

No. 776,295.

PATENTED NOV. 29, 1904.

B. COHNEN.
CENTRIFUGAL MACHINE.

APPLICATION FILED OCT. 27, 1902. RENEWED OCT. 14, 1904.

NO MODEL.

5 SHEETS—SHEET 1.

Fig. 1.

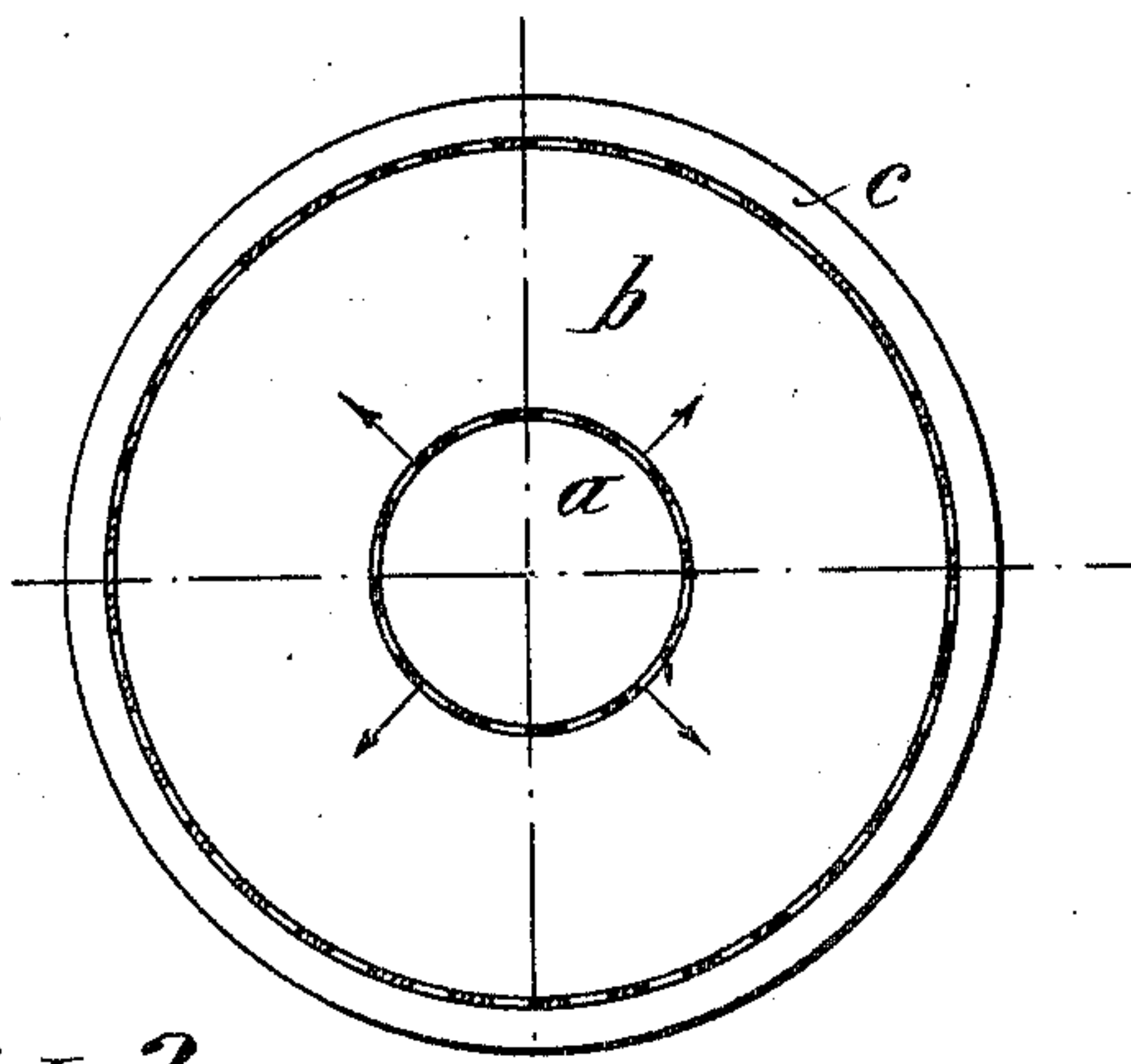


Fig. 2.

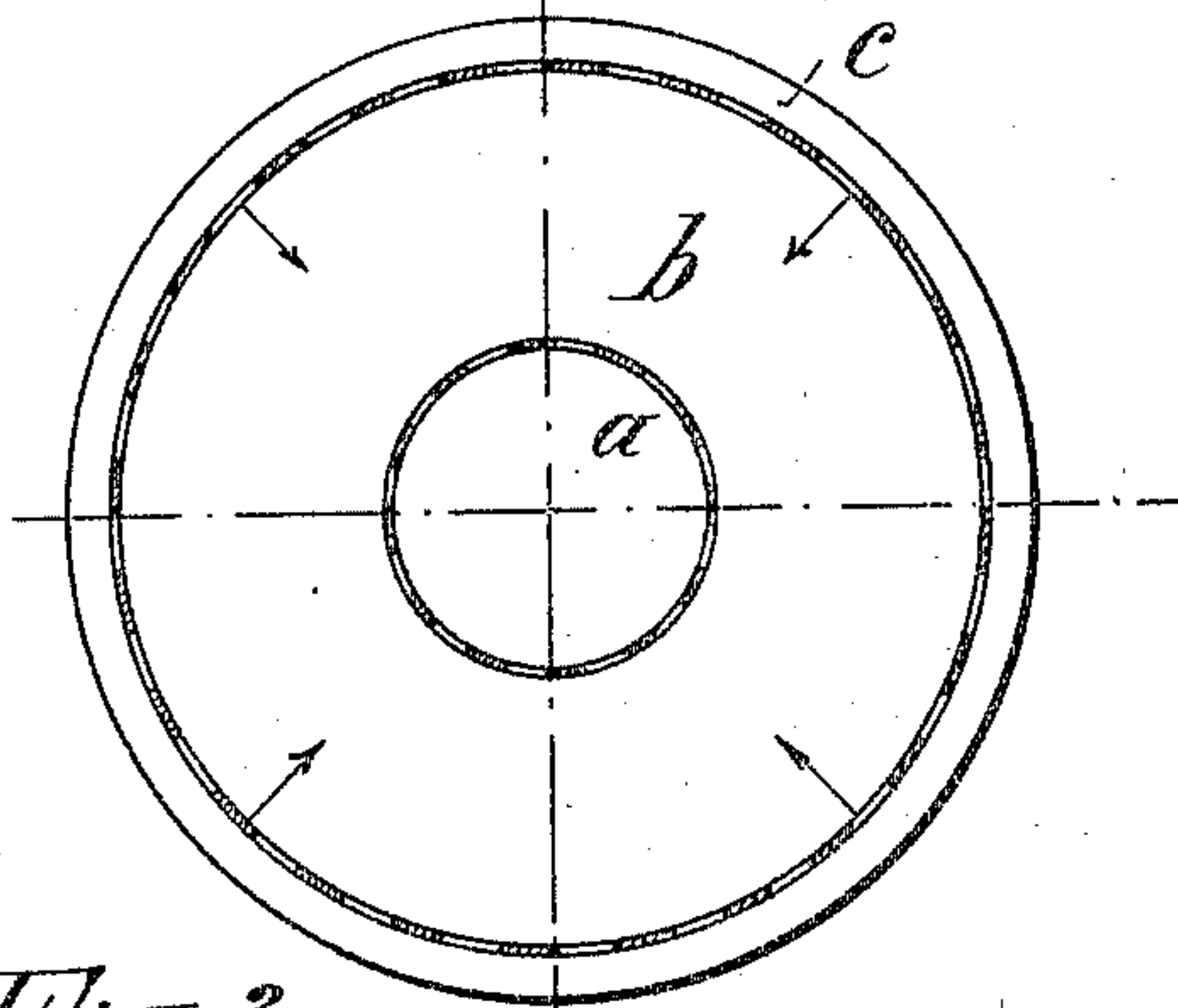
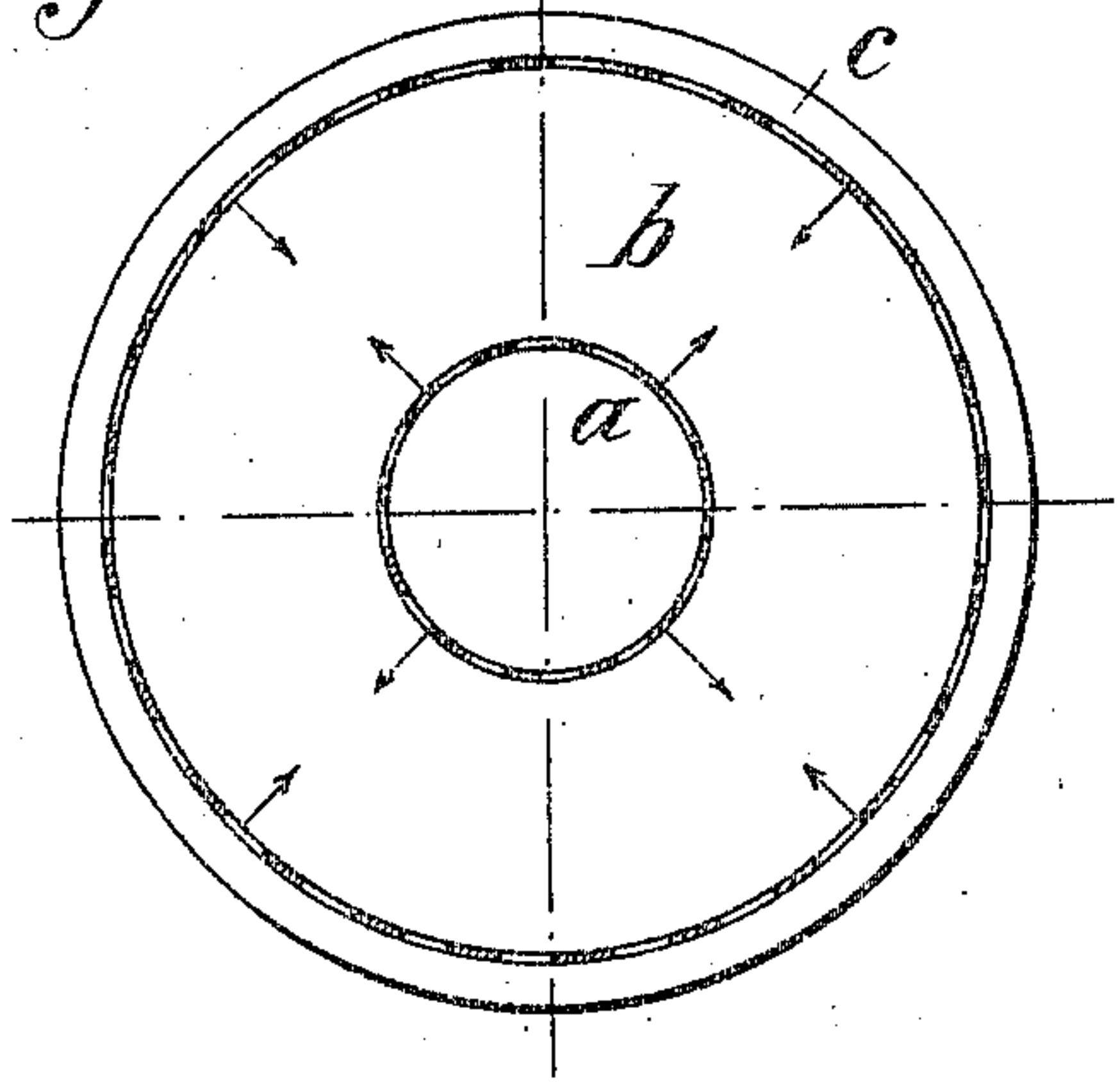


Fig. 3.



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5 SHEETS—SHEET 2.

Fig. 4.

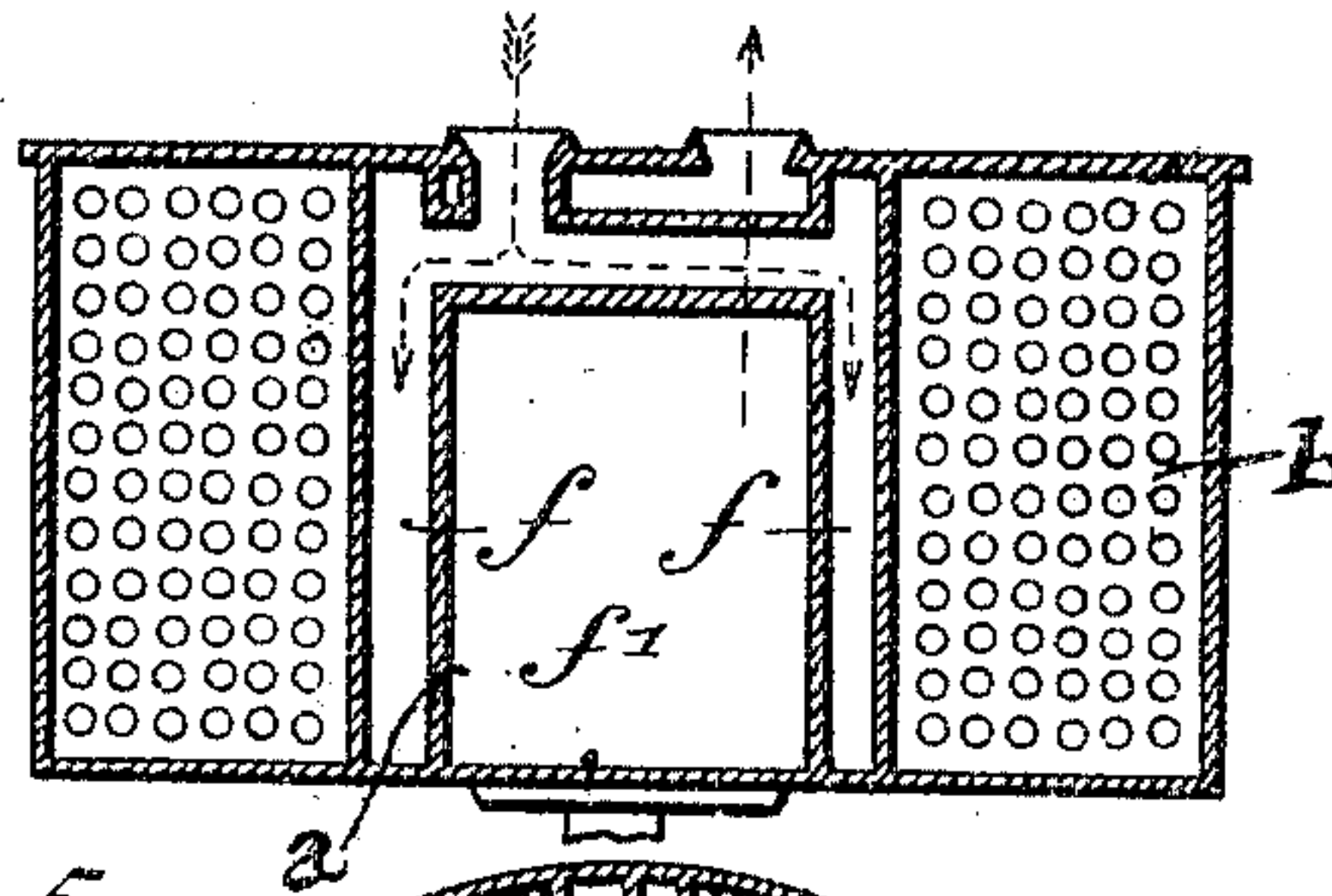


Fig. 5.

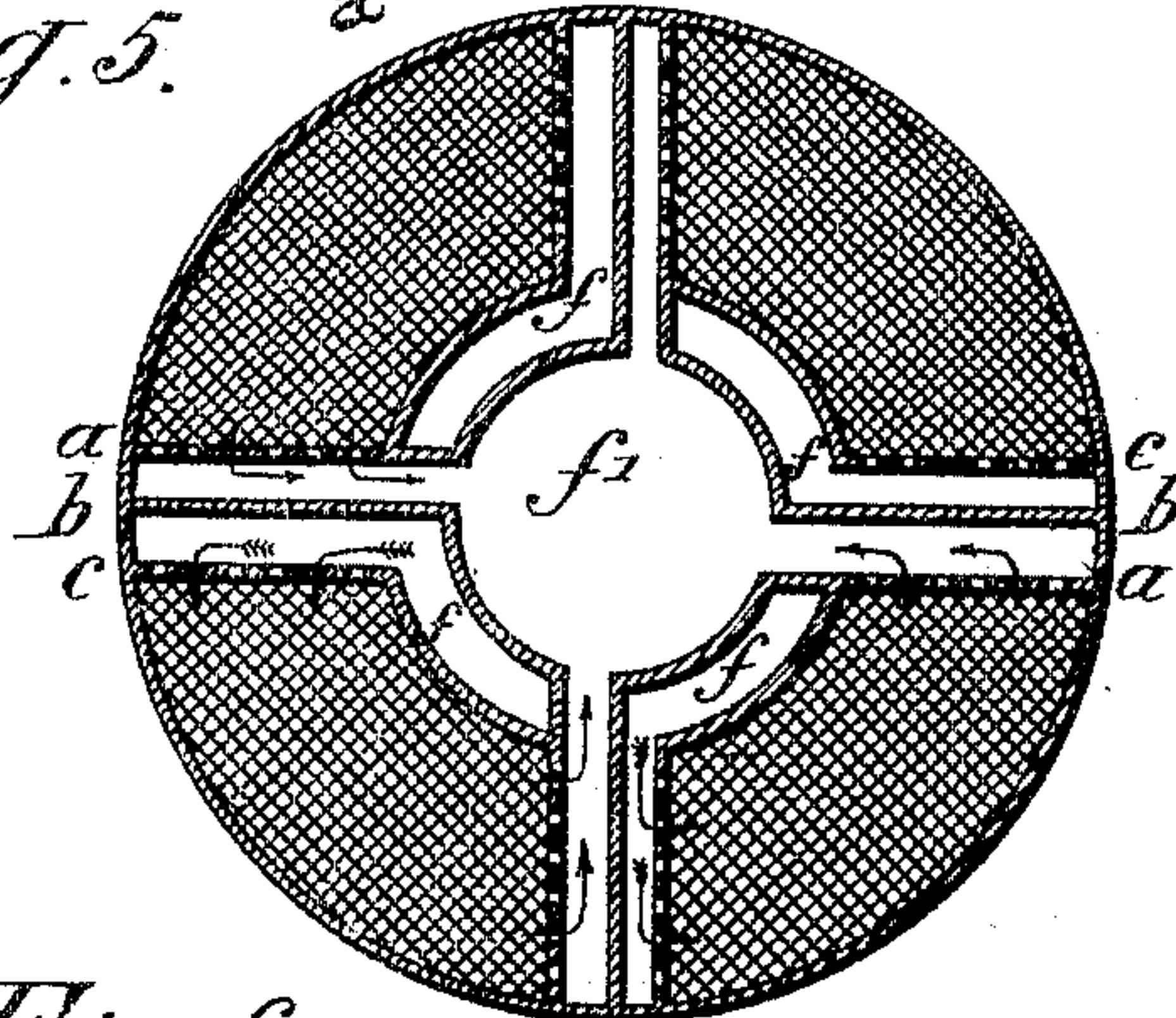
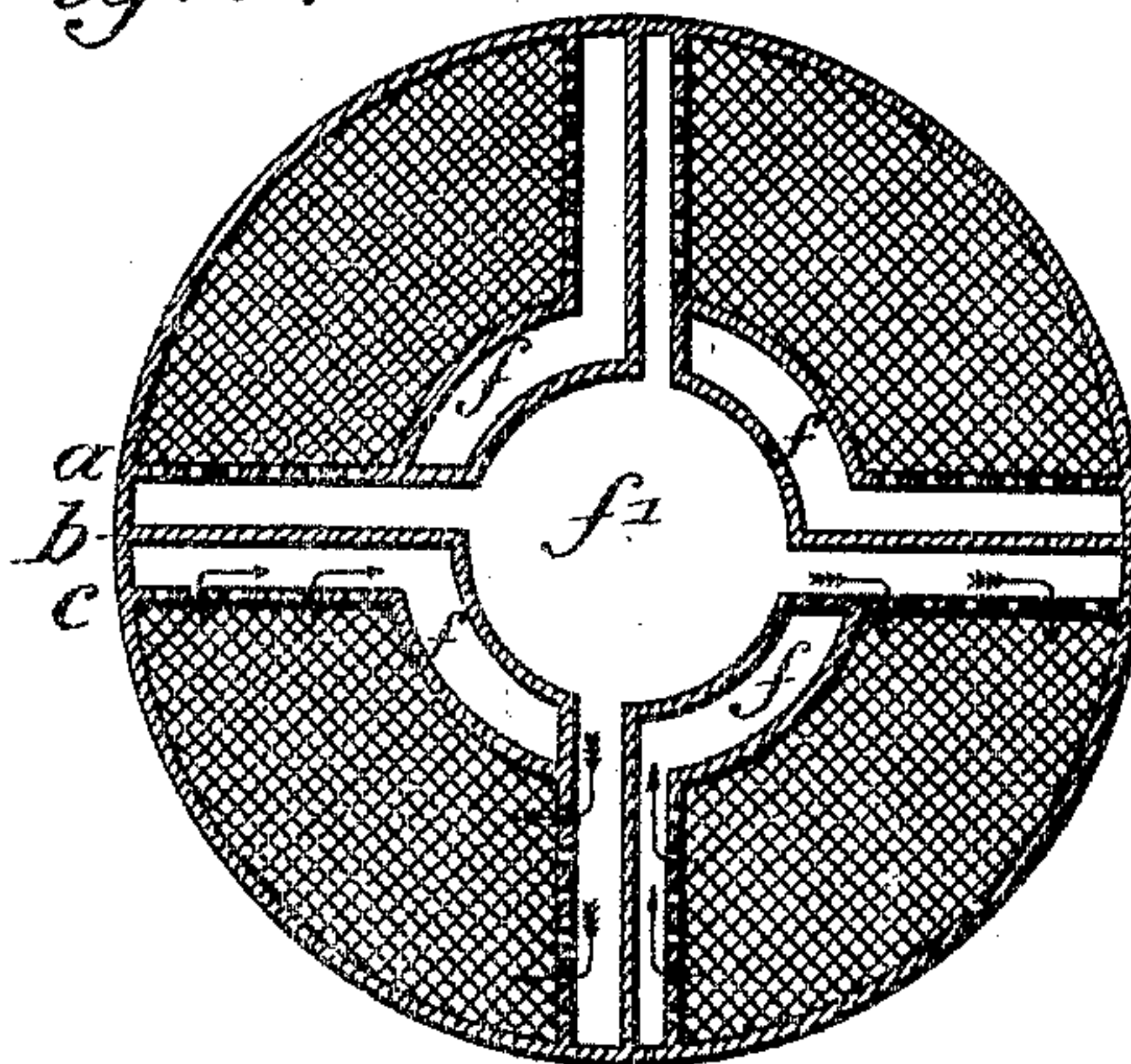


Fig. 6.



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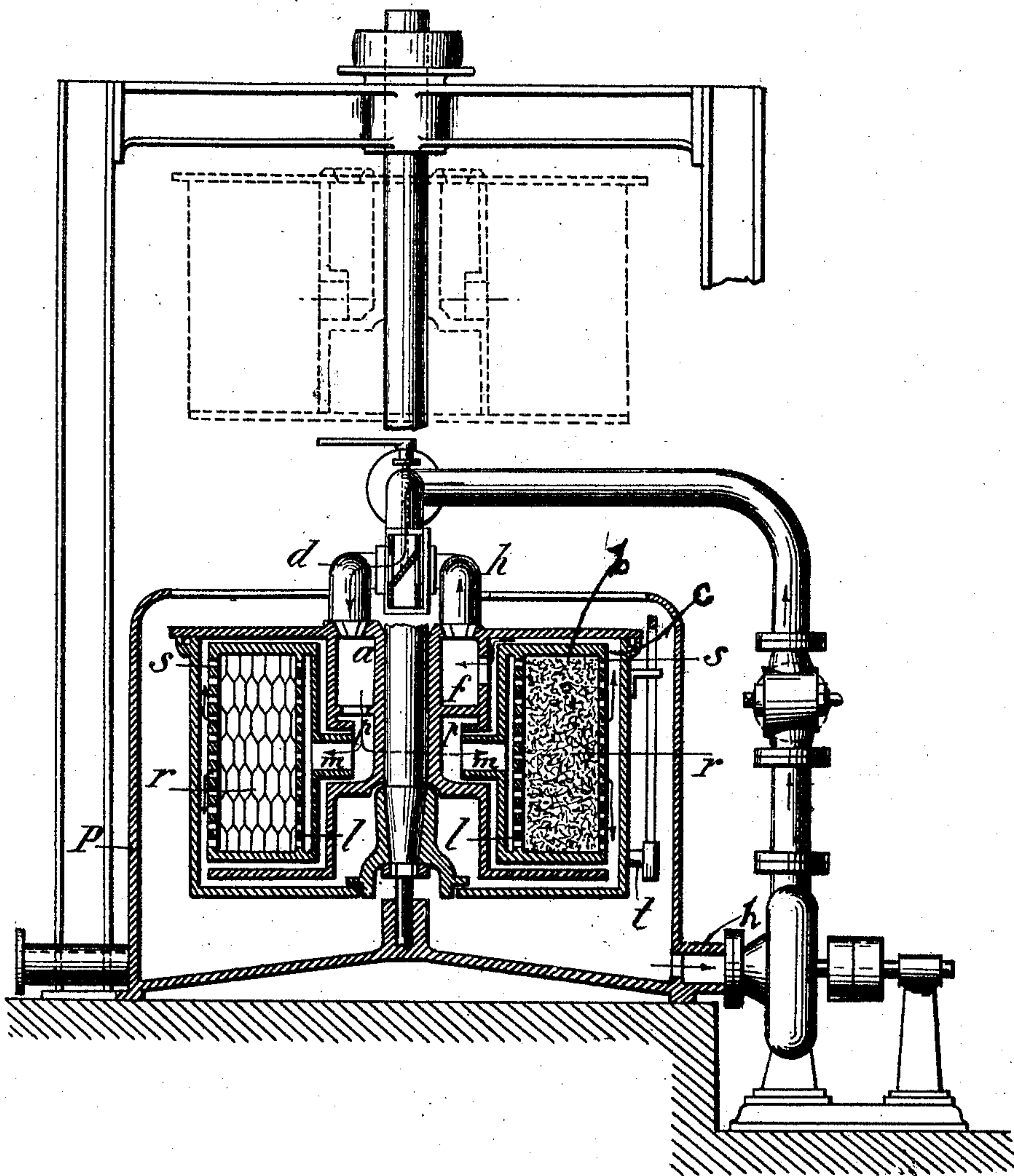
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5 SHEETS—SHEET 3.

Fig. 1.



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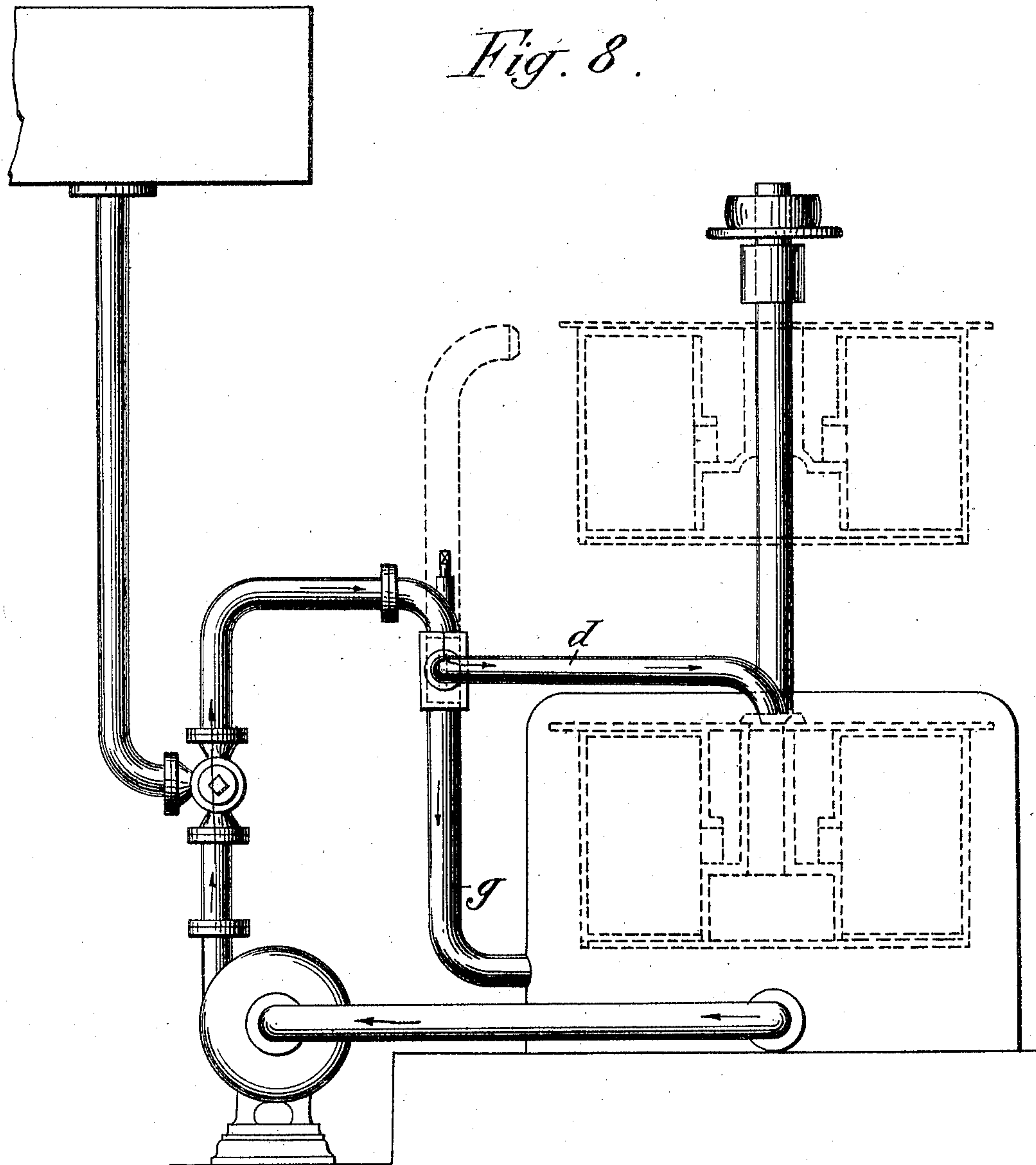
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NO MODEL.

5 SHEETS—SHEET 4.



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NO MODEL.

5 SHEETS—SHEET 5.

Fig. 11.

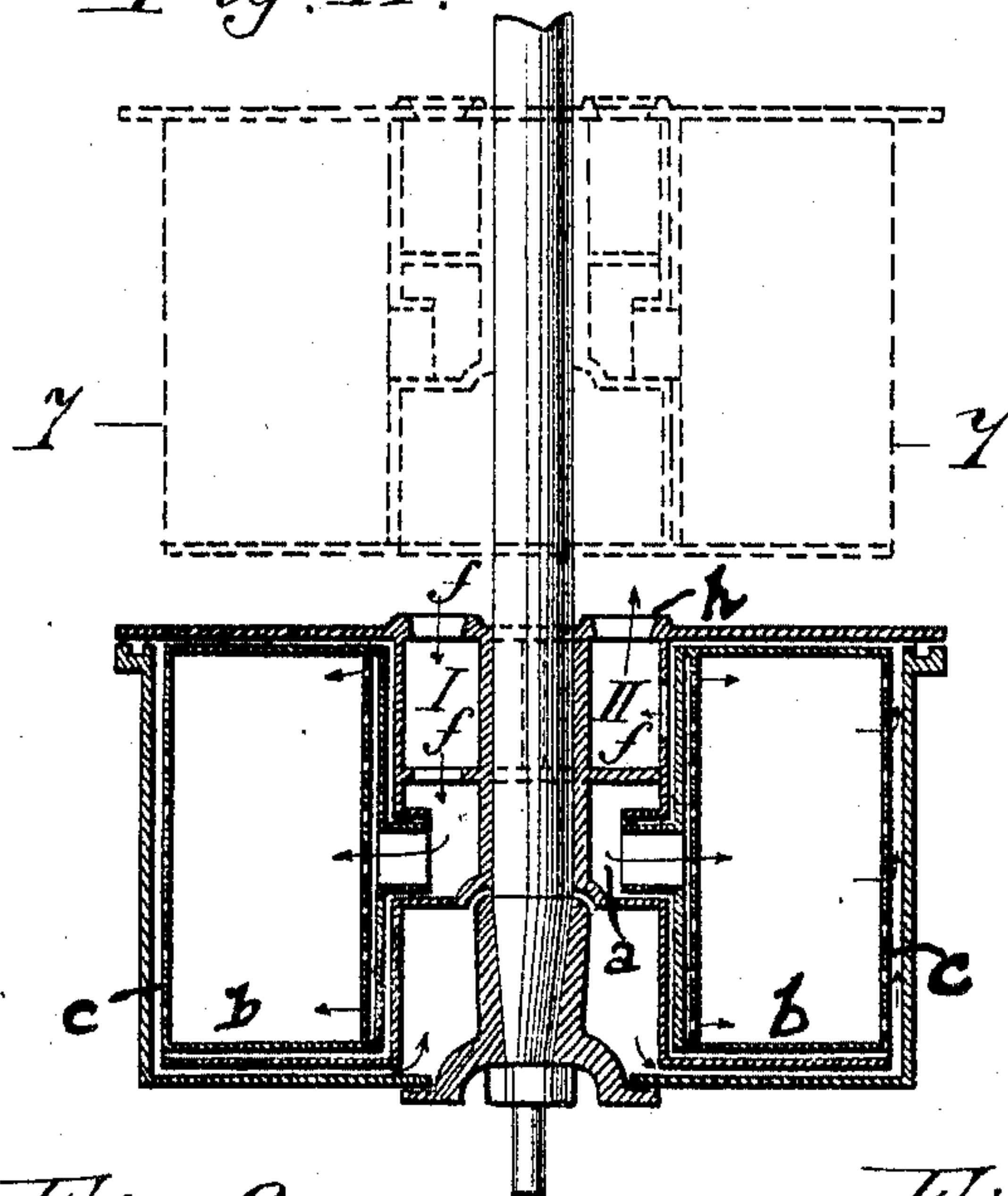


Fig. 9.

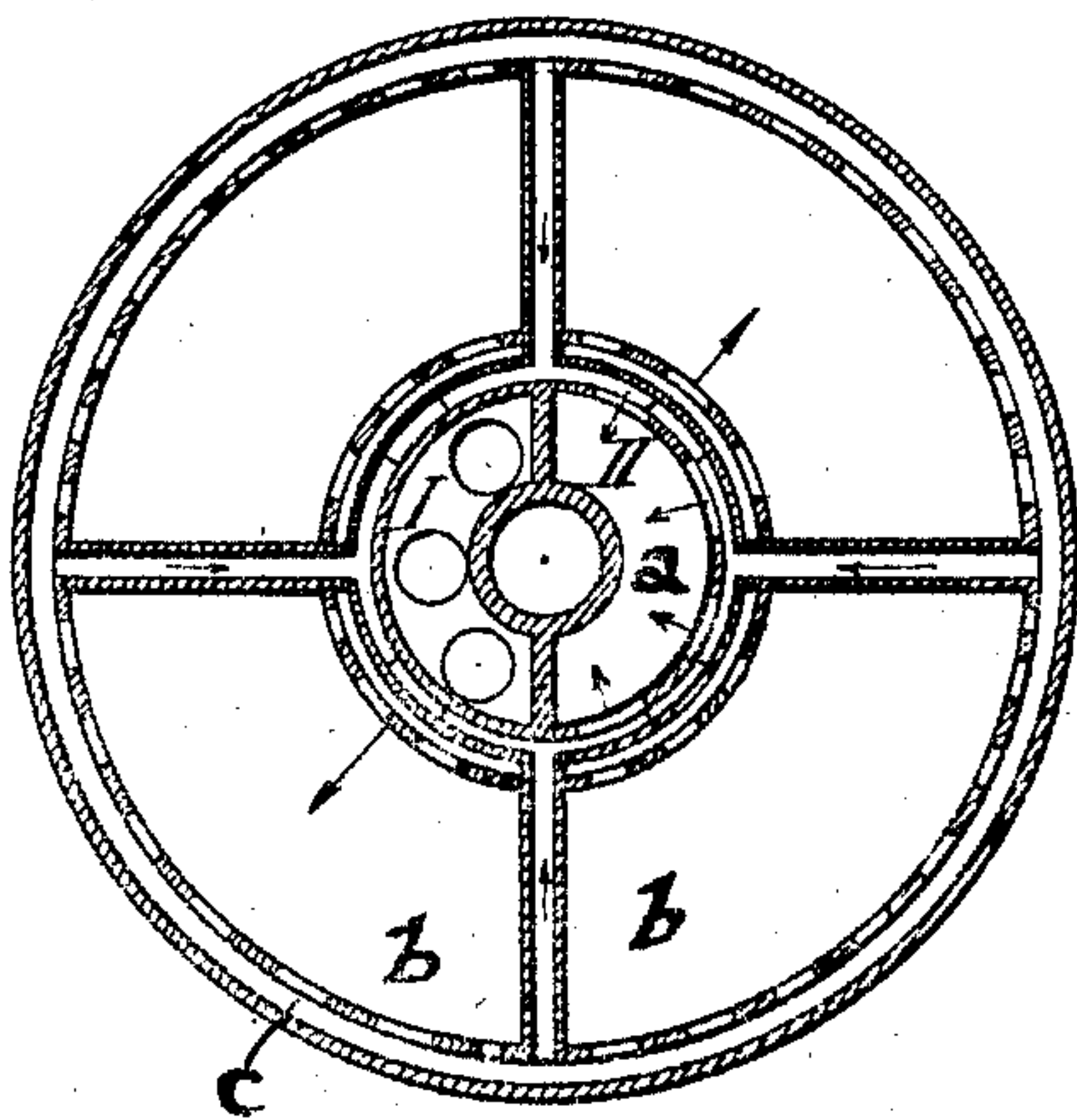
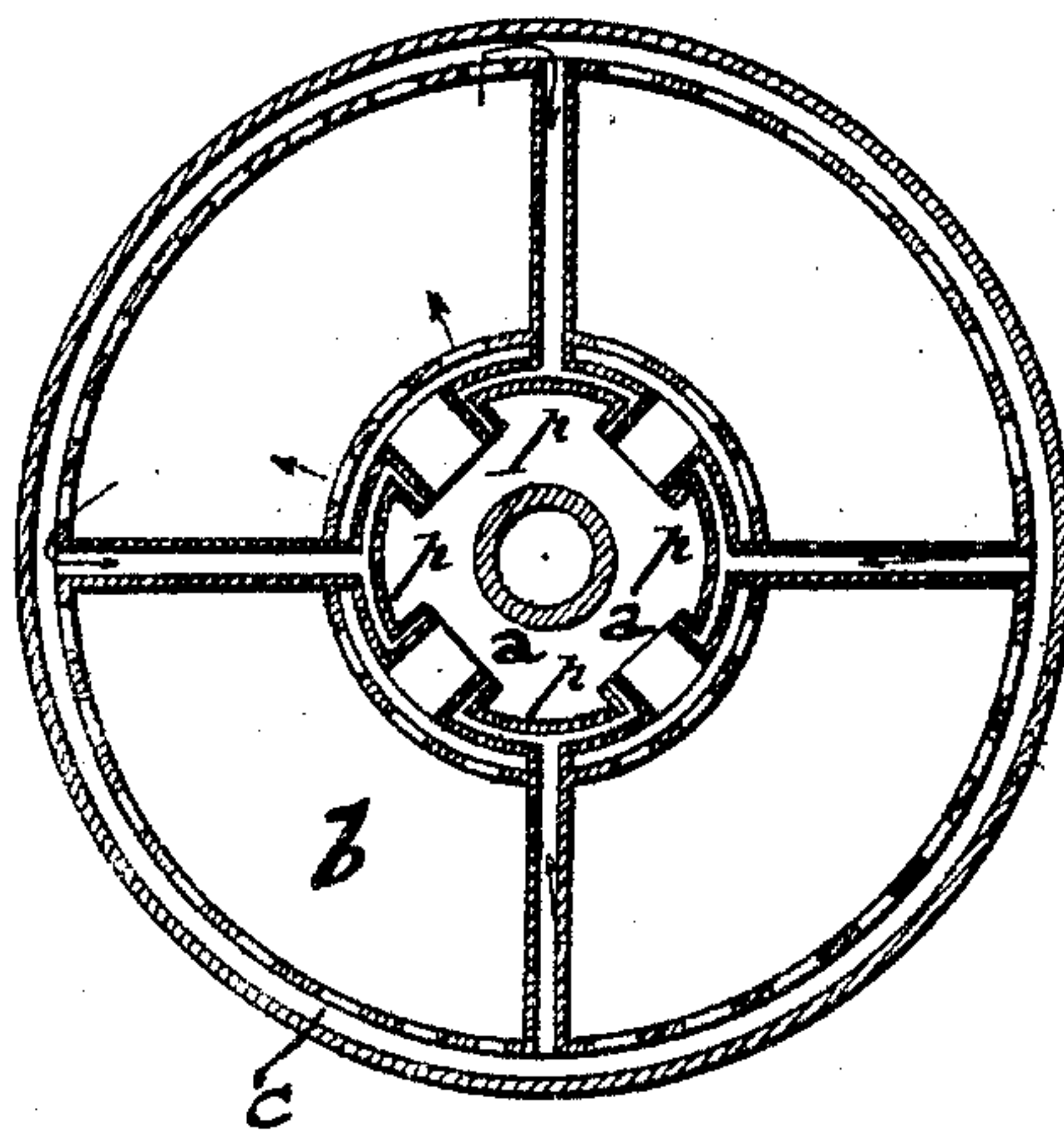


Fig. 10.



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UNITED STATES PATENT OFFICE.

BERNHARD COHNEN, OF GREVENBROICH, GERMANY.

CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 776,295, dated November 29, 1904.

Application filed October 27, 1902. Renewed October 14, 1904. Serial No. 228,412. (No model.)

To all whom it may concern:

Be it known that I, BERNHARD COHNEN, a subject of the German Emperor, and a resident of Grevenbroich, Germany, have invented a Centrifugal Machine for Treating Textile Materials, of which the following is a specification.

The object of this invention is to enable materials, particularly textile materials, to be boiled, treated with mordants, dyed, washed, &c., in the same machine without its being necessary as at present to remove the materials at each stage of the treatment from the apparatus in which they have been treated in order to place them in the centrifugal machine and remove them from there again into the apparatus in which they are treated. On the contrary, the machine enables the centrifugalizing to be effected in the one machine, if necessary, and, according to the state of treatment, without the necessity of shifting the materials to be treated.

In the drawings forming a part of these specifications, and to which particular reference shall be had, Figures 1, 2, and 3 are detail views in section of the cylinders. Fig. 4 is a vertical section showing the chambers with inlet and outlet means therefor. Figs. 5 and 6 are detail sectional views showing the internal arrangement of the chambers. Fig. 7 is an elevation of the machine, parts being shown in section. Fig. 8 is a perspective of the machine. Figs. 9 and 10 are detail sectional views showing the interior arrangement of the drums. Fig. 11 is a vertical sectional view showing the drums in position.

For this purpose I employ a drum of a centrifugal machine, Fig. 1. In this drum I arrange an internal cylinder *a*, which communicates through the pipe *d* with a pump. This cylinder is surrounded by a chamber *b* for receiving materials, which in turn is surrounded by another chamber *c*, which is located between the outside of the chamber for the materials and the drum-casing. This casing is not perforated in the usual way, but provided only with valves *t*, Fig. 7, which are closed during the treatment of the materials. All the sheet metal between the different chambers is perforated, so that, for example, the

liquid forced into the chamber *a* must pass through the chamber *b*, which is filled with material, then entering the outer chambers for the liquid, whence it again passes to the pump through the pipes *f*, which lead there- to. The liquid thus moves in a cycle. The pipes are mentioned here simply by way of example. Generally they are otherwise arranged.

All the different kinds of treatment which the material is to undergo must be carried out while the drum is at rest. After each kind of treatment the valves *t* are opened, the connecting-pipes are removed, and the centrifugal action can be carried out in the usual manner.

The principle of the invention thus consists in the arrangement within the drum of the centrifugal machine (*a*) of the internal chamber for the liquid, (*b*) of the chamber for the material, (*c*) of the external chamber for the liquid. There are three means for forcing the liquid through the compartment or compartments for the material: first, from the center *a* through the compartment *b* for the material to *c*; second, from the outer compartment *c* through the compartment *b* to *a*; third, during the same phase alternately through *b* toward *c*, and reversely. The different compartments may thus be divided as illustrated in Figs. 10 and 11.

One practical form of the machine is as follows: The interior chamber for the liquid is composed of a cylinder which is divided into two parts, Figs. 7, 9, 10, and 11. The lower part *p* is joined to the pipe *d*. Into this chamber *p* run pipes, Figs. 7 and 10, which are fixed to boxes *r*, more or less filling the chamber for the material. The liquid forced into the inner space must at the same time pass through the material contained in the boxes *r*, Fig. 7, since it is distributed over the whole of the bottom through the "perforated head" 1. These internal boxes or baskets thus form the chamber for the material. The liquid then passes through the perforated covers *s* of the baskets and the external casing of the drum. Thence the liquid is conducted by suitable channels into the upper space of the cylinder *a* and from there through the pipe *h* to the pump, Figs. 7 and 11. Here, also, the liquid can be conducted

through suitable cocks from the exterior to the interior or be caused to work through the same phase of treatment alternately from the interior to the exterior and from the exterior to the interior. Instead of passing from the center to the circumference the liquid may be conducted concentrically through the material to be treated, starting from chambers running radially through the chamber for the material and after passing through the material to be treated entering another compartment, whence the liquid flows again to the pump. Thus in this case there is likewise an outer chamber for the liquid, a central compartment for the material, and a further compartment for the liquid.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a centrifugal machine for treating textile materials, the combination of a closed centrifugal drum, a series of compartments arranged within the said drum and in communication with each other, means connecting the first of said series of compartments with a

pump for forcing dye liquid thereto, and means connecting the last of said series of compartments with said pump, whereby the liquid is returned thereto after passing through said compartments, substantially as described.

2. In a machine of the type set forth, the combination of a closed centrifugal drum, a series of concentrically-disposed chambers arranged within the said drum, said chambers being in communication with each other, the interior one being connected with a pump for supplying liquid to the same, the central chamber being provided with perforated sides and adapted to receive the material, and the outer chamber forming a second liquid-compartment, and means connecting the last-named chamber with said pumps for returning the liquid thereto, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

BERNHARD COHNEN.

Witnesses:

PETER LIEBER,

WILLIAM ESSENWEIN.