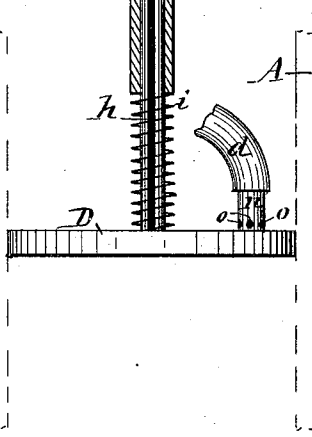
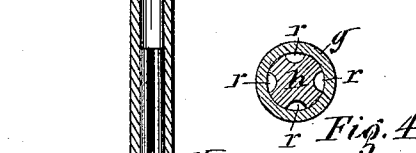
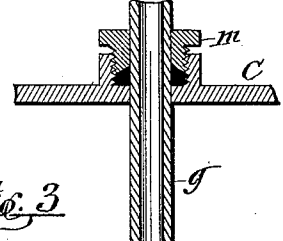
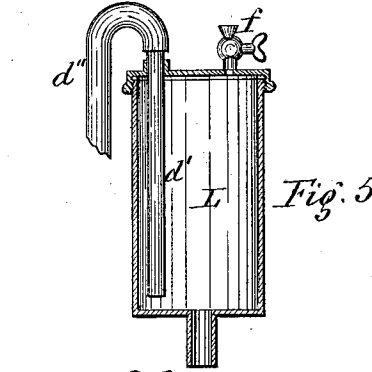
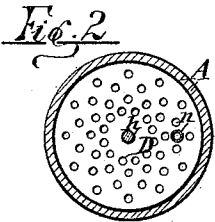
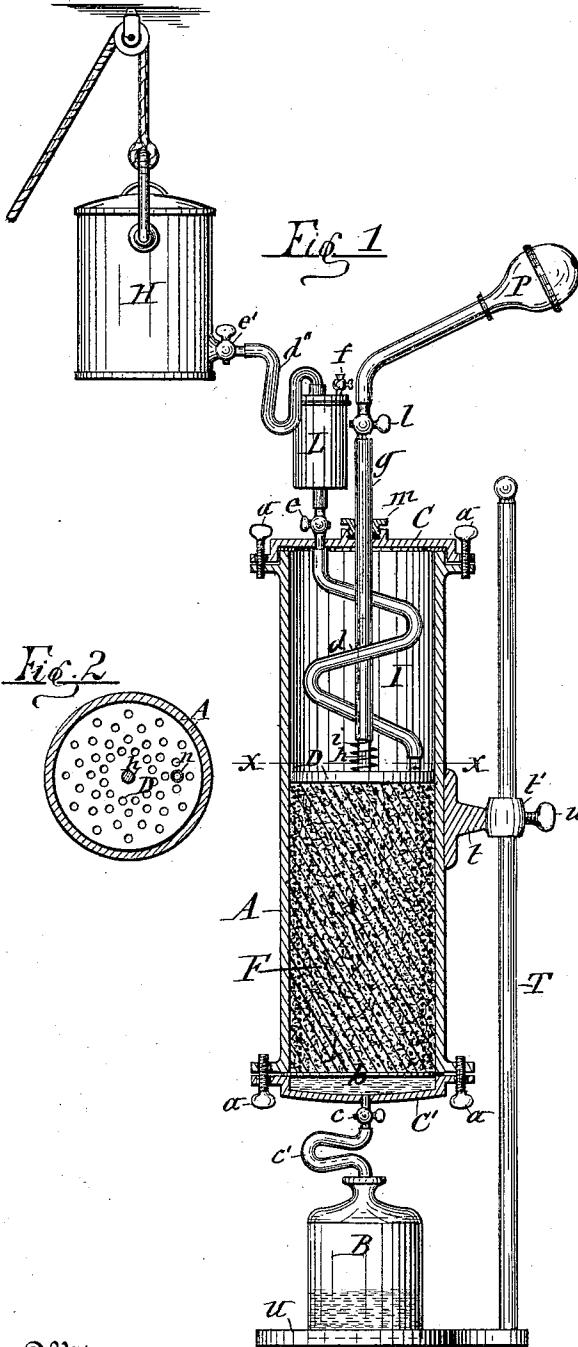


(No Model.)

W. SUITS.  
PERCOLATOR.

No. 373,420.

Patented Nov. 15, 1887.



Witnesses

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# UNITED STATES PATENT OFFICE.

WALLACE SUITS, OF CANASTOTA, NEW YORK, ASSIGNOR TO ANNA M. SUITS, OF SAME PLACE.

## PERCOLATOR.

SPECIFICATION forming part of Letters Patent No. 373,420, dated November 15, 1887.

Application filed May 31, 1887. Serial No. 239,761. (No model.)

*To all whom it may concern:*

Be it known that I, WALLACE SUITS, of Canastota, in the county of Madison, in the State of New York, have invented new and useful Improvements in Percolators, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists in a novel construction and manner of operating a percolator by which the drugs are subjected to maceration under pressure of the menstruum, so that the tinctures and extracts are obtained from the drugs in a rapid and thorough manner and the drugs are perfectly exhausted, and the said results are obtained without unduly elevating the menstruum-reservoir.

In the annexed drawings, Figure 1 is a vertical longitudinal section of a percolator embodying my invention. Fig. 2 is a horizontal transverse section on line *xx*, Fig. 1. Fig. 3 is an enlarged vertical longitudinal section of the air-induction pipe, showing its connection with the percolator-case and pressure-plate. Fig. 4 is a transverse section on line *yy*, Fig. 3; and Fig. 5 is a detached vertical section of the pressure-governor.

Similar letters of reference indicate corresponding parts.

A denotes the percolator-case, which is preferably of cylindrical form and provided at opposite ends with caps C C', removably secured thereto by thumb-screws *aa*, passing through ears on the caps and engaging screw-threaded eyes in the ears on the case A, or by any other suitable and well-known means. Between the bottom cap, C', and end of the case is clamped a suitable filtering-diaphragm, *b*, which spans the interior of the case, and beneath the said diaphragm is the outlet, consisting of a faucet, *e*, which is adapted to have connected to it a hose extending into the mouth of the bottle B, which is to receive the extract or tincture.

D is a perforated pressure-plate, which is arranged movably above the diaphragm *b*, with the drug-compartment F between them and an air-space, I, above the said pressure-plate.

H represents the menstruum-reservoir, which is supported adjustably in its elevation above the case A in any suitable manner. This res-

ervoir communicates with the interior of the percolator-case by a nipple, *n*, projecting from the top of the pressure-plate and provided immediately above the pressure plate with perforations *oo*. (Best seen in Fig. 3 of the drawings.) To the nipple is connected an extensible duct, preferably of the form of a hose or flexible tube, *d*, of sufficient length to reach to the cap C, and have its intermediate portion slack, so as to allow the pressure-plate D to be depressed in the case A without detaching the ends of the said tube *d*. To the top of the cap C is attached a stop-cock, *e*, by means of a nipple passing through the cap, and to the said nipple is connected the upper end of the tube *d*.

To the top of the stop-cock is attached a transparent duct-section, L, preferably of the form of a glass cylinder, which is air-tight with the exception of a vent valve or cock, *f*, secured to the top thereof. From a short distance above the bottom of the interior of the cylinder L, up through the top thereof, is extended a tube, *d'*, which is open at both ends and arranged with its lower end out of range with the opening through which the stop-cock *e* communicates with the cylinder L, as illustrated in Fig. 3 of the drawings.

To the outer end of the tube *d'* is connected a hose, *d''*, the opposite end of which is attached to the faucet *e'* of the menstruum-reservoir H. From the pressure-plate D rises a guide-bar, *h*, on which slides vertically a tubular push-bar, *g*, which is extended through a stuffing-box, *m*, secured to the cap C. Between the lower end of said push-bar and top of the pressure-plate D is interposed a spiral spring, *i*. By pressing down the push-bar *g* the pressure-plate D is depressed, and thus the drugs in the compartment F are compressed correspondingly, the pressure being maintained by tightening the stuffing-box *m* sufficiently to squeeze the packing of the stuffing-box around the push-bar, so as to clamp the same in its position; or, if desired, a set-screw may be inserted through the stuffing-box to engage the push-bar for the aforesaid purpose. The spring *i* serves to transmit the pressure gradually to the pressure-plate D. The aforesaid push-bar *g* is caused to serve the additional function of an air-induction pipe by either fitting the same to the guide-bar *h*,

sufficiently loose to allow air to pass between them, or by providing the guide-bar with longitudinal groove *r r*, as illustrated in Figs. 3 and 4 of the drawings.

5 To the outer end of the combined push-bar and air-induction pipe *g* is attached a stop-cock, *l*, and above the latter and connected therewith is a suitable air-pump, P.

In connection with the percolator-case A, I prefer to employ a standard, T, rising from one side of the center of a base, U, by which it is supported in an upright position, as shown in Fig. 1 of the drawings. The side of the case A, I provide with a rigid arm, *t*, terminating with a vertically-perforated boss, *t'*, by which it slides on the standard T. A set-screw, *u*, passing through the boss *t'* and engaging the standard, serves to clamp on the latter the arm *t* of the case A. Said case can thus be supported at different elevations above the base U. The bottle B is set upon the said base and has its mouth connected with the stop-cock *e*, at the bottom of the case A, by a flexible hose or tube, *e'*, which is capable of accommodating itself to the aforesaid adjustment of the percolator-case A. In operating my improved percolator I introduce the drugs or herbs into the compartment F, then place over them the pressure-plate D, then connect the menstruum-tube *d* to the nipple *n* and slip the combined push-bar and air-induction pipe *g* onto the guide-bar *h* and secure the cap C to the top of the case A. I next turn the faucets *e* and *e'* to allow the menstruum to flow from the reservoir H through the ducts *d'' d'*, cylinder L, duct *d*, and perforations of the nipple *n* into the percolator-case, which it enters immediately above the perforated pressure-plate D. I then push down the pipe *g* to impart to the pressure-plate D the desired pressure to compact the drugs or herbs in the compartment F, and maintain this pressure by tightening the stuffing-box, so as to clamp the pipe *g* in its position. After the menstruum has flowed awhile I operate the air-pump P to force air into the air-space I of the case A. If at that time there should not be sufficient menstruum in the case A to cover the perforations *o o* of the nipple *n*, the air will be forced through said perforations and up through the duct *d* and into the transparent cylinder L, and its ingress into the same, producing bubbles, will be observed by the operator, who can then either elevate the reservoir H to increase the pressure of the menstruum sufficient to overcome the pressure of the air, or, if it is not desired to increase the pressure, the operator can open the vent-valve *f* to allow the air to escape. When the perforations of the nipple *n* are covered by the menstruum over the pressure-plate D, the pump P can be operated to produce a volume of compressed air over the menstruum in the case A, thus increasing the pressure of the menstruum on the drugs, and by elevating the reservoir H the said pressure can be still further increased. Hence by means

of the air-pump and the adjustment of the reservoir H and faucets *e e'* and discharge-cock *c* the pressure can be regulated at will and the operation of the percolator is under perfect control. The process of extracting the tincture from the drugs is completed by closing the inlet-cock *e* and forcing the last of the menstruum through the drugs by operating the pump P to produce sufficient air-pressure in the case A to displace the menstruum therein. It will be observed that the cylinder L, arranged as described, constitutes a pressure-governor.

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

1. The combination, with the percolator-case provided with a filtering-diaphragm at the base of its interior and with an outlet at the bottom, of a pressure-plate above the said filtering-diaphragm, with the drug-compartment between them and an air-space above the pressure-plate, a push-bar pressing on the said plate, a clamp for confining the push-bar in its depressed position, and a menstruum-inlet above the pressure-plate, as set forth.

2. The combination, with the percolator-case provided with a filtering-diaphragm at the base of its interior and with an outlet at the bottom, of a pressure-plate above the aforesaid diaphragm and movable independently thereof, with the drug-compartment between them and an air-space above the pressure-plate, a tubular push-bar pressing on the pressure-plate and extending movably through the head of the case, a valve on the outer end of the said tubular push-bar, and a menstruum-inlet above the pressure-plate, as set forth and shown.

3. The combination, with the percolator-case provided with a filtering-diaphragm at the base of its interior and with an outlet at the bottom, of a pressure-plate above the aforesaid diaphragm and movable independently thereof, with the drug-compartment between them and an air-space above the pressure-plate, a guide-bar rising from said plate, a pipe inclosing the guide-bar and extending movably through the head of the case, a valve on the outer end of said pipe, a clamp for holding the pipe depressed toward the pressure-plate in the case, and a menstruum-inlet above said plate, as set forth.

4. The combination, with the percolator-case provided with a filtering-diaphragm at the base of its interior and an outlet at its bottom, of a pressure-plate above the aforesaid diaphragm and movable independently thereof, with the drug-compartment between them and an air-space above said plate, a guide-bar rising from said pressure-plate, a pipe inclosing said guide-bar and extending movably through the head of the case, a valve on the outer end of said pipe, a spring interposed between the pressure-plate and adjacent end of the pipe, a clamp for retaining the pipe depressed toward

the pressure - plate, and a menstruum - inlet above the said plate, as set forth.

5 5. The combination, with the percolator-case provided with a filtering-diaphragm at the base of its interior and an outlet at its bot-  
 10 tom, of a pressure-plate above said diaphragm and movable independently thereof, with the drug-compartment between them and with an air-space above the pressure-plate, a guide-  
 15 bar rising from the pressure-plate, an air-induction pipe inclosing the guide-bar and extending movably through the head of the case, an air-pump connected with the said pipe, a clamp for retaining the pipe depressed toward  
 20 the pressure - plate, and a menstruum - inlet above said plate, substantially as described and shown.

25 6. The combination, with the percolator-case provided with a filtering-diaphragm at the base of its interior and an outlet at the bottom, of a pressure-plate above said diaphragm and movable independently thereof, with the drug-compartment between them and an air-space above the pressure-plate, a guide-  
 30 bar rising from the pressure-plate, an air-induction pipe sliding on said guide-bar and extending movably through the head of the case, a spring interposed between the pressure-plate and adjacent end of the pipe, a clamp for retaining the pipe depressed toward the pressure-plate, an air-pump on the outer end of the pipe, a valve connected to the pipe between  
 35 the case and pump, and a menstruum - inlet above the pressure-plate, substantially as described and shown.

40 7. The combination, with the percolator-case provided with the filtering-diaphragm at the base of its interior and with an outlet at the bottom, of the pressure-plate above said diaphragm and movable independent thereof, with the drug-compartment between them and an air-space above the pressure-plate, an air-induction pipe communicating with said

air-space, an air-pump communicating with said pipe, a stop-cock attached to the top of the  
 45 percolator-case, a menstruum-reservoir communicating with said stop-cock, and an extensible duct in the air-space above the pressure-plate and communicating at one end with the aforesaid stop-cock and having its discharge end immediately above the pressure-plate and secured thereto, substantially as described and shown.

50 8. In combination with the percolator-case provided internally with an air-space above the drug-compartment, an air-pump communicating with said air-space, a menstruum-reservoir arranged adjustably in its elevation above the said case, a menstruum-duct leading from said reservoir to the air-space of the case,  
 55 and a transparent duct-section connected with the menstruum-duct, substantially as and for the purpose specified.

60 9. In combination with the percolator-case, air-pump communicating with said case, and the menstruum-reservoir arranged adjustably in its elevation, the transparent cylinder L, a duct leading from the base of said cylinder to the percolator-case, the tube *d'*, extending from the lower portion of the interior of the  
 65 cylinder through the top thereof and out of direct communication with the aforesaid duct, the tube *d''*, extending from the upper end of the tube *d'* to the faucet of the reservoir H, and the vent or valve *f*, connected to the cylinder,  
 70 substantially as described and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Canastota, in the county of Madison, in the State of New York, 80 this 28th day of May, 1887.

WALLACE SUITS. [L. S.]

Witnesses:

MILTON DELANO,  
 L. E. STEBBINS.