

No. 756,375

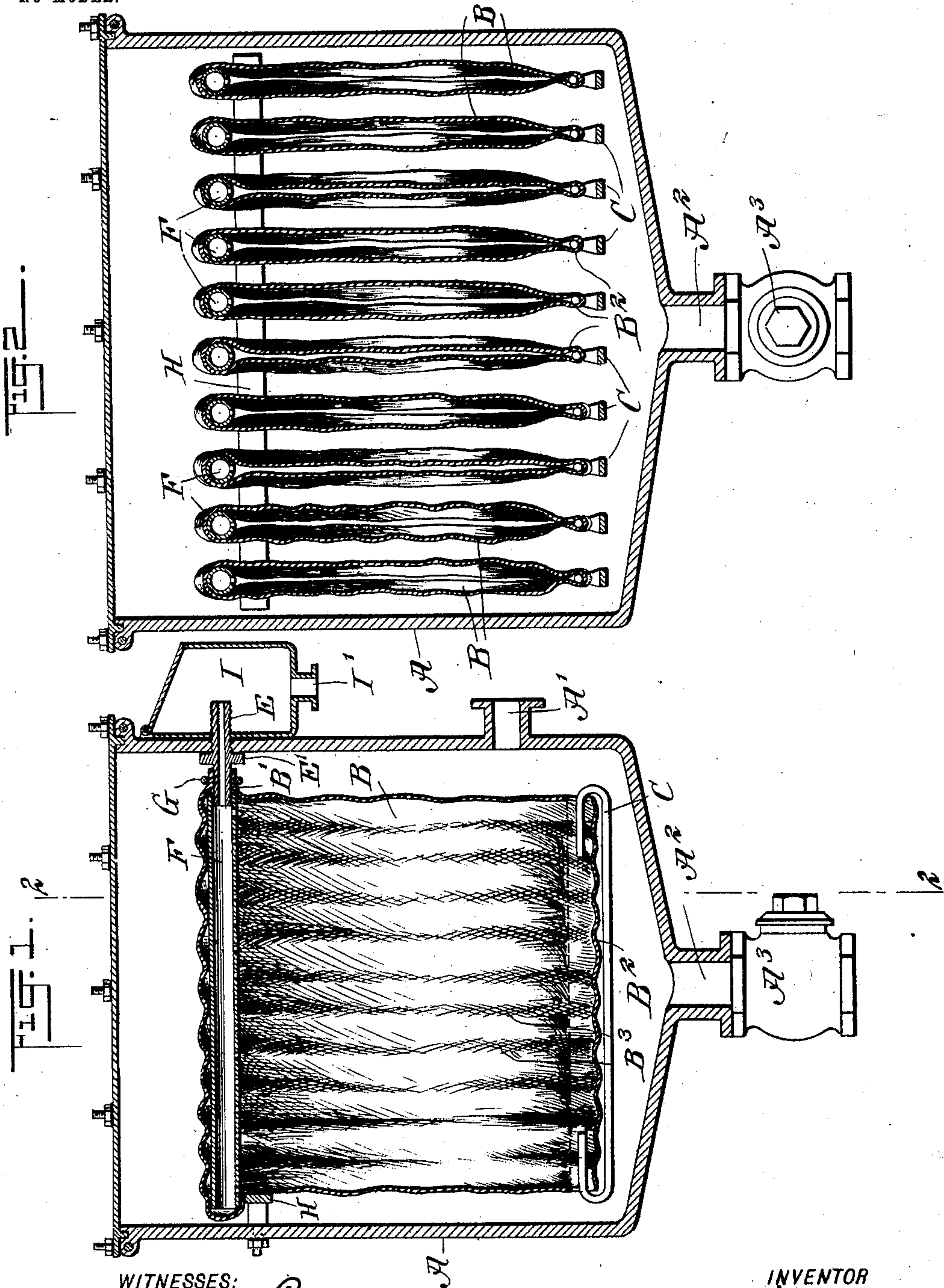
PATENTED APR. 5, 1904.

W. KATHOL.
FILTER.

APPLICATION FILED JULY 3, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

Julius W. Lutz
John A. Stehmbach

INVENTOR

William Kathol

BY

Brin & Smith
ATTORNEYS

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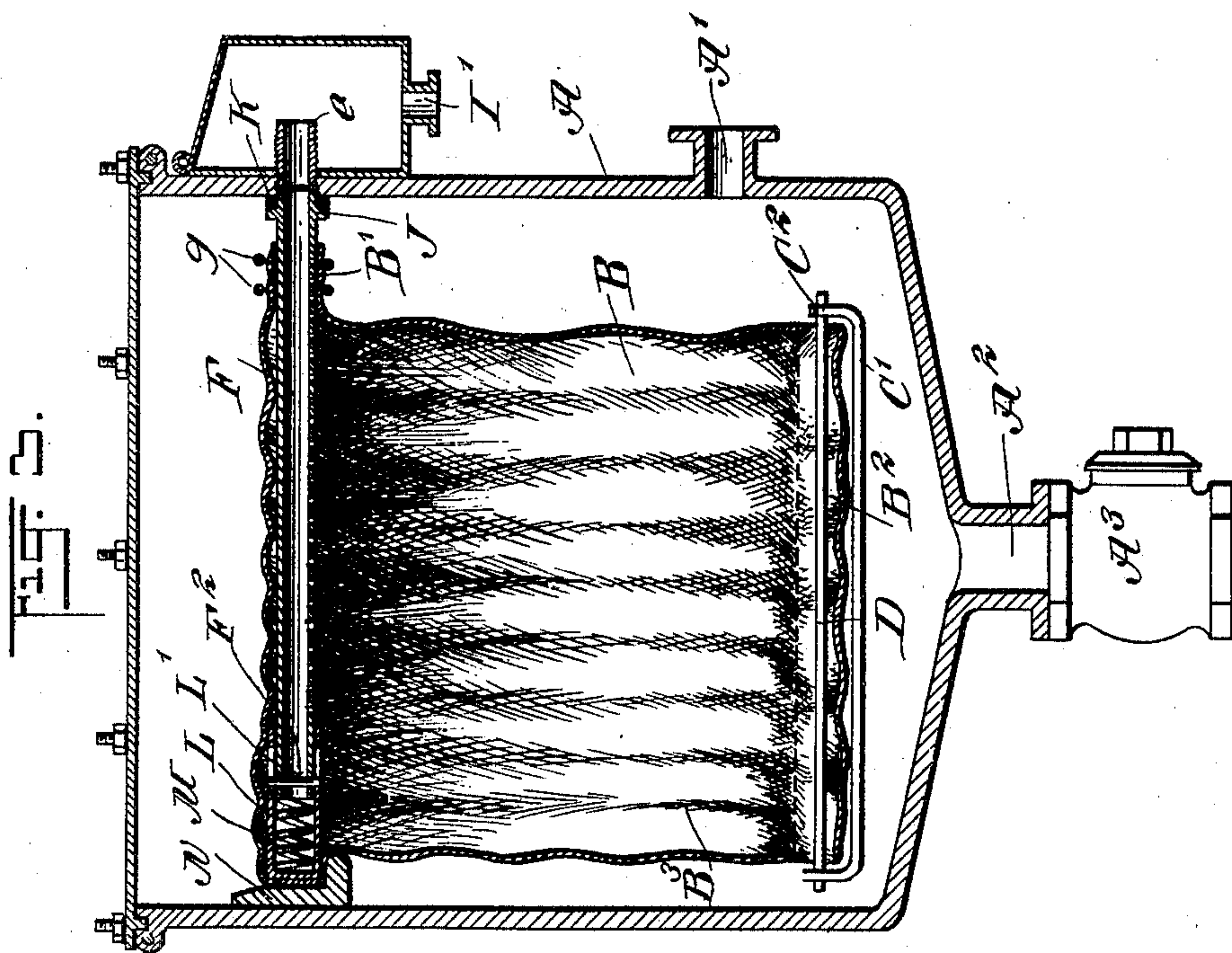
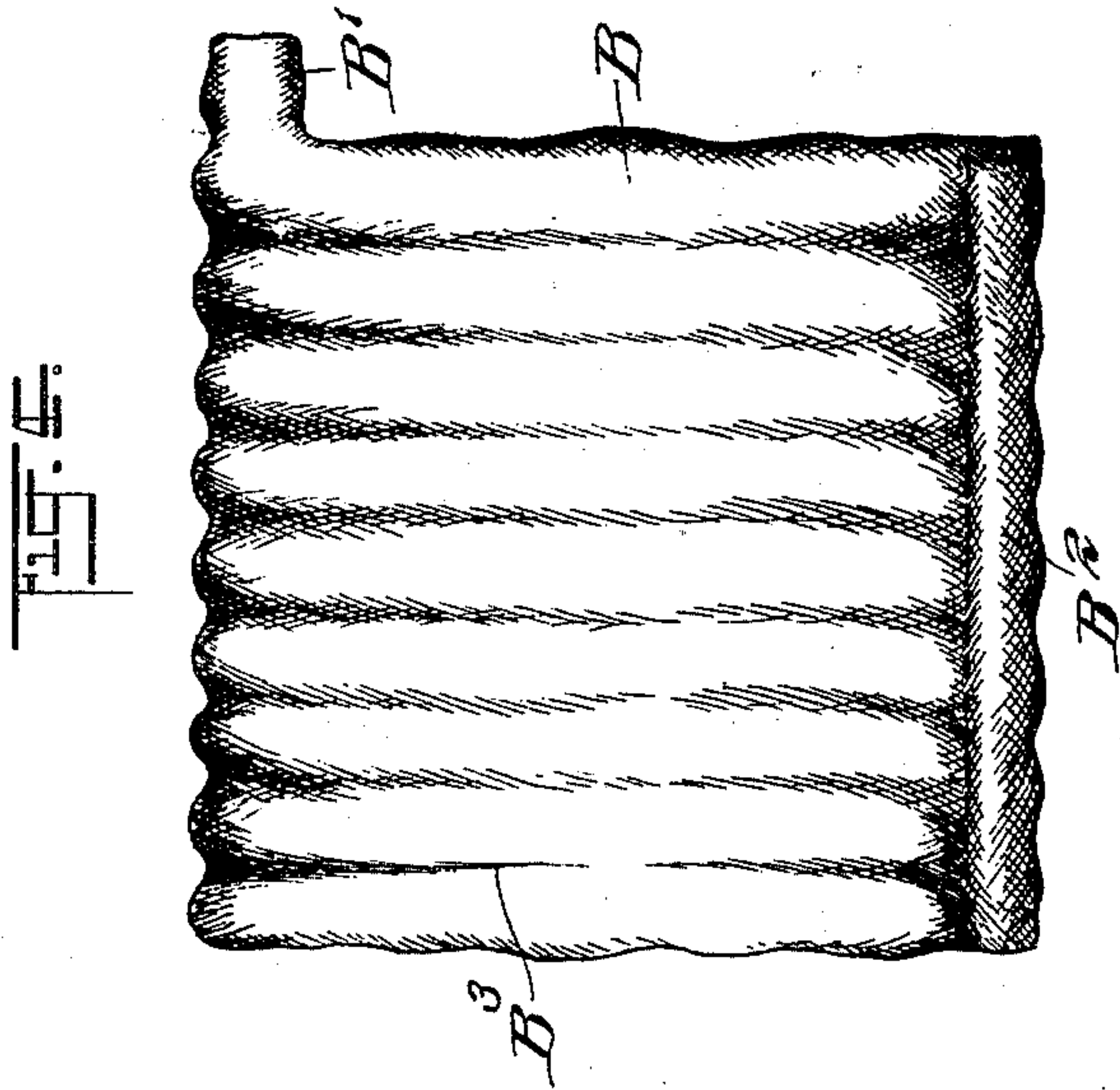
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FILTER.

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NO MODEL.

2 SHEETS—SHEET 2.



WITNESSES:

Julius H. Katz.

John A. Kehlentreck.

INVENTOR

William Kathol

BY

Brieser & Thranitz
ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM KATHOL, OF VAILSBURG, NEW JERSEY.

FILTER.

SPECIFICATION forming part of Letters Patent No. 756,375, dated April 5, 1904.

Application filed July 3, 1903. Serial No. 164,140. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KATHOL, a subject of the Emperor of Germany, and a resident of Vailsburg, Essex county, New Jersey, have invented certain new and useful Improvements in Filters, of which the following is a specification.

My invention relates to filters, particularly of the class employed in the manufacture of sugar.

The object of my invention is to provide an improved filter of this character which will be very compact and efficient and in which the danger of leakage will be reduced to a minimum.

The invention will be fully described hereinafter and the features of novelty pointed out in the appended claims.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a filter embodying my invention. Fig. 2 is a cross-section of the same on line 2 2 of Fig. 1. Fig. 3 shows another embodiment of my invention, and Fig. 4 is a front elevation of one of the filter-bags.

My improved filter is especially designed for allowing the material to be filtered to pass inwardly through the walls of the filter-bags and to be then discharged from the interior of the bags.

A is a tank constructed in any suitable manner and, as shown, provided with an inlet A' for the material to be filtered.

A² is an outlet for unfiltered material and is normally closed by a valve A³.

The tank may be closed at the top, as shown, or open, if preferred, in which case the hydrostatic pressure of the liquid in the tank would be relied upon to force the liquid into and through the filtering-bags B. These bags are located side by side, as shown in Fig. 2. Each bag is substantially rectangular in shape (see Fig. 4) and is closed at all sides with the exception of a sleeve B', arranged laterally at the top of the bag. The bags are made of a material that is pervious to the liquid to be filtered. At the bottom each bag is preferably weighted, so as to keep it in a vertical position. For this purpose the lower

end of the bag may be formed with a horizontal sheath B² open at the ends to receive either a metal bow C, Fig. 1, or a rod D, Fig. 3, on which a U-shaped bow C' is fitted by means of eyes C². In either event the distance between the parallel or vertical members of the bow should preferably be smaller than the width of the bag, so as to form the latter into a series of vertical folds B³.

For supporting the filter-bags and forming them into folds at the top also and for discharging the filtered material therefrom the following constructions may be employed, Figs. 1, 2, and 3:

As illustrated by Figs. 1 and 2, a horizontal discharge-tube E is secured to the tank A—for instance, by screwing—a collar E' determining the position of said tube. Upon the inner end of the tube is fitted loosely a perforated pipe F, which extends horizontally within the bag B, at the top thereof. The sleeve B' fits over the contiguous ends of the pipe F and tube E, and a liquid-tight joint is formed by means of a wire or cord wrapping or by means of a rubber ring G. The free end of the pipe F rests on a supporting-rail H, secured to the tank A. The tubes E are arranged to discharge into a collecting-trough I, provided with an outlet I'.

In the form of construction represented in Fig. 3 the pipe F fits into an aperture of the tank adjacent to the end of the discharge-tube e, screwing into said aperture. The sleeve B' is placed over the pipe F and tightly joined thereto by means of rubber rings g or other wrapping. A collar J is fitted rigidly on the pipe F adjacent to the outlet thereof. A rubber gasket K is interposed between the wall of the tank and the adjacent end of the collar J. The other end of the discharge-pipe is fitted with a sliding joint to an extension L and a spring M tends to force the extension outwardly against a rail N. Preferably the discharge-pipe fits into the extension L, and is provided with a cross-pin F², moving in slots L' of the extension L. By this construction a tight joint will be produced at the gasket K. The discharge-pipe F communicates with the interior of the bag either simply at the through end of the pipe or by means of per-

forations, as shown, or the pipe may be provided with a slit or slits.

In operation the liquid enters through the inlet A' and rises above the pipes F, so as to entirely surround the filter-bags B. These bags, as above described, are held so as to form vertical folds. This is of great advantage, first, in that the bags will have a large filtering-surface and yet occupy a relatively small space, and, second, a series of vertical channels are formed in the bags, as will appear best from Fig. 2, so that the filtered liquid may readily rise and reach the discharge-pipe F. There is but one joint of the bag to be protected against leakage, and the sleeve B' with the wrapping of cord, wire, or rubber will efficiently prevent leakage at this point. The bags are not liable to become torn or otherwise injured during handling, as there are no metallic parts in the filtering portion of the bag except the discharge-pipe F. By actual trial I have found my filter to be very efficient and durable.

I claim—

1. A filter comprising a tank having an inlet and an outlet, a filter-bag within said tank, said bag having a lateral sleeve at the top, and a discharge-pipe connected with said outlet and extending within the bag along the top thereof and through the said sleeve.

2. A filter comprising a tank having an inlet and an outlet, a filter-bag located within said tank and provided with a lateral sleeve at the top, a discharge-pipe connected with said outlet and extending within the bag along the top thereof and through the said sleeve, and a support for that end of the discharge-pipe which is farthest from the outlet.

3. A filter comprising a tank having an inlet and an outlet, a filter-bag located within said tank and provided with a sleeve in line with one of its edges, and a discharge-pipe connected with said outlet and extending within the bag along the said edge thereof and through the said sleeve.

4. A filter-bag of approximately rectangular shape, provided with a lateral sleeve extending beyond one of its corners.

5. A filter-bag of approximately rectangular shape, provided at one of its corners with a sleeve in line with and extending beyond one of its edges.

6. A filter-bag having a corner with a sleeve projecting in line with and beyond one of the edges which meet at said corner.

7. A filter-bag provided with a horizontal top edge and a horizontal sleeve projecting laterally in line with and beyond said top edge.

8. A filter-bag having a transverse sheath and a bow set therein, said bow being of less width than the bag, so as to contract the latter into folds.

9. A filter-bag combined with a transverse contracting device for forming the bag into folds.

10. A filter-bag combined with means for supporting it at the top and a transverse contracting device located at the bottom of the bag to assist in holding it in a vertical position.

11. A filter-bag provided with an outlet at the top and a discharge-pipe extending through said outlet and secured thereto, the length of said pipe being smaller than the width of the bag, so as to contract the latter into folds.

12. A filter-bag combined with means for supporting it at the top and devices for contracting the bag at the top and bottom.

13. A filter-bag having an outlet, a discharge-pipe extending through said outlet and a spring-pressed extension having a sliding connection with said discharge-pipe and adapted to press the latter against a seat.

14. A filter-bag having an outlet, combined with a tank in which said bag is set, a discharge-pipe extending through the outlet of the bag to the outlet of the tank and provided with a shoulder, a compressible gasket between said shoulder and the tank, and a spring-pressed extension arranged at the other end of the discharge-pipe and adapted to press against a stationary part of the tank.

15. A filter-bag provided with an outlet, combined with a tank in which said bag is set, a discharge-pipe which extends through the outlet of the bag to the outlet of the tank, said discharge-pipe being provided with a shoulder, a compressible gasket between said shoulder and the tank, an extension fitted to slide on the other end of the discharge-pipe, and a spring contained within said extension and adapted to press the same against a stationary part of the tank.

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

WILLIAM KATHOL.

Witnesses:

JOHN LOTKA,
EUGENE EBLE.