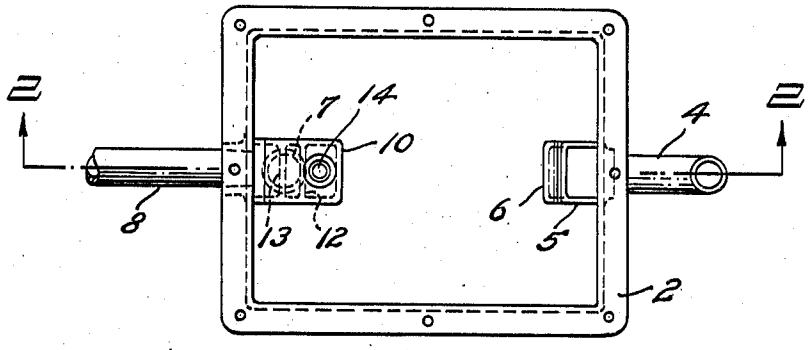
May 16, 1944. E. W. N. BOOSEY 2,348,723

OIL INTERCEPTOR

Filed July 28, 1941

Fig. 1.



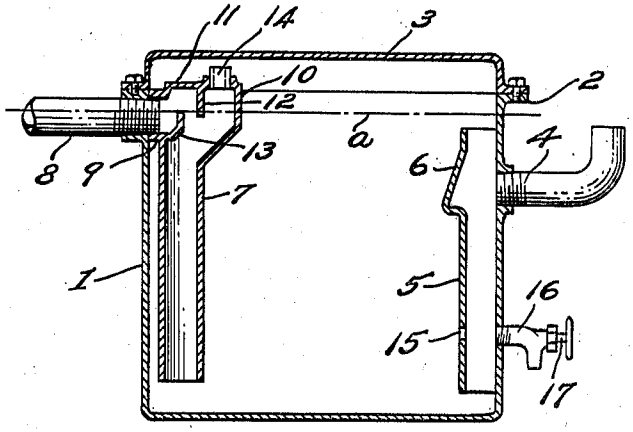




Fig. 2.

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Patented May 16, 1944

2,348,723

# UNITED STATES PATENT OFFICE

2,348,723

## OIL INTERCEPTOR

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Application July 28, 1941, Serial No. 404,314

7 Claims. (Cl. 210—56)

This invention relates to oil and grease interceptors for use in separating oils and grease from the waste liquids discharged from garage floor drains, kitchen sinks, and kindred structures, the oils and grease being retained in the interceptor for periodic removal therefrom, and the residual liquids being discharged to the sewer. The present application is a continuation in part of my application, Serial No. 335,372, filed May 15, 1940, now U. S. Patent No. 2,303,109 of November 24, 1942.

The object of the invention herein disclosed is to provide a new and improved means within the body of the interceptor providing a permanent head pressure therewithin and functioning, when the liquid rises to above a normal level due to discharge of additional liquid thereinto tending to increase the head pressure, to discharge liquid to the outlet to maintain or restore the normal liquid level and maintain a constant volume of air in the top of the interceptor body.

By the improved structure hereinafter described and due to the maintenance of a permanent head pressure surge of liquid is prevented within the body due to the provision of an air lock in association with a means automatically determining the normal liquid level within the body and permitting excess air and gas to pass to the outlet.

These and other features and objects of the invention are hereinafter more fully described and claimed and an interceptor embodying the invention is shown in the preferred form in the accompanying drawing in which—

Fig. 1 is a plan view of the oil and grease interceptor, the cover being removed to show features of construction.

Fig. 2 is a vertical section through the body and cover on line 2—2 of Fig. 1.

In its preferred form my improved oil interceptor comprises a body 1 preferably rectangular in form and having an external flange 2 at the upper edge to receive a flanged cover member 3 as shown in Fig. 2, it being desirable that the joint between the cover and body be above the normal liquid level within the body.

In the preferred structure herein shown the side wall of the body is provided with an aperture having a hub to receive the threaded end of an inlet conduit 4 and within the body and preferably formed integral therewith is an open ended conduit 5 open at both the top and the bottom to the body and having an inclined wall portion 6 opposite the inlet tending to deflect the constituents of lighter specific gravity discharging against the wall 6 upwardly through the upper open end of the open ended conduit which preferably terminates below the normal liquid level within the body as is determined by the structure of the outlet manifold.

The tubular member 7 has a tubular lower end portion open at the bottom and is preferably positioned on the side wall of the interceptor body opposite that with which the inlet manifold is connected. The said opposite wall of the body has an aperture for an outlet conduit 8 which is threaded in a hubbed aperture of the said wall and also is in threaded relation with an outlet portion 9 of the head 10 of the tubular member 7.

The head 10 is of greater width horizontally than the diameter of the lower conduit like portion of the tubular member 7 and the upper wall 11 of the head has an integral depending wall 12 while the portion of the head to which the outlet conduit is connected has an upwardly extending wall 13 spaced from the wall 12 the upper edge of which determines the normal liquid level in the interceptor body as indicated by dotted lines *a* above the lowermost point of the depending wall 12 and also above the level of the lowermost point of the outlet. Between the wall 12 and the inner side of the wall of the head 10 an open ended tube 14 is secured in the top wall of the head and terminates below the cover 3 thus providing for passage of air from the air space above the liquid level *a* to the outlet when a head pressure is developed in the top of the body sufficient to lower the liquid level in the outlet manifold to below the bottom edge of the wall 12. Thus while some air is usually discharged into the interceptor with the liquid flowing thereinto, an increase in head pressure is prevented through provision of means providing for an escape of excess air. From an examination of Fig. 2 it is apparent that air from the body chamber is not effectively discharged through said vent tube until it depresses the liquid level below the lower edge of partition wall 12 and said lower edge of partition wall 12 therefore defines, in practical effect, the discharge opening of said vent passageway.

By positioning the inlet and the outlet elements 5 and 7 within the body on opposite sides thereof and opening at the lower end above the bottom of the body, a time interval is provided for the constituents of less specific gravity than that of water in the inflowing liquid to rise to the surface of the liquid during the flow there-

of from the bottom of the open ended conduit to the bottom of the tubular member.

It is further pointed out that while I have shown the open ended intake conduit 5 as being formed integrally with the body it may be made as a separate element with which the inlet conduit 4 is connected after the manner of connection of the outlet conduit 8 with the tubular member 7. The inlet manifold also is provided with an aperture 15 at a distance above the bottom of the intake manifold. When a sufficient depth of oil has accumulated on the surface of the liquid within the body it may pass through the aperture into the intake conduit 5 and accumulate therein and in the intake conduit 4 and requiring the accumulated oils to be removed by means of the draw-off fitting 16 provided with a valve for opening or closing the same, the stem of the valve being indicated at 17.

With the several parts of structures assembled in the manner heretofore stated, air and gas discharging with liquid into the body of the interceptor tends to accumulate in the top of the body above the liquid level *a*. As the gas and air accumulate a head pressure is developed which lowers the liquid level within the body to below the lower edge of the depending wall 12 in the top of the outlet manifold. Under this condition and due to these walls 12 and 13 being horizontally spaced as shown, a free passageway for air and gas is provided from the top of the interceptor body through the tube 14 into the top of the outlet manifold and thence between the walls 12 and 13 to the outlet conduit 8.

It is believed evident from the foregoing that my improved oil interceptor is of simple construction and is efficient in operation, not only functioning to prevent discharge of oils and greases through the outlet but to maintain a substantially constant liquid level in the interceptor and furthermore provides for a permanent head pressure within the interceptor body. It is also pointed out that various changes in structure may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. An oil interceptor comprising a chambered body, an inlet conduit, an open ended inlet conduit within the body to which the inlet conduit discharges, said open ended inlet conduit having an opening to the body adjacent the bottom thereof and an opening at its top below the normal liquid level in the body, an outlet conduit connected to the body below the top, a tubular member having an opening to the body adjacent the bottom and an opening to the outlet conduit adjacent the top, means within the upper end of the tubular member for maintaining the liquid level in the body above the lower point of the outlet conduit, the tubular member being closed to the body except for an opening to the air and gas space above the liquid level in the body and the opening to the bottom of the body.

2. An oil interceptor comprising a chambered body, an inlet conduit for discharge of waste liquids thereto containing oil and grease, an open ended conduit within the body to which the inlet conduit discharges intermediate its ends, an outlet conduit opening to the body below the top thereof, a tubular member within the body having an opening adjacent the bottom of the body and an opening at the top to above the liquid level in the body and being connected adjacent its top to the outlet conduit, means within the upper end of the tubular member for maintaining the liquid level in the body above the lowermost point of the outlet, said tubular member being closed to the body except for the opening thereto adjacent its top and bottom.

3. An oil interceptor comprising a chambered body, an inlet conduit discharging thereto on one side below the normal liquid level in the body, an outlet conduit opening to the body near the top thereof, a tubular member within the body to which the outlet conduit opens below the top thereof, the lower end of the tubular member being open to the body adjacent the bottom and the upper end thereof being shaped to provide a chamber, two horizontally spaced walls in vertical parallel relation within the chamber and extending from side to side thereof, the wall nearest the outlet conduit terminating in a horizontal plane below the uppermost point of the outlet conduit and the wall more distant from the outlet conduit depending from the upper end of the tubular member and having its lower horizontal edge below the upper horizontal edge of the first named wall, said chamber of the tubular member having an opening to the top of the interceptor body between the last named vertical wall and the inner wall of the chamber, the said arrangement of parts providing for flow of air and gases from the top of the interceptor body to the upper end of the tubular member and thence to between the said two walls to the outlet when the pressure of accumulated air and gas lowers the liquid level to below the lower edge of the wall farthest from the outlet conduit.

4. An oil interceptor comprising a chambered body, an inlet conduit for discharge of waste liquids thereto containing oil and grease, an open ended conduit within the body to which the inlet conduit discharges intermediate its ends, the said open ended conduit opening at its upper end below the liquid level in the body and opening to the body adjacent the bottom thereof, an outlet conduit opening to the body below the top thereof, a tubular member within the body having an opening adjacent the bottom thereof and an opening to the top above the liquid level in the body, and means within the upper end of the tubular member for maintaining the liquid level in the body above the upper end of said open ended conduit, the tubular member being closed to the body except for the openings thereto adjacent the top and bottom.

5. An interceptor of the character described, comprising a chambered body having inlet and outlet ports, an outlet conduit having communication with the body chamber adjacent the bottom thereof, means providing a vent passageway having an entrance opening in communication with the body chamber above the liquid therein and having a discharge opening in communication with the outlet conduit, a dam-forming wall in said outlet conduit between the outlet port and the discharge opening of said vent passageway, said dam-forming wall having its top edge higher than the lowermost point of said outlet port and higher than the discharge opening of said vent passageway, said outlet conduit discharging to said outlet port only over the top edge of said dam-forming wall and the top

edge of the dam-forming wall determining the normal liquid level in the body chamber and in the outlet conduit, an inlet conduit in communication with said inlet port, said inlet conduit discharging to the chamber only below the normal liquid level in said chamber, such normal liquid level being thus higher than the lowermost point of the outlet port and higher than the discharge opening of said vent passageway, whereby the discharge opening of said vent passageway is normally sealed from said outlet port by the liquid in said outlet conduit.

6. An interceptor of the character described, comprising a chambered body having inlet and outlet ports, an outlet conduit having communication with the body chamber adjacent the bottom thereof, a dam-forming wall in said outlet conduit having its top edge higher than the lowermost point of said outlet port, said outlet conduit discharging to said outlet port only over the top edge of said dam-forming wall, whereby the top edge of such wall determines the normal liquid level in the body chamber and in the outlet conduit, said normal liquid level being thus higher than the lowermost point of the outlet port, an inlet conduit in communication with said inlet port, said inlet conduit discharging to the chamber only below the normal liquid level in said chamber, and means providing a vent passageway between said outlet conduit and the body chamber above the liquid therein.

7. An interceptor of the character described, comprising a chambered body having inlet and outlet ports, an outlet conduit having communication with the body chamber adjacent the bottom thereof, a dam-forming wall in said outlet conduit having its top edge higher than the lowermost point of said outlet port, said outlet conduit discharging to said outlet port only over the top edge of said dam-forming wall, whereby the top edge of the dam-forming wall determines the normal liquid level in the body chamber and in the outlet conduit, said normal liquid level being thus higher than the lowermost point of the outlet port, an inlet conduit in communication with said inlet port, said inlet conduit discharging to the chamber only below the normal liquid level in said chamber, the upper end portion of said outlet conduit above the outlet port being closed except for a vent aperture to that portion of the body chamber above the liquid therein, and partition means between said vent aperture and said dam-forming wall and having its bottom edge below the top edge of said dam-forming wall, said partition means cooperating with the liquid in said outlet conduit to normally seal from the outlet port that portion of the body chamber above the liquid therein.

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