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CENTRIFUGAL LIQUID SEPARATOR.

APPLICATION FILED MAY 31, 1904.

Fig. 1.

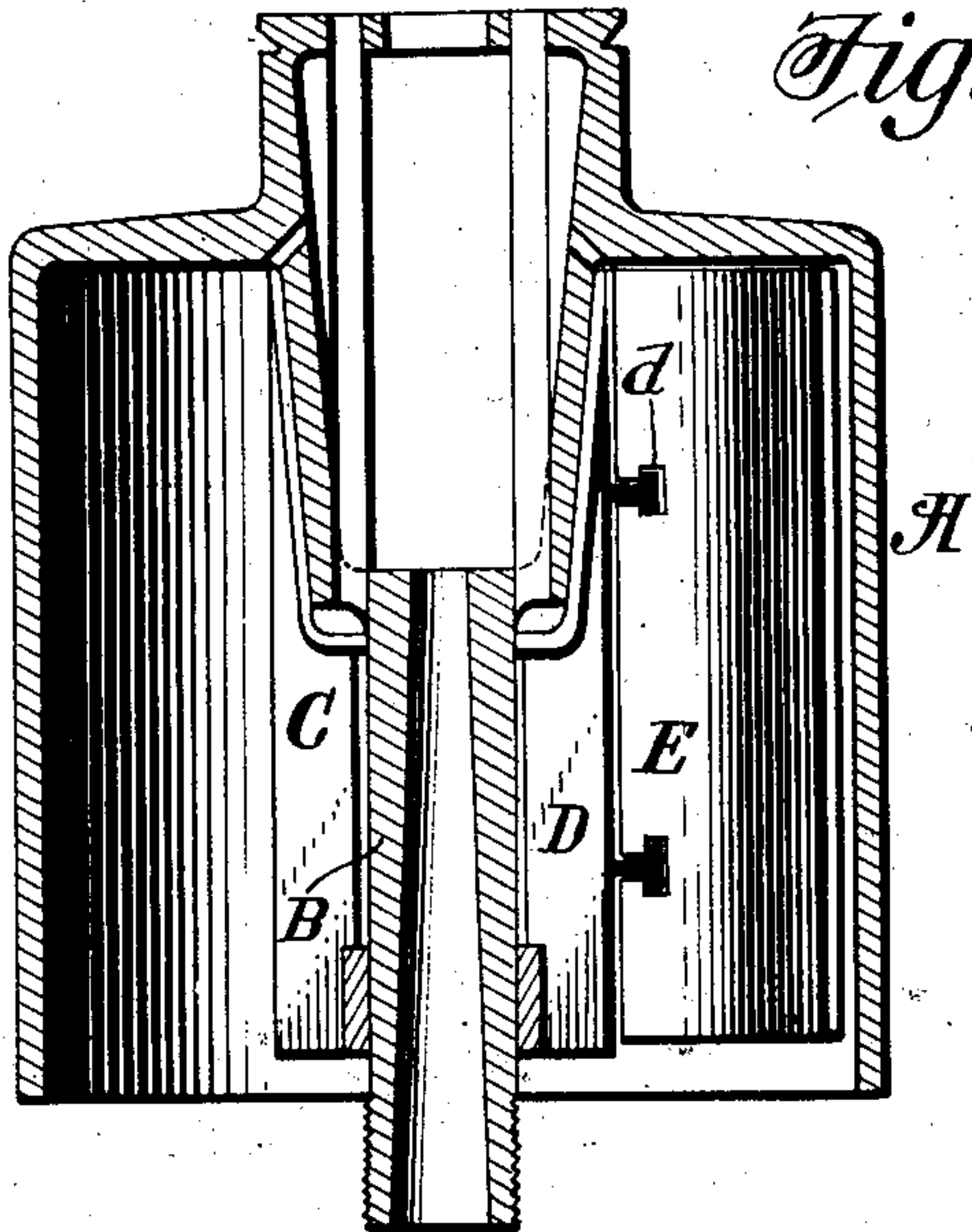
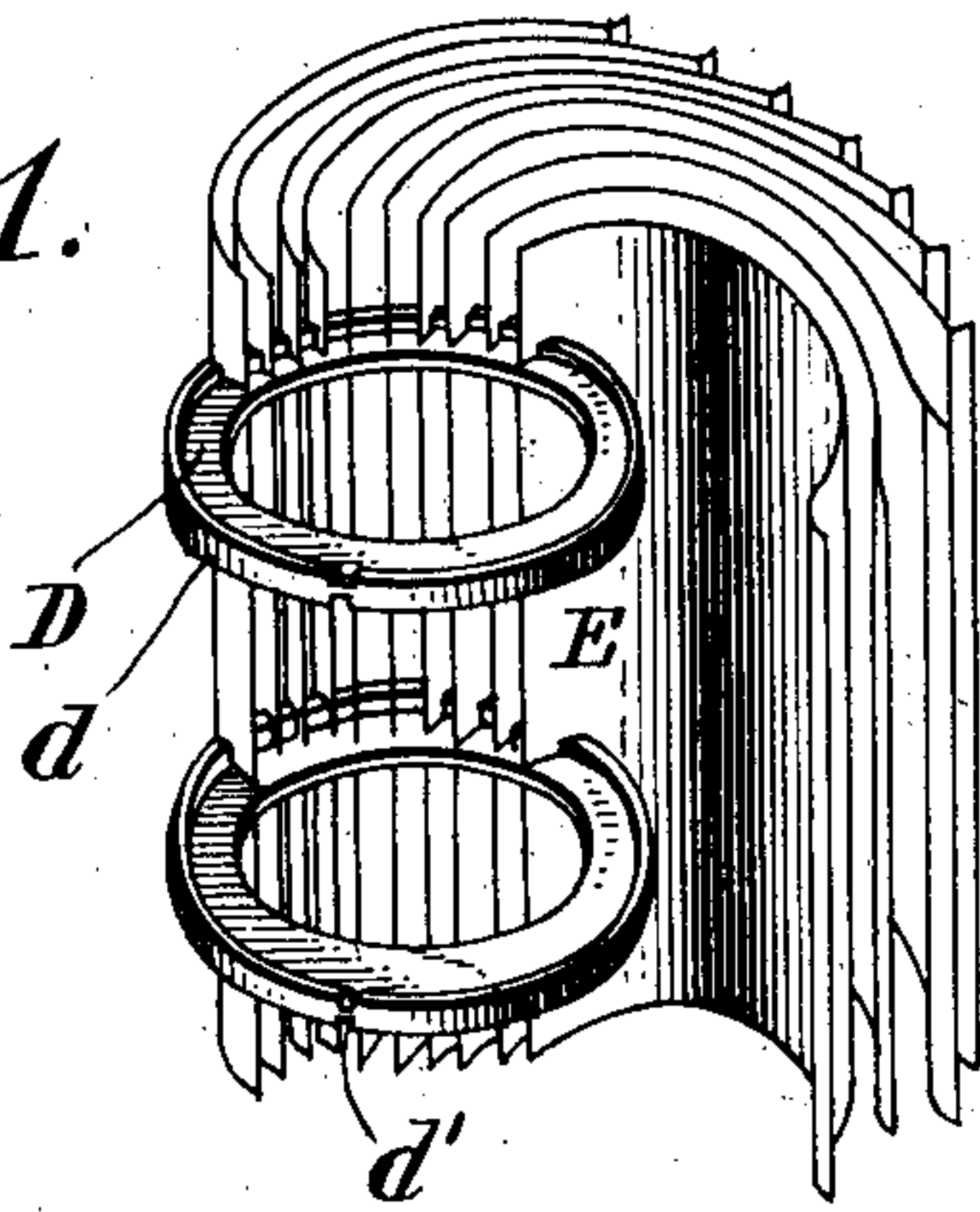


Fig. 3.

Fig. 2.

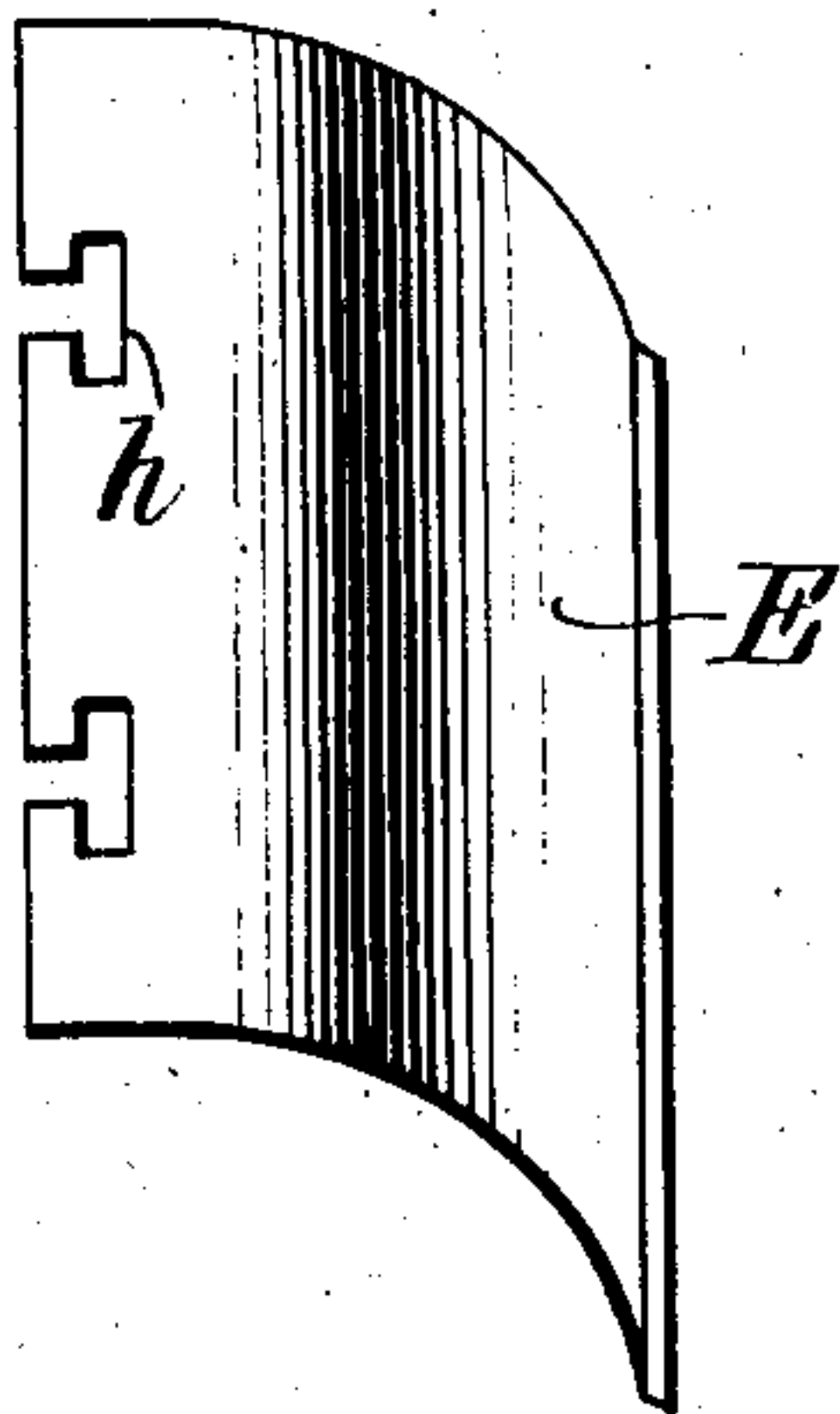


Fig. 5.

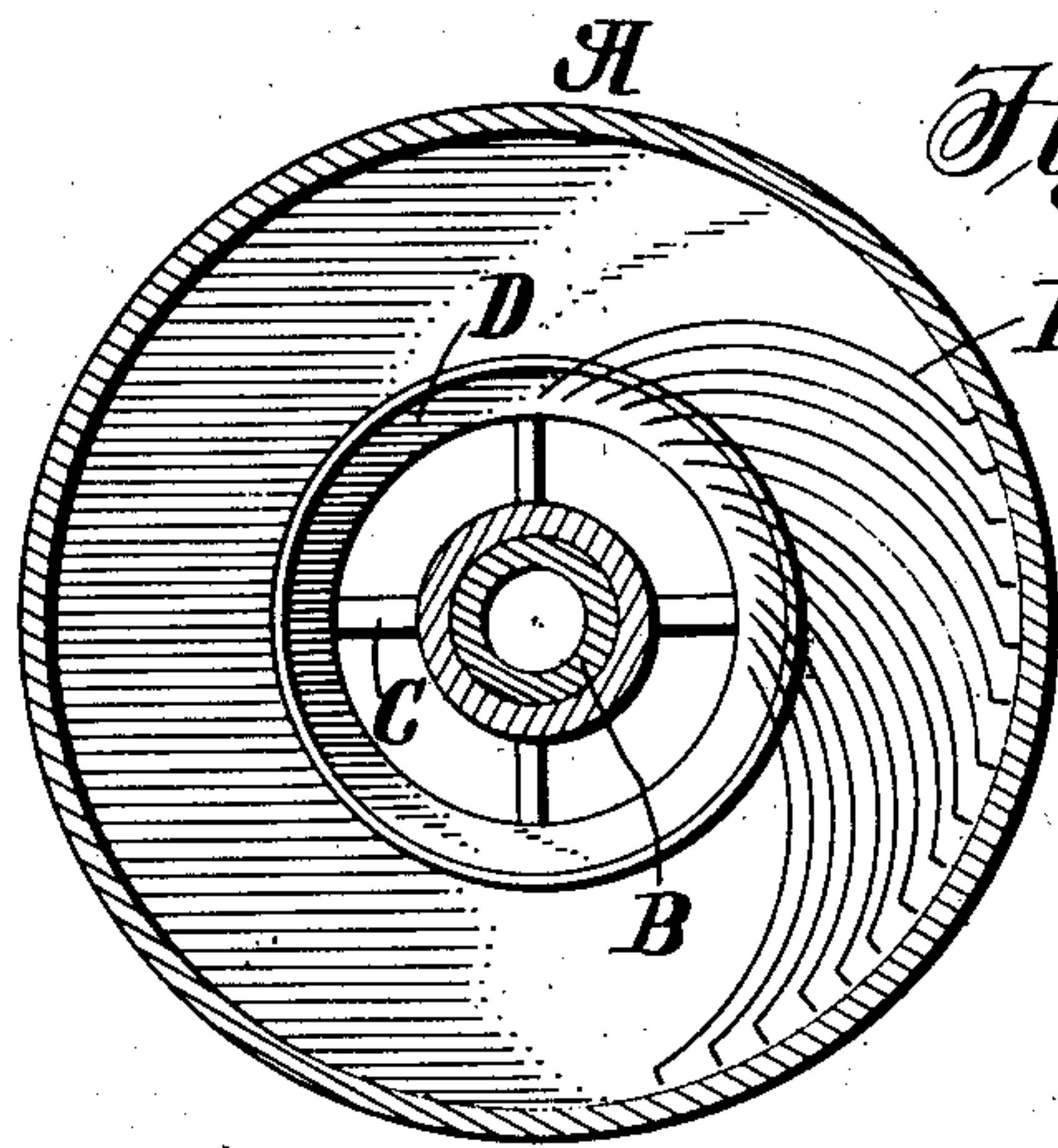
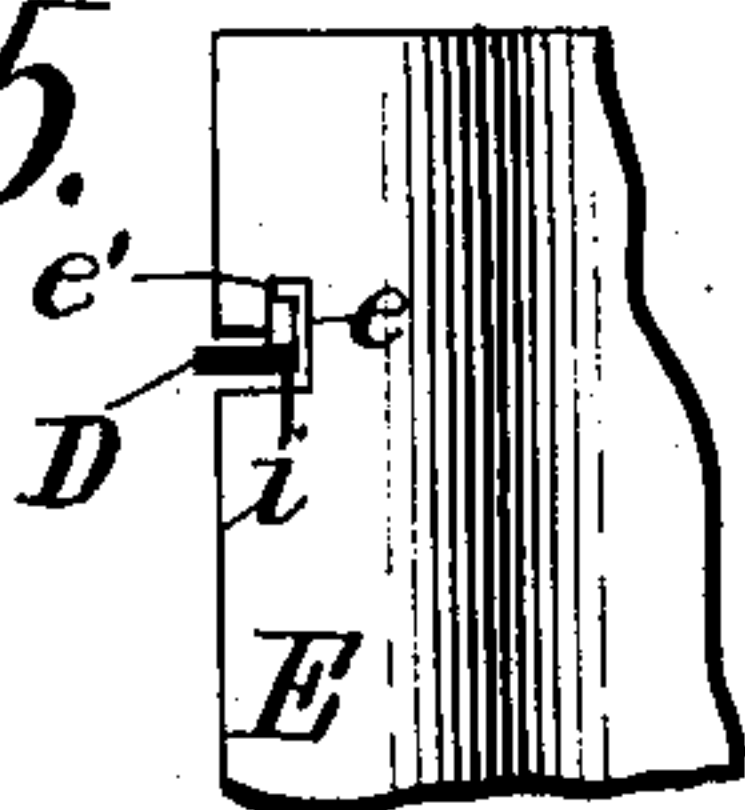


Fig. 4.

Fig. 6.

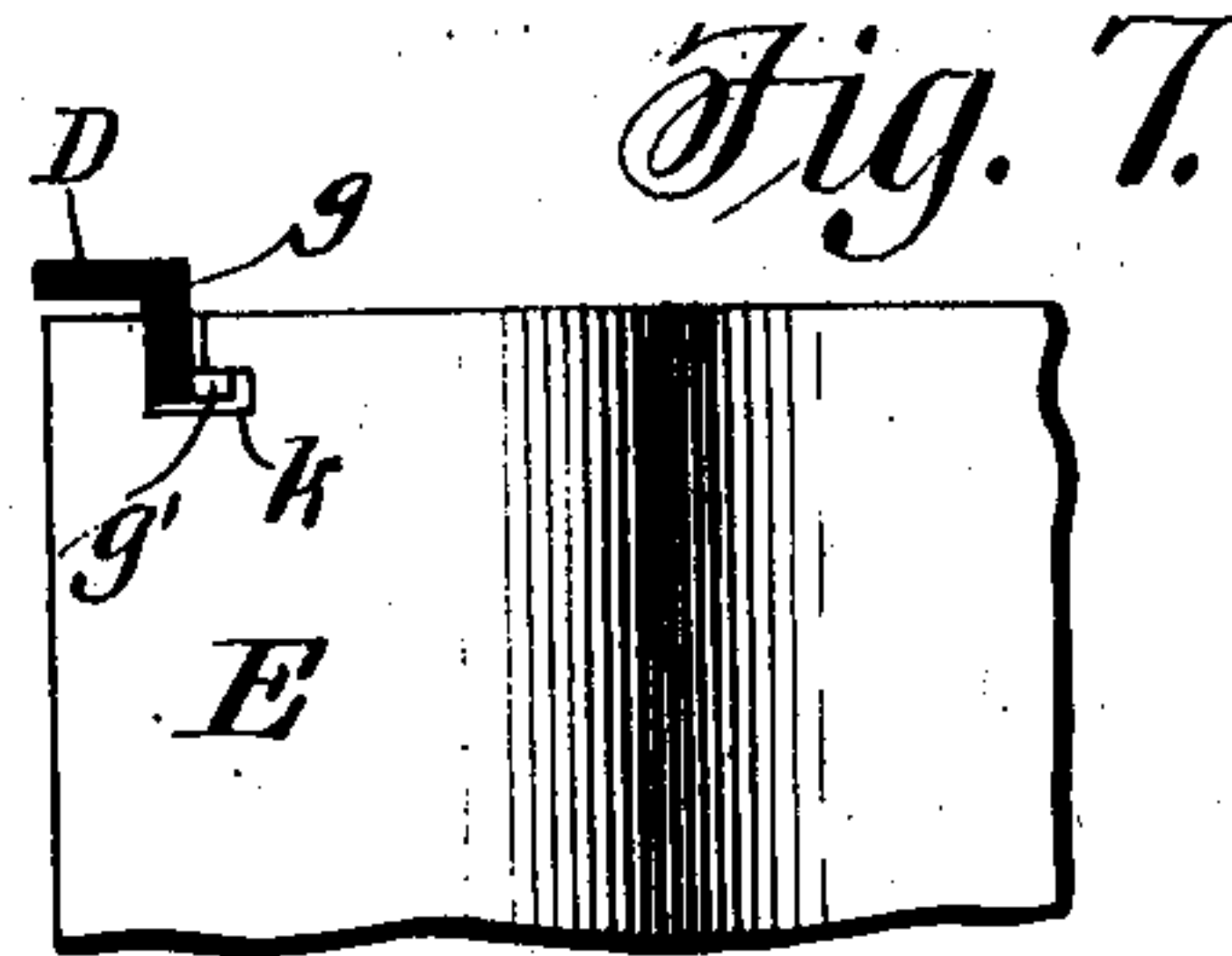
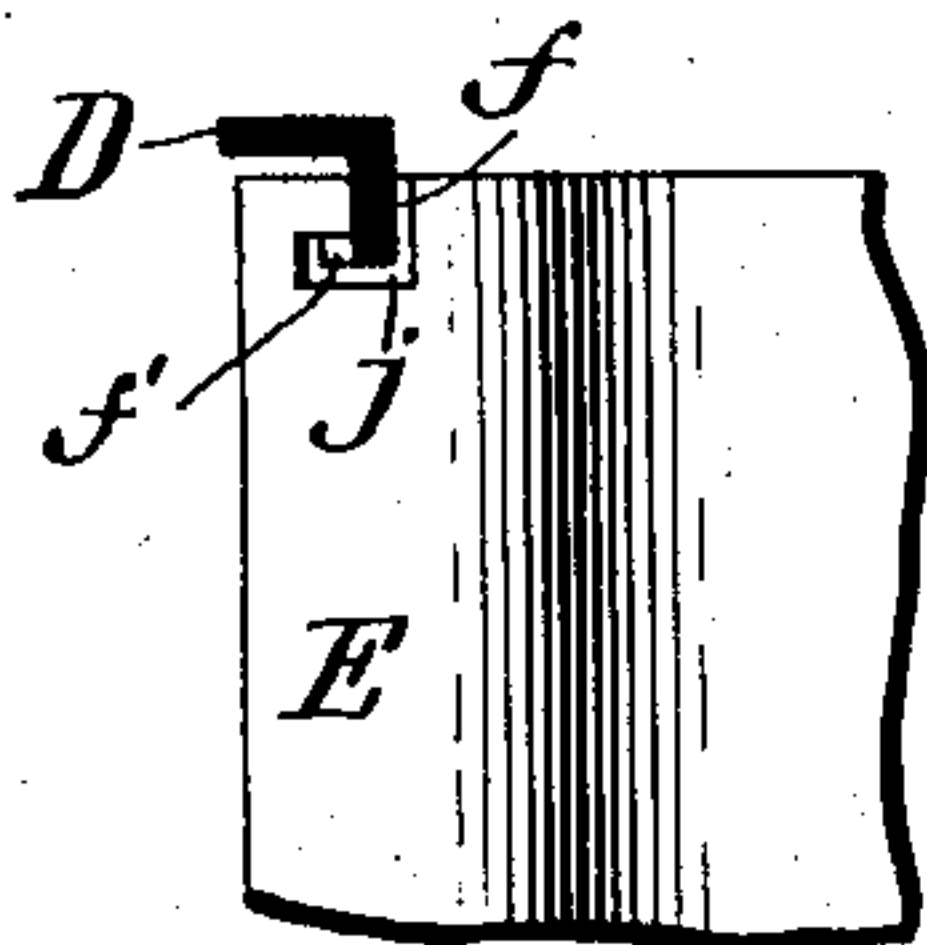


Fig. 7.

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UNITED STATES PATENT OFFICE.

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CENTRIFUGAL LIQUID-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 778,406, dated December 27, 1904.

Application filed May 31, 1904. Serial No. 210,811.

To all whom it may concern:

Be it known that we, JOHANN HEINRICH FRIEDRICH DIERKS and CARL JUSTUS MÖLLMANN, subjects of the Emperor of Germany, residing in the city of Osnabrück, Germany, have invented certain new and useful Improvements in Centrifugal Machines for Separating Fluids of Different Densities, of which the following is a specification.

Our invention relates to that class of centrifugal liquid-separators in which blades are used, an instance of which class of machines is shown in United States Patent No. 660,360, dated October 23, 1900.

The object of our invention in general is to improve the construction and operation of such a machine whereby the construction thereof is strengthened, its capacity increased, and its repair and the replacement of parts facilitated.

The special object of our invention is to provide improved means for securing the blades to the central structure of such centrifugal machines; and with this object in view our invention consists in the improved construction, arrangement, and combination of the parts of a centrifugal separator which we will now proceed to describe, the particular points of novelty being specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view illustrating a portion of the blades of a separator mounted on their supporting-rings. Fig. 2 is a perspective view of one of the blades. Fig. 3 is a central vertical section of the machine on the line 3 3 of Fig. 4. Fig. 4 is a horizontal section, part only of the blades being shown; and Figs. 5, 6, and 7 are detail views illustrating different forms (in section) of blade-supporting rings.

Like reference characters mark the same parts in all of the figures of the drawings.

Referring specifically to the drawings, A represents the bowl or main body of a centrifugal separator, having a central pipe B and suitable inlet and exits for the fluids to be separated. Projecting radially from the cen-

tral pipe B are vertical plates C, upon the outer edges of which are mounted horizontal rings D, which support a series of blades E. 50

The rings D may be varied in form, Figs. 1 and 3 showing them of T shape in cross-section, while Figs. 5, 6, and 7 show them of angular or L shape in cross-section, it being essential for the purposes of our invention that the rings be provided with locking-flanges, as at *d* in Figs. 1 and 3, *e* in Fig. 5, *f* in Fig. 6, and *g* in Fig. 7. It is further essential that these flanges be radially slotted, as clearly shown at *d'*, *e'*, *f'*, and *g'* in Figs. 1, 5, 6, and 7, respectively. 55

The blades E may be varied in form; but it is essential that they be provided with notches to fit over the flanged supporting-rings, and such notches are illustrated in Figs. 2, 5, 6, 65 and 7 of proper form and in the proper situation to correspond with the various forms of flanges before described. In the construction shown in Fig. 2 the notches indicated at *h* are T-shaped and are formed in the inner vertical edge of the blade to fit over and slide upon the T-shaped ring shown in Figs. 1 and 2. 70 In Fig. 5, the ring being L-shaped, the notch at *i* is similarly shaped and is located also in the inner vertical edge of the blade. The rings, however, may be so formed, as in Figs. 6 and 7, that the L-shaped notches, as at *j* *k*, (shown in these figures,) must be made in the upper edges of the blades, the notch *j* of Fig. 6 having its arm extending inwardly or toward 80 the inner edge of the blades and the notch *k* of Fig. 7 having its arm extending outwardly or toward the outer edge of the blade. 75

The blades being engaged on the rings by means of the slots, it is obvious that they may be readily shifted or slid thereon for any desired purpose—such as cleaning, renewal, or repair—and that by means of the slots the blades may be quickly and easily placed upon or removed from the supporting-rings for like 85 purposes. This is of advantage where the number of blades is to be increased or diminished by inserting additional blades or removing part of those already in place. This con- 90

struction also permits of the blades extending inward beyond the rings and as near the central pipe as may be desired.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination in a centrifugal separator, of a series of horizontal rings having flanges at their outer edges, with a series of radial blades provided with notches in their edges to fit upon said flanged rings whereby they may be slidably mounted on said rings, substantially as described.

2. The combination in a centrifugal separator with the bowl and central pipe, of horizontal flanged rings provided with transverse radially-located slots, and a plurality of radially-arranged blades provided with notches to fit over said flanged rings whereby they may be slidably supported therein, the slots in the rings permitting of the ready placing and re-

moval of said blades, substantially as described.

3. The combination in a centrifugal separator, of horizontal rings having vertical slotted flanges at their outer edges, with a plurality of radially-arranged blades provided with notches in their inner edges corresponding in contour with the ring and flanges, said notches fitting slidably over the flanges and the slots in the flanges permitting of the ready placing and removal of the blades, substantially as described.

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

JOHANN HEINRICH FRIEDRICH DIERKS.
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Witnesses:

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