

Nov. 14, 1933.

N. R. THIBERT

1,935,136

FILTERING DEVICE

Filed June 30, 1932

2 Sheets-Sheet 1

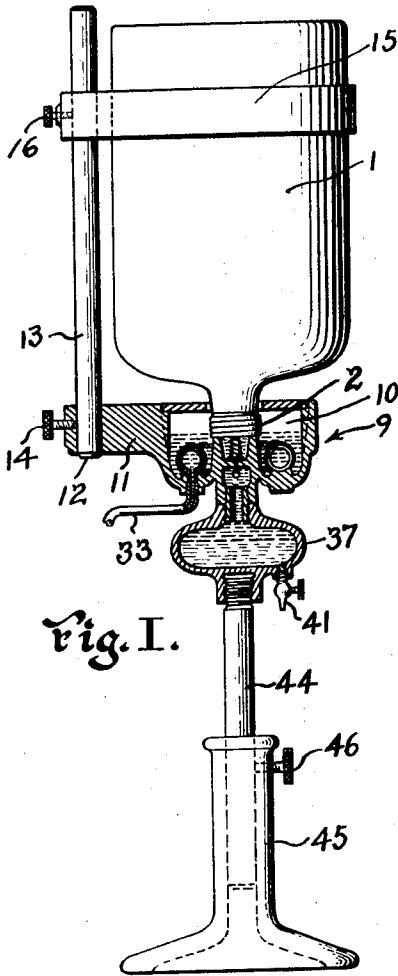


Fig. I.

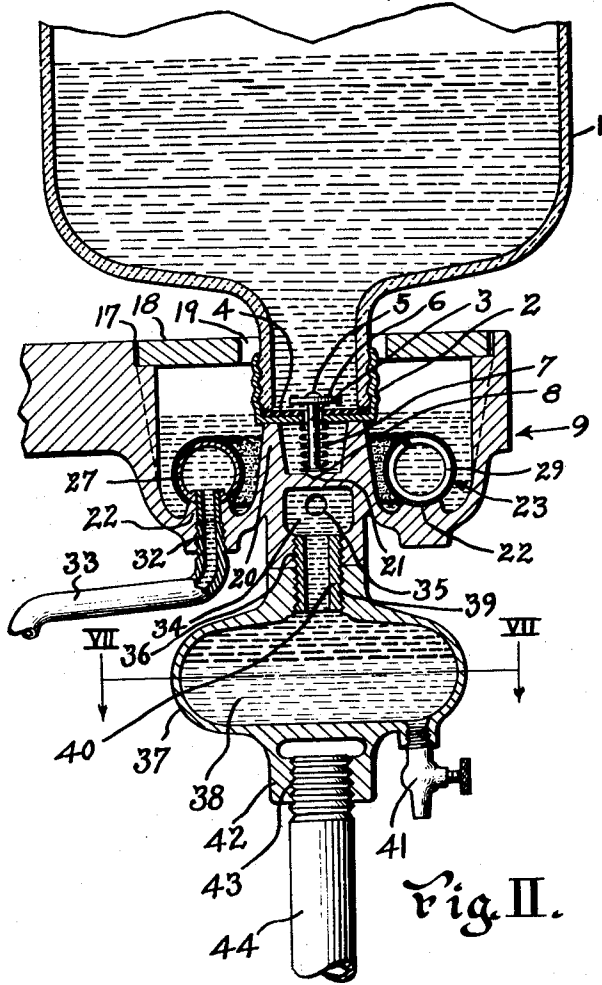


Fig. II.

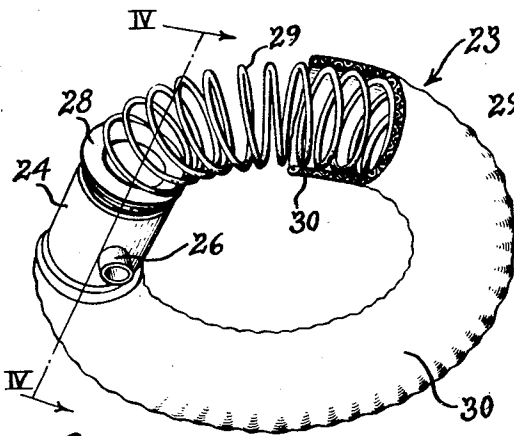


Fig. III.

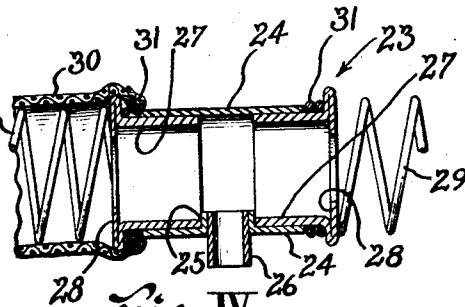


Fig. IV.

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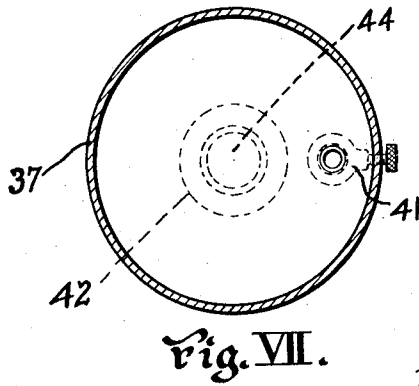
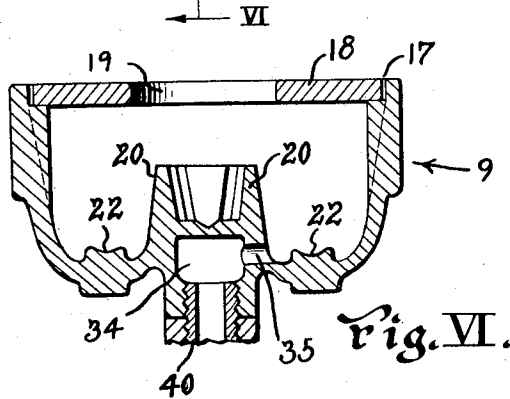
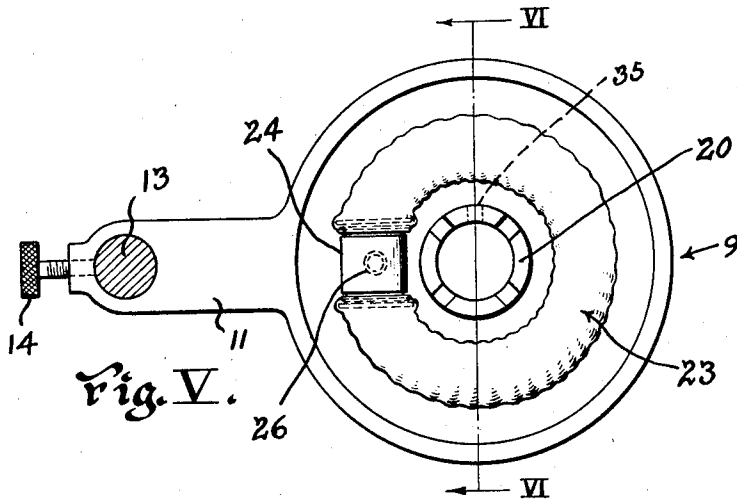
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# UNITED STATES PATENT OFFICE

1,935,136

## FILTERING DEVICE

Napoleon R. Thibert, Worcester, Mass.

Application June 30, 1932. Serial No. 620,100

11 Claims. (Cl. 210-99)

This invention relates to filters for liquids and more particularly to filters for liquid fuels.

One of the principal objects of the invention is to provide simple, efficient, inexpensive, and easily replaceable means for straining out dirt and impurities from liquids, especially oils and liquid fuels.

Another object of the invention is to provide simple, efficient and inexpensive means for draining off water and other sediments in liquid fuels.

Another object of the invention is to provide simple, efficient, and inexpensive means for purifying liquid fuels before they reach the point of combustion.

Another object of the invention is to provide simple, efficient, and inexpensive means for purifying the oil supply of an oil burning device.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings. It will be apparent that many changes may be made in the arrangement of parts and the details of construction without departing from the spirit of the invention as expressed in the accompanying claims, I therefore do not wish to be limited to the exact matters shown and described as the preferred forms have been shown and described by way of illustration only.

Referring to the drawings:

Fig. I is an elevation partially in section showing the invention applied to the oil supply of an oil burning device.

Fig. II is a portion of Fig. I enlarged.

Fig. III is a perspective view, partially in section showing the filter.

Fig. IV is a section on line IV-IV of Fig. III.

Fig. V is a plan or top view of Fig. II with the supply bottle and cover removed.

Fig. VI is a section on line VI-VI of Fig. V, with the cover in place, and

Fig. VII is a section on line VII-VII of Fig. II.

It has been found from experience that liquid fuels contain many impurities, such as dirt, sediment, water, moisture, and other foreign matter that greatly reduce their burning efficiency. It is, therefore, one of the prime objects of the invention to overcome these difficulties and to provide means for removing these impurities in a simple, efficient, and inexpensive way, and that may be easily replaced, repaired or renewed.

Referring to the drawings wherein similar reference characters denote corresponding parts throughout:

The liquid supply is held in the bottle 1, Fig. I.

This bottle has the cap 2 over its mouth. The cap is preferably screw threaded on the bottle neck and has a central opening 3. Between the end of the bottle neck and the cover of the cap is a washer 4 having an opening aligned with the opening 3. This washer is preferably of a resilient material such as rubber or felt, insuring a tight fit between the bottle mouth and the cap. Extending through the opening 3 in the cap 2 and the opening in the washer 4 is the plunger 5 having the closure plate 6 on the inside of the bottle. Around the plunger is the spiral spring 7 having one end contacting with the cap of the bottle and the other with the stop plate 8, adjacent the outer end of the plunger.

The bottle is supported by the filter basin member 9 having the supply basin 10 and the rod support arm 11. In the rod support arm 11 is an opening 12 into which the rod 13 is inserted. The rod 13 is held in place by the set screw 14. The rod 13 extends along the bottle and slightly removed therefrom. A band 15 extends around the bottle 1 adjacent its outer end, and also around the rod 13, being held thereon by the set screw 16. The rod 13 and band 15 support the bottle in place over the basin 10.

The filter basin member 9 is recessed at 17 to hold and support the cover plate 18 which has the opening 19 through which the bottle neck projects, while beneath the cover it is recessed to form the supply basin 10. Centrally of the supply basin and extending outwardly from the bottom thereof is the bottle support, comprised of a plurality of separated prongs or posts 20 on which the cap 2 of the bottle rests. Centrally of this support and in the bottom of the basin 10 is the recess 21 adapted to position and engage the outer end of the plunger 5. When the bottle is rested on the posts 20, the end of the plunger 5 engages the bottom of the basin 10; this pushes up the closure plate 6 and allows the liquid to flow from the bottle into the basin 10, passing between the posts 20. When the bottle is removed from the support the spring 7 forces the closure plate 6 down against the washer 4, which closes the bottle and prevents spilling the contents when the bottle is being removed from the basin.

In the bottom of the basin between its sides and the central posts 20 are the raised supports 22 on which the filter member 23 rests. This filter member is shown in Figs. III and IV. This filter member comprises the sleeve chamber member 24 having an opening surrounded by the flange 25. Into this opening is fitted the outlet tube or

thimble 26, being soldered or otherwise secured therein. Into each end of the sleeve 24 is fitted a sleeve chamber member 27 having the external flange 28. The ends of a spiral wire supporting member 29 are secured respectively to a flange 28. Over the supporting member 29 is fitted the straining member 30 made preferably of some fabric having straining qualities such as felt, cotton flannel, or other material. The ends of the member 30 are brought over the flanges 28 and secured down tightly on the body of the sleeve members by the wire rings 31.

The thimble 26 is inserted in the opening 32 of one of the supports 22. Aligned with the thimble and communicating therewith is the feed supply pipe 33 screwed into the opening 32. This pipe communicates with the burner not shown.

The liquid in the basin 10 seeps through the straining member 30 which catches and retards the dirt, sediment, and foreign particles. This strained liquid enters the sleeve portion of the filter and passes out of the thimble 26 into the supply pipe 33 and goes thence to the burner.

In the basin member 9 and below the bottom of the basin 10 centrally of the posts 20 is the chamber 34; communicating with this chamber is the opening 35 leading into the basin 10. Leading from the chamber 34 is the opening 36. Below the opening 36 is the catch basin member 37 having the catch basin 38 and the opening 39 communicating with the opening 36. The filter basin member 9 and the catch basin member 37 are secured together by the threaded nipple 40 in the openings 36 and 39. The catch basin is drained by the drain cock 41 in the bottom thereof. Below the catch basin is the boss 42 having the opening 43.

Water, moisture and other liquids heavier than the desired liquid, as well as heavy sediment, and foreign particles, will drop by gravity and flow through the opening 35 into the chamber 34 and from there into the catch basin 38 on the bottom of which it will settle. These settlings may be drained off by means of the drain cock 41.

Into the opening 43 of the boss 42 is screw threaded the rod support 44 by which the filter is supported. This rod fits into the stand 45, being adjustably secured therein by the set screw 46. The filter, hence, may be adjusted as to height by means of the rod 44.

The method of operation of the device is as has been described above in connection with the description of the various parts.

The filter 23 may be removed from the basin 10 by simply lifting it out, the nipple 26 being loosely inserted in the opening 32. Sediment and collected foreign matter may then be easily removed. In case of wear a new covering 30 may be easily put on the support 29 and secured in place by the rings 31. The parts are easily taken apart for cleaning and replacement.

From the foregoing description it will be apparent that I have provided simple, efficient and inexpensive means for obtaining the various advantages of the invention and carrying out the objects thereof, the parts being easily assembled, repaired, replaced, and removed.

Having described my invention, I claim:

1. In a device of the character described, a member having a supply basin having an opening and a filter member in said basin, said filter member comprising a frame support, a cloth like strainer cover over the support and a sleeve compartment, both ends of said cover being secured to the sleeve compartment and said sleeve com-

partment having an outlet opening aligned with the opening in the basin.

2. In a device of the character described, a member having a supply basin having an opening and a filter member in said basin, said filter member comprising a frame support, a cloth like strainer cover over the support and a sleeve compartment, said support and said cover having both ends secured to the sleeve compartment adjacent its ends, said sleeve compartment having an outlet opening and a tubular member in the outlet opening extending into the opening in the basin.

3. For use in combination with a member having a supply basin with an opening, filter means comprising a sleeve chamber having an outlet opening, a wire supporting frame having both its ends secured adjacent the ends of the sleeve chamber and a cloth like strainer cover over said support and having both its ends also secured adjacent the ends of said sleeve chamber, and said outlet opening being adapted to align with the opening in the basin.

4. For use in combination with a member having a supply basin with an outlet opening, filter means comprising a sleeve chamber having an outlet opening, sleeves telescopically engaging the sleeve chamber at either end, a support member having its ends attached to the respective telescoping sleeves, and a cloth like strainer member over the support and having its ends secured adjacent the connection of the support ends to the telescoping sleeves, said opening in the sleeve chamber being adapted to align with the outlet opening in the basin.

5. In a device of the character described for use with a member having a supply basin with an outlet opening, filter means comprising a sleeve chamber member having an outlet opening, a support member having both its ends attached adjacent the respective ends of the sleeve chamber member, a cloth like strainer member over the support having both its ends extending over the respective connections of the respective ends of the support and ring like securing means holding the ends of the strainer member in place with respect to the sleeve member, said outlet opening in the sleeve member being adapted to be aligned with the opening in the supply basin.

6. In a device of the character described for use with a member having a supply basin with an outlet opening, a sleeve chamber member having an outlet opening, sleeves having end flanges, said sleeves telescoping with the sleeve chamber member at either end, a spiral wire supporting member having its ends attached to a respective end flange of the telescoping sleeves, a cloth like strainer cover over the wire support and having its ends extending over the respective flanges of the telescoping sleeves, means securing the ends of the cover in place with respect to said flanges and an outlet tube in the outlet opening of the sleeve chamber member, said tube being adapted to fit in the outlet opening of the supply chamber.

7. In a device of the character described, a member having a supply basin with an outlet opening, supports for a bottle in said basin, supports for a strainer member in said basin and a boss beneath the basin, a member having a catch basin and a boss engaging the boss of the supply basin member, thread means connecting the two bosses and passageways in the two members connecting the supply basin with the catch basin, and a strainer on said strainer support, comprising a sleeve chamber with an outlet opening, a

spiral wire support having both its ends attached to the sleeve chamber, a cloth like strainer member over the support having both its ends attached to the sleeve chamber, and an outlet member in the opening of the sleeve chamber extending into the opening in the supply basin.

8. In a device of the character described, a member having a supply basin with an outlet opening, bottle supporting means in the supply basin, strainer supporting means in the supply basin and a boss beneath the supply basin, a member having a catch basin and a boss engaging the boss of the supply basin member, thread means uniting the two bosses, said two members having passageways connecting the supply basin with the catch basin, strainer means on the strainer supports, comprising a sleeve chamber member having an outlet opening, a spiral wire support member having its ends attached adjacent the respective ends of the sleeve chamber, a cloth like strainer cover over the support, having its ends attached adjacent the ends of the support, an outlet tube in the outlet opening in the sleeve chamber member, said tube extending into the outlet opening in the supply basin, and a feed pipe aligned with the said tube.

9. In a device of the character described, a member having a supply basin with an outlet opening, bottle supporting means in the supply basin, strainer supporting means in the supply basin and a boss beneath the supply basin, a member having a catch basin and a boss engaging the boss of the supply basin member, thread means uniting the two bosses, said two members having passageways connecting the supply basin with the catch basin, strainer means on the strainer supports, comprising a sleeve chamber member having an outlet opening, a spiral wire support member having its ends attached adjacent the respective ends of the sleeve chamber member, a cloth like strainer cover over the support having its ends attached adjacent the ends

of the support, an outlet tube in the outlet opening in the sleeve chamber member, said tube extending into the outlet opening in the supply basin, and a feed pipe aligned with the said tube, and means for draining the catch basin.

10. In a device of the character described, a member having a supply basin with an outlet opening, a boss beneath the supply basin, a member having a catch basin and a boss engaging the boss of the supply basin, means securing the two bosses together, said two members having passageways connecting the supply basin with the catch basin, and strainer means in the supply basin, comprising a sleeve chamber with an outlet opening aligned with the outlet opening in the supply basin, a spiral wire support having both its ends attached to the sleeve chamber, a cloth like strainer member over the wire support and having both its ends attached to the sleeve chamber and an outlet member extending into the outlet openings of the sleeve chamber and the supply basin.

11. In a device of the character described, a member having a supply basin with an outlet opening, a boss beneath the supply basin, a member having a catch basin and a boss engaging the boss of the supply basin, means securing the two bosses together, said two members having passageways connecting the supply basin with the catch basin, and strainer means in the supply basin, comprising a sleeve chamber with an outlet opening aligned with the outlet opening in the supply basin, a spiral wire support having both its ends attached to the sleeve chamber, a cloth like strainer member over the wire support and having both its ends attached to the sleeve chamber and an outlet member extending into the outlet openings of the sleeve chamber and the supply basin, and means for draining the catch basin.

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