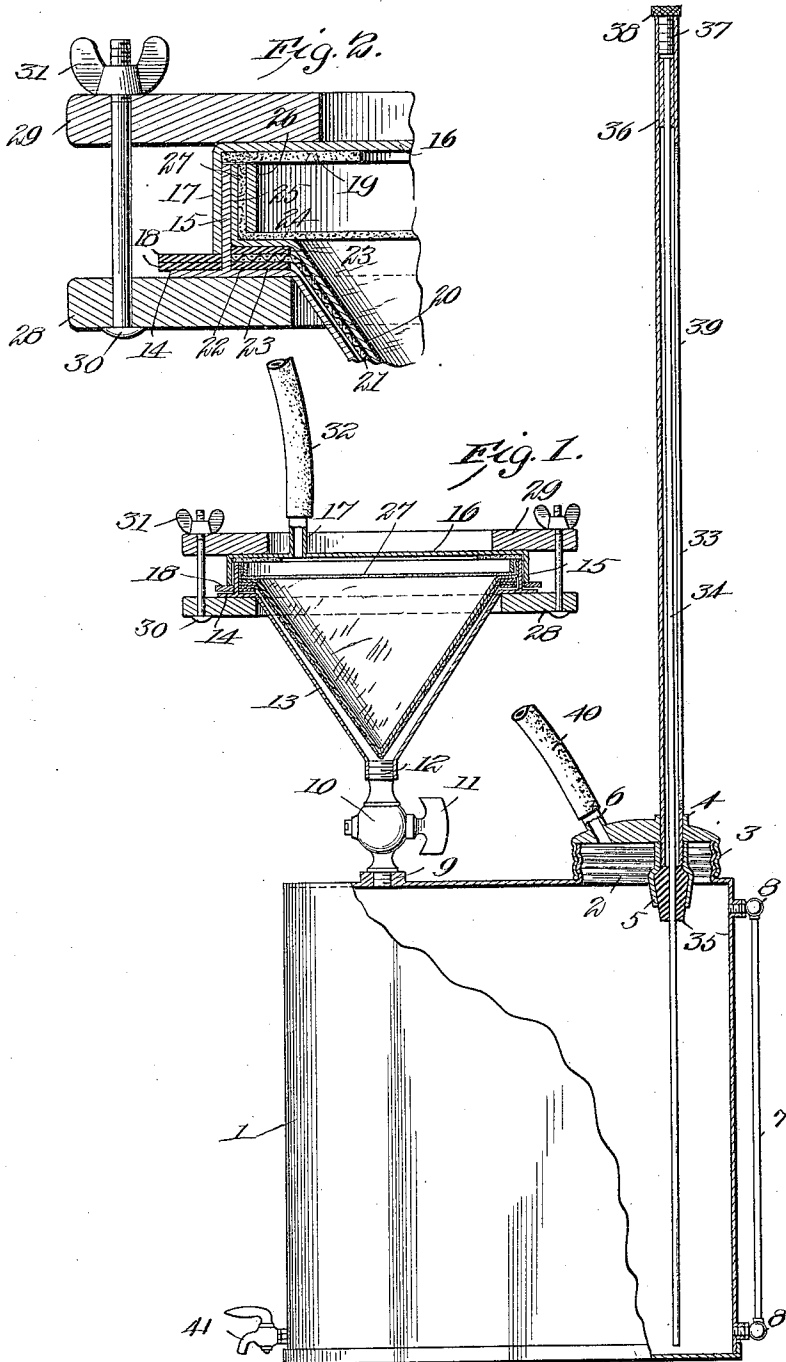


J. A. CASE.  
SIPHON FILTER.

APPLICATION FILED DEC. 26, 1911.

1,042,317.

Patented Oct. 22, 1912.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JULES ARCHER CASE, OF SALIDA, COLORADO.

## SIPHON-FILTER.

1,042,317.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed December 26, 1911. Serial No. 667,741.

*To all whom it may concern:*

Be it known that I, JULES A. CASE, a citizen of the United States, and a resident of Salida, in the county of Chaffee, State of Colorado, have invented a new and useful Improvement in Siphon-Filters, of which the following is a specification.

My invention is an improvement in siphon filters, and has for its object the provision of a mechanism of the character specified, especially designed to thoroughly filter liquids, while at the same time facilitating the withdrawal of the liquid from the receptacle.

In the drawings:—Figure 1 is a front view of the improvement with the operating mechanism in section, and Fig. 2 is an enlarged detail sectional view of a portion of Fig. 1.

In the present embodiment of the invention, a closed tank 1 is provided, having a filling opening encircled by an external threaded nipple 2. A cap 3 is threaded on to the nipple, and the said cap is provided with a tube 4, extending above and below the cap, the lower end of the tube being conical in shape as indicated at 5. The cap is also provided with a nipple 6 at the opposite side from the tube 4.

The tank 1 is provided with a gage 7 of glass or other transparent material, which communicates at each end with the tank as indicated at 8. The gage is designed to indicate the level of the liquid in the tank.

The filling opening 2 is at one side of the tank and in the top thereof, and at the other side the top of the tank is provided with an internally threaded nipple 9, into which is threaded a valve casing 10, having a valve controlled by the thumb piece or handle 11. The upper end 12 of the valve is threaded, and is engaged by a funnel-shaped casing 13. The top of the casing 13 is laterally flanged as indicated at 14, and the flange is provided with an upwardly extending ring 15.

A cap 16 provided with a nipple 17 near one side engages the ring 15 encircling the same, and a gasket 18 is arranged on the flange 14 between the lower edge of the cap and the said flange 14. One or more gaskets 18 can be used as shown in Fig. 2. A packing ring 19 is arranged within the top of the cap and the upper edge of the ring 15 engages the said packing ring 19. The filter proper 20 is of conical shape, and is sepa-

rated from the casing 13, by means of a conical-shaped gauze receptacle 21. The upper edge of the said receptacle is laterally flanged as shown at 22, and a packing ring 23 is arranged above and below the said flange. The filter proper is laterally flanged as indicated at 24 at its upper edge, the said flange resting on the upper packing ring 23, and the free edge of the flange 24 is flanged upwardly as indicated at 25, and seats against the inner face of the ring 15. A ring 26 is arranged inside of the flange 25, and a layer 27 of filtering material is arranged transversely of the filter at the top thereof. The free edge of the said layer is flanged upwardly as indicated at 27, and extends between the ring 26 and the flange 25 of the filter proper.

A ring 28 of wood or like material, encircles the casing 13 below the flange 14, and a similar ring 29 is arranged above the cap 16, the inner edge of the said ring resting on the said cap. Bolts 30 are passed through the rings 28 and 29 near the outer edges thereof, and the ends of the bolts are engaged by wing nuts 31, to tighten the said bolts on the rings, in order to compress the said rings 28 and 29 on the parts just described.

The nipple 17, before mentioned, is engaged by one end of a tube 32 of rubber or like material whose other end is connected with a source of supply of the liquid to be filtered.

A metallic tube 33 is supported in the cap 3, and a glass tube 34 is arranged within the tube 33. The tube 33 is threaded into the nipple 4, and a plug 35 of rubber or like material, is inserted in the conical portion 5 of the tube. The said plug fits the said portion closely, and the glass tube 34 passes through the plug to a point near the bottom of the tank 1. The upper end of the tube 34 is cemented into a sleeve 36 arranged in the upper end of the tube 33, and the upper end of the said tube 33 above the sleeve is closed by a plug 37 threaded into the tube and provided with a milled head 38 for convenience in turning the same. The tube 33 is provided with a longitudinal slot 39, and is preferably provided with graduations, not shown, at one side of the slot.

A pump not shown, or any suitable construction, as for instance an ordinary bicycle pump, provided with a reverse valve and

a reverse washer is connected to one end of a tube 40 of rubber or like material, whose other end is engaged with the nipple 6 in the cap. The tube 40 is normally closed by any suitable means, not shown, and not necessary to describe.

The pump is operated until the liquid to be filtered begins to flow from the container through the tube 32 and into the filter. After the flow of liquid is started, the plug 38 is removed to permit the escape of air from the tank, and the flow continues on the siphon principle. The said flow can however, be accelerated through continued action of the pump provided the plug 33 is not removed. The controlling tube acts automatically. By raising the tube 34 to any definite height so that the lower end of it is yet within the tank, the liquid will automatically shut itself off whenever it has reached a height sufficient to close the bottom of the said tube, so that the air within the tank cannot escape. By raising the tube to any predetermined height, the flow of liquid into the tank may be controlled, so that the said flow will be shut off at the desired height. A faucet 41 of any desired construction is connected with the tank near the bottom thereof and by reversing the action of the pump and forcing air into the tank through the tube 40, the contents of the tank may be forced out at the faucet 41.

I claim:—

1. A device of the character specified, comprising a tank, a valve casing threaded into the top of the tank, a valve controlling the passage of liquids through the casing into the tank, a conical casing having its small end engaged with the upper end of the valve casing, a conical receptacle of perforate material within the conical casing, a cap inclosing the top of the conical casing, said cap having a nipple, a supply tube engaged with the nipple, means for clamping the cap to the conical casing, and means for controlling the flow of liquid into the tank, said means comprising a metallic tube threaded into the top of the tank and provided with a longitudinal slot, a glass tube slidable longitudinally of the metallic tube into and out of the tank, a plug of elastic material in the metallic tube and having an opening through which the glass tube passes, a plug threaded into the top of the slotted metallic tube, said tank having an opening in the top thereof, an exhaust tube connected with the opening and adapted to be engaged by a pump to start the flow of liquid into the tank, and a gage connected with the tank.

2. A device of the character specified, comprising a tank, a valve casing threaded into the top of the tank, a valve controlling the passage of liquids through the casing into the tank, a conical casing having its

small end engaged with the upper end of the valve casing, a conical receptacle of perforate material within the conical casing, a cap inclosing the top of the conical casing, said cap having a nipple, a supply tube engaged with the nipple, means for clamping the cap to the conical casing, and means for controlling the flow of liquid into the tank, said means comprising a metallic tube threaded into the top of the tank and provided with a longitudinal slot, a glass tube slidable longitudinally of the metallic tube into and out of the tank, a plug of elastic material in the metallic tube and having an opening through which the glass tube passes, a plug threaded into the top of the slotted metallic tube, said tank having an opening in the top thereof, and an exhaust tube connected with the opening and adapted to be engaged by a pump to start the flow of liquid into the tank.

3. A device of the character specified, comprising a tank, a valve casing threaded into the top of the tank, a valve controlling the passage of liquids through the casing into the tank, a conical casing having its small end engaged with the upper end of the valve casing, a conical receptacle of perforate material within the conical casing, a cap inclosing the top of the conical casing, said cap having a nipple, a supply tube engaged with the nipple, means for clamping the cap to the conical casing, and means for controlling the flow of liquid into the tank, said means comprising a metallic tube threaded into the top of the tank, and provided with a longitudinal slot, a glass tube slidable longitudinally of the metallic tube into and out of the tank, a plug of elastic material in the metallic tube and having an opening through which the glass tube passes, a plug threaded into the top of the slotted metallic tube, means for partially exhausting the air from the tank, and a gage for indicating the depth of liquid in the tank.

4. A device of the character specified, comprising a tank, a valve casing threaded into the top of the tank, a valve controlling the passage of liquids through the casing into the tank, a conical casing having its small end engaged with the upper end of the valve casing, a conical receptacle of perforate material within the conical casing, said cap having a nipple, a supply tube engaged with the nipple, means for clamping the cap to the conical casing, means for controlling the flow of liquid into the tank, said means comprising a tube slidable longitudinally through the top of the tank, means for holding the said tube in adjusted position, means for closing the top of the tube, and means for permitting a partial exhausting of air from the tank.

5. A device of the character specified, comprising a tank, a filter having a

discharge into the tank at its upper  
end, a closed casing for the filter, a  
valve controlling the discharge, a supply  
tube opening into the casing of the  
5 filter, a valve controlling the discharge, a  
supply tube opening into the casing of the  
filter, and means for controlling the flow of  
liquid into the tank, said means comprising  
a tube slidable longitudinally through the  
10 top of the tank, means for holding the said  
tube in adjusted position, means for closing  
the top of the tube, and means for permit-  
ting a partial exhausting of the air from  
the tank.

6. In a device of the character specified, 15  
the combination with the tank and the  
means for supplying liquid thereto, of a  
means for controlling the flow of liquid into  
the tank, said means comprising a tube slid-  
able longitudinally through the top of the 20  
tank, means for holding the tube in adjust-  
ed position, means for closing the top of  
the tube, and means for permitting a partial  
exhausting of air from the tank.

JULES ARCHER CASE.

Witnesses:

F. A. JACKSON,  
CONRAD G. WAGGENER.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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