

(No Model.)

E. QUACK.

KNEADING AND MIXING MACHINE.

No. 375,384.

Patented Dec. 27, 1887.

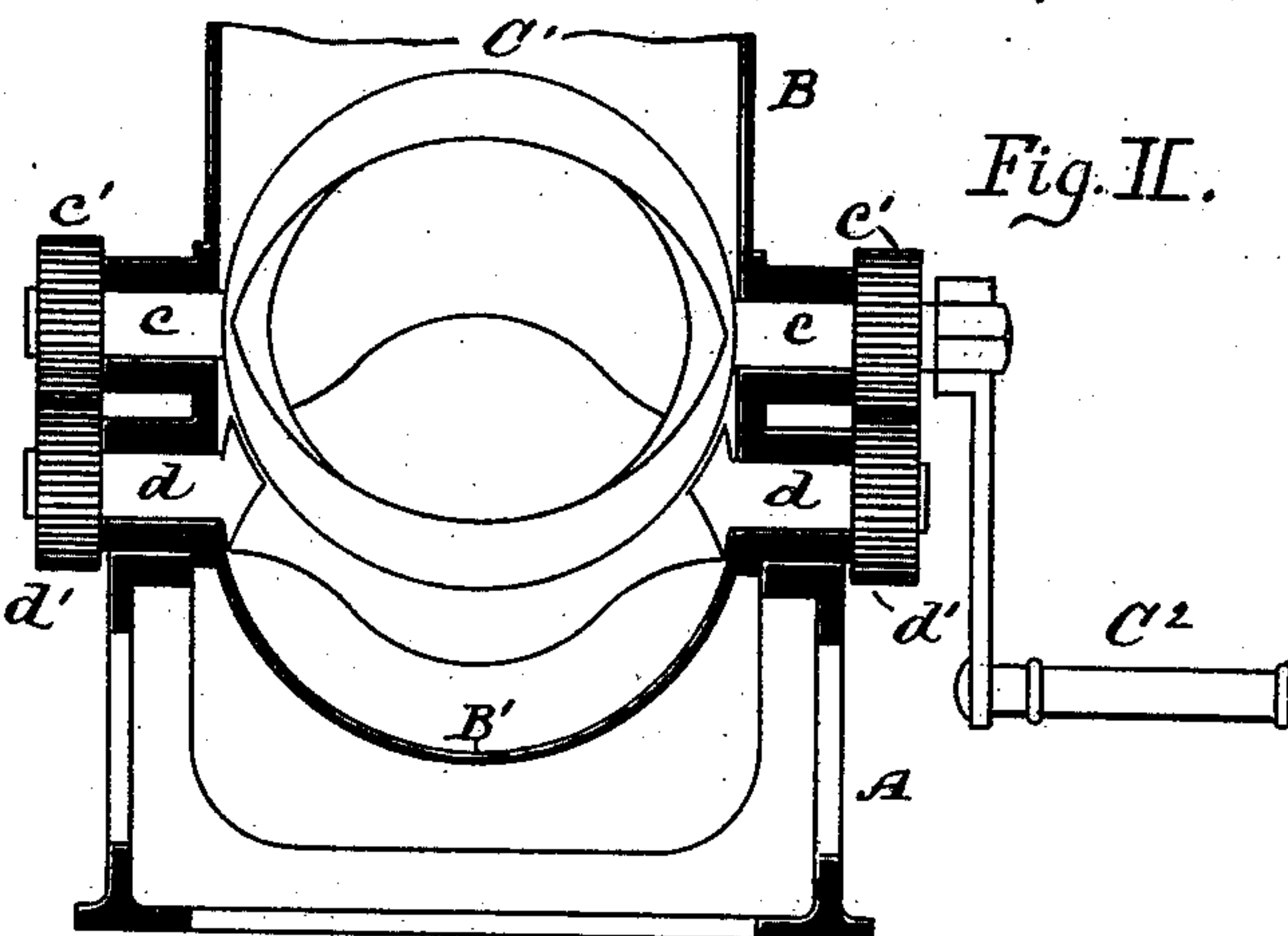
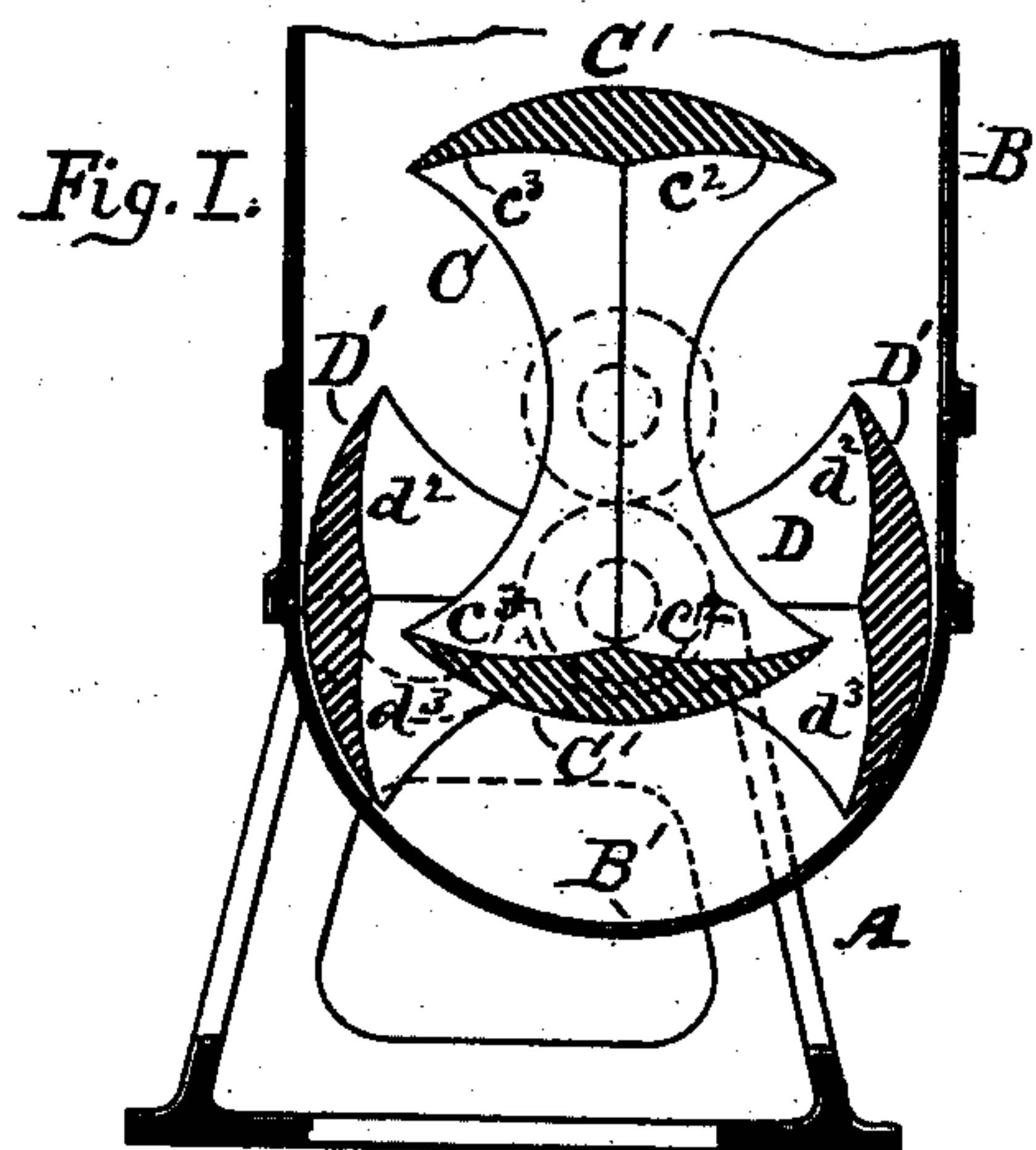


Fig. III.

Fig. V.

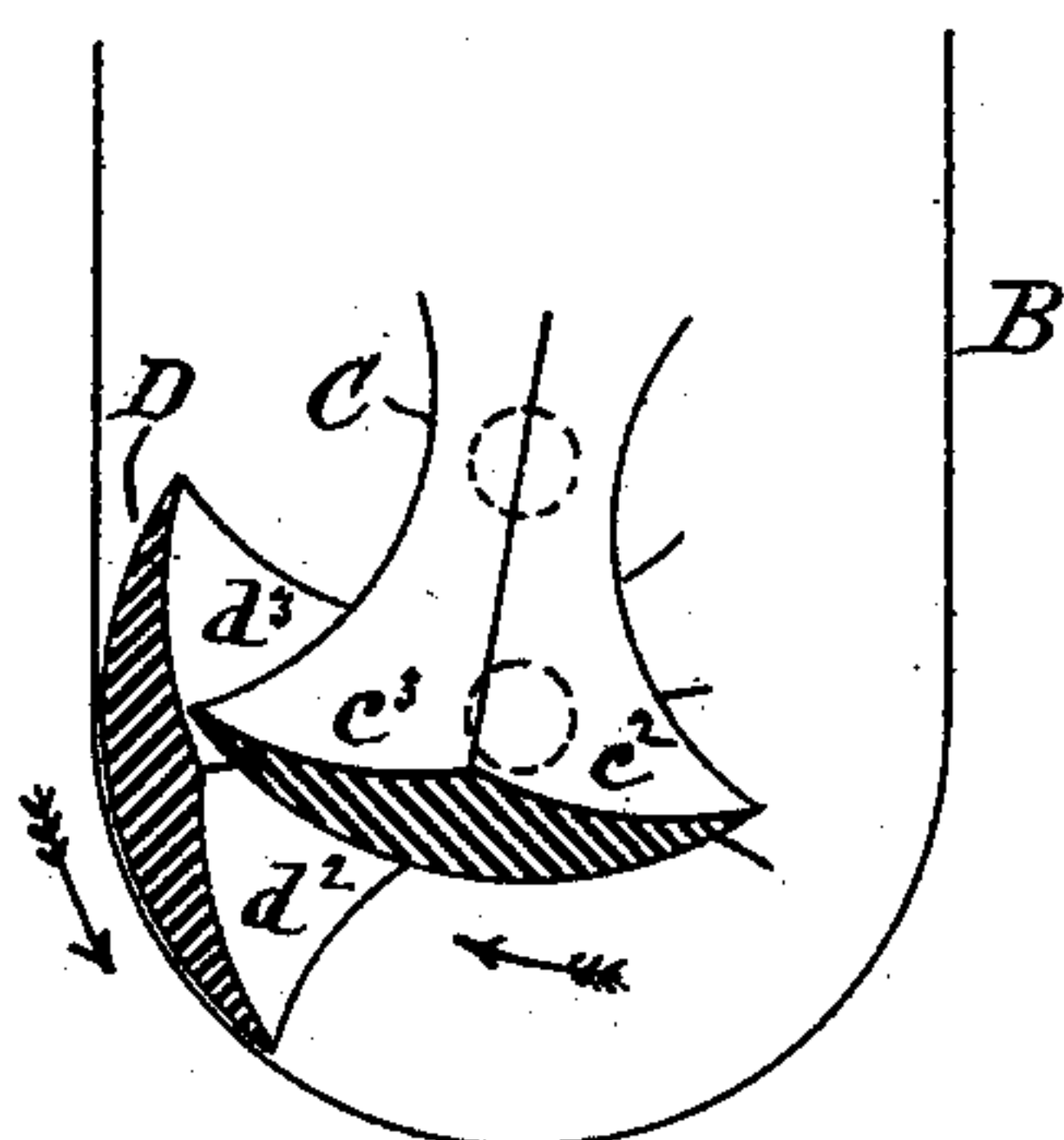


Fig. IV.

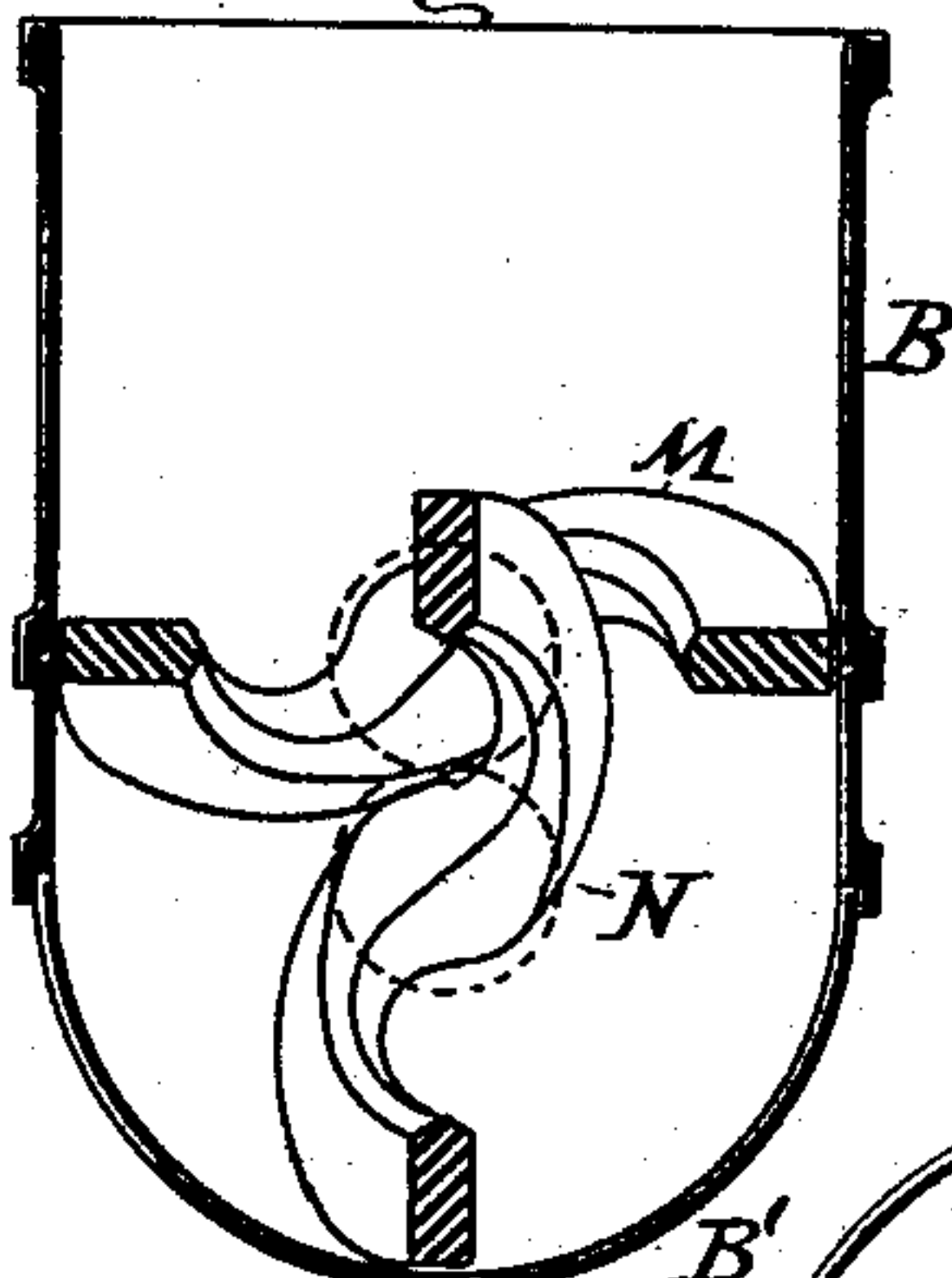
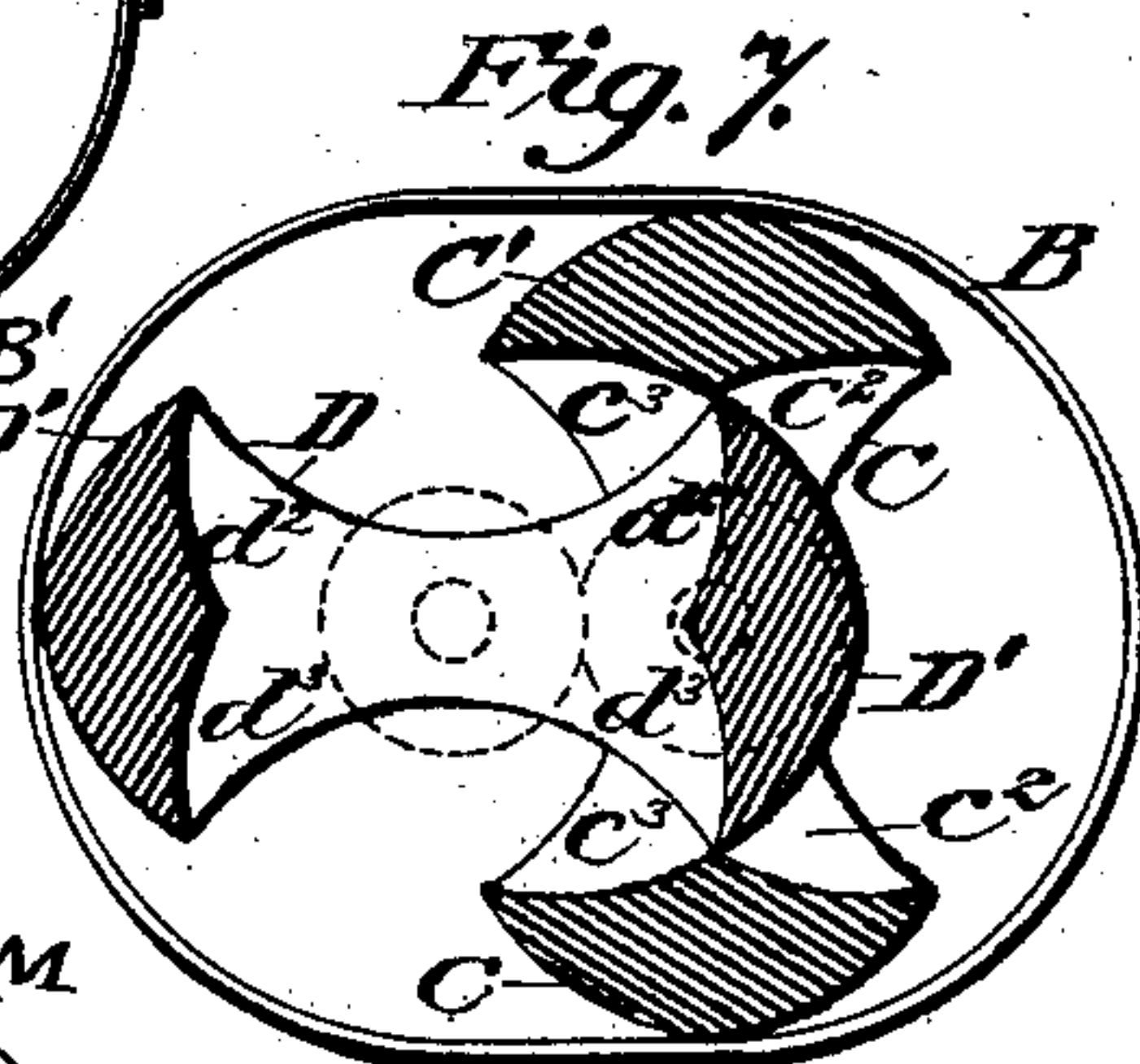
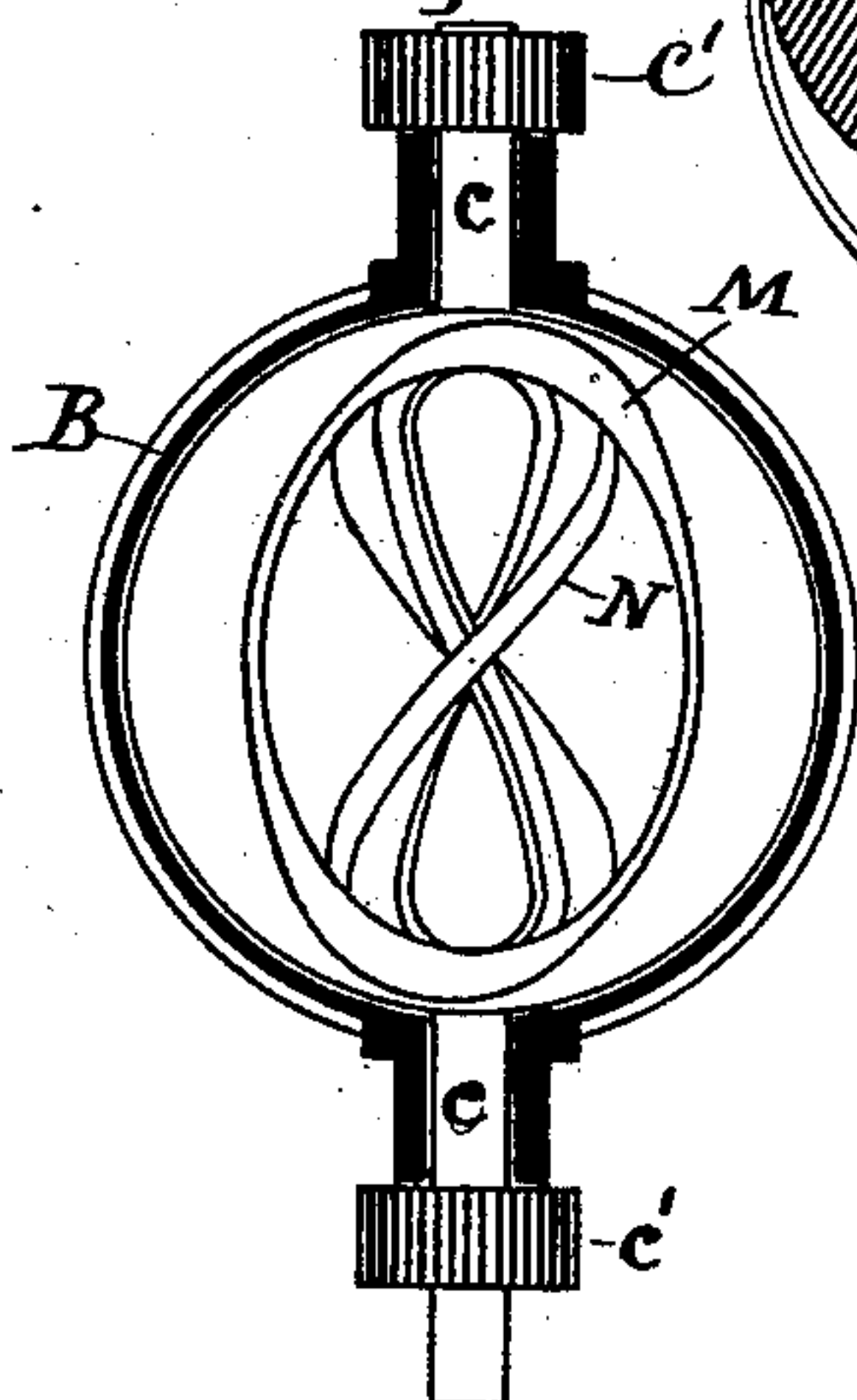
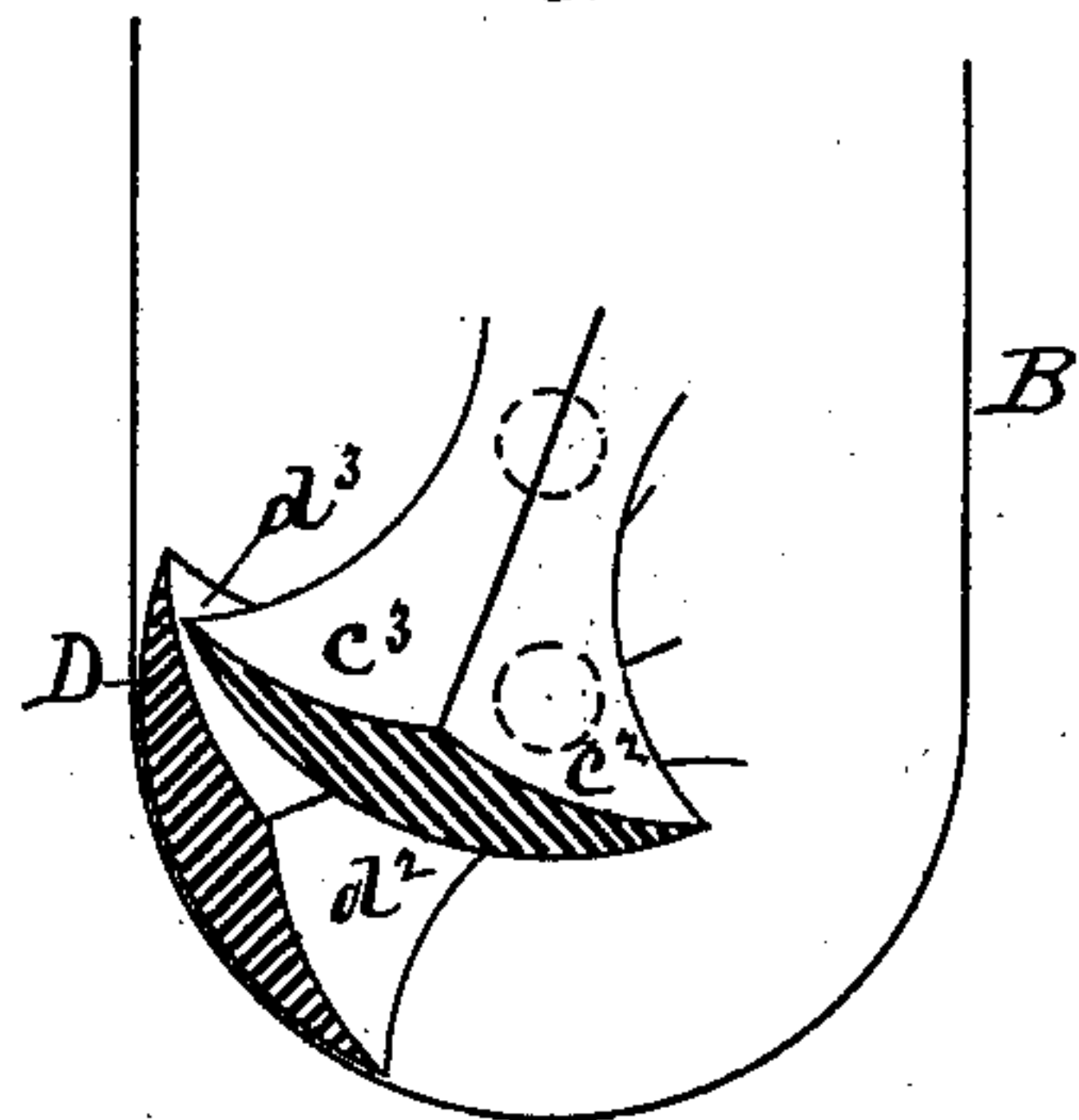


Fig. VI.



Witnesses
J. B. Nicholson,
J. M. Reynolds

Inventor
Edward Quack
by J. M. Babcock
Attorney

UNITED STATES PATENT OFFICE.

EDUARD QUACK, OF COLOGNE, PRUSSIA, GERMANY.

KNEADING AND MIXING MACHINE.

SPECIFICATION forming part of Letters Patent No. 375,384, dated December 27, 1887.

Application filed April 15, 1887. Serial No. 234,983. (No model.) Patented in Germany April 28, 1885, No. 33,278, and in England July 5, 1886, No. 8,773.

To all whom it may concern:

Be it known that I, EDUARD QUACK, a subject of the King of Prussia and Emperor of Germany, and residing at Cologne, on the Rhine, Rheinprovinz, Prussia, have invented certain Improvements in Kneading and Mixing Machines, (for which I have obtained patents in Germany, No. 33,278, dated April 28, 1885, and Great Britain, No. 8,773, July 5, 1886,) of which the following is a specification.

In kneading and mixing machines, mixing-troughs having hemispherical or semi-cylindrical bottoms are frequently used and found to answer better than any others, there being no corners to receive any of the material operated on, and every part of the curved inner face being reached by the revolving exterior of an agitator, which turns on a central axis, its outer part describing a circle of diameter identical with that of said inner face of the trough-bottom.

The object of my present invention is to use two agitators within one pan, the agitators being arranged to scrape each other and also the bottom of the pan in a complete and satisfactory manner.

To this end my invention consists in the construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawings, Figure I represents a vertical section through a mixing-machine embodying my invention. Fig. II represents a vertical section at right angles to that taken in Fig. I, the form of the agitators being the same. Fig. III and IV are detail sectional views representing a part of each agitator of the form shown in Figs. I and II in two different relative positions, showing one agitator scraping the other, the outline of the mixing-trough being also indicated. Fig. V represents a vertical section, similar to Fig. I, through the mixing-trough and agitators of a mixing-machine, said agitators having a twisted or spiral shape. Fig. VI represents a horizontal section through Fig. V, taken just above the upper agitator. Fig. VII represents a horizontal section, taken above the agitators, of a modification constructed in most respects like Fig. I, but having the axes of the agitators vertical and side by side, the trough or shell being made broader accordingly.

A designates the supporting-frame, and B the mixing-trough or mixing-shell supported thereby, and having a hemispherical bottom, B'.

C and D represent the two agitators, having gudgeons *c* and *d* journaled in said frame. The line passing through the two gudgeons *c* of the agitator C constitutes the axis of said agitator, and in like manner the line passing through gudgeon *d* constitutes the axis of agitator D. In Figs. I, II, V, and VI the former axis is directly above the latter. In the succeeding figures they are side by side. In all the figures showing said gudgeons the axes are parallel to each other, and said gudgeons *c* are geared to gudgeons *d* by cog-wheels *c'* *d'*. One of said gudgeons *c* is provided with a crank-handle, *C'*, whereby said agitators are rotated simultaneously in opposite directions to each other. As shown in Figs. I, II, III, and IV, each of the two agitators has the form of a circle, the diameters being equal. The agitator C has a convex exterior surface, *C'*, and two interior concave faces, *c'* *c''*. The agitator D has, in like manner, an exterior convex face, *D'*, and two interior concave faces, *d'* *d''*. As these agitators rotate in opposite directions, the agitator D scrapes against the inside curve, *c'*, (or *c''*, if rotated in the other direction,) of one side of the agitator C, and then against the outer curved face, *C'*, of the said agitator C. The latter, in like manner, scrapes alternately against the outer face, *D'*, of agitator D, and the inner face, *d'*, (or *d''*,) of the latter agitator. The curvature of the respective faces, the diameters of the agitators, and the distance between the axes of said agitators are of course calculated in advance to allow such action.

The axis of agitator D is the center of the circle of which the inner face of trough-bottom B' forms a part, so that every part of the said bottom is scraped by said agitator D. The axis of the upper agitator, C, in Figs. I and II is too high for said upper agitator to reach said bottom, but it mixes and kneads the material in upper and middle parts of the trough, operating in combination with the lower agitator, D, as stated. The arrows in Fig. III indicate the direction of rotation of the respective agitators. One of the agitators

throws the material more to one side of the trough than to the other, and vice versa. The agitators used in Figs. V and VI are marked M and N.

5 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A mixing-trough having a curved bottom, in combination with two rotary agitators, 10 one of which scrapes all parts of said bottom, the other agitator scraping the first agitator, substantially as set forth.

2. The agitators C D, each having an external convex face and two internal concave faces,

arranged substantially as shown, said agitators being of equal diameter and each having its axis within the circle of rotation of the other, in combination with a mixing-trough having a curved bottom which is scraped, substantially as set forth. 15 20

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDUARD QUACK.

Witnesses:

C. KURTZ,

FRANZ WERTENBRUCH.