

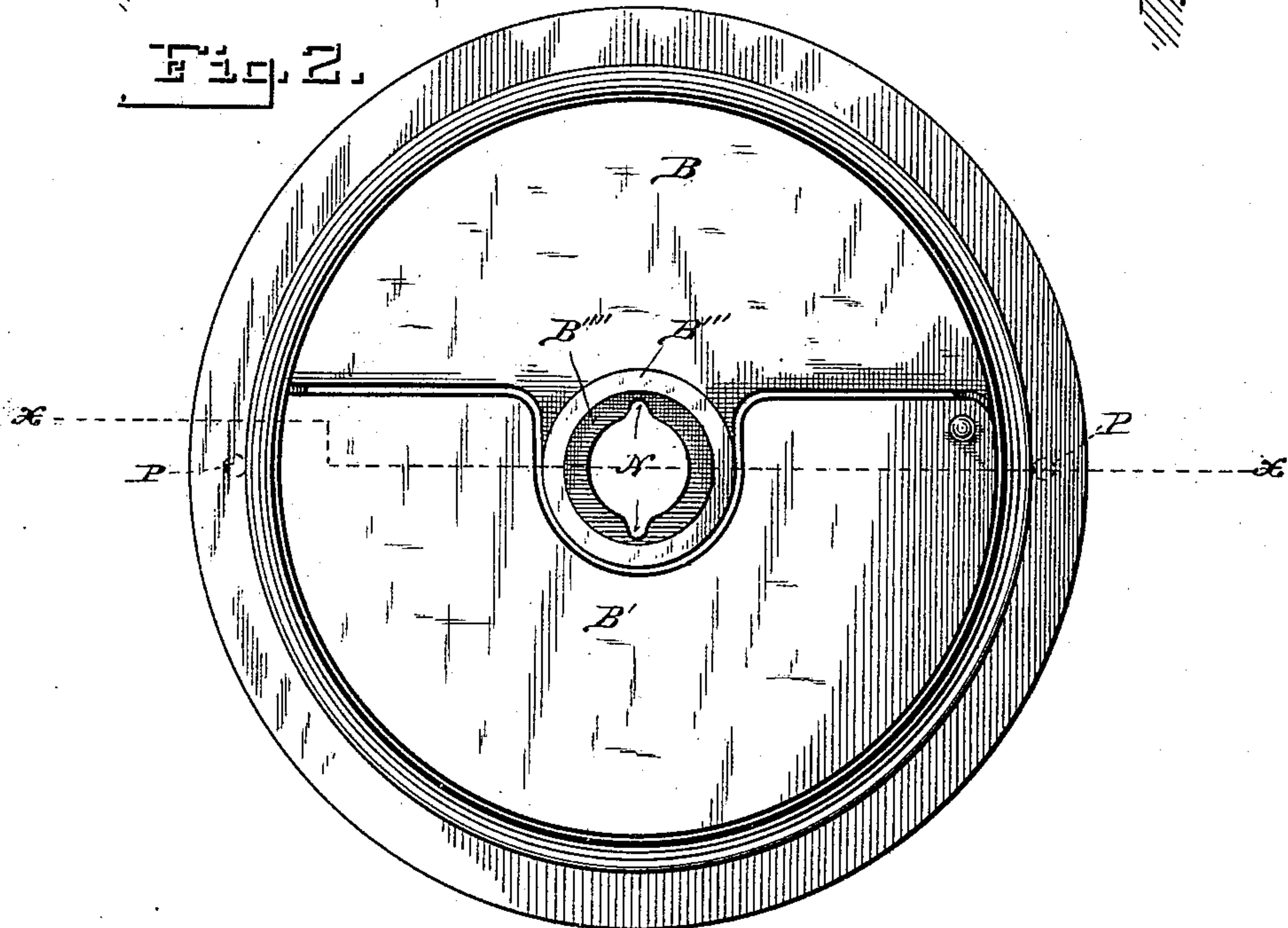
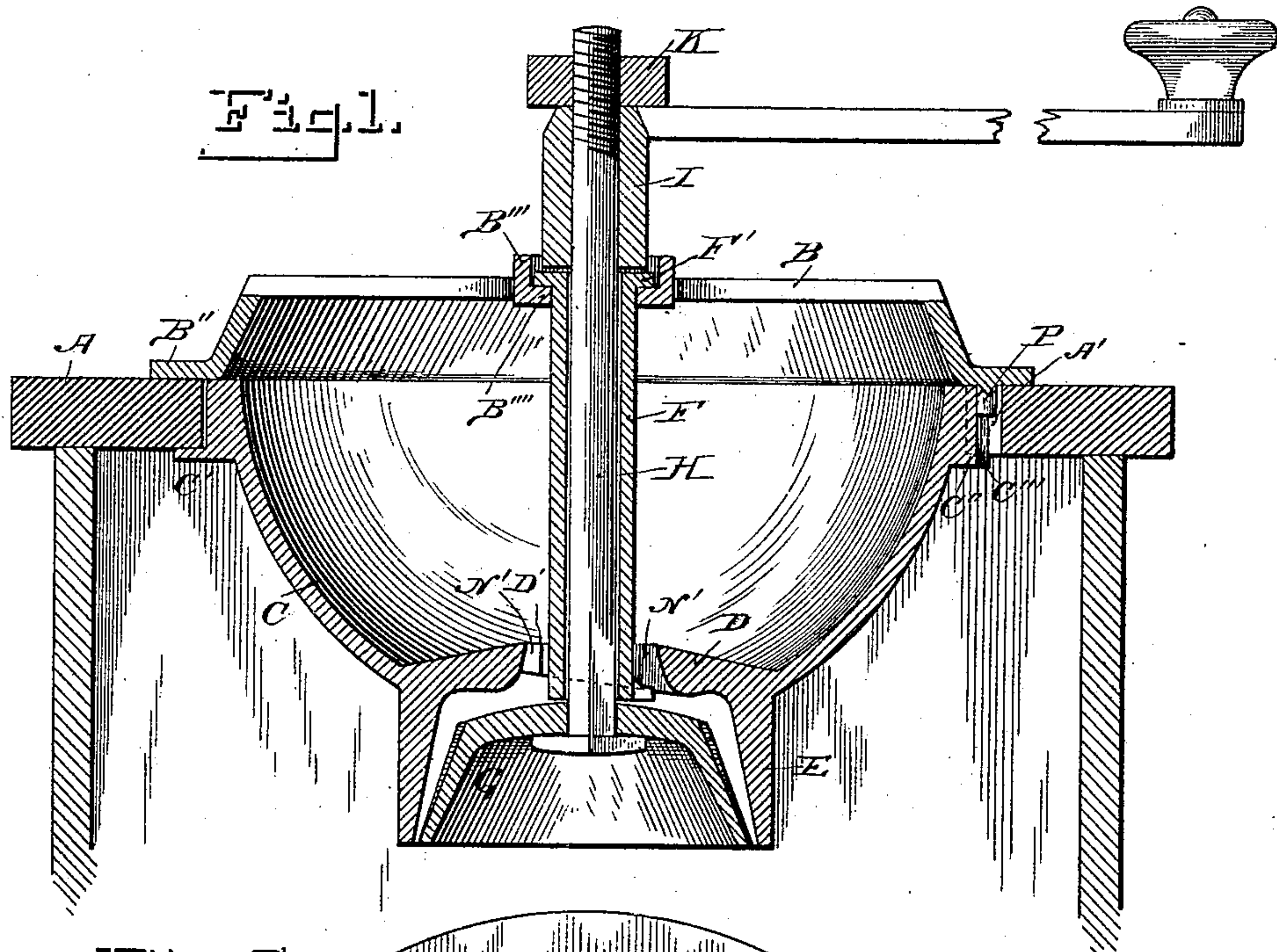
(No Model.)

3 Sheets—Sheet 1.

E. H. & C. MORGAN.
COFFEE MILL.

No. 390,185.

Patented Sept. 25, 1888.



Witnesses

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(No Model.)

3 Sheets—Sheet 2.

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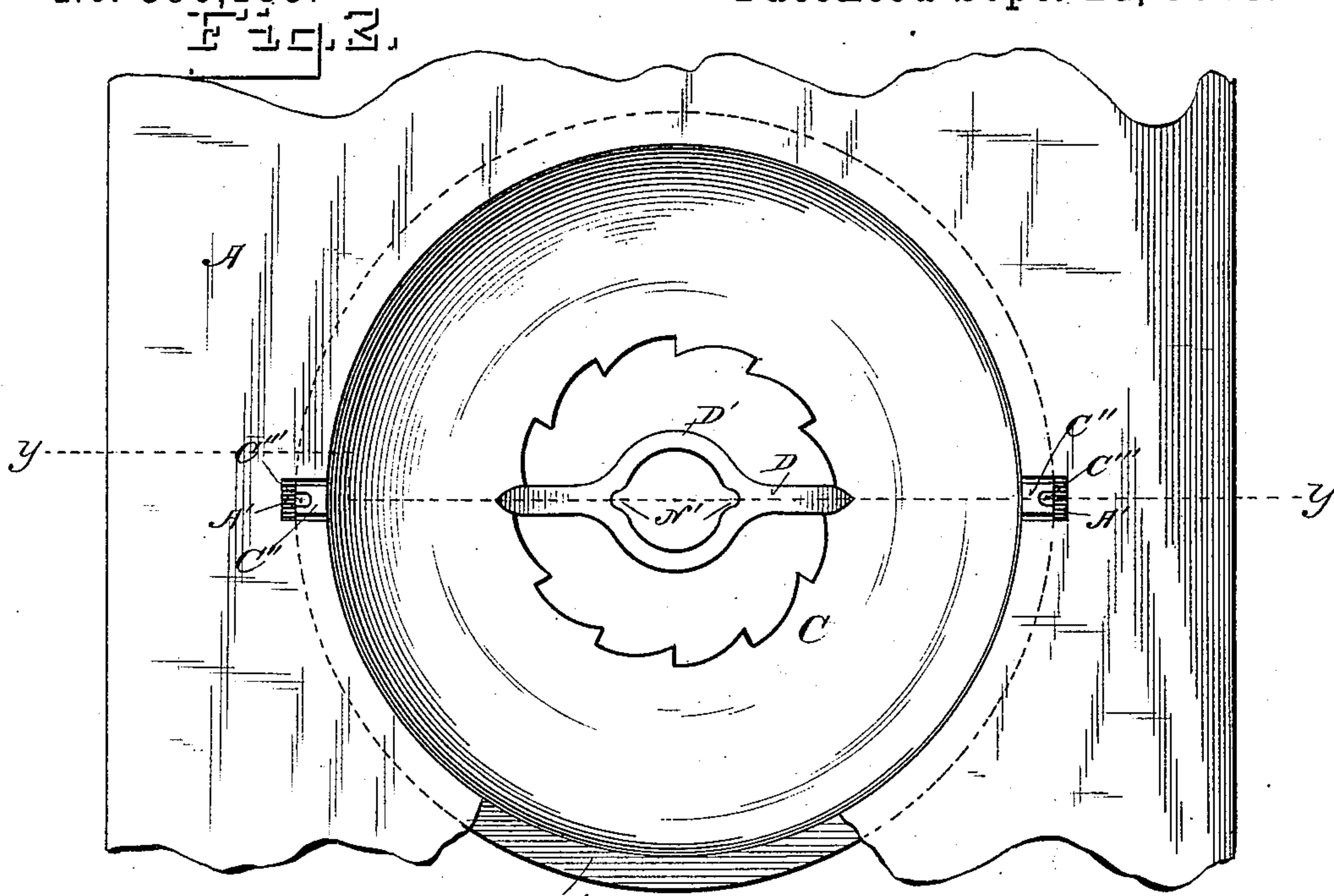
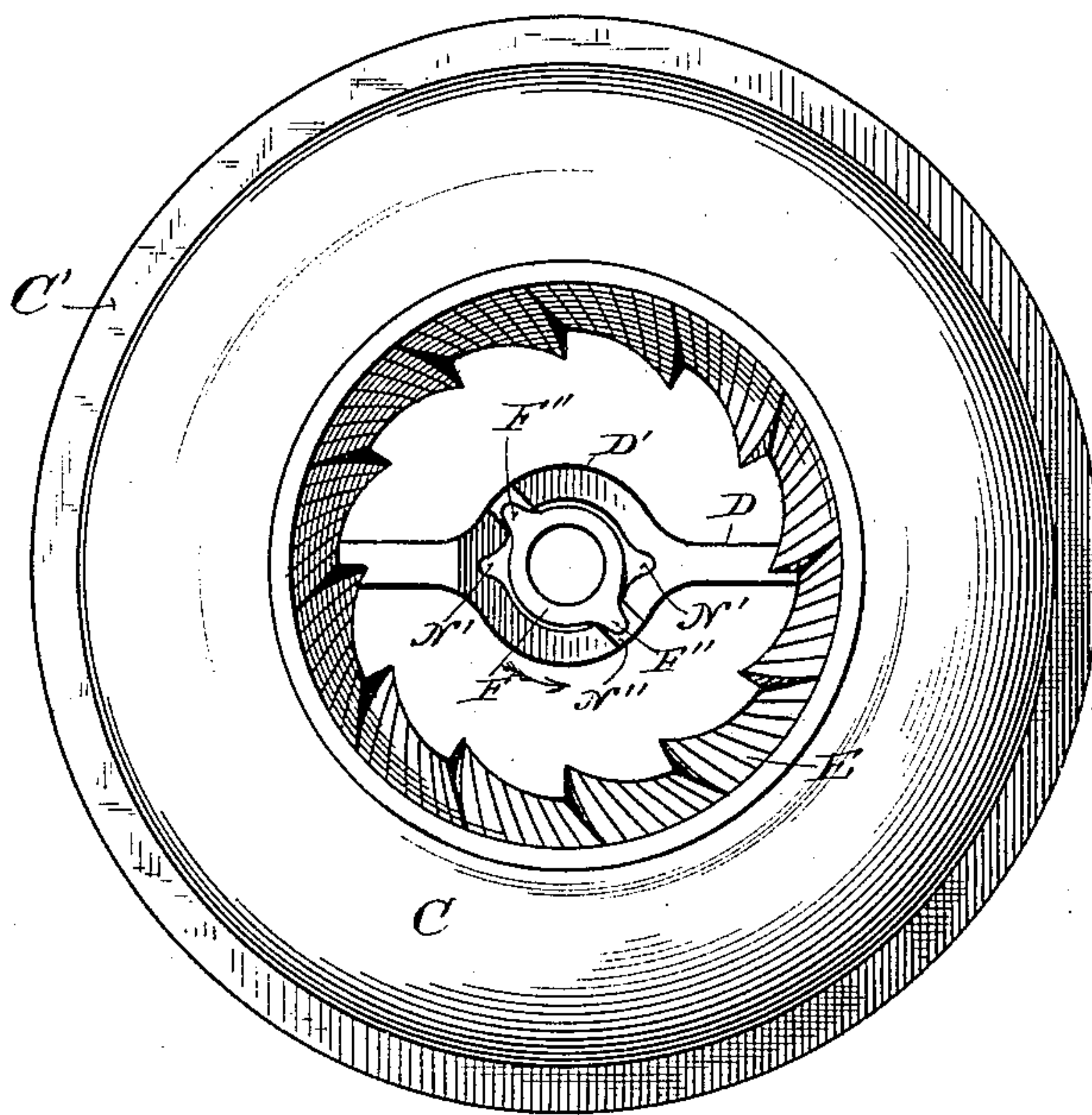


Fig. 4.



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Fig. 5.

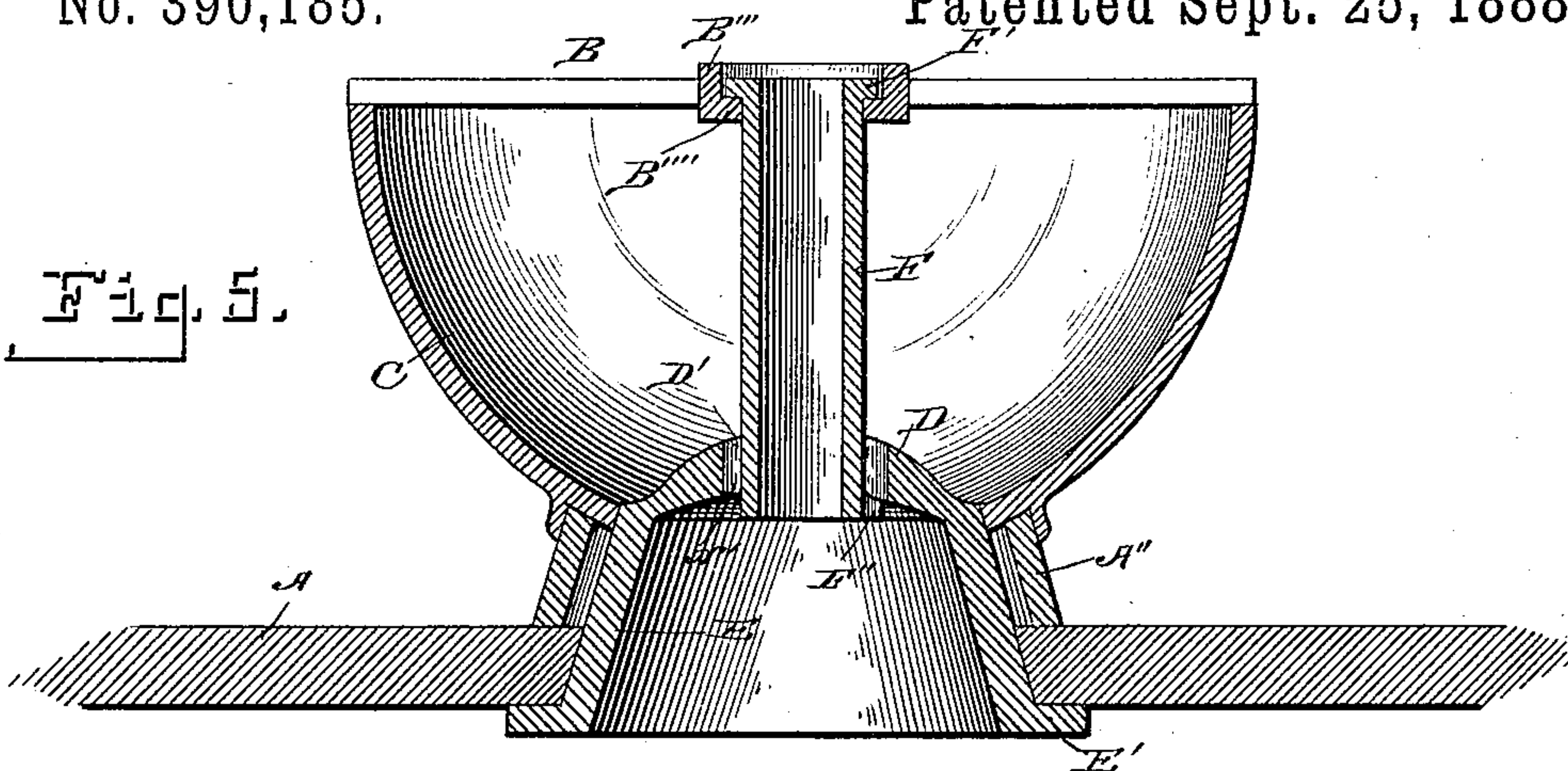


Fig. 6.

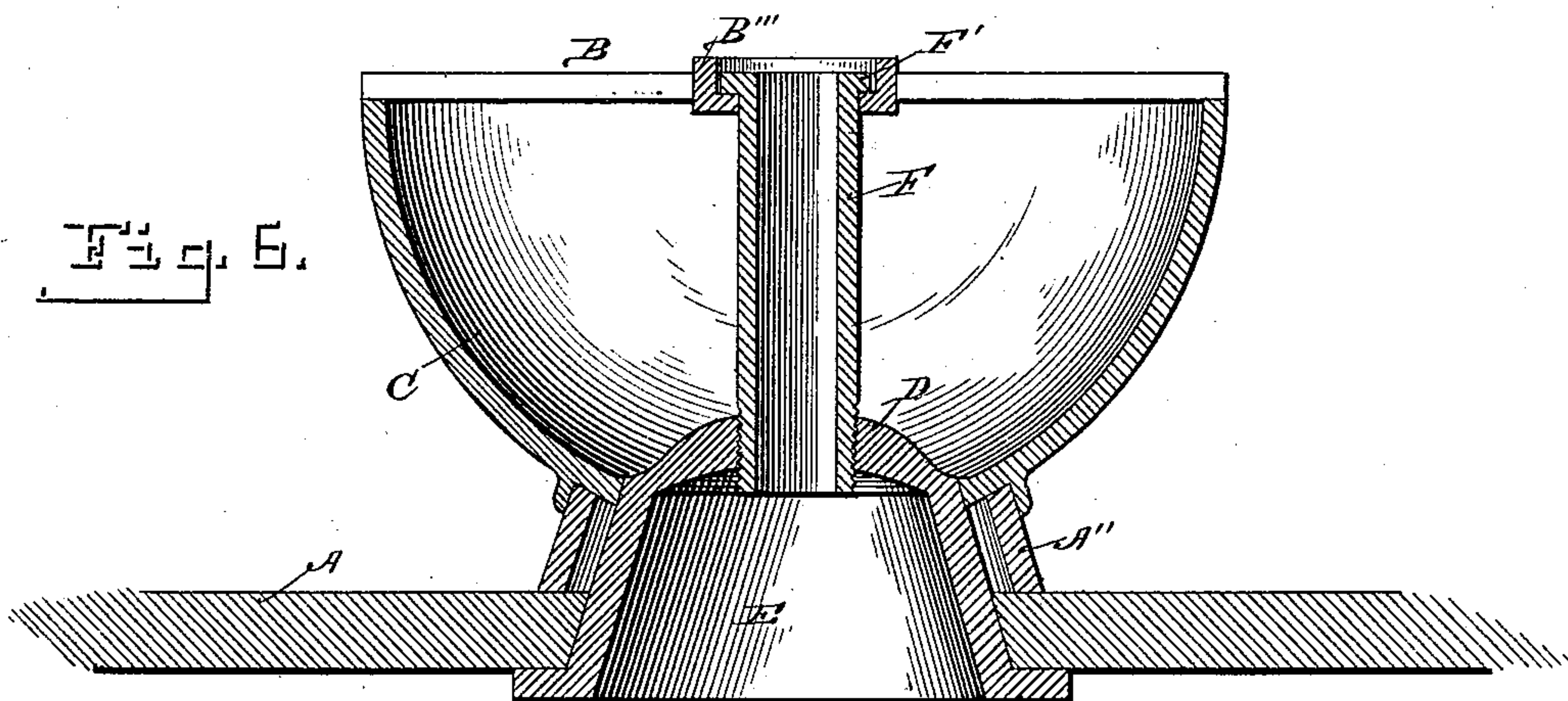
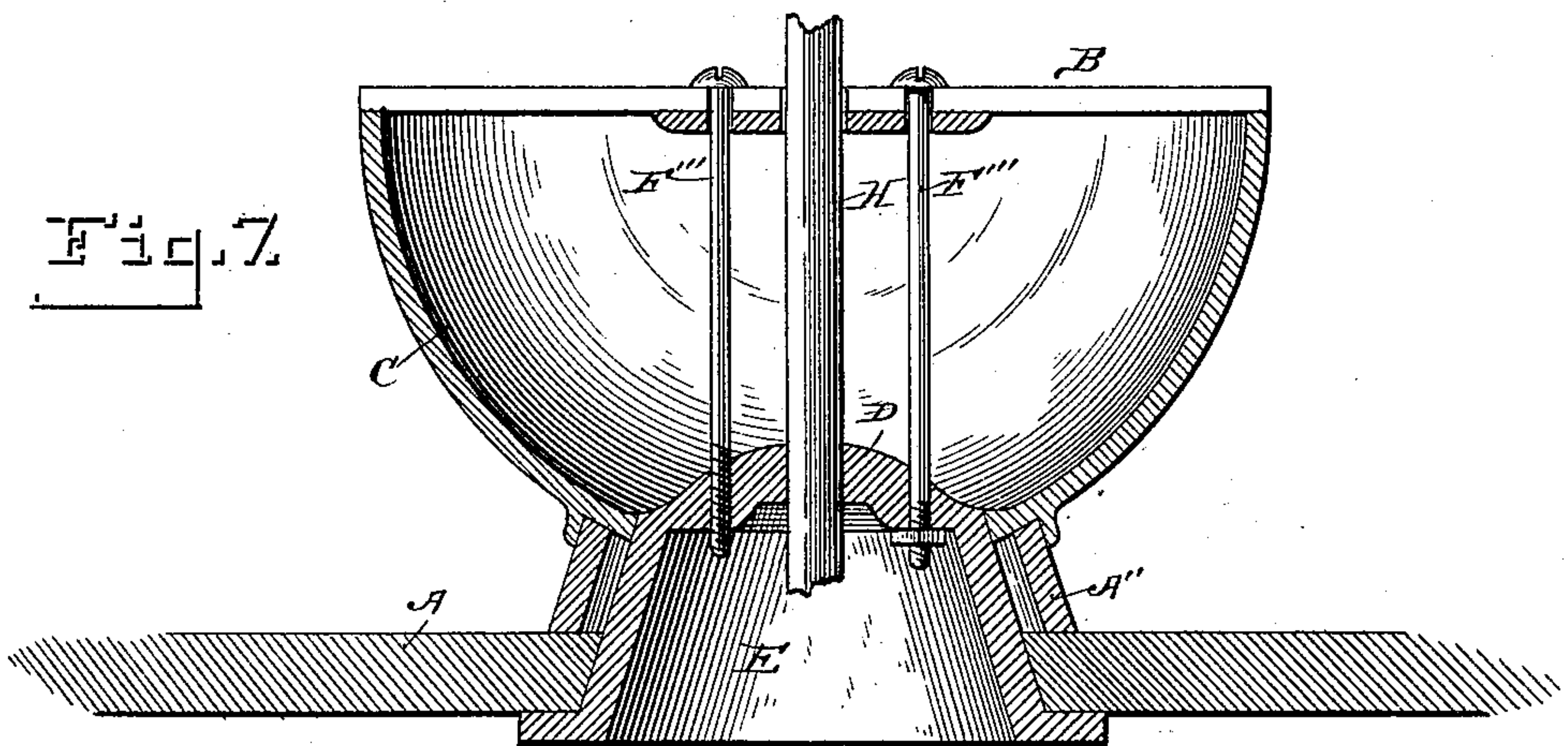


Fig. 7.



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UNITED STATES PATENT OFFICE.

EDGAR H. MORGAN AND CHARLES MORGAN, OF FREEPORT, ILLINOIS,
ASSIGNORS OF ONE-THIRD TO ALBERT BAUMGARTEN, OF SAME PLACE.

COFFEE-MILL.

SPECIFICATION forming part of Letters Patent No. 390,185, dated September 25, 1888.

Application filed January 28, 1888. Serial No. 262,255. (No model.)

To all whom it may concern:

Be it known that we, EDGAR H. MORGAN and CHARLES MORGAN, both residents of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Coffee-Mills; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

Our invention relates to improvements in coffee-mills, and is fully described and explained in this specification, and shown in accompanying drawings, in which—

Figure 1 is a vertical section of a mill embodying our improvements, the section being through the broken lines X X of Fig. 2 and Y Y of Fig. 3, the swinging cover B' of the mill being omitted from the section. Fig. 2 is a top plan of the mill. Fig. 3 is a top plan of the top of the mill-box and the hopper in working position therein. Fig. 4 is a bottom plan of the hopper with the hollow connecting-spindle F in position therein. Figs. 5, 6, and 7 are vertical sections respectively of three modified forms embodying our improvements.

In the views A is the top of an ordinary coffee-mill box having a circular central opening, and B is a stationary plate covering a portion of said opening, and provided with an annular flange, B'', surrounding the opening and resting on the top A. Immediately over the center of the opening in the top A is a bearing formed integrally with the plate B, and consisting of a vertical annular flange, B''', and a horizontal annular flange, B'''', lying within the vertical flange and formed with two opposite notches, N, whose office is hereinafter set forth. A swinging cover, B', is hinged to the top plate, B, in the ordinary manner, and a hopper, C, of any desired form, lies below the top A, and is provided with a horizontal annular flange, C', in contact with the lower face of the top A, and also with two lugs, C'', which enter corresponding notches A' in the top A and prevent rotation of the

hopper with reference to the top. These lugs have in their external faces grooves C''', Fig. 3, which receive pins P, formed on the lower face of the flange B'', the engagement of the pins in the grooves being intended to prevent rotation of the cover of the mill with reference to the hopper. Below the hopper, and formed integrally with it, is a dependent shell, E, having on its inner face the usual grinding teeth or ridges, and just above the shell is a bridge, D, extending across the opening between the shell and hopper and expanded at its center to form an annular bearing, D'. The opening at the center of the bearing D' is a circle having in its margin two opposite notches, N', corresponding in size and shape to the notches N in the flange B'''' of the bearing in the cover.

The cover B above the top A and the hopper C below the top are connected by a hollow spindle, F, which passes through the bearing B''' B'''' of the cover and the bearing D' at the center of the bridge D. The spindle F is provided with an external flange or head, F', which rests on the flange B'''' of the upper bearing, and also with two opposite external lugs, F'', situated at the lower end of the spindle, and so placed as to pass readily through the notches N of the upper bearing. The lower faces of the walls of the bearing D' are inclined, as indicated in section in Fig. 1, and are formed with two opposite notches or depressions, N'', as indicated in Fig. 4.

In order to connect the cover and hopper, they are placed in working position with reference to the top A, the lugs C'' of the hopper being in notches A' of the top and the pins P of the cover being in grooves C''' of the lugs C''. The spindle is then passed through the bearings B''', B'''', and D', the lugs F'' of the spindle passing through the notches in the two bearings. The spindle is then rotated in the direction indicated by the arrow in Fig. 4, when each of the lugs F'' slides along the inclined lower face of the corresponding wall of the bearing D' until it reaches the notch N'', into which it drops and is held against reverse rotation. The rotation of the spindle and the

sliding of the lugs along the inclined lower faces of the walls of the bearing D' draw the two bearings together with a considerable force and clamp the top A securely between the flange B'' of the cover and the flange C' of the hopper. The engagement of the lugs C'' with the notches A' of the top and the pins P of the cover effectually prevents rotation of these stationary parts with reference to each other, and the various stationary elements of the mill are thus fastened together by the use of very simple means, and much more securely and effectually than by the use of screws or other fastenings passing through one of the stationary castings of the mill and into the top of the mill-box.

The usual grinding-cone, G, is suspended within the shell E by means of bolt H passing upward through the hollow spindle, a crank, I, being mounted on the bolt immediately above the spindle, and a nut, K, being placed upon the bolt above the crank, for the purpose of holding the movable parts together and regulating the position of the cone G. The form of the cone and shell and the construction and action of the bolt H, crank I, and regulating-nut K are not essential, but may be varied in any desired manner without affecting the nature or operation of our invention.

The mill illustrated in Figs. 1, 2, 3, and 4 is what is known as a "sunken-hopper" mill, the hopper being wholly below the upper surface of the top A of the mill-box.

Fig. 5 illustrates the application of our invention to a mill in which the hopper is wholly above the mill-box, A being the top of the mill-box, A'' a conical base resting on the top, C a hopper resting on the base A'', and B a stationary cover fastened to the hopper and provided with a central bearing, B''' B''', the same as that illustrated in Fig. 1. The hopper E is suspended within a central opening in the top A, and is provided with an annular flange, E', lying below the top A, and also with a bridge, D, expanded at its center to form the bearing D', the bearings B''', B''', and D' being formed with notches corresponding to the notches N N'' in the form illustrated in the preceding figures. The upper and lower bearings are connected by means of a spindle, F, having the same form and construction as the corresponding spindle illustrated in the preceding figures; and, in fact, the connection of the upper and lower bearings illustrated in Fig. 5 is precisely the same as that of the upper and lower bearings in the sunken hopper-mill already described, the only difference between the two mills being in the arrangement of the stationary castings with reference to the top A of the box.

Fig. 6 shows a mill precisely the same as that illustrated in Fig. 5, except that the lower end of the hollow spindle F is formed with an external screw-thread which engages an internal screw-thread in bearing D'.

Fig. 7 illustrates a slightly-different form, in which the cover of the mill is connected

with the grinding-shell by two bolts, F''', lying on opposite sides of the center, instead of by a single hollow bolt or spindle, F, as shown in preceding figures.

It is evident from the drawings and the foregoing description that various modifications may be made, all embodying the same principle of construction, and we are aware that those shown are only a few of the number that may be devised. We desire, therefore, not to limit our invention to any one or all of the illustrated forms, as we believe it to be broadly new in a mill of this class to place one of the stationary castings of the mill above the top of the mill-box and another below it, and to connect the two castings above and below the top by means adapted to draw them together and to clamp the top of the box between them.

Having now described and explained our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the top of a coffee-mill box, of a stationary bearing supported upon the top, a grinding-shell beneath the top and in contact with the lower surface thereof, and a central tie rod or rods lying within the hopper connecting said bearing and said grinding-shell and adapted to draw them together and clamp the top between them, substantially as and for the purpose set forth.

2. The combination, with the top A, of the cover B, resting on the top, the hopper C and shell E, lying below the top, a hollow spindle, F, connecting the cover with the hopper and shell, the cone G, suspended within the shell, the bolt H, supporting the cone and passing upward through the spindle, and the crank I and regulating-nut K, mounted on the bolt, substantially as and for the purpose set forth.

3. The combination, with the top A, of the cover B, resting on the said top and provided with a central bearing, the hopper C and shell E, lying below the top and provided with the bridge D and central bearing, D', and the hollow spindle F, connecting the upper and lower bearings and clamping the top between the cover B and hopper C, substantially as and for the purpose set forth.

4. The combination, with the top A, of the cover B, provided with a central bearing and having a central opening formed with notches N in its margin, the hopper C, lying beneath the top and provided with the bridge D, and the annular bearing D', having a circular opening formed with notches N', and the hollow spindle F, provided at its upper end with a head, F', and at its lower end with lugs F'', adapted to pass through the notches N N' and to support the lower bearing when brought into working position by the rotation of the spindle, substantially as and for the purpose set forth.

5. The combination, with the top A, of the cover B, provided with a central bearing having a circular opening formed with marginal notches N, the hopper C, lying beneath the cover and provided with bridge D, and the

central bearing, D', having a circular opening formed with marginal notches N', and having the lower faces of its walls inclined, as shown, and the hollow spindle F, provided with a head, F', and with marginal lugs F'', adapted to pass through the notches N N' and to move along the inclined lower faces of the walls of the bearing D' upon the rotation of the spindle and thereby to draw together the upper and lower bearings, substantially as and for the purpose set forth.

6. The combination, with the top A, of the cover B, resting on said top, and the hopper C, lying below said top, and means, substantially as shown and described, for drawing said hopper and cover together, the hopper being

provided with lugs C'', entering notches in the top, and the cover being provided with pins P, entering notches in the lugs C'', the engagement of the lugs C'' with the notches in the top and with the pins of the cover being adapted to prevent rotation of the stationary parts of the mill with reference to each other, substantially as and for the purpose set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

EDGAR H. MORGAN.
CHARLES MORGAN.

Witnesses:

M. STOSKOPF,
LEONARD STOSKOPF.