March 22, 1932. C. HOFFMANN 1,850,795

COMBINED MUFFLER AND SANDER

Filed Oct. 17, 1931

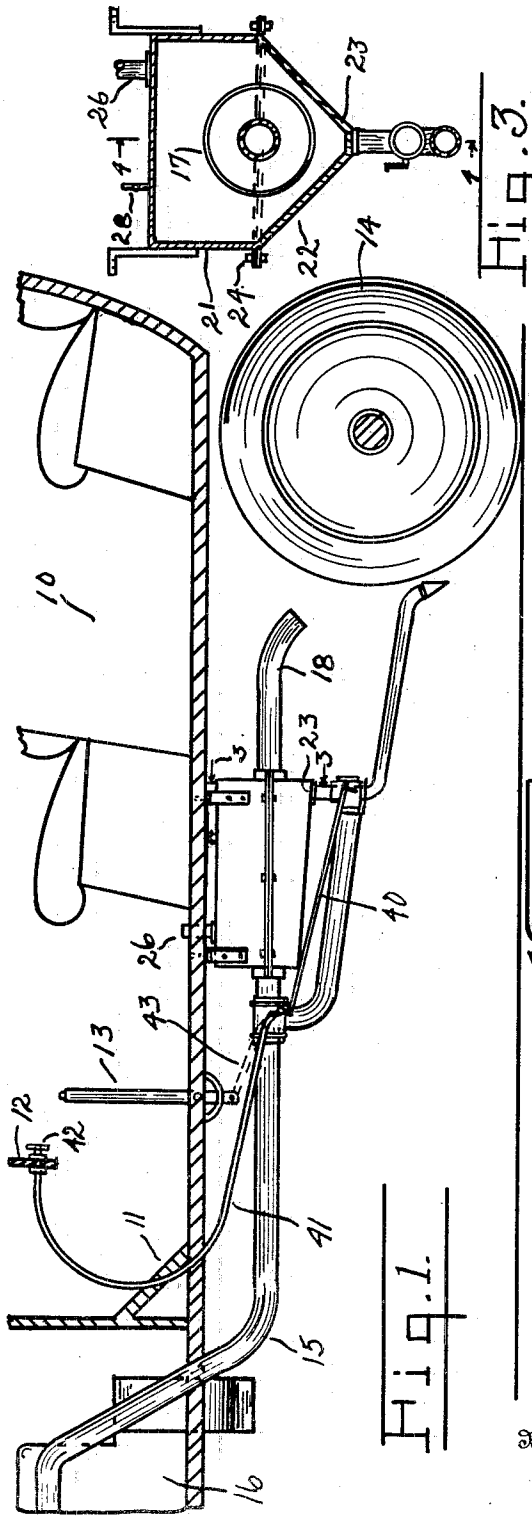


Fig. 1.

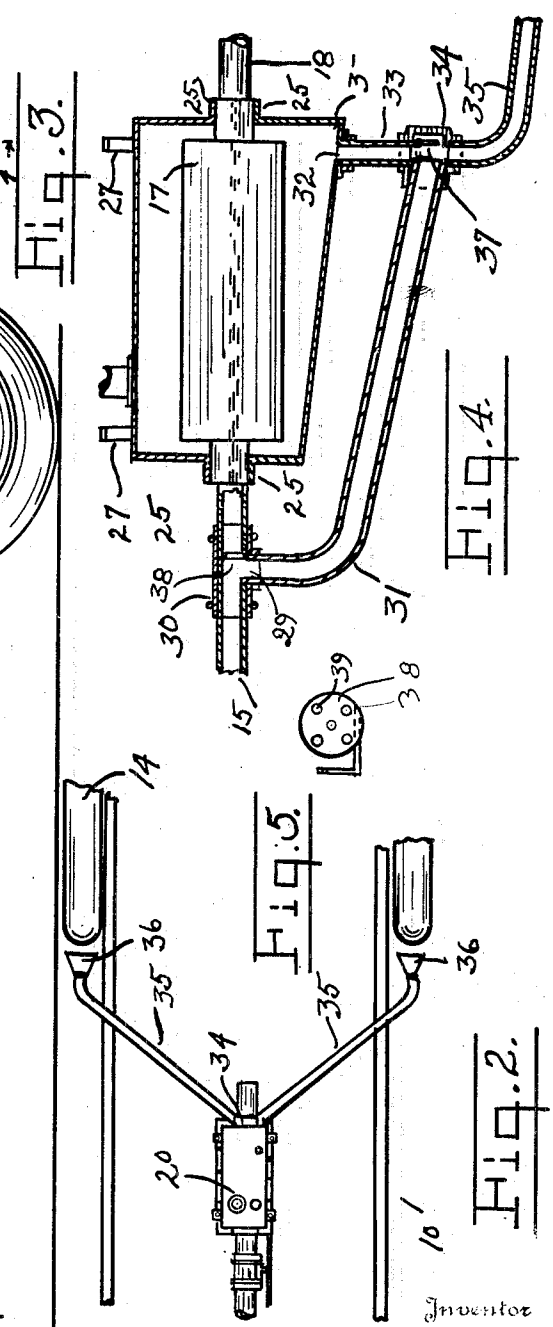


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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Patented Mar. 22, 1932 1,850,795

UNITED STATES PATENT OFFICE

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COMBINED MUFFLER AND SANDER

Application filed October 17, 1931. Serial No. 569,521.

This invention relates to sanders for automobiles, trucks, busses or other similar types of vehicles.

It is an object of this invention to provide an improved sander device for vehicles wherein provision is made for keeping the sand in dry condition at all times, and keeping it yet available for immediate use when necessary.

A further object of this invention is to provide a sander device for automobiles, which uses the exhaust gases of the motor both for drying and keeping dry the sand, as well as for forcibly blowing the sand to the desired position on the ground beneath the wheels.

A further object of this invention is to provide an improved muffler and sand device wherein the muffler is surrounded by the sander for keeping the sand in dry condition.

Yet a further object of this invention is to provide an improved combination sander and muffler wherein the exhaust gases normally pass through the muffler and may be bypassed around the muffler when it is desired to use such exhaust for spreading the sand to the proper desired position.

With the foregoing and other objects in view, as will hereinafter become apparent, this invention comprises the constructions, combinations and arrangements of parts hereinafter set forth, claimed and shown on the accompanying drawings. In the drawings,

Figure 1 is a sectional view of an automobile to which this improved combination sander and muffler device has been applied.

Figure 2 is a top plan view of the combination sander and muffler device per se.

Figure 3 is a sectional view on line 3—3 of Figure 1.

Figure 4 is a cross sectional view on line 4—4 of Figure 3, and

Figure 5 is a detailed sectional view of the by-pass valve.

There is shown at 10 a cross section of a conventional automobile or other vehicle, having a foot board 11, an instrument board 12 and an emergency brake lever 13 for the wheels 14. There is an exhaust pipe 15 returning from the motor 16. The exhaust pipe 15 normally returns the exhaust gases to the muffler 17, whence they normally discharge through the discharge pipe 18. The sander device is shown generally at 20 and comprises two half sections 21 and 22, preferably shaped as shown, it being observed that the lower section 22 has sloping sides returning downwardly toward one end 23, as clearly shown in Figure 1. The top 21 and bottom 22 are both fastened together as at 24, suitable asbestos gaskets being provided as desired.

The opposite ends of the sander halves are outwardly flanged as at 25, so as to fit snugly about the ends of the muffler 17, suitable asbestos gaskets being likewise provided at these points. The sander 20 has a filling pipe 26 which may project upwardly through the floor of the vehicle, whereby fresh sand may be poured in to take the place of the sand already used up. Obviously the filling pipe 26 may be connected to a reserve tank located elsewhere on the vehicle, especially in the case of a large truck or bus. The sander is suspended from the bottom of the vehicle or other suitable supporting means by hangers 27. A vent pipe 28 is provided to allow the escape of steam or other gases formed in the sand due to the heating thereof. The exhaust pipe 15 has an opening 29 formed therein between the muffler 17 and the motor 16 and a by pass 30 is clamped about this opening and connects to a by pass pipe 31.

At the lowermost ends 23 of the sander 20, a discharge opening 32 is provided leading to a discharge pipe 33, this discharge pipe 33 connecting with by-pass 31 at the box 34.

The box 34 connects at its bottom with two diverging sanding pipes 35 leading to the sander tips 36, which it will be noted are somewhat flattened, these sander tips 36 discharging each beneath the vehicle wheel 14. A hinge valve 37 is provided in box 34 for closing off discharge pipe 33 while another hinge valve 38 is provided in the by-pass 30, so as to divert the exhaust gases from the muffler 17 to the by-pass pipe 31. This by-pass valve 38 is provided with a number of openings 39 so that some of the exhaust gas will nevertheless continue to pass through by-pass 31 and the sanding pipes 35 so as to prevent

the sander tips 36 from freezing if mud or water should be splashed thereon by the vehicle wheels. Valves 37 and 38 are connected by a rod 40 so that both valves may operate at the same time. Thus, when the valve 38 is in position to discharge most of the exhaust gas through muffler 17, valve 37 is in a closed position to prevent sand from escaping and when valve 38 is in an upright position to discharge most of the exhaust gas through the by-pass pipe 31, then valve 37 is in a position to allow the sand to escape from valve 33 into sanding pipe 35. The valve 38 and thus also valve 37 is controlled by a flexible cable 41 terminating in a hand control 42 on the instrument board 12. Alternately, a flexible cable could be connected between this same valve 38 and the emergency brake lever 13, as shown in dotted outline at 43.

In operation, the valve 37 is normally closed and valve 38 is normally in position to allow the exhaust gases to pass through the muffler 17 and the exhaust discharge pipe 18. Sand, which will be purchasable at any filling station, is placed into the sander 20 by means of the filling pipe 26 until the same is practically full. The exhaust gases passing through muffler 17 will keep this end in a hot and dry condition. Should any moisture be present in the sand, it will soon dry off and pass out of vent pipe 28 in the form of steam.

Due to the openings 39 and by-pass valve 38, some of the exhaust gas will pass through pipe 31 to sander pipes 35 and sander tips 36, thus keeping them from freezing should any water be splashed thereon. If the operator desires to use the device he has merely to pull the hand control 42 and thus through cable 41 and connecting rod 40 operate both valves to divert the exhaust gases into the by-pass 31 and thus force the sand flowing out of discharge pipe 33 into the sander pipes 35 to the tips 36 and below the wheels. If desired the cable 43 may be installed to the emergency lever 13 so as to cause the same to operate automatically every time the emergency lever is used.

The novel features and the operation of this device will be apparent from the foregoing description. While the device has been shown and the structure described in detail, it is obvious that it is not to be considered limited to the exact form disclosed and that changes may be made therein within the scope of what is claimed without departing from the spirit of the invention.

Having thus set forth and disclosed the nature of this invention, what is claimed is:

1. A sanding device for vehicles comprising in combination a sand box and a conventional muffler box, said sand box encompassing said muffler box, means for discharging sand from said box, means for diverting exhaust gases from said muffler and through said sand discharging means.

2. A sanding device for vehicles comprising in combination a sand box and a conventional muffler, said sand box enclosing said muffler, the bottom of said sand box sloping toward one end, sand discharge means connected to said sand box at said lowermost end, an exhaust pipe leading to said muffler, a by-pass connecting said exhaust pipe and said sand discharge pipe.

3. A sanding device for vehicles comprising in combination a sand box and a conventional muffler, said sand box enclosing said muffler, the bottom of said sand box sloping toward one end, sand discharge means connected to said sand box at said lowermost end, an exhaust pipe leading to said muffler, a by-pass connecting said exhaust pipe and said sand discharge pipe, a connecting box joining said by-pass pipe and said discharge pipe, sanding pipes leading from said connection box to the motor vehicle wheels.

4. A sanding device for vehicles comprising in combination a sand box and a conventional muffler, said sand box enclosing said muffler, the bottom of said sand box sloping toward one end, sand discharge means connected to said sand box at said lowermost end, an exhaust pipe leading to said muffler, a by-pass connecting said exhaust pipe and said sand discharge pipe, a connecting box joining said by-pass pipe and said discharge pipe, sanding pipes leading from said connection box to the motor vehicle wheels, valve means for diverting the exhaust gases from said exhaust pipe to said by-pass pipe, valve means in said connection box for discharging sand therein from said sander, and means under the control of the operator for operating both of said valve means simultaneously.

5. A sanding device for vehicles comprising in combination a sand box and a muffler box, said sand box encompassing said muffler box, means for discharging sand from said sand box, means for diverting exhaust gases from said muffler and through said sand discharging means, means whereby additional sand may be added to said sand box, and means for venting gases formed in said sand box.

6. In combination with a motor vehicle having an engine exhaust pipe, a muffler and a muffler discharge pipe, a sand box, said sand box being formed of an upper half and a lower half, said upper half and lower half being joined to encompass the vehicle muffler, means for supplying sand to said box through the upper half, venting means on said sand box, a sloping bottom on the lower half of said sand box, means connected to the lowermost point of said bottom for discharging sand from said sand box, said discharging means leading to a connection box, a by-pass attached to the exhaust pipe between the muffler and the engine and leading to said connection box, valve means

formed in said by pass and said sand discharging means for simultaneously discharging sand into said connection box and diverting the exhaust gases from the exhaust pipe through said by pass into said connection box, means for operating said valves as a unit, and means leading from said connection box to the vicinity of the vehicle wheels for returning the mixed exhaust gas and sand to beneath the vehicle wheels.

7. In combination with a motor vehicle having an engine exhaust pipe, a conventional muffler and a muffler discharge pipe, a sand box, said sand box being formed of an upper half and a lower half, said upper half and said lower half being joined to entirely encompass the vehicle muffler.

8. A sanding device for vehicles comprising in combination a sand box and a conventional muffler, said sand box being formed of an upper half and a lower half, said upper half and said lower half being joined to entirely encompass the vehicle muffler, the bottom of said lower half sloping toward one end, and sand discharge means connected to said sand box at said lowermost end.

9. A sanding device for vehicles comprising in combination a sand box and a muffler box, said muffler box being contained within said sand box for heating said sand box, and means for venting gases formed in said sand box.

In testimony whereof I affix my signature.

CHARLES HOFFMANN.