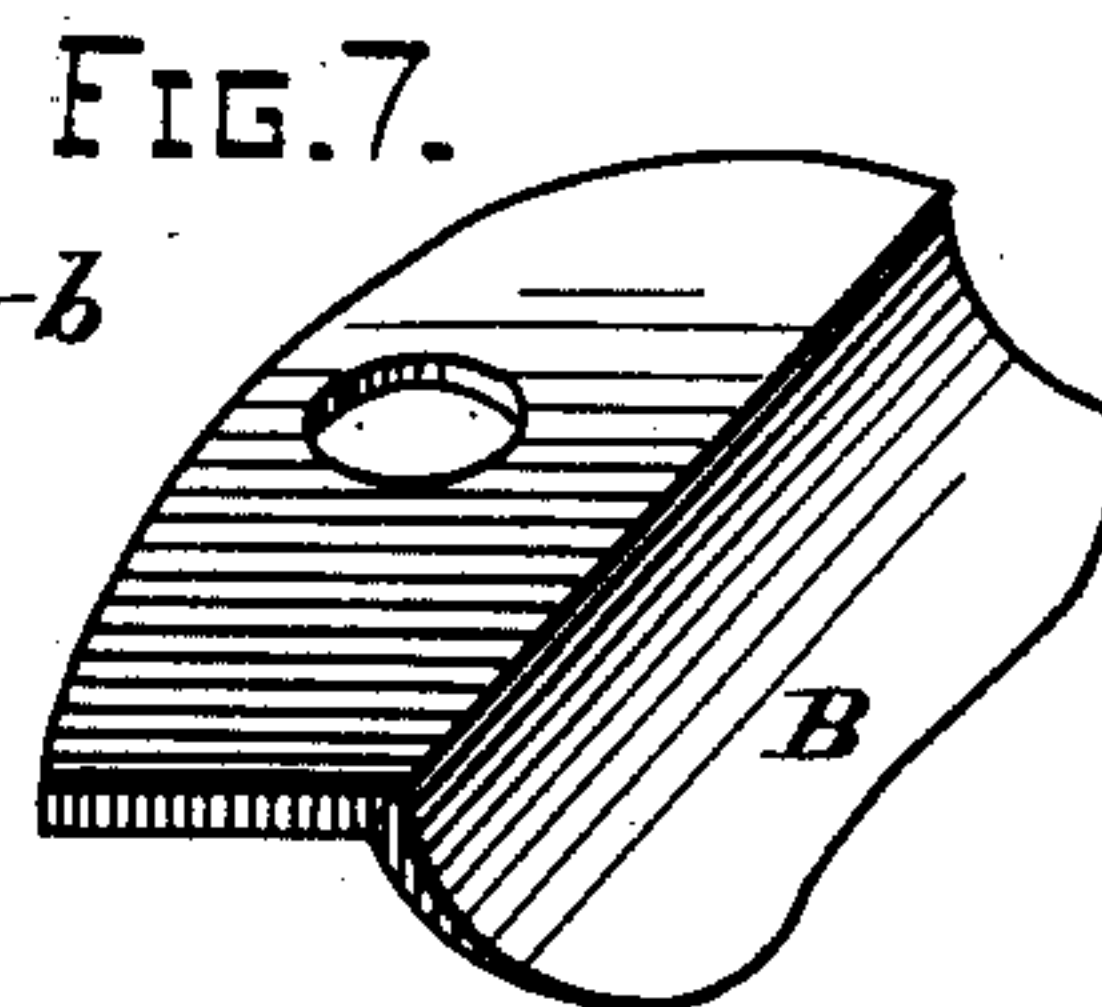
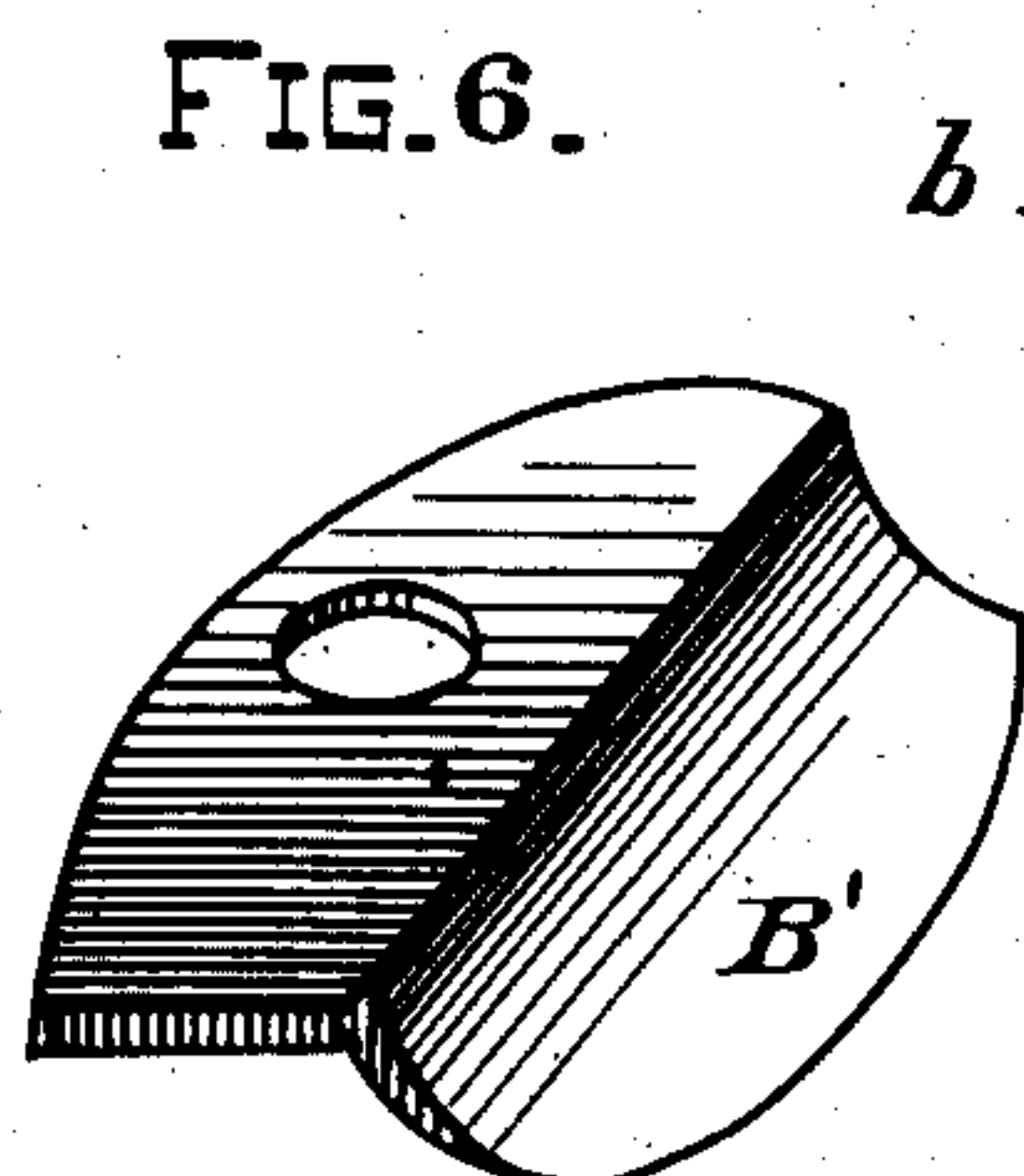
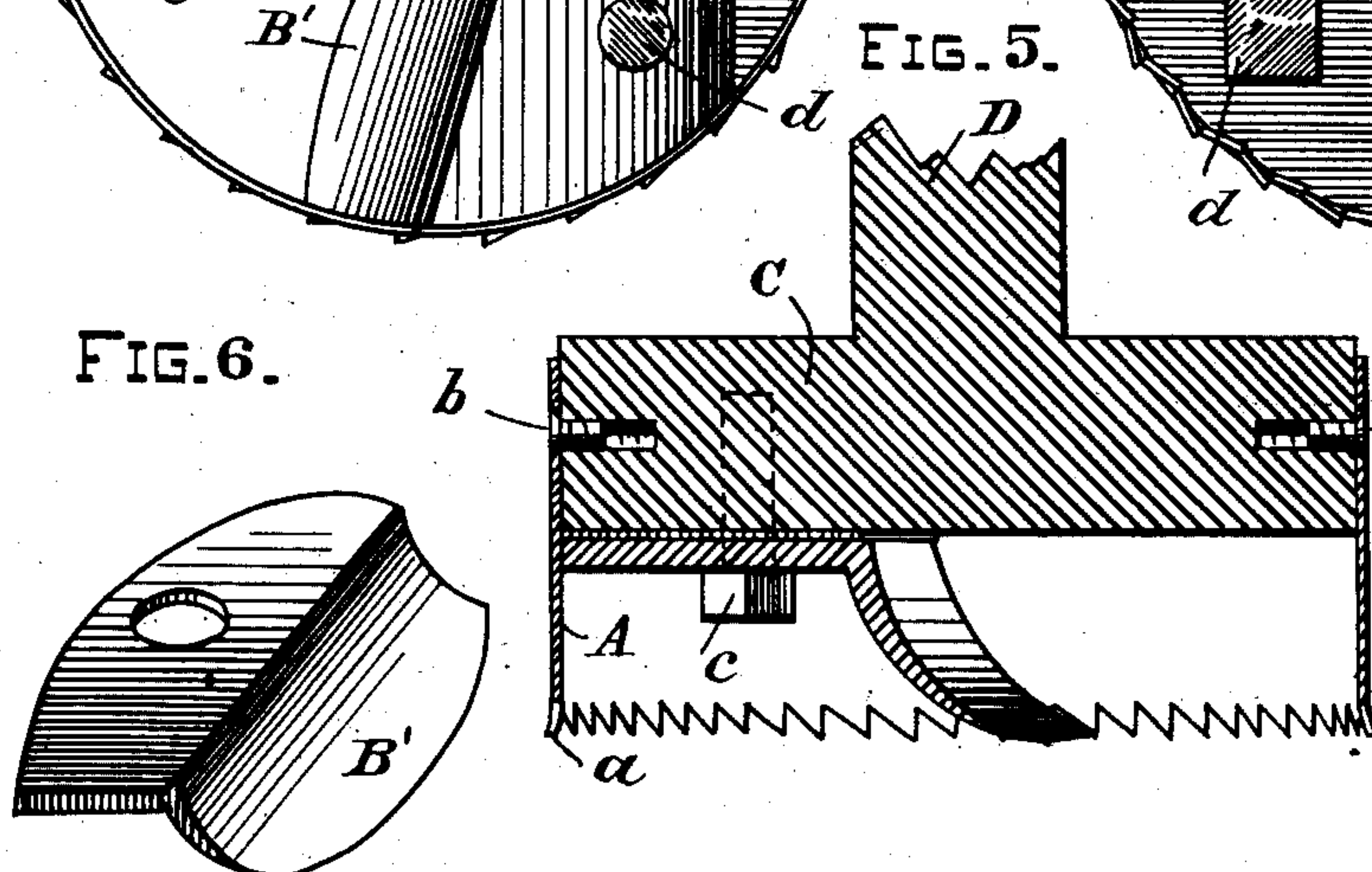
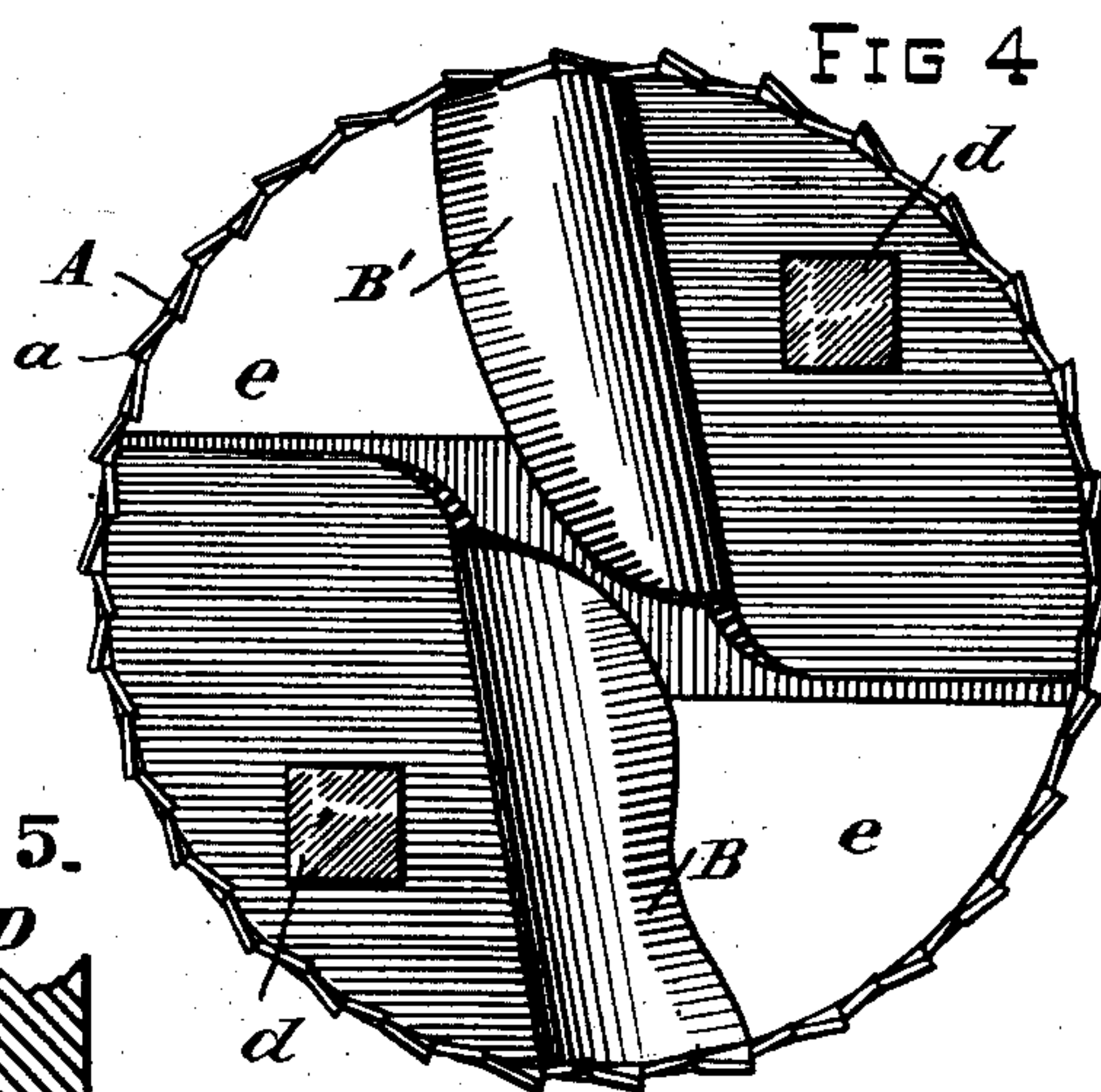
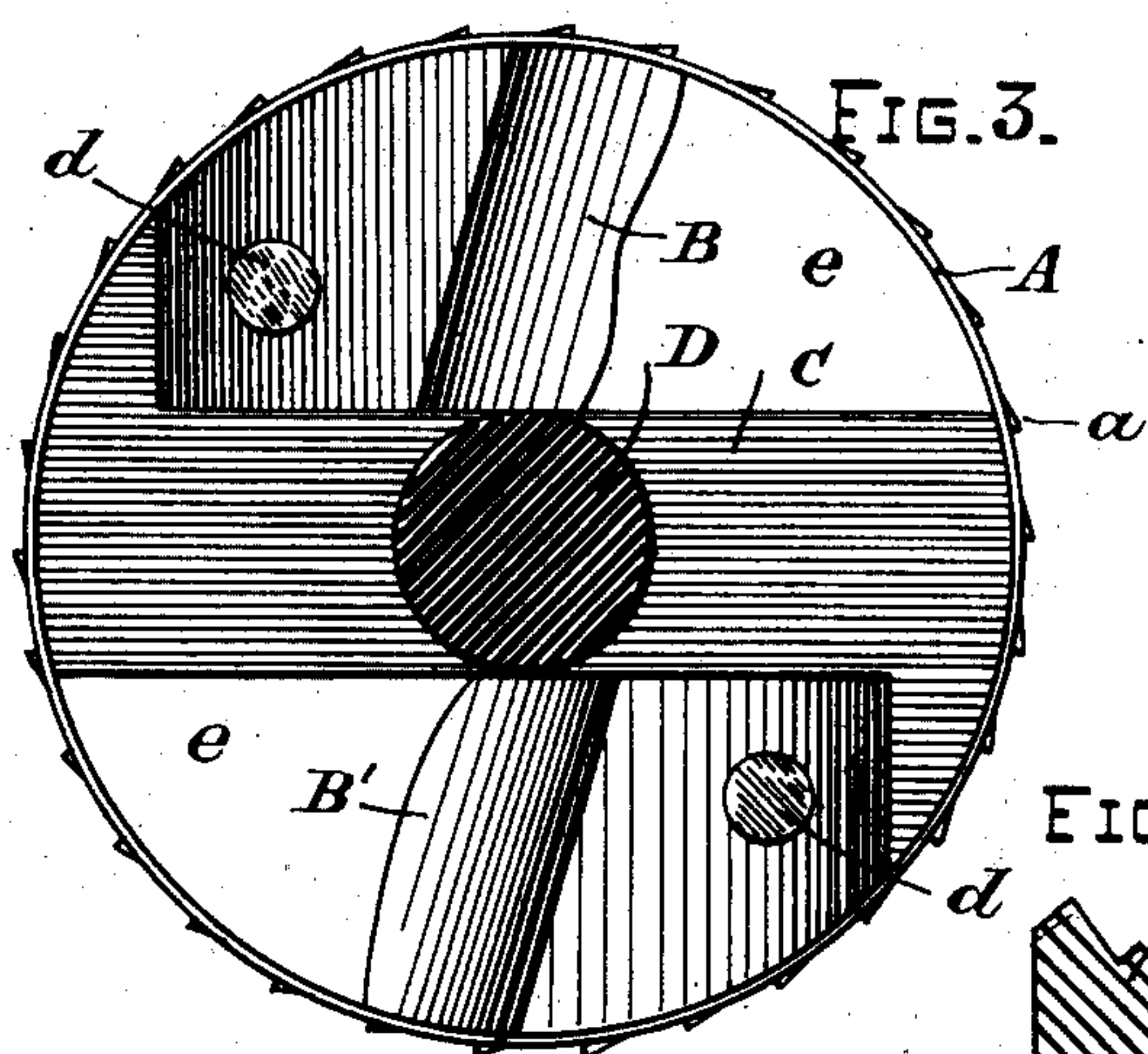
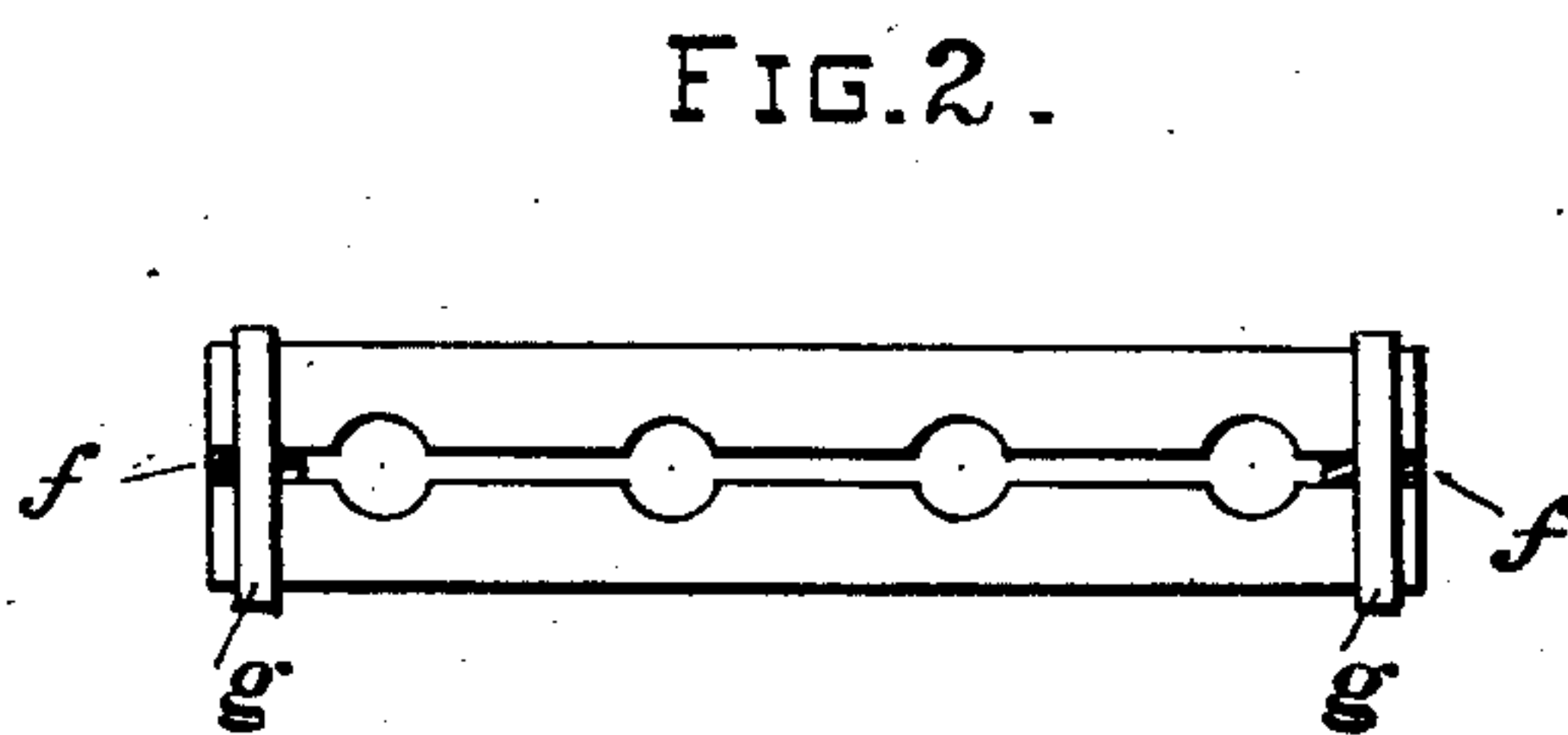
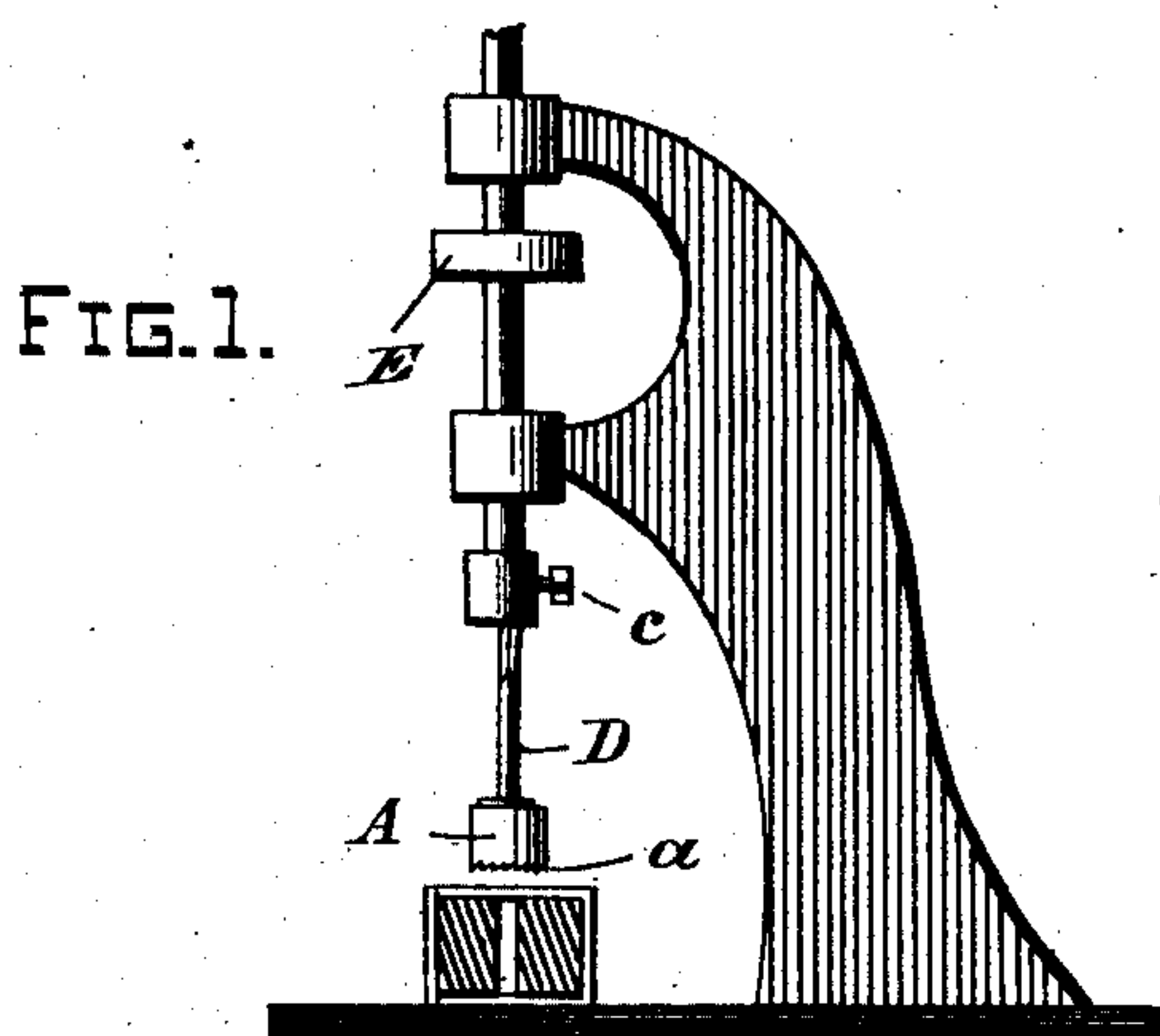
(No Model.)

J. HAMMOND & W. S. HOLMAN.

BORING MACHINE.

No. 244,749.

Patented July 26, 1881.



WITNESSES

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JOHN HAMMOND AND WILLIAM L. HOLMAN, OF SAN FRANCISCO, CAL.

BORING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 244,749, dated July 26, 1881.

Application filed March 14, 1881. (No model.)

To all whom it may concern:

Be it known that we, JOHN HAMMOND and WILLIAM L. HOLMAN, citizens of the United States, and residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Boring-Machine, for boring guiding-holes for stamp-stems of quartz-mills, of which the following is a specification.

Our invention relates to improvements in boring-machines for forming vertical holes in cross-timbers of quartz-mills employed as guides for the play of stamp-stems; and the object of our improvement is to bore perpendicular, plumb, and smooth holes between two sticks of timber or beams set edgewise, and which are kept in position by means of keys and bands or straps. We attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine with boring-tool and timbers in position. Fig. 2 is a plan view of the timbers or beams after having been bored. Fig. 3 is a top view of the boring-tool. Fig. 4 is a bottom view of the same. Fig. 5 is a sectional side elevation. Figs. 6 and 7 are perspective views of the cutting-bits.

The cutting parts of our boring-tool are contained in a cylinder or circular box, A, the lower rim or edge of which is provided with saw-teeth *a a*, so as to cut a kerf in advance of the cutters, and prevent slivering or tearing of the wood, and form a smooth and finished bore or hole as the cutting progresses.

The cutting-bits B B' are connected to a cross-head, C, which is confined within the cylinder by means of screws *b b*, and from the center of the cross-head extends the driving-spindle D, which is held in the frame of the machine by a set-screw, *e*.

We construct our cutting-bits peculiar in form. The edge of the cutter (represented at B) is slightly oval and concave, and tapers from heel to toe, while the heel rests against the inner face of the cylinder, as shown. The bit or cutter B' differs in construction from that represented at B, from the fact that it is provided with a convex edge in the center thereof, while the heel and toe are constructed nearly identical in both cutters. By this con-

struction the cutters are enabled to perform their work more efficiently and with the expenditure of less power than would be otherwise required. Both of these cutters are provided with webs, the edges of which rest against the inner face of the cylinder at opposite sides, in which position they are held to the cross-head by means of screw-bolts *d d*. Suitable spaces or throats, *e e*, are provided at each side of the cross-head, for the passage of chips.

The operation will be as follows, to wit: The timbers or beams are set on edge, and kept a sufficient distance apart by keys *f f*, while the ends are held together by bands or straps *g g*. In this position the beams are placed under the boring-tool, and the machine set in motion by means of a belt-connection with the driving-pulley E, when the holes are cut successively by the bit or tool, one half of the circle or arc on one beam or timber, and the other half of a circle or arc on the opposite beam, as shown at Fig. 2. Should the holes become enlarged by continued use or constant friction of the stamp-stems, the keys *f f* are removed from between the beams and made thinner or discarded altogether, and the beams brought closer together to correspond with the wearing away of the guiding-holes by tightening the bands or straps.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

In a machine for boring guides for the stamp-stems of quartz-mills, the combination, with a suitable frame having a vertical spindle, D, provided with driving-pulley E, of the cylinder A, having serrated cutting-edges *a*, cross-head C, and bits B B', separated by throats *e e*, one of said bits having a concave cutting-edge and the other a convex cutting-edge, substantially as shown and described.

In testimony that we claim the foregoing we have hereunto set our hands and seals this 24th day of February, 1881.

JOHN HAMMOND. [L. S.]
W. L. HOLMAN. [L. S.]

Witnesses:

C. W. M. SMITH,
WILLIAM HARNEY.