

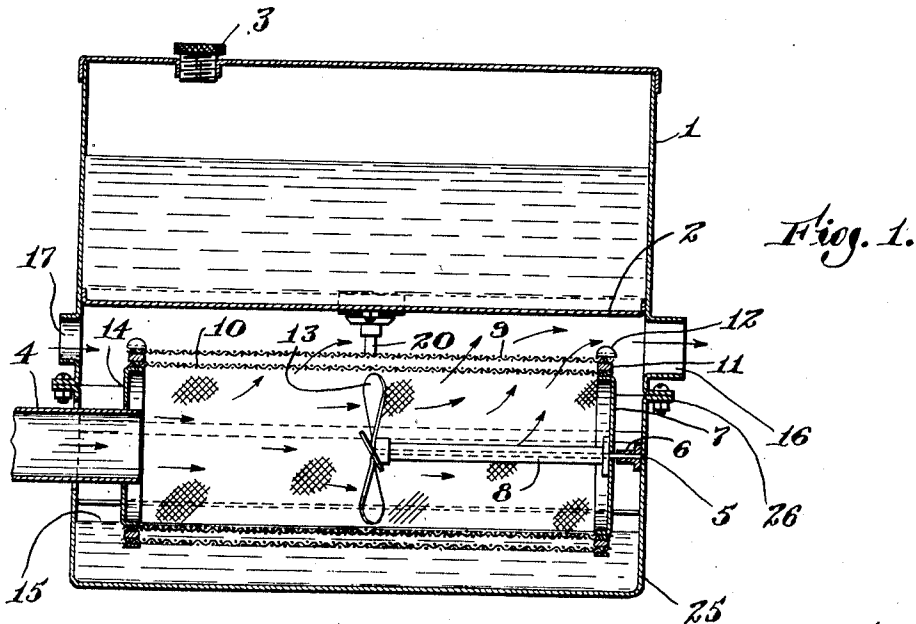
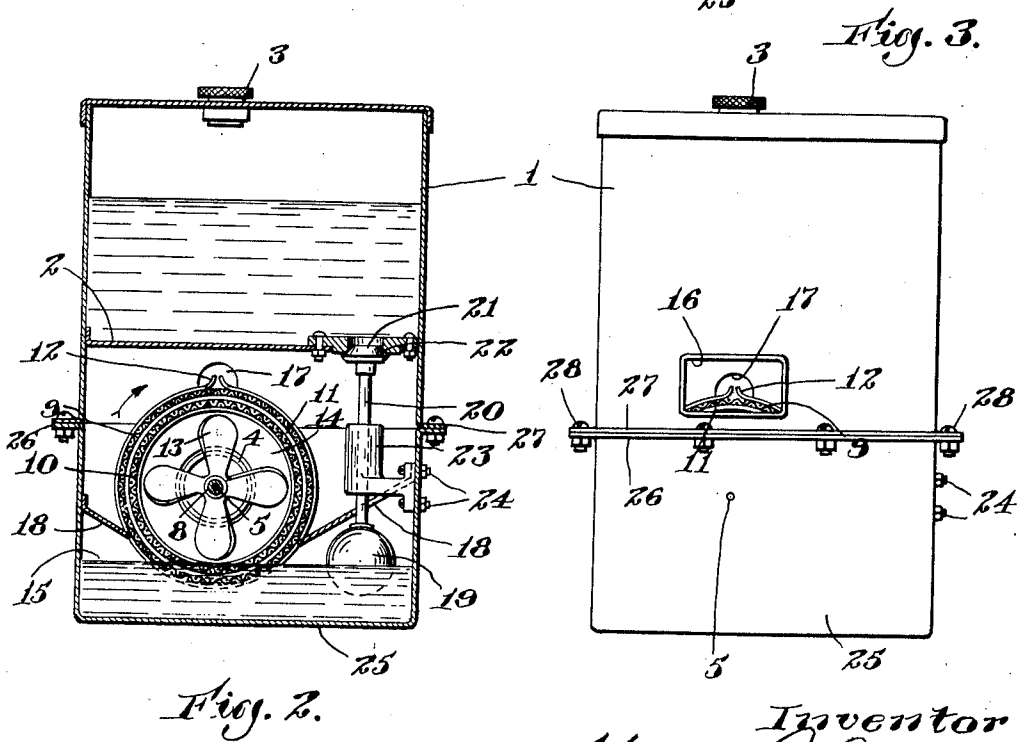
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MUFFLER.

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My present invention is a novel and improved apparatus for deodorizing the exhaust gases passing from the exhaust pipes of internal combustion engines, and eliminating the smoke therefrom, and is particularly adaptable for use in connection with the exhaust pipes of automobiles.

I am aware that it has been heretofore attempted to solve this problem by the utilization of various forms of chemicals through which the exhaust gases must pass, but these have been more or less unsatisfactory, due to expense of construction and upkeep, as well as the detrimental reaction of the gases and oils on the chemicals utilized.

My present invention is adapted to simplify such constructions, and I have devised an apparatus which will be extremely simple to build, economical to operate, positive in action, and requiring but a minimum amount of attention on the part of the operator.

For this purpose I utilize a revolving screen, composed preferably of two or more layers or thicknesses of screening or mesh, formed in cylindrical form, which screen cylinder will be operated by an impeller or propeller actuated by the exhaust gases emitted from the exhaust pipe, for example of an automobile. This revolving screen and propeller are enclosed in a casing or box, the upper section of which is preferably formed as a tank, preferably containing water. An automatically operated valve normally prevents flow of water from this tank. As the screen revolves, it engages a body of water in the lower part of the tank, kept to a predetermined level by the aforesaid valve. Upon evaporation of this water, a float will drop with the level of the water, thereupon automatically opening the valve and permitting a flow of water from the upper tank until the predetermined level in the lower portion of the box or container has been reached. Thereupon the valve will shut off this supply of water. As the gases leave the exhaust pipe, they will cause the propeller to rotate, simultaneously rotating the screen cylinder, to which the propeller is affixed, and the result is that the screens, in revolving, and passing through the water in the lower portion of the container, will be filled with water themselves, forming walls of water through which the exhaust gases must pass. An inlet is provided into this container to afford proper draft, and an outlet for the deodorized and purified gases is also

provided. The passage of the gases through the water screens will also tend to eliminate smoking, which is extremely objectionable. Furthermore, my novel device will act as a silencer for the exhaust gases, and results in a quieter running automobile, elimination of offensive odors from the exhaust gases, and substantial or total elimination of the smoke therefrom.

A further advantage of my novel apparatus is that it largely overcomes the danger from the deadly monoxide gas, so that if the operator should inadvertently be running his car in a closed space, the danger from this poisonous gas would be greatly lessened. This is an important feature in apparatus of this nature.

I believe that my present invention is novel and useful, and I therefore claim the same broadly herein.

Further features of the invention, novel combinations of parts, and advantages, will be hereinafter more fully pointed out and claimed.

Referring to the drawings, illustrating a preferred embodiment of my present invention,

Fig. 1 is a longitudinal sectional view of my apparatus positioned in conjunction with the exhaust pipe of an internal combustion engine;

Fig. 2 is a cross-sectional view of the same; and

Fig. 3 is an end elevation of the exhaust end of the box, receptacle or container utilized.

As shown in the drawings, my novel apparatus comprises a box or container illustrated generally at 1, having a reserve portion or tank 2 in its upper portion. An inlet having a cap or cover 3 is provided for filling this space or reservoir with water. The receptacle is illustrated as positioned over the end of an exhaust pipe 4 leading from the exhaust manifold of an internal combustion engine.

In the lower section of the receptacle 1 is a fixed shaft 5 mounted in a bearing 6. On the shaft 5 a screen, designated generally at 7, rotates, by means of a hollow shaft 8 fixed to one end of the screen. The screen comprises layers of mesh material, preferably metal, 9 and 10, separated by a strip 11 of any suitable material and held in place by straps or the like 12. I have here illustrated two layers or rolls of this mesh material,

but it will be appreciated that I may utilize, one, two, three or any desired number. A propeller 13 is fixed to the hollow shaft 8, for rotating the shaft 8 and screen, when actuated by the exhaust gases from the exhaust pipe 4, which pipe 4 is directed into the interior of the screen cylinder through an opening in the end 14.

As illustrated, the lower portion of the screen cylinder is normally below the water level 15. Upon operation of the engine, the exhaust gases emitted from the pipe 4 will enter the screen cylinder, and cause rotation of the propeller 13 and screen cylinder. Thereupon the screen meshes 9 and 10, in rotating, will pass through the water in the lower portion of the receptacle 1, and the water will cling to the interstices or openings in the mesh, thus forming two layers of water through which the exhaust gases must pass before exit to the outer air through the outlet 16 in the receptacle 1. A draft inlet 17 is also provided for intake of air to the receptacle 1 and admixture of same with the exhaust gases. Splash pans 18 are also provided.

Upon lowering of the water level in the lower portion of the receptacle 1, the float 19 will also drop. This float is connected to a rod or shaft 20 on the upper end of which shaft is a valve 21 normally fitting in the valve seat 22. Upon dropping of the float 19, the valve 21 will open, permitting entrance of water to the lower portion of the receptacle, and as the lower water level rises, the float 19 will also rise, shutting off or closing the valve 21 when a predetermined level has been reached. The upper reserve compartment of the receptacle 1 contains sufficient water for a great length of time, and is easily and simply refilled by removing the plug or cap 3, filling the upper compartment with water, and replacing the cap, or this reserve compartment may be connected, if desired, directly to the radiator of an automobile, and automatically kept filled therefrom. A guideway 23 is provided for the valve rod 20, which guideway is secured to the walls of the receptacle 1 by bolts or the like 24.

As illustrated in the drawings, I form the lower portion 25, removable and detachable from the rest of the receptacle. To facilitate attachment of these parts, I flange the portion 25, as illustrated at 26, and also provide a flange 27 on the upper portion of the receptacle. Bolts 28 passing through these flanges hold the separable parts of the receptacle in close contact, preventing leakage, or the like. This construction enables the lower portion 25, to which the screened cylinder is attached, to be readily removed, cleaned, screens replaced, or other repair work done.

It will thus be appreciated that, as the

gases must pass through the revolving screens or lays of water before their passage to the outer air, such gases will of necessity be purified and deodorized, as well as breaking up and eliminating the smoke frequently present with these gases.

I believe that I have devised a novel, simple, and efficient deodorizer for exhaust gases, and eliminator for smoke, and my device being new and useful, economical to manufacture, and simple in operation, I therefore claim the same broadly herein.

While I have necessarily described my present invention somewhat in detail, it will be appreciated that I am not limited thereto, but may vary the size, shape and arrangement of parts within reasonably wide limits without departing from the spirit of the invention.

My invention is further described and defined in the form of claims as follows:

1. Apparatus of the kind described for use in combination with the exhaust pipes of internal combustion engines, comprising a receptacle, a source of water supply in the upper portion of said receptacle, automatic means to admit water to the lower portion of said receptacle to a predetermined level, a rotatable cylindrical screen comprising a pair of spaced members having a plurality of layers of screen mesh mounted thereon and in the lower part of said receptacle, a portion of said screen being always immersed in said water, removable clamping means to hold said screen mesh layers on said spaced members, a propeller fixed to and within said cylindrical screen and adapted to be rotated by the exhaust gases emitted from the exhaust pipe, and an air inlet to, and an outlet from, said receptacle.

2. Apparatus of the kind described for use in combination with the exhaust pipes of internal combustion engines, comprising an enclosing receptacle, a source of water supply in the upper portion thereof, automatic means to admit water to the lower portion of said receptacle to a predetermined level, a rotatably mouthed cylindrical screen comprising a plurality of layers of screen mesh, said screen being located in the lower portion of the enclosing receptacle, the interior of said cylindrical screen being directly connected to the exhaust pipe of the internal combustion engine, a propeller secured to one end of the cylindrical screen and located entirely within the screen, said propeller being adapted to be rotated by the exhaust gases emitted from the exhaust pipe directly into the interior of the screen, and an air inlet to, and an outlet from, said enclosing receptacle whereby said screen is rotated.

In testimony whereof, I have signed my name to this specification.

MORRIS R. BRILLIANT.