W. H. McNUTT.

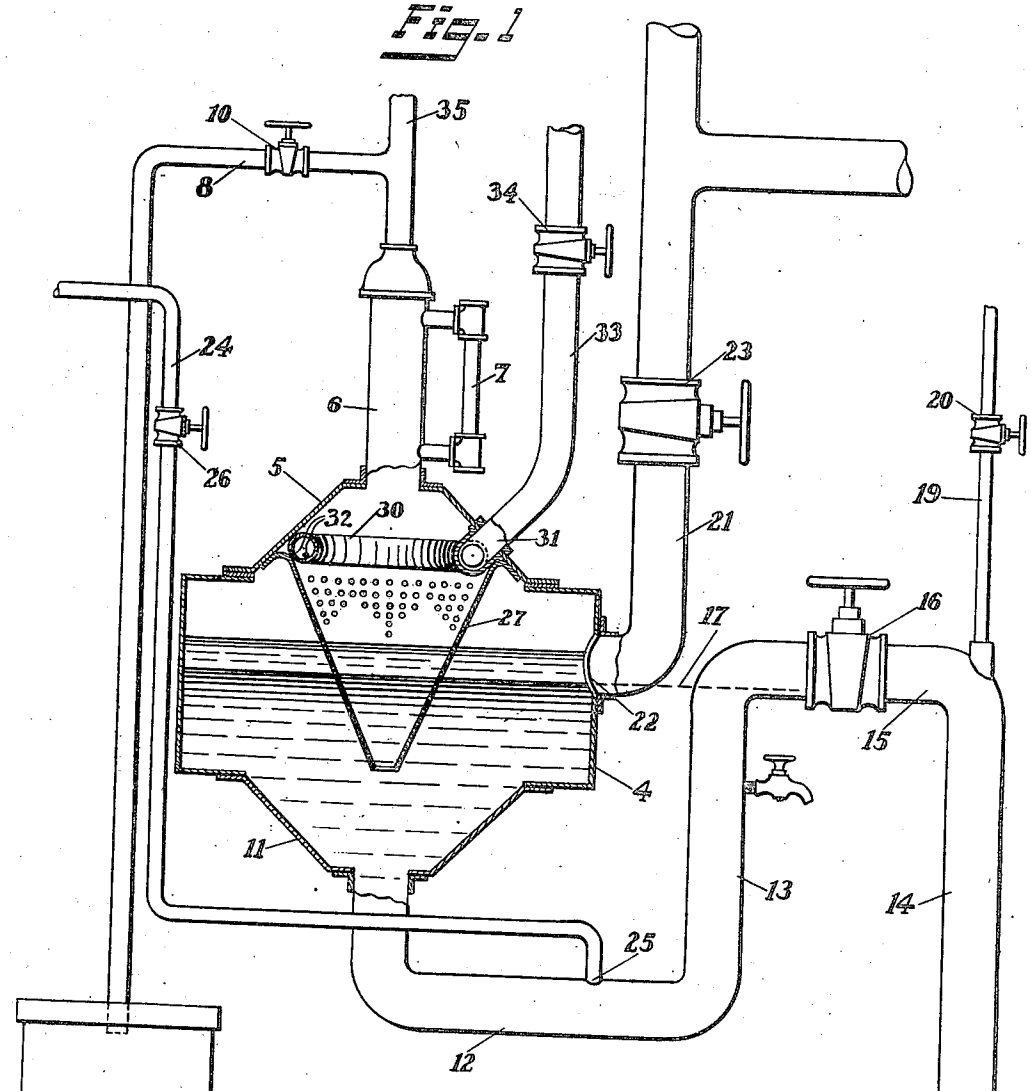
SEPARATOR FOR OIL AND GASOLENE.

APPLICATION FILED MAR. 18, 1914.

1,122,625.

Patented Dec. 29, 1914.

Fig. 1



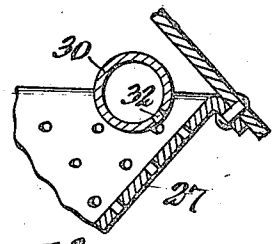


Fig. 2.

Witnesses:
Eva B. Kramer
Monica Kramer.

William H. McNutt.
Inventor

By his Attorney
William H. Reid.

UNITED STATES PATENT OFFICE.

WILLIAM H. McNUTT, OF NEW YORK, N. Y., ASSIGNOR TO CARRIE EMMA OWEN, OF FRANKLIN, NEW YORK.

SEPARATOR FOR OIL AND GASOLENE.

1,122,625. Specification of Letters Patent. Patented Dec. 29, 1914.

Application filed March 18, 1914. Serial No. 825,472.

To all whom it may concern:

Be it known that I, WILLIAM H. McNUTT, citizen of the United States, and resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Separators for Oil and Gasolene, of which the following is a specification.

This invention has for its object to provide an improved means for the separation from refuse water, such as sewerage from buildings, and especially the drainage water from a garage or similar places where the water contains a large amount of oil and gasolene, that becomes collected in dangerous quantities in the sewers and results in frequent explosions.

A further object of the invention is to provide means whereby the heavier oils or grease that accummulate in the device can be properly removed through the employment of heat, so that part will be evaporated and driven off through an air vent, and the remainder will be loosened to be removed by flushing and carried off into the sewer.

In the accompanying drawings illustrating one embodiment of my invention, Figure 1 shows a tank with the several connections and the receptacle for the separated fluid; and Fig. 2 is an enlarged transverse section through the flushing pipe.

In the drawings I show a receptacle in the form of a drum 4 whose top is provided with a conical extension 5 connecting with an outlet pipe 6 extending upward. The latter has a sight tube 7 of glass for observing the passage up from the tank. A pipe 8 leads from the pipe 6 to a suitable receptacle 9, and is controlled by valve 10.

At the bottom of the drum 4 is a cone 11 connecting with an outlet pipe 12. This pipe is provided with an upwardly extending leg 13 that is joined to a downwardly extending leg 14 by a portion 15 in which is placed a valve 16. The part 15 is level with the intermediate portion of the tank 4, to act as a fluid retainer to maintain the water level of the tank at about the line 17. To vent this outlet pipe 14 that connects with a pipe 18 leading to the sewer, I provide an air vent 19 in the pipe 15, that is controlled by valve 20, that is normally opened to admit air and break the siphon. It will be understood that when this valve is closed the outlet will act as a siphon to flush the contents of the tank.

An inlet pipe 21 leads into the tank at 22 and is controlled by valve 23. The pipe 21 leads from the floor of the garage, and also connects with the wash-stand and bath room apparatus in the building so as to receive all sewerage fluid. I also provide a pipe 24 connecting with a water main and leading into the outlet pipe 12 at 25. This water inlet is controlled by valve 26.

Inside of the drum 4 I place a screen member in the form of a cone 27 of perforated material whose upper end is secured to the lower portion of the cone 5, the lower converging end of the screen 27 being open and located in the lower portion of the drum 4, so that the fluid entering through the inlet pipe 21 can only pass into the cone through the small openings, or through its lower end aperture.

At the top of the screen 27, I arrange a suitable inlet device for hot water that will be discharged all around the circumference of the cone at this part. I show a coil of pipe 30 at the top of this cone having an inlet 31, the pipe being provided with small holes 32 in its lower portion, whereby water flowing into the pipe will be directed against the inner surface of the cone to flow down the same. The inlet 31 connects with a pipe 33 controlled by a valve 34.

In the use of the apparatus, the inlet valve 23 and the outlet valve 16 are normally opened, as is also the inlet valve 20. The sewerage water will flow into the tank through the pipe 21 and pass down through the same into the outlet 12 and up the leg 13, and this will cause the water to back up into the tank until it reaches the highest portion 15 of the outlet pipe, which portion, as will be seen, is level with the intermediate portion of the tank. As the water continues to flow, the oil and gasolene, and all floatable fluid or other material will rise to the top of the water in the tank 4, to the line 17 and accumulate above the same, and it will be seen that this level is above the bottom of the screen 27. Therefore as the fluid flows into the tank the oil and gasolene rising at once to this level, will remain outside of the screen 27, except that which passes through the perforations in the screen. As the oil and gasolene pass into the tank they

will accumulate on top of the water and mostly outside of the screen 27 as indicated in Fig. 1. When it is desired to remove this floating material and clean out the tank the inlet valve 23 is closed and also the outlet valve 16; and then the valve 26 is opened to admit water from the main into the outlet pipe 12. This will cause the inflowing water to enter the tank and force the contents thereof up through the extension 5 of the tank into the outlet pipe 6, also passing through the sight tube 7, and into the outlet pipe 8. The gasolene and oil floating on top of the water will of course first pass up through the outlets 6 and 7, and will flow through the pipe 8 down into the receptacle 9. By watching the sight tube it can be ascertained when all of the oil and gasolene have been forced upward and out into the receptacle 9, and then the valve 26 is closed. Thereupon, the outlet valve 16 is opened and the air vent valve 20 being open, water will flow out of the pipe 6 and the tank 4 through the outlet 14, until the level is again restored to the line 17 in the tank. Then the valve 34 is opened in the pipe 33 to admit hot water, that will pass through the openings in the coil 30 and flow down the inner face of screen 27 and serve to melt and remove thick oil or grease or sediment of any kind collected in the holes in the screen. It is to be understood that when the water enters the tank at 22, the oil and substances that did not at once fall to the bottom of the tank, and which float on the surface had a tendency to collect on the outer face on the screen 27. This hot water will have a tendency to vaporize some of this heavy oil and the vapor and steam therefrom will pass up through the top outlet pipe 6, and through an extension pipe 35 that is carried upward through the building to the roof to permit safe escape of such vapors. This hot water flowing into the screen member will tend to fill up the tank, and the outlet valve 16 being opened, it will flow out to maintain the level at 17 in the tank. At this time the siphon inlet valve 20 is closed, to complete the siphon and with the hot water still flowing in the outlet pipes 13 and 14, will now act as a siphon and quickly run off or flush all of the fluid in the tank. This will permit the inflowing hot water to run down the entire inner face of the screen 27 and will serve to melt and thoroughly cleanse any accumulation of grease or material of any kind on the screen. At the same time any sediment in the pipe 12 will be softened by the heat and will flow out through the outlet pipe 14.

When the tank has been thoroughly cleansed, the hot water supply is shut off, and the valve 10 is closed and the valve 23 again opened, and the tank will perform its normal operation. The air vent pipe 35 is always open so that any fumes from the contents of the tank are carried off to the roof. Also the pipe 19 is carried upward to the roof to prevent entrance into the building of any vapors from the sewer pipe 14, the water in the pipe 12 preventing their entrance into the tank.

It will be apparent that the operation of the apparatus is very simple, requiring merely the manipulation of certain valves, no extraneous operating means, such as compressed air or pumps is required, and the apparatus is continuous in its operation and substantially automatic in its function. The drainage water flows in continuously from the garage and other parts of the building, and the oil and gasolene simply accumulate in the upper portion of the tank. At suitable intervals the accumulation of fluid is removed from the tank in suitable receptacles by simply employing the pressure from the water main and the use of hot water.

It will be seen that the advantages of such an apparatus are twofold. In the first place highly explosive fluids such as gasolene and the like are absolutely prevented from flowing into the sewers, where the gases accumulate to cause disastrous explosions. In the second place valuable materials such as gasolene and lubricating oil are saved for future use, instead of being lost by passing into the sewer.

Having thus described my invention, what I claim is:—

1. In a separator, a closed tank having a drainage inlet, a valve in said inlet, an outlet member leading from the bottom of the tank and provided with connected, upwardly-extending and downwardly-extending legs to constitute a siphon whose top is level with the intermediate portion of the tank, a valve controlled inlet in the siphon, a valve in the outlet member, a pipe extending upward from the top of the tank for removal of floating fluids, a water inlet in the lower portion of the tank, a conical perforated partition secured to the top of the tank and surrounding the top outlet with its smaller end open and projecting downward through the tank, and a water inlet at the top of the conical member having outlets to admit water to the entire inner circumference of the cone.

2. In a separator, a closed tank having a drainage inlet opening into the side of the tank, a valve in said inlet, an outlet member leading from the bottom of the tank and provided with connected, upwardly-extending and downwardly-extending legs to constitute a siphon whose top is level with the intermediate portion of the tank, a valve controlled inlet in the siphon, a valve in the outlet member, a pipe extending upward from the top of the tank for removal of

floating fluids, a water inlet in the lower portion of the tank, a conical perforated partition secured to the top of the tank and surrounding the top outlet with its smaller end open and projecting downward through the tank below the said drainage inlet, and a water inlet at the top of the conical member having outlets to admit water to the entire circumference of the cone.

3. In a separator, a closed tank having a drainage inlet opening into the side of the tank, a valve in said inlet, an outlet member leading from the bottom of the tank and provided with connected, upwardly-extending and downwardly-extending legs to constitute a siphon whose top is level with the intermediate portion of the tank, a valve controlled inlet in the siphon, a valve in the outlet member, a pipe extending upward from the top of the tank for removal of floating fluids, a water inlet in the lower portion of the tank, a conical perforated partition secured to the top of the tank and surrounding the top outlet with its smaller end open and projecting downward through the tank below the said drainage inlet, a water inlet at the top of the conical member having outlets to admit water to the entire circumference of the cone, and a valved air vent for the siphon outlet pipe.

4. In a separator, a tank comprising a drum provided at its top with an open-topped conical extension, having an outlet leading therefrom, and at its side with an inlet, a siphon connected with the bottom of said tank, an inverted conical screen secured to the top of said tank directly beneath said extension and having its smaller end open, and a perforated pipe arranged within said screen for flushing the inner surface thereof.

WILLIAH H. McNUTT.

Witnesses:
WM. H. REID,
JOSEPH G. QUINN, Jr.