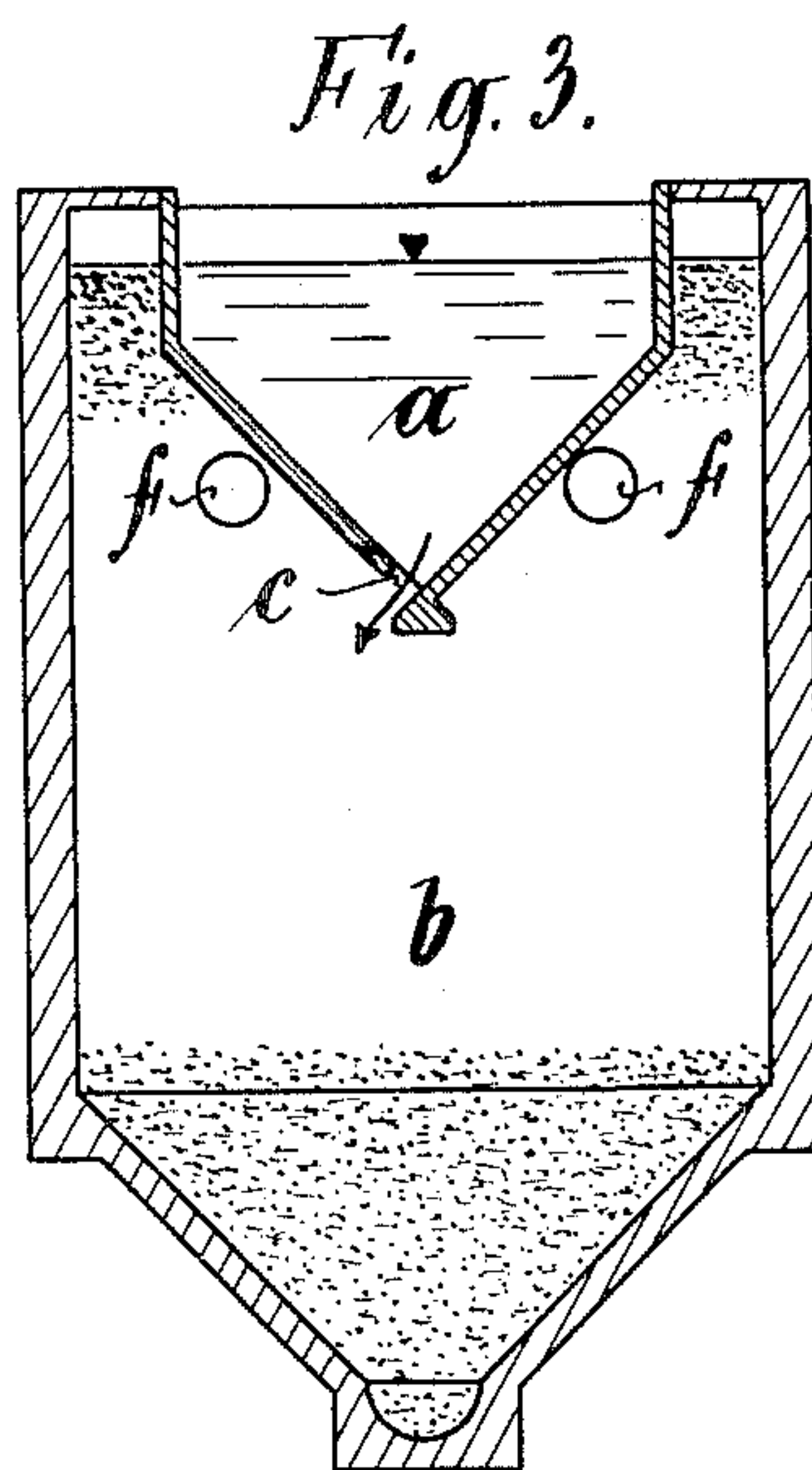
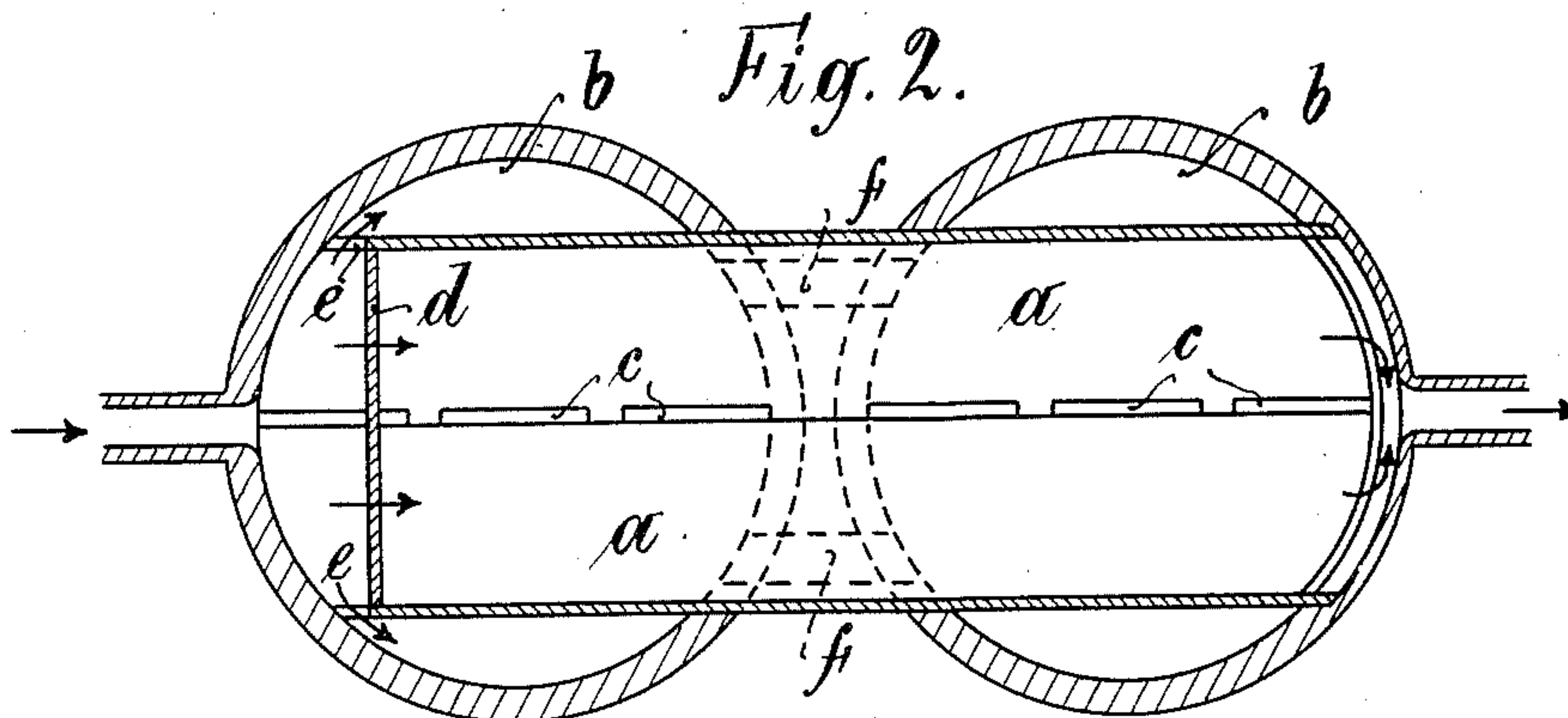
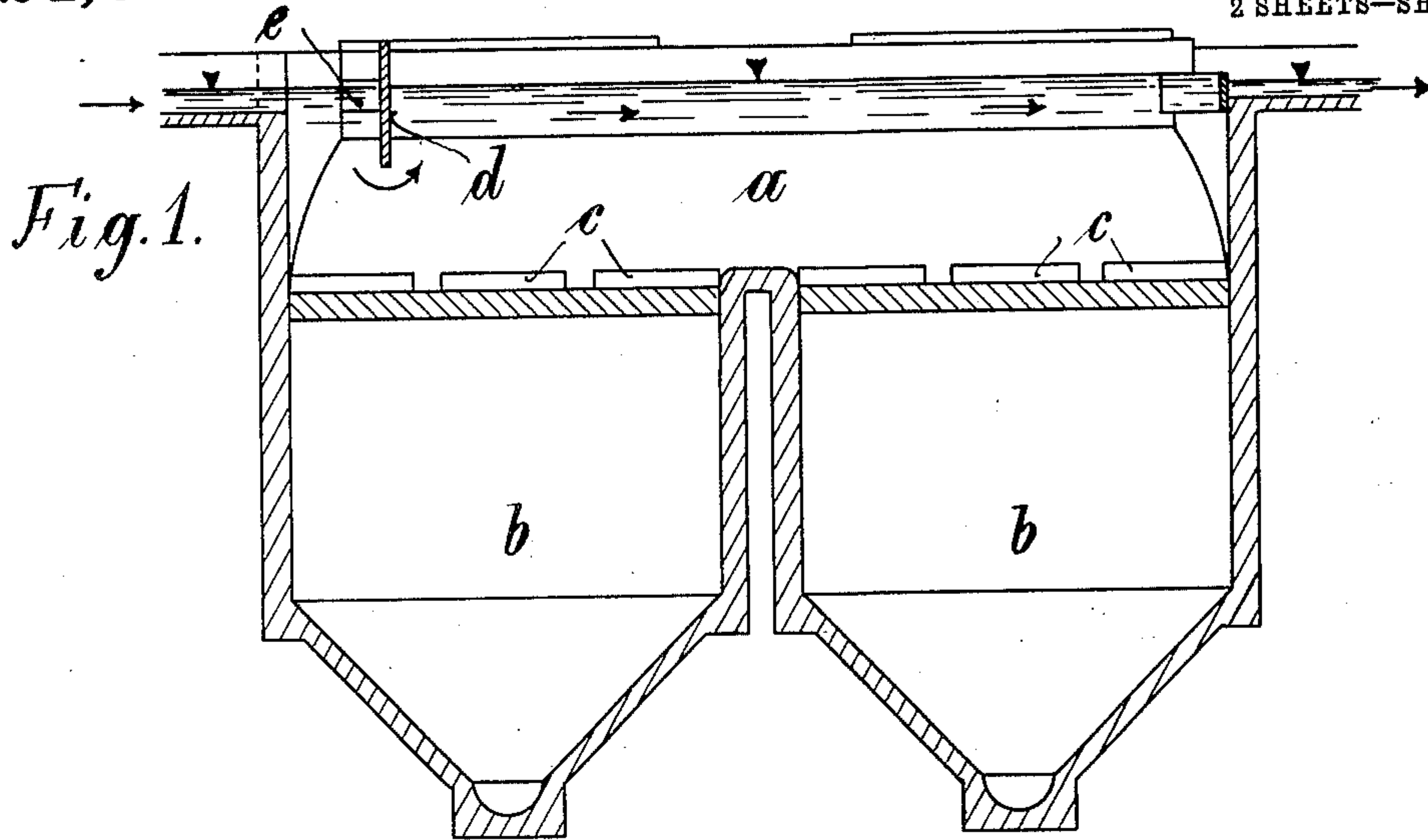


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SEWAGE TREATMENT APPARATUS.  
APPLICATION FILED MAY 6, 1907.

924,664.

Patented June 15, 1909.

2 SHEETS—SHEET 1.



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Fig. 4.

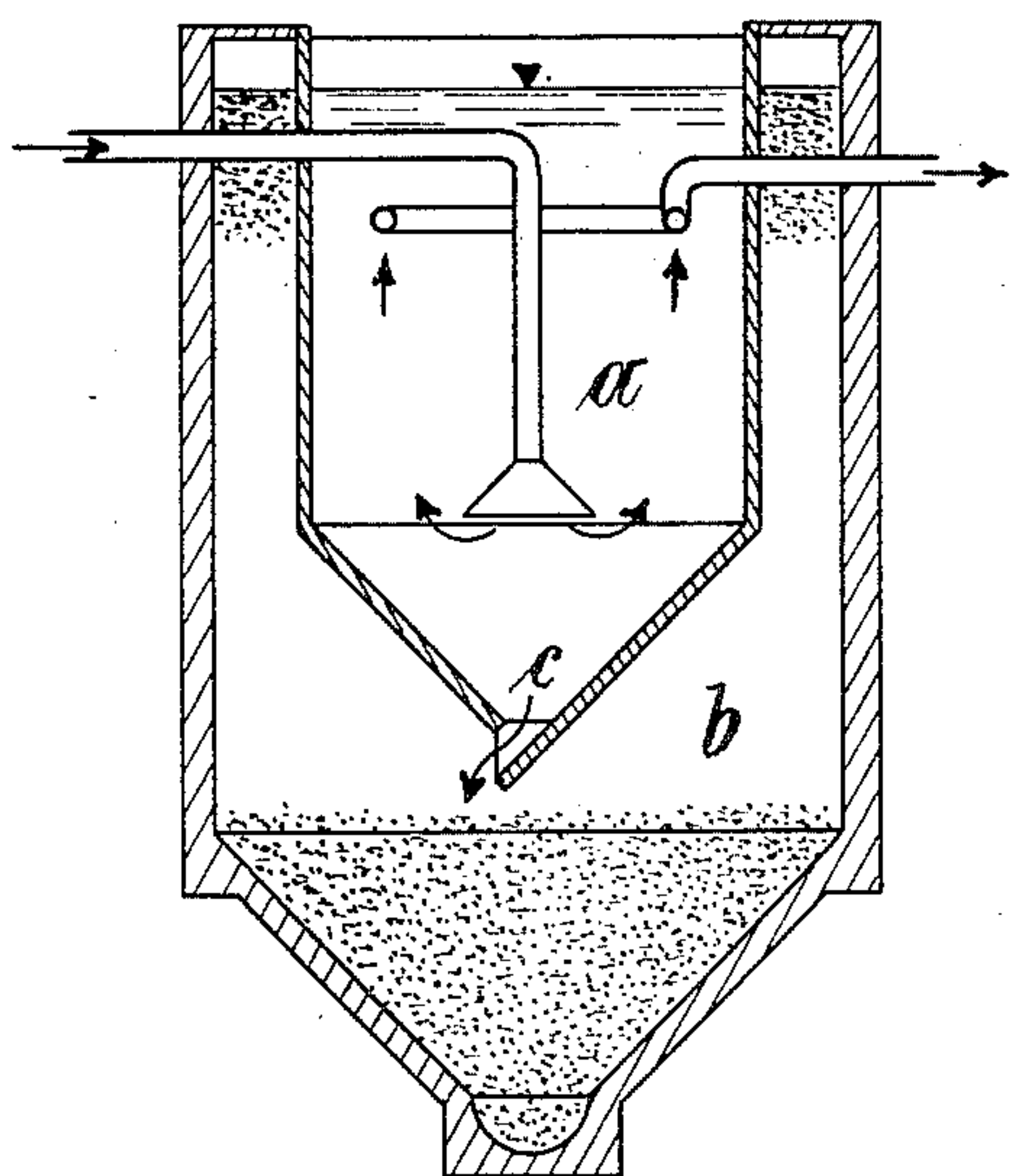


Fig. 6.

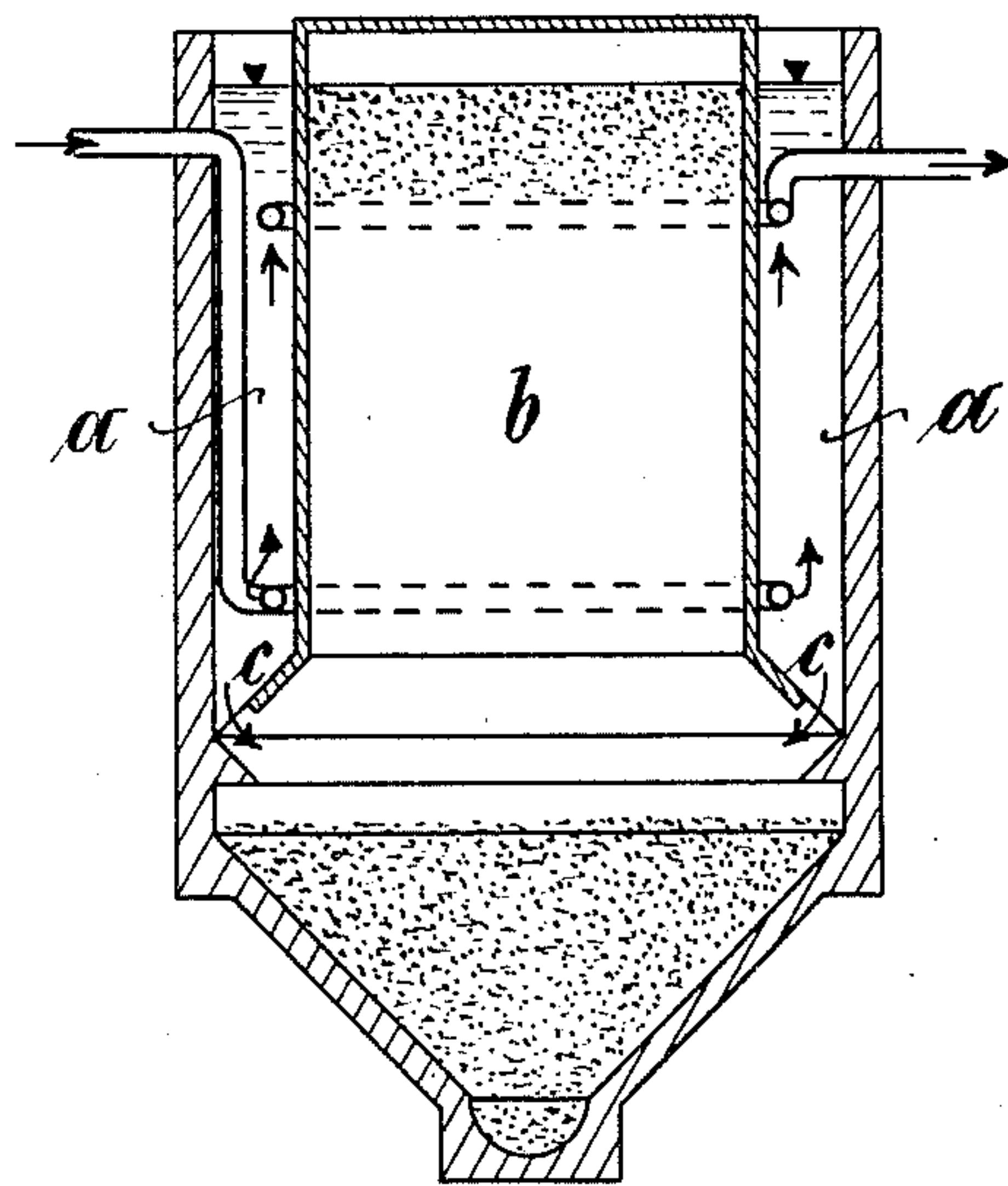


Fig. 5.

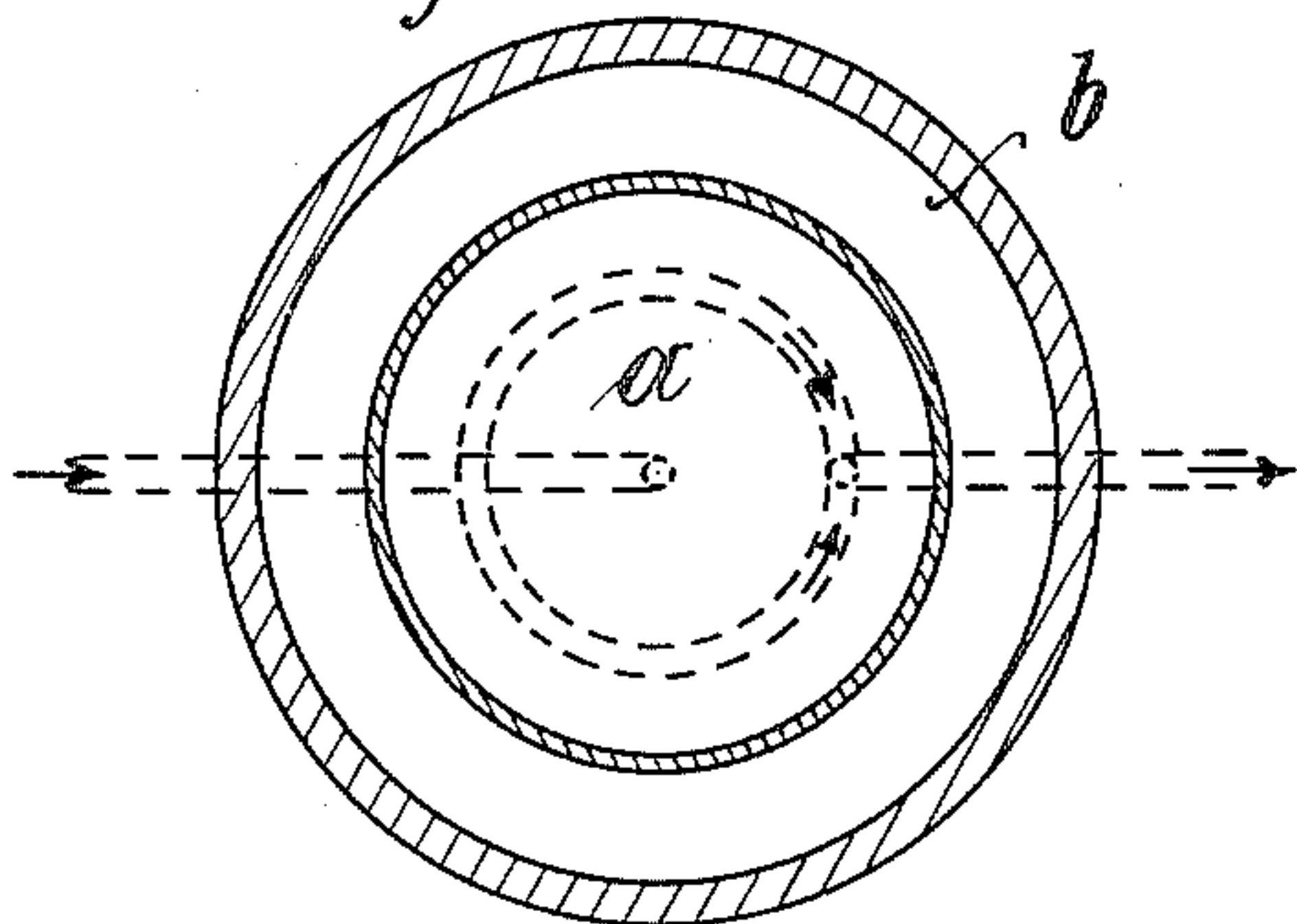
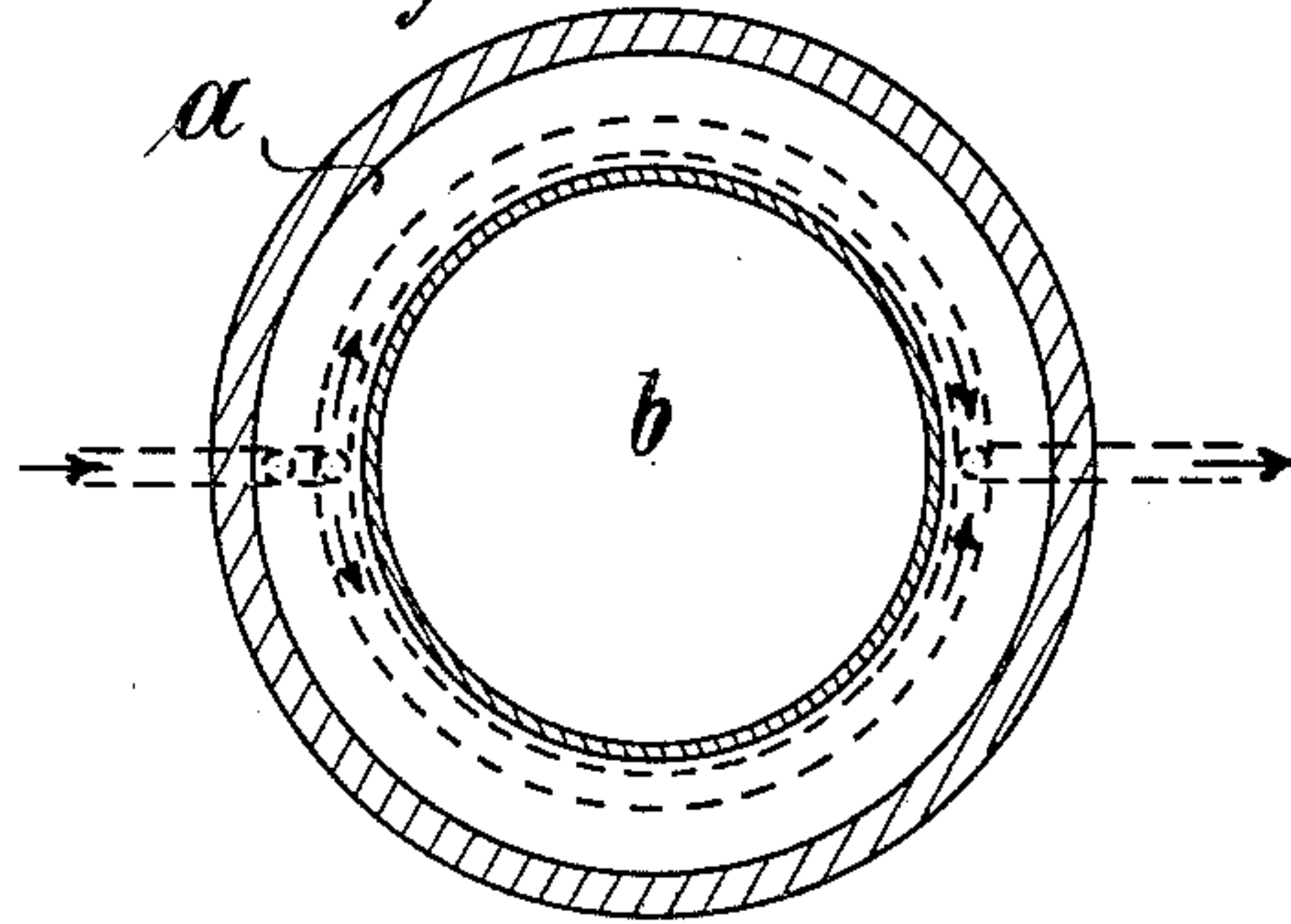


Fig. 7.



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# UNITED STATES PATENT OFFICE.

KARL IMHOFF, OF BREDENEY, NEAR ESSEN-ON-THE-RUHR, GERMANY.

## SEWAGE-TREATMENT APPARATUS.

No. 924,664.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed May 6, 1907. Serial No. 372,121.

*To all whom it may concern:*

Be it known that I, KARL IMHOFF, a subject of the King of Bavaria, residing at Bredene, near Essen-on-the-Ruhr, in Germany, have invented a Sewage-Treatment Apparatus, of which the following is a specification.

The basins and wells (also towers) used for the mechanical purifying of waste water are worked according to the depositing process or according to the decomposing process. When the depositing process is used the mud is frequently removed in order to prevent decomposition. The advantage thus secured is that the water remains fresh, but there is also the disadvantage that a large quantity of wet mud, difficult to dry, must be disposed of. In the case of the decomposing process the mud is left in the water for a long time to become decomposed. In this case the bulk of the mud is considerably reduced, and it is more easily dried, but there is the disadvantage that the water becomes tainted by the decomposition and is liable to carry away the particles of mud in a state of suspension, and this is frequently inconvenient and injurious.

The object of this invention is to combine the advantages of the depositing process (which keeps the water fresh) with the advantages of the decomposing process (which allows of more easily disposing of the mud). Apparatus for this purpose is shown in the annexed drawings in which—

Figures 1, 2 and 3 are respectively a vertical section, a sectional plan and a cross-section of one form of the apparatus. Figs. 4 and 5 vertical and horizontal sections of a modified form and Figs. 6 and 7 similar sections of another modified form.

The depositing chamber *a*, a basin or well, is connected to a well or wells *b* forming a mud decomposing chamber in such a manner that the impurities separated pass into the decomposing chamber *b*, in order to become decomposed therein, but so that the process of decomposition does not affect the fresh, flowing water in the depositing chamber *a*, or only affects it very slightly.

In the decomposing well there are formed, as is the case in all decomposing chambers, a floating layer and a bottom or ground layer of mud. Between these two layers is the clarified, decomposing liquid, which is in communication with the water in the depositing chamber. The mud particles driven upward and downward by the gases evolved

remain in the decomposing well. If the decomposing well is covered the said gases are removed by a ventilator. When decomposed, the mud can be easily removed at intervals from the deepest part of the decomposing well.

The details of construction of the decomposing well and depositing chamber vary according to circumstances. Various constructions embodying the invention are shown by way of example in the annexed drawing.

In Figs. 1, 2 and 3 are shown two decomposing wells *b* with a depositing basin *a*. In this construction the basin *a* is placed over a well or wells *b* in such a manner that the mud passes uninterruptedly through bottom apertures *c* into the well or wells *b*. The floating bodies in the fresh water are held back by a wall or barrier *d* and pass through apertures *e* into the well *b*. The wells may be connected by additional orifices, for example at *f*, in order that they are traversed very slowly by water.

Figs. 4 and 5, and also Figs. 6 and 7, are sections and plan views of decomposing wells in conjunction with depositing wells. The depositing well *a* is, for example, either within the decomposing well *b* (Figs. 4 and 5), or is annular and external (Figs. 6 and 7). The mud flows to the decomposing well *b* from the deepest parts of the depositing well *a*. In this case also the floating bodies in the fresh water may be kept back by a wall or barrier, as in the construction shown in Figs. 1 to 3, and may be conveyed to the decomposing well by a conduit provided for that purpose.

What I claim as my invention and desire to secure by Letters Patent of the United States is:—

1. In sewage treatment apparatus the combination of a depositing chamber having a mud outlet at the base thereof, a mud decomposing chamber below the depositing chamber adapted to receive the deposited mud, means for preventing the return of gases and rising particles from the decomposing chamber to the depositing chamber and means for providing a flow of liquid through the depositing chamber without disturbing the quiescence of the decomposing chamber.

2. In sewage treatment apparatus the combination of a depositing chamber the sides of which converge to a mud outlet at

the base thereof and one of said sides being prolonged to extend past the vertical plane through the edge of the other of said sides, a decomposing chamber below the depositing chamber said decomposing chamber extending upward above the level of the said mud outlet and means for providing a flow of liquid through the depositing chamber with-

out disturbing the quiescence of the decomposing chamber. 10

In witness whereof I have signed this specification in the presence of two witnesses.

KARL IMHOFF.

Witnesses:

ALFRED POHLMAYER,  
M. ENGELS.