W. A. SHORB.

SEPARATING TRAP.

APPLICATION FILED FEB. 1, 1918.

1,396,384. Patented Nov. 8, 1921.

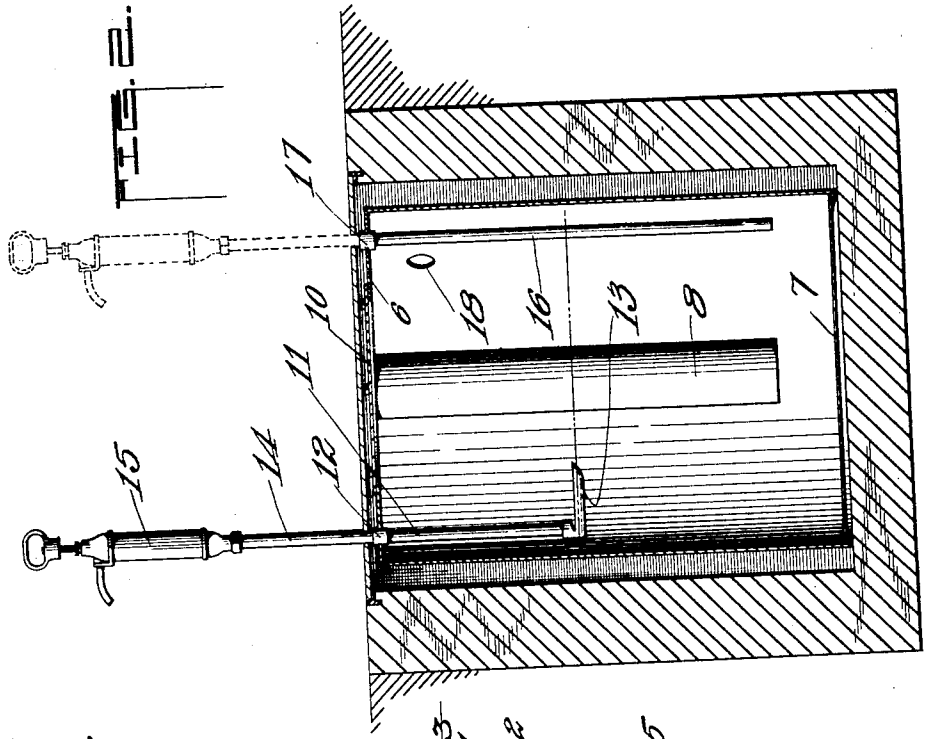


FIG. 2.

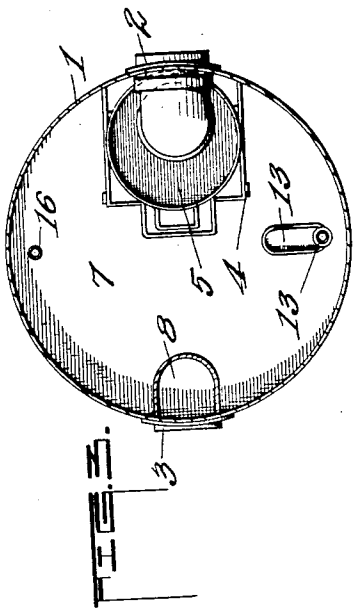


FIG. 3.

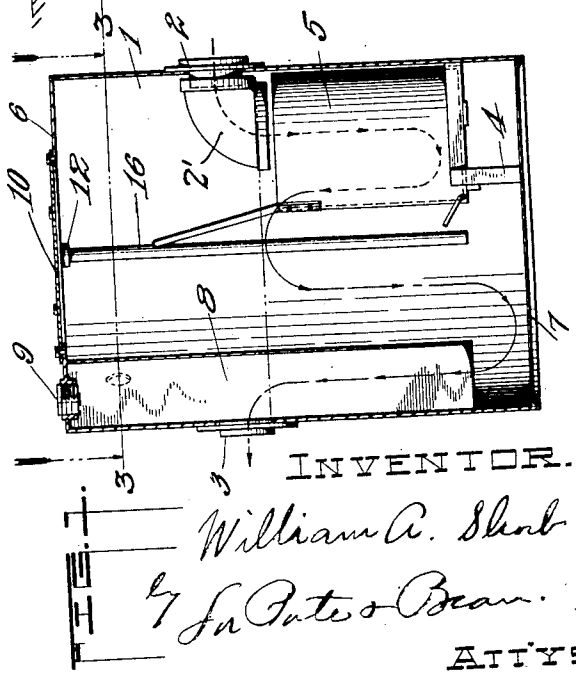


FIG. 1.

INVENTOR.

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ATTYS

UNITED STATES PATENT OFFICE.

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SEPARATING-TRAP.

1,396,384. Specification of Letters Patent. Patented Nov. 8, 1921.

Application filed February 1, 1918. Serial No. 214,939.

To all whom it may concern:

Be it known that I, WILLIAM A. SHORB, a citizen of the United States, resident of Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Separating-Traps, of which the following is a specification.

This invention relates to improvements in a separating trap, and the object is to provide a simple and effective construction of this type for separating the oils from water, and also for separating any solids which may be present in the mixture.

In numerous communities and municipalities, ordinances and regulations are in effect, requiring the installation in buildings, such as garages and the like, of traps for separating the oils, gasolene or other hydro-carbons from the drainage water so as to prevent the passage of hydro-carbon into the sewerage system and prevent possible explosions and damage from other causes.

Another object of this invention is the provision of such a device which includes means for collecting and removing the sediment or solid matter and also a pump for removing the oil, gasolene or other hydro-carbons, and a connection whereby the pump may be used to remove the water from the lower part of the tank for cleaning purposes.

To the accomplishment of the foregoing and such other objects as may hereinafter appear, my invention consists in the combination, construction and arrangement of parts hereinafter described and then sought to be defined in the appended claims, reference being had to the accompanying drawings forming a part hereof, and which shows merely for the purpose of illustrative disclosure, a preferred embodiment of my invention, it being understood that various changes may be made in practice within the scope of the claims without digressing from my inventive idea.

In the drawings,

Figure 1 represents a vertical section taken through a separating trap constructed according to my invention;

Fig. 2 is another vertical section taken on a plane at right angles to the plane of Fig. 1, the pump being shown in full lines in connection with the pipe whereby the oil and other hydro-carbons may be removed, and in dotted line position in connection with the pipe through which the water is to be removed from the tank;

Fig. 3 is a horizontal section taken substantially on line 3—3 of Fig. 1.

Broadly considered, this invention comprises a tank which is adapted to be placed in a suitable pit below the floor level and connected to the drainage system of a garage or other building so as to receive the liquid which is drained therefrom. This liquid is a combination of water, oils, grease, gasolene and dirt of various kinds. The tank is therefore provided with means for collecting the sediment or heavier substances, and has a discharge compartment or passage, having its opening near the bottom of the tank so that the water forms a seal and will pass through the outlet into the usual sewerage system. A connection is provided within the tank extending to a point near the water level and another connection is extended into the tank to a point near the bottom thereof, and practically in the same plane with the end of the discharge compartment or passage. A pump is adapted to be attached to either of these connections so as to withdraw the oil or other hydro-carbon and also to withdraw the major portion of the water in the bottom of the tank, when desired. It is preferred that this tank be placed in a cement pit, the upper edge of which is provided with the T-iron of annular form to receive a plate or cover of the same form.

The tank or trap proper 1, is preferably cylindrical in shape, having the inlet coupling 2 with the downturned elbow 2′ at one side and the outlet coupling 3 at the other side. These couplings are located substantially on a line with each other so that the water line is the lower edge of the coupling.

Supporting frame 4 is provided on which the removable bucket or other receptacle 5 rests below the coupling 2, so that the fluid in passing into the trap, first falls into this removable bucket or receptacle, the dirt and other heavier substances falling to the bottom thereof by gravity, and the liquid passing off into the other part of the tank. Surrounding the outlet coupling 3, and extending from the top 6 of the tank to near the bottom 7. is the discharge compartment or passage 8.

The top 6 of the tank is provided with the

vented plug 9 opening into this discharge compartment or passage 8. The man-hole plate 10 is bolted to the top 6 to cover the opening leading thereinto, to permit access.

Extending downwardly from one side of the top is the pipe connection 11 which is connected to the double coupling 12 in the top, and has the cup member 13 adjustably mounted on its lower end, as by means of a set screw or the like. This pipe connection 11 is adapted to be normally closed by means of a plug which is readily removable to permit the application of the connection 14 forming a part of the hand pump 15, as shown in full lines in Fig. 2. It is to be noted that the cup 13 on the lower end of pipe connection 11, has its inlet opening positioned just above the water line so that when the pump is applied and operated, practically all of the oil and other hydro-carbon which floats on the water, may be removed. On the other side of the top is provided the pipe or connection 16, connected to the coupling 17, similar to the other coupling 12, and this pipe or connection extends down on a line with the inlet to the discharge passage or compartment 8, so that when the pump is connected thereto, as indicated in dotted lines in Fig. 2, the water may be pumped from the tank down to that level. The vent opening 18 is provided in the side of the tank, and adapted to be connected to a pipe which leads through the roof or to the outside of the building, as sometimes required by regulations, ordinances or statutes.

The water seals the inlet to the outlet passage or compartment 8, so that the oil, gasolene or other hydrocarbon is entirely separated therefrom and remains in the upper portion of the tank, the water passing through the outlet and leaving the oil, gasolene or other hydrocarbons within the tank until removed by the application and operation of pump 15.

This structure is simple and may be effectively taken care of with a minimum amount of trouble and conforms to the requirements of standard ordinances, regulations and other statutes.

Another use for the plug 9 is to permit the insertion of some means for sampling the water in the discharge compartment or passage 8, so as to be sure that the trap is properly performing its function of removing the oils, greases and the like.

What I claim is:—

1. A separating trap, including in combination a tank having an inlet connection and an outlet connection, a discharge compartment or passage inclosing said outlet connection and extending from the top of the tank to a point near the bottom of the tank, a removable receptacle located beneath the inlet connection adapted to receive the solid matter, a pipe connected to the top of the tank and leading to a point just above the water line and adapted to receive a pump so as to remove the oil and other hydro-carbon therefrom, and another pipe leading from the top of the tank to a point in the same plane as the lower end of the discharge compartment or passage and adapted to receive a pump for removing the water from the tank.

2. A separating trap, including in combination a tank having an inlet connection and an outlet connection, a discharge compartment or passage inclosing said outlet connection and extending from the top of the tank to a point near the bottom of the tank, a removable receptacle located beneath the inlet connection adapted to receive the solid matter, a pipe connected to the top of the tank and leading to a point just above the water line and adapted to receive a pump so as to remove the oil and other hydro-carbon therefrom, and another pipe leading from the top of the tank to a point in the same plane as the lower end of the discharge compartment or passage and adapted to receive a pump for removing the water from the tank, said discharge compartment or passage being provided with a vent and said tank also being provided with a vent, both vents being located near the top of the tank.

3. A separating trap of the character described, including in combination a tank, having an inlet connection and an outlet connection located in substantially the same plane, a removable receptacle positioned beneath said inlet connection and adapted to receive the solid matter, a discharge passage or compartment embracing said outlet connection and extending from the top of the tank to a point near the bottom thereof, said discharge compartment or passage having a vent therein, a pipe leading from the top of the tank to a point just above the water line therein and having an inlet member adjustably mounted on its lower end, with its inlet opening above the water line, and another pipe leading from the top of the tank to a point near the bottom thereof in substantially the same plane as the opening into the discharge passage or compartment, said pipes being adapted to receive a pump for the removal of liquids in the tank down to the level of the lower end of the pipes.

In witness whereof, I have hereunto affixed my hand this 26″ day of December, 1917.

WILLIAM A. SHORB.