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WHIRLPOOL MUFFLER

Filed April 11, 1925

Fig. 1.

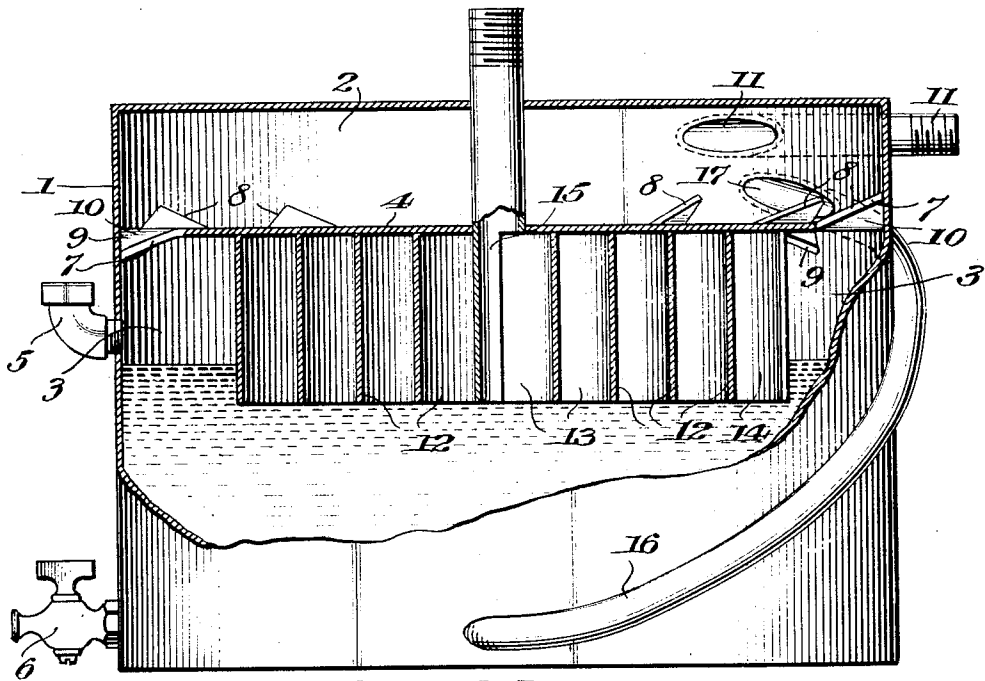
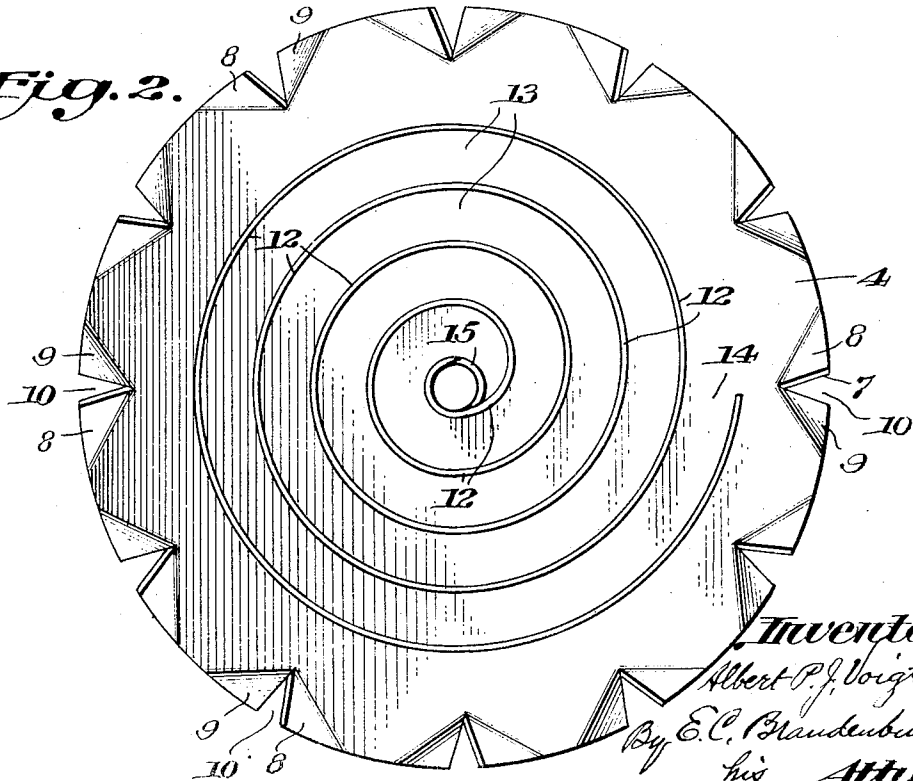


Fig. 2.



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WHIRLPOOL MUFFLER.

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My invention relates to an improvement in whirlpool mufflers for internal combustion engines.

The object of my invention is to provide a whirlpool muffler and spark extinguisher for preventing sparks or backfire of internal combustion engines from passing out of the exhaust pipe thereof and burning, or otherwise damaging by fire, cotton, jute, sisal, oils, or other parts of, or the load of a motor vehicle, truck or tractor. The whirlpool muffler prevents any such damage while at the same time serving the usual purpose of a muffler, namely, to receive the exhaust from the motor, liberating it from a small pipe into a comparatively large chamber, where the force of the exhaust is lessened by expansion, and discharged from the muffler with practically no noise.

The whirlpool muffler consists in a container partly filled with water and having a baffle plate therein dividing the container into upper and lower compartments. The exhaust enters the upper compartment from where it passes through openings formed by flanges on the baffle plate, into the lower compartment where it comes into contact with the water, which extinguishes any sparks that may be a part of the exhaust. Upon entering the lower compartment, the exhaust gases are guided through a spiral passageway to the outlet at the center thereof, and while passing through said passageway and around the container, the exhaust being in contact with the water causes the water to rotate, the centrifugal force created thereby tending to submerge and throw any sparks in the exhaust to the side of the container where the water extinguishes the same. Thus the whirlpool muffler not only acts in the ordinary capacity of a muffler, but it also serves as a spark extinguisher.

In the accompanying drawings:

Fig. 1 is a vertical section through the muffler;

Fig. 2 is a bottom plan view of the baffle plate and spiral partition.

The numeral 1 represents a circular container comprising the body portion of the muffler and this container is divided into upper and lower compartments 2 and 3, respectively, by the baffle plate 4, the latter being secured in a fixed position within the container 1. The lower compartment 3 is partly filled with water through a water

inlet 5 on one side of the container, and a petcock 6 is provided at a point near the bottom of the lower compartment 3 for determining whether or not there is water within said compartment.

The circular baffle plate 4, as shown in Fig. 2, has a plurality of slits 7 cut in the periphery thereof, and one of the edges 8 adjacent each slit 7 is bent upwardly and the other edge 9 is bent downwardly to form flanges with openings 10 therebetween. These openings 10 permit the exhaust, entering the compartment 2 from the engine through the inlet 11, to escape therethrough to the lower compartment 3.

Secured to the lower surface of the baffle plate 4, by being welded or otherwise secured, thereon, is a spiral partition 12 forming a spiral passageway 13 with an inlet at 14, and terminating at the center in an outlet pipe 15 extending through the baffle plate and upper compartment 2 and discharging the exhaust into the outside atmosphere.

A spray tube 16 is secured to the outside of the container 1, and has its lower or inner end terminating adjacent the bottom of and in communication with the lower compartment 3. The opposite end of the tube 16 terminates in a spray nozzle 17 extending into the upper compartment 2 and discharging into the exhaust as it enters said compartment through the inlet 11.

The exhaust from the engine enters the upper compartment 2 through the inlet 11 from whence it passes through the openings 10 between the flanges 8 and 9 into the lower compartment. The exhaust, moving around the lower compartment 3 and entering the spiral passageway 13 through the inlet 14, causes the water within this lower compartment to rotate, the centrifugal force created thereby tending to throw any sparks in the exhaust to the side of the container where the water extinguishes the same. The contact of the exhaust with the water in the lower compartment would tend to extinguish any sparks in the exhaust before it passes from the passageway 13 to the outlet 15, but as a further means of doing this the spray tube 16 is provided, it having the spray nozzle 17, to spray the water into the exhaust as it discharges into the upper compartment 2 from the engine. It will be evident that the water is forced through the tube 16 and nozzle 17 by the rotation and

centrifugal forces created by the action of the exhaust in the compartment 3. Thus the whirlpool muffler serves to extinguish any sparks in the exhaust while at the same time deadening or practically eliminating the noise caused by the explosion in the engine.

I claim:

1. A muffler including upper and lower compartments, a partition therebetween, said upper compartment having an inlet and said lower compartment having an outlet, and being adapted to be partly filled with a liquid, and a spiral passageway formed on, and extending between said partition and the surface of the liquid and communicating with said outlet.

2. A sound muffler for explosion engines including a compartment for receiving gases from said engine, a second compartment for containing a liquid and for receiving the gases from the first-mentioned compartment, and a substantially arcuate passageway formed in said second compartment for directing the gases into contact with the liquid for dampening the sound conveyed in said gases.

3. A sound muffler for explosion engines including a compartment for receiving gases from said engine, a second compartment for containing a liquid and for receiving the gases from the first-mentioned compartment, and a substantially spiral passageway formed in said compartment in contact with said liquid for directing the gases into contact with the liquid and imparting a rotary action to the liquid, for dampening the sound conveyed from said engine in the gases.

4. A muffler including a plurality of compartments, at least one of said compartments adapted to contain liquid, an exhaust gas inlet, and a tube communicating with the liquid in said liquid compartment and extending to a point adjacent the exhaust gas inlet for supplying moisture to the exhaust gas.

5. A muffler including a container having communicating upper and lower compartments, the lower compartment being adapted

to contain a liquid therein, the upper compartment having an inlet to receive exhaust from an engine, said lower compartment having a spiral passageway for guiding the exhaust therethrough and into contact with the liquid, and means in communication with the liquid in the lower compartment and extending to a point adjacent the exhaust inlet for supplying moisture to said exhaust.

6. A muffler including upper and lower compartments, said upper compartment being adapted to receive exhaust gas, said lower compartment being adapted to contain a liquid, and a tube communicating with the liquid in the lower compartment and extending from said lower compartment directly into the upper compartment at a point adjacent the exhaust gas inlet for moistening the exhaust gas.

7. A muffler including upper and lower compartments, said upper compartment having an exhaust gas inlet, said lower compartment being adapted to contain a liquid, means for rotating said liquid in the lower compartment, and a tube communicating with the liquid in the lower compartment and extending from said lower compartment directly into the upper compartment at a point adjacent the gas inlet for moistening the exhaust gas.

8. A muffler including a container, a baffle-plate therein for dividing said container into upper and lower compartments, the lower compartment having a liquid therein, the upper compartment having an inlet to receive exhaust from an engine, flanges formed on the baffle-plate and having openings therebetween for permitting the exhaust to escape into the lower compartment and into contact with the liquid therein, said lower compartment having a spiral passageway for guiding the exhaust therethrough and means in communication with the liquid in the lower compartment and extending into the path of the exhaust in the upper compartment for supplying moisture thereto.

In testimony whereof I affix my signature.
ALBERT P. J. VOIGT.