(No Model.)

J. BERRY.

PERCOLATOR.

No. 266,081. Patented Oct. 17, 1882.

Fig. 1.

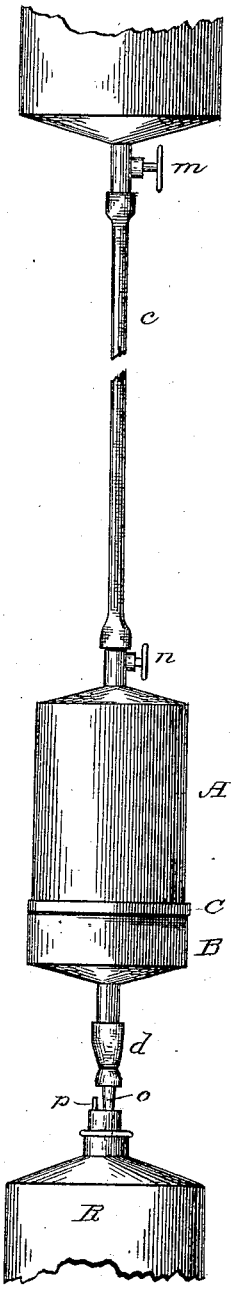
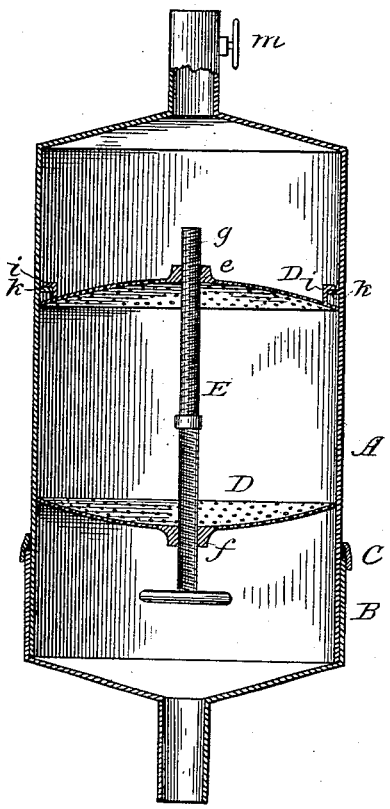


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN BERRY, OF BIDDEFORD, MAINE.

PERCOLATOR.

SPECIFICATION forming part of Letters Patent No. 266,031, dated October 17, 1882.

Application filed May 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN BERRY, of Biddeford, in the county of York and State of Maine, have invented a new and useful Improvement in Filters or Percolators; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to an improvement in the construction of percolators intended especially for the use of druggists and chemists in compounding tinctures and fluid extracts, but adapted for use as an ordinary filter for purifying water and other liquids.

The invention consists in the peculiar construction of the filtering-chamber and diaphragms and the novel adjustment of the latter, and also in certain details of construction, as will be more fully hereinafter described.

In the drawings, Figure 1 is an elevation, and Fig. 2 a central vertical section.

The outside body or shell of the filter is represented at A, and is a metallic vessel of cylindrical form, having a closed upper end and provided with a close-fitting telescoping cover, B. The joint between the cover and the shell A is closed by a broad rubber packing-ring, C, which prevents evaporation at that point. A pipe, *c*, preferably of rubber tubing, conducts the alcohol or other liquid from a reservoir (hereinafter described) above the percolator to the same, and a similar pipe, *d*, is connected to a perforation in the cover B, and serves as a discharge-pipe to convey the fluid extracts to a bottle or other receptacle.

The interior of the filter is shown in section in Fig. 2. D D are two concave diaphragms, of circular shape, which fit closely within the cylinder A, and are finely perforated. Centrally fixed to each diaphragm is a threaded boss, *e f*. By means of these threaded bosses the diaphragms D D are mounted upon a central rod, E, which has a right-hand screw, *g*, at one end and a left-hand screw, *h*, at the other, engaging respectively with the bosses *e f*, so that if the screw-rod be turned the diaphragms will be caused to approach toward or recede from each other, according to the direction given to the rod. The rod is provided at one end with a removable wrench or hand-wheel, by which it is turned, with sufficient space to hold or rest the diaphragm. The screw-rod and diaphragms are supported within the cylinder A by two or more hooked projections, *i*, secured to the convex side of one of the diaphragms, which engage with two or more studs, *k*, in the wall of the cylinder, as shown in Fig. 2. By slightly turning the diaphragm so that the hooks and studs are brought out of line the rod and diaphragm are disengaged.

In charging or filling the filter the cover is removed from the cylinder and one of the diaphragms from the rod. Any suitable quantity of any drug is placed on the diaphragm D. The second diaphragm D is then placed upon the rod and the wrench applied, which causes the diaphragms to approach each other, in order to compress the material between them. The diaphragm D having been previously locked in place, as before described, the cover B is replaced. The cylinder A is now turned or reversed, so that the cover forms the bottom, the filter being suspended from the studs, and the inlet and discharge tubes are connected. The alcohol or other liquid is permitted to flow into the chamber A, percolating through the material between the diaphragms and escaping through the discharge-pipe. When the liquid no longer flows freely or the supply is shut off the diaphragms are forced closely together to press out the liquid absorbed by the material. In this operation I use the apparatus represented in Fig. 1, wherein the vessel for containing the alcohol, water, or other material to be charged or filtered is shown partly broken away. This vessel may be suspended, if desired, or otherwise supported, and is provided with a check-valve at its top. (Not shown.) The lower or discharge end of this vessel is connected to the rubber inlet-pipe *c*, connected to the percolator, the admission of liquid to the pipe and percolator being regulated by cocks *m n*. The liquid thus admitted to the percolator is subjected to the action of the drug contained therein, and then escapes by the outlet-pipe *d*, connected to the discharge-opening of the percolator. This pipe is of rubber and communicates with a glass tube, *o*, passing through the stopper of a receiver, R. As the receiver fills the air escapes through a tube, P, extending through the stopper beside the tube *o*.

Although I have described this device as

particularly applicable to the use of druggists and chemists in compounding fluid extracts, &c., it is evident that by the use of charcoal or other filtering medium, instead of certain drugs, water may be filtered and purified in the same manner.

The advantages of the device lie in the simplicity and the ease and readiness with which it can be taken apart for filling and cleaning, and in the great saving of alcohol while in operation, first, because it is perfectly secure from evaporation from the air-inlet through the screw-cap of the reservoir, even to the air-escape through the rubber stopper of the receiving bottle or vessel, as set forth; and, second, because expansion of the drug and unnecessary absorption and holding in suspension of the menstruum are prevented, for in my invention, while the tendency of the drug to expand is the same, the diaphragm prevents it, and the menstruum, in passing through the drug by an inward pressure through the heart of the drug-cells, produces a percolate far superior to any obtained in any other way, even with a larger quantity of alcohol.

Having thus described my invention, what I claim is—

1. Combined with a cylindrical vessel, A, the central rod E, having screw-threads of opposite pitch at its ends, and the perforated diaphragms D D, mounted upon the opposite ends of said rod and having correspondingly screw-threaded hubs or bosses.

2. A percolating-vessel, A, having two independently-removable perforated diaphragms adjustably mounted upon a common rod and suspended within the said vessel.

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

JOHN BERRY.

Witnesses:
J. G. GARLAND,
H. P. GARLAND.