

(No Model.)

C. K. LAMB.
WATER FILTER.

No. 511,149.

Patented Dec. 19, 1893.

Fig. 1

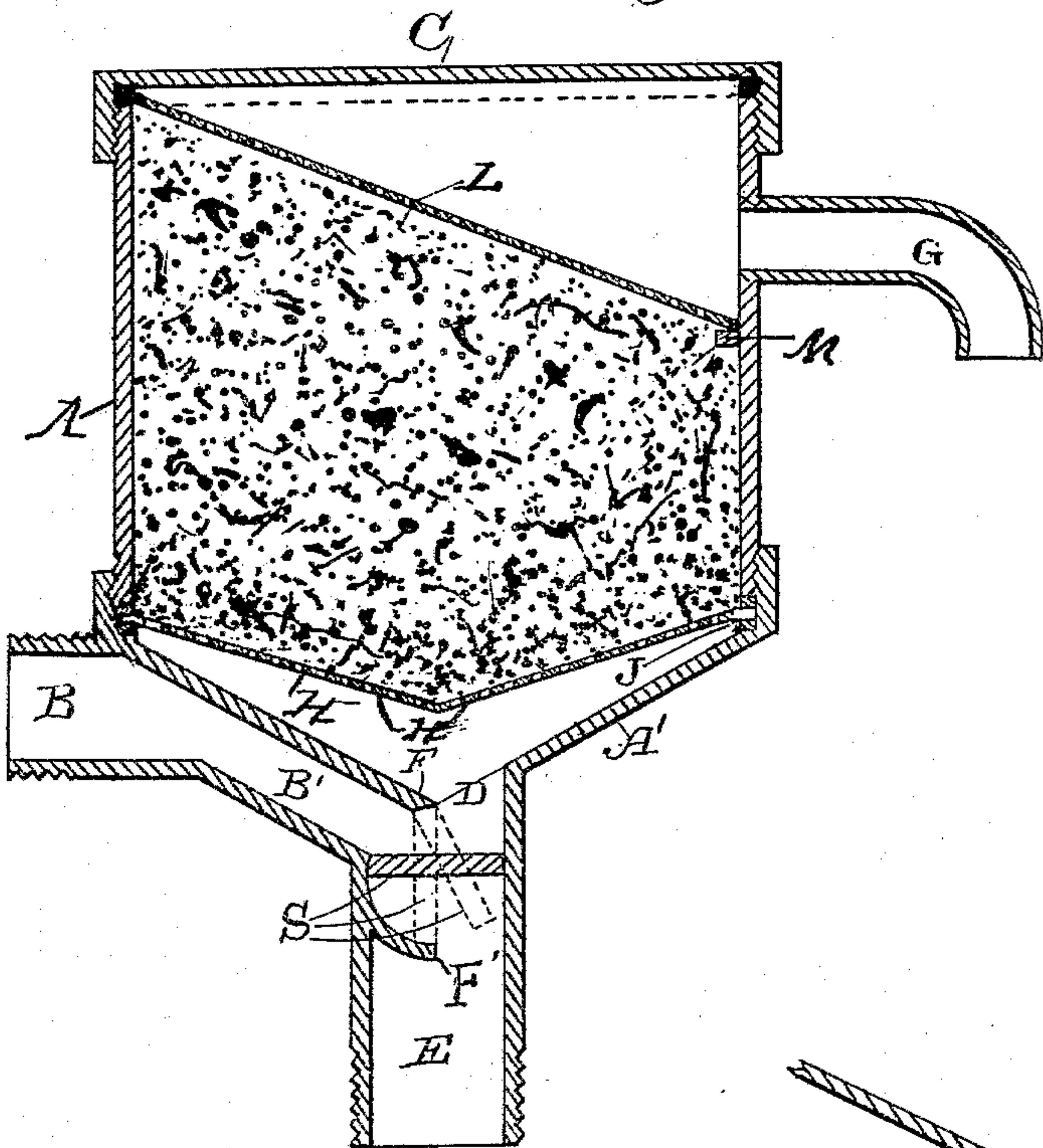


Fig. 2.

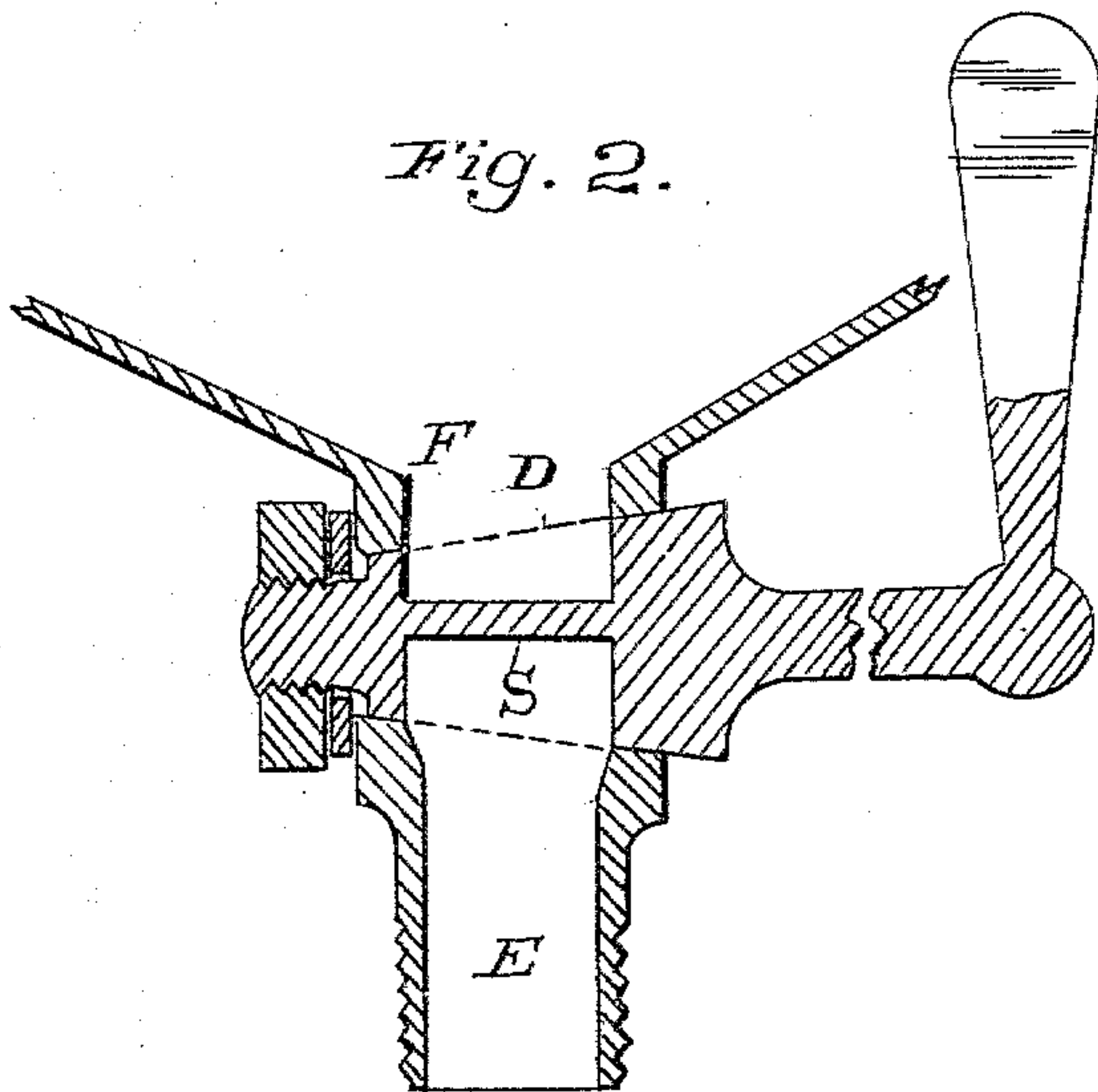
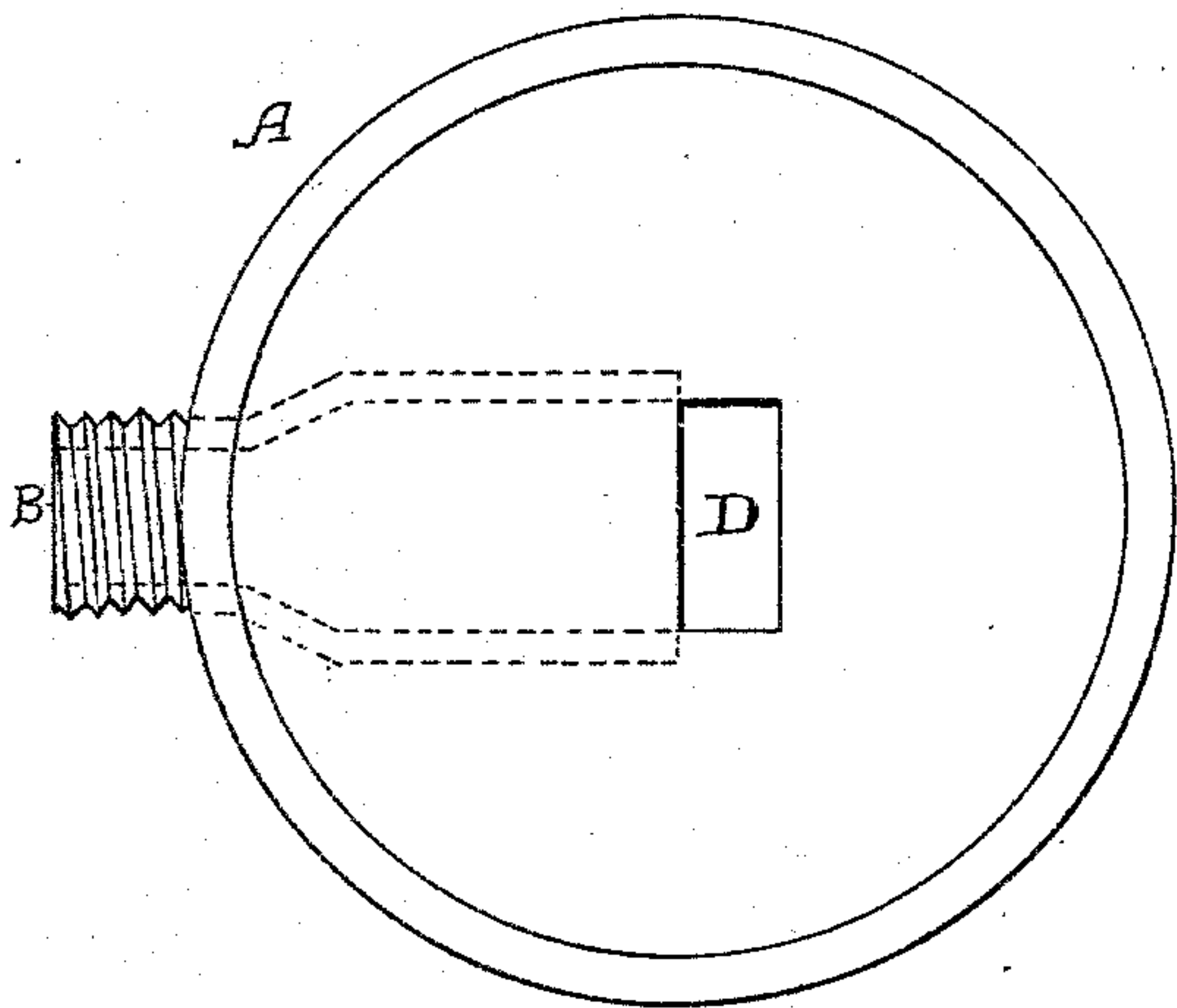


Fig. 3.



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WATER-FILTER.

SPECIFICATION forming part of Letters Patent No. 511,149, dated December 19, 1893.

Application filed August 9, 1892. Serial No. 442,632. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER K. LAMB, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Water-Filters; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in water filters, and it is especially applicable to that class of filter which is designed to be connected directly with a faucet or other source of supply so as to be easily removable and portable, as distinguished from that class of filters which are built as permanent fixtures and on a large scale.

It consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section taken through the center of the filter and passages transversely to the cock or valve. Fig. 2 is a vertical section taken through the filter and in a plane through the longitudinal axis of the cock. Fig. 3 is a plan of the bottom of the filter, showing the central opening which connects with the discharge.

In the construction of my filter, I employ an exterior casing A which may be made of any suitable or convenient material, and of any suitable or desired size. I prefer to make it of such a size that it may be easily attached to and supported from a pipe by means of a screw-threaded inlet nozzle B at one side of the lower part to be hereinafter described. The top of the case is provided with a screw-cap C by which it is hermetically closed, and it may be easily opened for inspection or change of the contents at any time. The lower end A' of the cylindrical portion A is screw-threaded to fit into a correspondingly threaded flange which forms the periphery of the bottom. This bottom is made conical or funnel-shaped, and has situated below it a peculiar cock or valve by which the direction of the water is changed or cut off at pleasure. This cock is fitted into a chamber transversely to the outlet pipe E which extends vertically below the bottom of the filter, and also connects with the passage B' which forms a continuation of the inlet passage B and ex-

tends below the conical bottom of the chamber. The opening D in the bottom of the chamber is rectangular or oblong in shape, as shown, and is in direct line with the discharge passage E below. The cock is provided with a diaphragm S of such shape and position that when the cock is turned with relation to the inlet and other passages, the direction of the water may be changed, or it may be stopped at will. The portion of the discharge passage E which is at the side next the inlet opening is partially closed by a projecting portion F, and has a curved projecting lip F' beneath the same on which the edge of the diaphragm slides.

The operation of the device will then be as follows:—When the cock is turned so that the diaphragm S stands in a vertical position, it fits between the part F at the bottom of the chamber and the curved lip F', and thus prevents any water entering through the inlet passages B and B'. The passage at the right of the diaphragm, however, is in line with the opening D in the bottom of the filter chamber, and also with the discharge passage E. Consequently, any water which may be contained in the chamber is allowed to flow out freely through the discharge passage. When the cock is so turned that the diaphragm S stands horizontally, it closes the discharge passage E entirely, but leaves a connecting space between B' and the opening D into the interior of the filter, so that water may flow freely in this direction. By turning the cock over still farther so that the diaphragm S stands at an inclination, as shown by dotted lines, whereby it extends diagonally across the opening D, it allows a direct communication between B and B' and the discharge pipe E, so that water can be drawn without passing through the filter at all. The cock may be turned to incline in the opposite direction to admit a fine spray or jet which will strike the bottom of the screen and wash it and the sediment chamber while the discharge side of the passage remains sufficiently open to allow the water and sediment to flow out of the chamber upon one side while the jet is passing in at the other side.

The interior of the filter may be constructed in any usual or suitable manner. In the present case I have shown the filter bottom

composed of a foraminous material H which may be of flexible wire cloth. In this case the periphery is secured between two rings I and J which form a hoop or flange to retain the filter in position under pressure, and the hoop fits within the interior of the filter chamber, and rests upon a suitable supporting flange which extends around the bottom. The angle of the conical sides of the filter bottom H is sufficiently less than that of the closed bottom A' of the chamber below, to leave a considerable space into which the water which is admitted from the inlet pipe, under the conditions previously described, may be distributed so as to pass through the whole surface of the filter from one side to the other. The water thus admitted rises through the filtering material which may consist of sand, gravel, charcoal or any other well known filtering substance, and passes out through the upper screen surface L which I have shown standing at an inclination across the upper part of the filter chamber, with its lower edge supported upon a ledge or projection M. Just above this is the discharge pipe G, through which water is allowed to flow when filtered, and from which it is collected.

The operation will then be as follows:—
When the cock is turned so that the diaphragm S stands in a horizontal position, the water entering through the inlet pipes B B' passes above the diaphragm through the opening D in the bottom of the filter chamber, and thence distributing through the space between the bottom of the chamber and the foraminous filter bottom H it passes up through the filter which arrests any sediment and impurities and allows the pure water to flow out through the upper foraminous disk L, and thence escape through the passage G. By turning the cock so that the diaphragm S stands in a vertical position, the water will be cut off from the inlet pipe and immediately any water which remains in the filter and filter chamber will flow out through the passage D, and the discharge pipe E, thus washing the filter each time when the cock is turned to cut off the supply of water. This is an important feature as it insures the cleansing

of the filter after each use, and before it has become very much clogged with sediment or impurities, and this washing does not depend upon any especial attention of an attendant, as it is done automatically whenever the supply is shut off. If it is desired to draw water for any purpose without filtering, it is only necessary to turn the cock into such position that the diaphragm S stands at an incline or diagonally above the inlet passage B', which thus communicates directly with the discharge passage E.

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

In a filter, a chamber having an inlet passage D at the bottom, an outlet passage at one side near the top, a foraminous filter bottom and a corresponding top with filtering material between the two, in combination with an inlet passage B B' having its discharge end intersecting the inlet passage D, an outlet passage E in line with the aforesaid passages a curved projecting lip F' located in the outlet passage E beneath the outlet of the inlet passage B B' and to one side of the inlet passage D of the chamber, and a valve having a diaphragm which when turned in a vertical position closes the inlet B B' and places the inlet D in communication with the outlet E, which when turned in a horizontal position establishes communication between B B' and D, which when turned in an inclined position cuts off communication with the filter chamber and opens a passage directly from the inlet to the discharge and finally, which when inclined in the opposite direction admits a fine spray or jet which will strike the bottom of the screen and wash it and the sediment chamber, while the discharge side of the passage remains sufficiently open to allow the water and sediment to flow out of the chamber upon one side while the jet is passing in on the other side, substantially as herein described.

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Witnesses:

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