Aug. 25, 1931. S. G. BROWN 1,820,596

FLOOR DRAIN TRAP

Filed March 21, 1930

Fig. 1

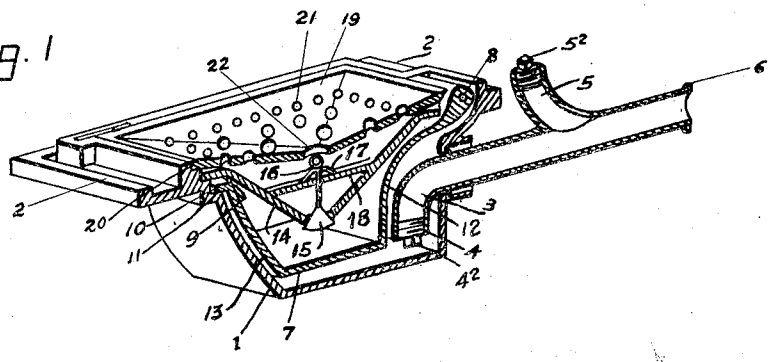


Fig 2

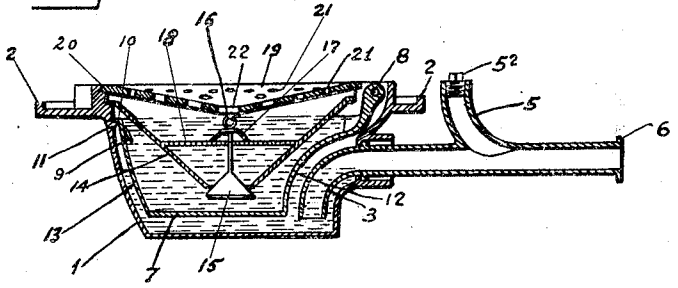


Fig. 3

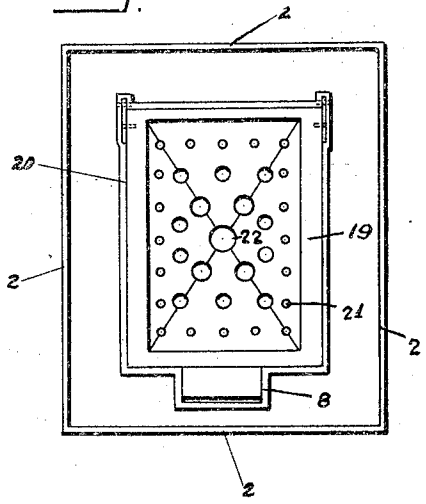
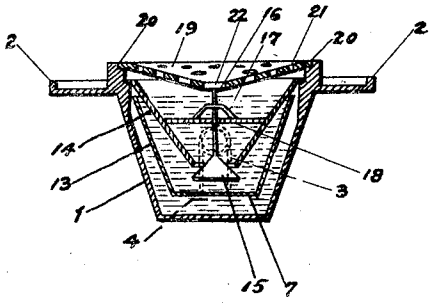


Fig. 4



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UNITED STATES PATENT OFFICE

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FLOOR DRAIN TRAP

Application filed March 31, 1930. Serial No. 437,874.

This invention relates to floor drain traps, particularly adaptable for automobile wash stands and other places which require draining.

The wash water from cleaning automobiles and other dirty and greasy objects, contains not only sediment but more or less gasoline and lubricating oil. In order to prevent the drain or soil pipe from being filled, it is necessary to separate the sediment from the water, and it is also imperative that the oils, particularly the gasoline, be kept from entering the sewer, since the volatile gases therefrom will permeate the drainage system, and explode if by chance they reach a spark or flame It is also occasionally necessary both to test the drainage connections and to flush the drain to insure its proper condition.

The purposes of the present invention are to provide an improved trap which will remove the sediment from the drain liquids and hold it so that it may be easily removed from the trap; to provide an improved trap which will remove inflammable oils and greases from the drain water and hold them so that they may be easily removed from the trap, and to render their removal first necessary before the sediment chamber can be emptied; to provide an improved removable separating pot; to provide an improved closing bottom and improved sides to said pot designed to both baffle and to avoid the collection of sediment thereon; to combine the sediment and oil removing features into an improved construction so as to produce an improved trap from which the accumulations may be easily and positively removed; to provide automatic and positive means for salvaging valuable products and by-products such as gasoline, oils, and other ingredients carried in drainage liquids; to provide means designed to effectively prevent lighter than water portions of drainage liquids entering the drainage system, to limit and control the downward movement of said lighter than water portions caused by voluminous or rapid flow and to diffuse said portions horizontally over the surface of the water; to provide means for retaining the inflammable oils, gasoline, and greases within a given area formed by the walls of a separating pot and the upper surface of the water until such time as they are removed from said trap; to provide improved means for easily and conveniently removing said inflammable oils, gasoline and greases from the trap; to provide means for choking the trap when the accumulated sediment therein is of such quantity as to make its removal advisable; by an improved construction to substitute trap choking for trap washing and to thereby force trap cleaning before any clogging of the main drain is experienced; to provide a positive non-washable trap designed to avoid the entrance of solid matter, inflammable oils, gasoline and greases into the drainage system, and to avoid the escape of noxious gases from the system; to provide an improved non-cloggable cover through which drain liquids may enter the trap; to combine therewith improved baffling means; to provide strainer means embodied in the cover of such detail and construction as to direct the flow of volatile oils, gasoline, and greases to a point directly over the baffle plate discharging the same thereon, thereby spreading the same over the surface of the water in the separating chamber and precluding possibility of the said gasoline, oils and greases being driven downwardly by a heavy influx of liquids to a level where they might escape from within the area of the chamber; to provide means for effectively and conveniently flushing and testing the connected joints of the drainage system; to provide means for injecting steam for degreasing purposes or high pressure water (hot or cold) for cleaning purposes; to provide an improved construction adaptable to conveniently afford the above purposes from the level of the finished floor; to provide the various other advantages and results made evident from the following specification.

In general, I accomplish the objects of my invention by combining of specified construction a main body pot, an inner sediment deposit pot hinged to swing out for dumping purposes, and a removable, sloping sided, open bottom, separating pot, the outlet of said main body having a bent shape within the body designed to form a seal in conjunc-

tion with liquid in the body pot, and being provided at its inner end with a removable threaded cap, its outer end carrying a clean-out unit, with a floor level opening, also provided with a threaded cap, said separating pot having a strainer cover with graduated perforations therein (said cover being hereinafter termed the graduated strainer cover) the smallest perforations being at the outer edge thereof and gradually increasing to a large opening at the center, under which is located a baffle plate adaptable to diffuse the flow of liquids falling thereon and to cause the same to spread horizontally over the surface of the liquid beneath. A cone shaped plug of suitable size to close the bottom of the separating pot is secured to and below the baffle plate and a ringed handle is conveniently placed above the baffle plate for lifting out purposes.

For a better understanding of the purposes of my invention, it had best be understood that upon the completion of a plumbing job a test, so called, is made from the entrance of the system into the sewer to the highest point in the stack, for the purpose of establishing that all connected joints are tight and will stand the various water pressures to which they may be subjected. In order to facilitate the making of this test, all open ends must be closed, or as technically described "plugged" to hold the back pressure of the testing water, and this has presented a problem of varying expense and solution. My improved construction is designed to meet this requirement. Again, many conditions under which drainage systems function require frequent and thorough cleaning and flushing of the system and my construction renders this both convenient and inexpensive. My improved construction is also designed to inexpensively and effectively meet the exacting requirements of fire hazard committees, commissions, and underwriting boards in the safe handling of explosive and combustible gases, oils, and greases.

When it is desired to flush the sewerage system, the threaded cap on the clean-out unit is removed and a hose for live steam, hot or cold water is secured to the clean-out at the floor opening. A threaded cap is then fitted tightly to the outlet opening of the main body pot, and the flushing continues.

In use as the gasoline, oil, and grease bearing liquids gravitate and flow to a lower point, the oils and greases being lighter than water, float at the top. As the liquids pass first to and over the smallest perforations at the outer edge of the cover, the tendency of the underneath portions (i. e. the water) is to pass through these small perforations while the tendency of the lighter than water portions (i. e. the gasoline, oils, and greases) is to pass on to the larger perforations towards the center of the cover. As the flow of the liquids increase, the major portion of the gasoline, oils, and greases therein which require a major baffling pass to and through the center and near center openings of the cover and fall directly upon the baffle plate. Should the baffling of this plate not be sufficient, these lighter than water portions are again forced to the sloping sides of the separating pot and are again baffled, all for the purpose of breaking their descent and spreading them upon the surface of the water. Meanwhile, the sediment therein passes through the open bottom of the separating pot to the sediment deposit pot below. In traps as herefore constructed when the sediment pot was filled, trap washing resulted the sediment then passing on to the main body pot and from thence to the drainage system. In my improved construction, when the sediment pot is filled, the trap chokes, no washing being possible and this choking requires cleaning. Cleaning is effected by removing the graduated strainer cover and applying lifting force to the ringed handle, whereupon the cone shaped plug closes the open bottom of the separating pot and as the lifting force continues, the separating pot and its contents of gasoline, oils and greases are removed intact and salvaged by deposited in some convenient and safe container. The sediment pot is then swung back on its hinges and dumped in some handy receptacle placed there to receive it or otherwise. Thus the trap avoids indolent employees allowing its washing sediment, gasoline, oils, and greases into the sewerage system with possible hazardous consequences, which in congested centers is productive of terrific and often fatal explosions and fires.

Referring to the accompanying drawings which form a part of this specification and in which similar letters of reference refer to similar parts throughout the various views, Figure 1 shows a perspective view of my device with parts of the main body trap, sediment pot, separating pot, and cover broken away to show the inner construction. Figure 2 is a vertical longitudinal cross section through the trap, and Figure 3 is a vertical transverse cross section. Figures 2 and 3 both illustrate the trap as filled with water, sediment, and lighter than water liquids. Figure 4 is a cross sectional view of the trap at right angles to the cross sectional view in Figure 2.

Referring again to the figures, 1 shows the main body pot or containing shell, having a horizontal flange 2, near its top by means of which it may be set into or hung from a floor or surface to be drained. A downwardly turned pipe elbow unit 3, forms an outlet from said main pot, the lower end of this elbow opening at 4 being beneath the normal level of the water in the pot so that it acts as a trap for sewer gas. The lower end of

the elbow at 4 is fitted with a screw plug or cap 4^2. Intermediate its ends the elbow unit has a clean-out opening 5 also carrying a screw plug or cap 5^2. The outer end of the elbow unit 3 has a collar 6 which is adapted to receive a soil or sewer pipe connection. The sediment pot as 7 is hinged at 8 to the main pot so that it may be lifted by the ring 9 and the sediment dumped out. The sediment pot is supported at its ends opposite the hinge 8 by a stop lug 10 which rests against a cooperating inner flange 11 on the main pot. The sediment pot is shaped at 12 to fit over the elbow 3 and has its opposite wall at 13 formed on the arc of a circle about the hinge 8 so that when it is turned up it clears the inside of the main pot. The sediment pot is narrower than the main pot so that a free space is allowed on either side for the water to overflow into the main pot as illustrated in Figure 4.

The removable separating pot is suspended within the sediment pot and comprises the side walls 14, and the cone shaped plug 15, designed to close the bottom of the separating pot when a lifting force is applied to the ringed handle 16 above the baffle plate 17. The baffle plate is supported in its operating position by the cross rod 18 extending from the sides of the separating pot. The graduated strainer cover fits into a receiving shoulder 20 on the separating pot, forms a continuation of the floor over the trap and is designed to be lifted off so as to render ready access to the ringed handle 16. The smallest perforations therein 21 are at its outer edge and are gradually increased in size toward the center opening 22.

From the drawings it will be noted that the strainer cover is located only slightly above the overflow edges upon the sediment pot. The reason for this construction is that as the gasoline and light oils collect in the separating pot the column of water in the sediment pot will support a higher column of gasoline and light oils in the separating pot and will therefore cause the strainer to indicate a flooded condition. There is therefore provided a visual indication of when it is necessary to empty the separating pot of accumulated gasoline.

While I have illustrated and described a preferred construction for carrying my invention into effect, this is capable of variation or modification without departing from the spirit of the invention. I therefore do not wish to be limited to the exact details of construction herein set forth but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention I claim as new and desire to secure by Letters Patent of the United States of America:

1. A gasoline, oil, grease and sediment retaining floor draining trap, having in combination a main pot, a drain connection with removable plug at its inner end opening under the normal water level in said pot and forming a sewer gas trap, a clean-out opening and removable plug accessible from the floor level, an open topped sediment pot set into the main pot and hinged at one side thereof whereby it may be lifted to discharge the sediment accumulated therein, a removable open top and bottom separating pot, a removable strainer cover for the separating pot, with graduated perforations therein, the smallest perforations being at the outer edge of said cover gradually increasing to a large opening at the center, a baffle plate located beneath said cover, a cone shaped plug adaptable to close the bottom of said separating pot, and a handle member above said baffle plate for raising said baffle plate and cone plug so as to close the bottom of said separating pot and provide for its removal with contents, and said strainer cover being located slightly above the overflow edges of said sediment pot so as to indicate by flooding the necessity of emptying said separating pot from accumulated gasoline.

2. A gasoline, oil, grease and sediment retaining floor draining trap, having in combination a main pot, a drain connection with removable plug at its inner end, a clean-out opening and removable plug accessible from the floor level, an open topped sediment pot set into the main pot and hinged at one side thereof whereby it may be lifted to discharge the sediment accumulated therein, a removable open top and bottom separating pot, a removable strainer cover for the separating pot, with graduated perforations therein, the smallest perforations being at the outer edge of said cover and gradually increasing to a large opening at the center, a baffle plate located beneath said cover, a cone shaped plug adaptable to close the bottom of said separating pot, a handle member above said baffle plate for raising said baffle plate and cone plug so as to close the bottom of said separating pot and provide for its removal with contents, and said strainer cover being located slightly above the overflow edges of said sediment pot so as to indicate by flooding the necessity of emptying said separating pot from accumulated gasoline.

3. A gasoline, oil, grease and sediment retaining floor draining trap, having in combination a main pot, a drain connection with removable plug at its inner end, a clean-out opening and removable plug accessible from the floor level, an open topped sediment pot set into the main pot whereby it may be lifted to discharge the sediment accumulated therein, a removable open top and bottom separating pot, a strainer cover for the separating pot, with graduated perforations therein, the smallest perforations being at the outer edge

of said cover and gradually increasing to a large opening at the center, a baffle plate located beneath said cover, a cone shaped plug adaptable to close the bottom of said separating pot, a handle member above said baffle plate of raising said baffle plate and cone plug so as to close the bottom of said separating pot and provide for its removal with contents, and said strainer cover being located slightly above the overflow edges of said sediment pot so as to indicate by flooding the necessity of emptying said separating pot from accumulated gasoline.

4. A gasoline, oil, grease and sediment retaining floor draining trap, having in combination a main pot, a drain connection with removable plug at its inner end opening under the normal water level in said pot and forming a sewer gas trap, a clean-out opening and removable plug accessible from the floor level, an open topped sediment pot set into the main pot whereby it may be lifted to discharge the sediment accumulated therein, a removable open top and bottom separating pot, strainer cover, a cone shaped plug adaptable to close the bottom of said separating pot, a handle member for raising said plug so as to close the bottom of said separating pot and provide for its removal with contents, and said strainer cover being located slightly above the overflow edges of said sediment pot so as to indicate by flooding the necessity of emptying said separating pot from accumulated gasoline.

5. A gasoline, oil, grease, and sediment retaining floor draining trap, having in combination a main pot, a drain connection with removable plug at its inner end, a clean-out opening and removable plug accessible from the floor level, an open topped sediment pot set into the main pot and hinged at one side thereof whereby it may be lifted to discharge the sediment accumulated therein, a removable open top and bottom separating pot, a strainer cover, a cone shaped plug adaptable to close the bottom of said separating pot, a handle member for raising said plug so as to close the bottom of said separating pot and provide for its removal with contents, and said strainer cover being located slightly above the overflow edges of said sediment pot so as to indicate by flooding the necessity of emptying said separating pot from accumulated gasoline.

6. A gasoline, oil, grease and sediment retaining floor draining trap, having in combination a main pot, a drain connection with removable plug at its inner end, a clean-out opening and removable plug accessible from the floor level, an open topped sediment pot set into the main pot and hinged at one side thereof whereby it may be lifted to discharge the sediment accumulated therein, a removable open top and bottom separating pot, a strainer cover, means within said sediment pot to segregate and hold the gasoline, oil, and grease content of liquids passing through said trap, said means with its contents adaptable to be lifted out, and necessarily lifted out before the sediment pot can be dumped, and said strainer cover being located slightly above the overflow edges of said sediment pot so as to indicate by flooding the necessity of emptying said separating pot from accumulated gasoline.

7. A gasoline, oil, grease and sediment retaining floor draining trap, having in combination a main pot, a drain connection with removable plug at its inner end, a clean-out opening and removable plug accessible from the floor level, an open topped sediment pot set into the main pot whereby it may be lifted to discharge the sediment accumulated therein, a removable open top and bottom separating pot, a strainer cover, means within said sediment pot to segregate and hold the gasoline, oil, and grease content of liquids passing through said trap, said means with its contents adaptable to be lifted out, and necessarily lifted out before the sediment pot can be dumped, and said strainer cover being located slightly above the overflow edges of said sediment pot so as to indicate by flooding the necessity of emptying said separating pot from accumulated gasoline.

8. A floor draining trap comprising a main pot, a drain connection therewith, a sediment pot having overflow edges located within said main pot, a separating pot located within said sediment pot and a strainer cover positioned above said separating pot closely adjacent the level of the overflow edges of said sediment pot so as to serve as a flood indicator when liquid of a lighter specific gravity than water has accumulated in said separating pot.

In testimony whereof I affix my signature.

SAMUEL G. BROWN.