March 3, 1931. J. A. BUYCK 1,795,105

MECHANISM FOR REGULATABLY SPREADING SAND OR GRIT

Filed Feb. 28, 1929

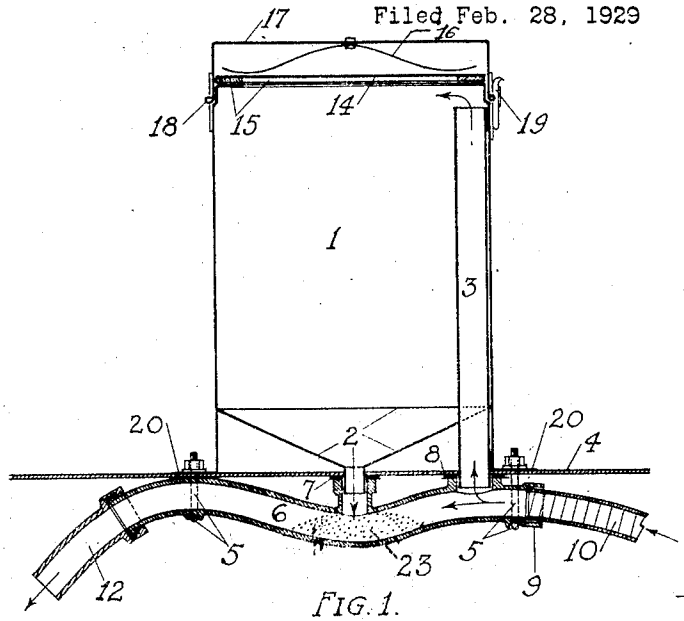


FIG. 1.

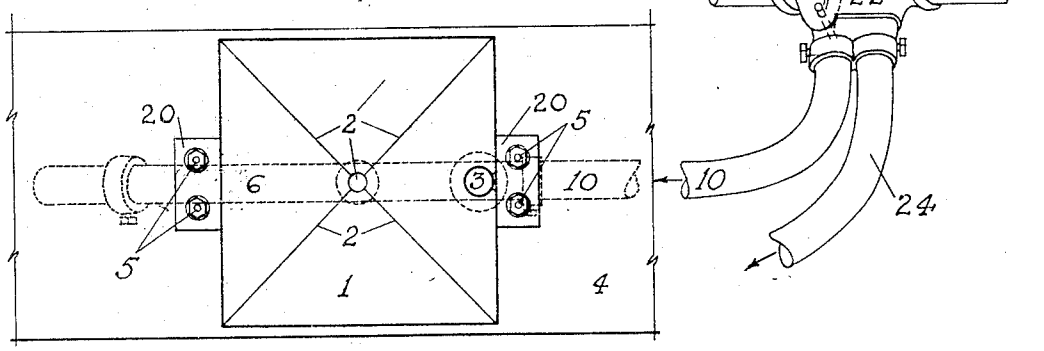


FIG. 2.

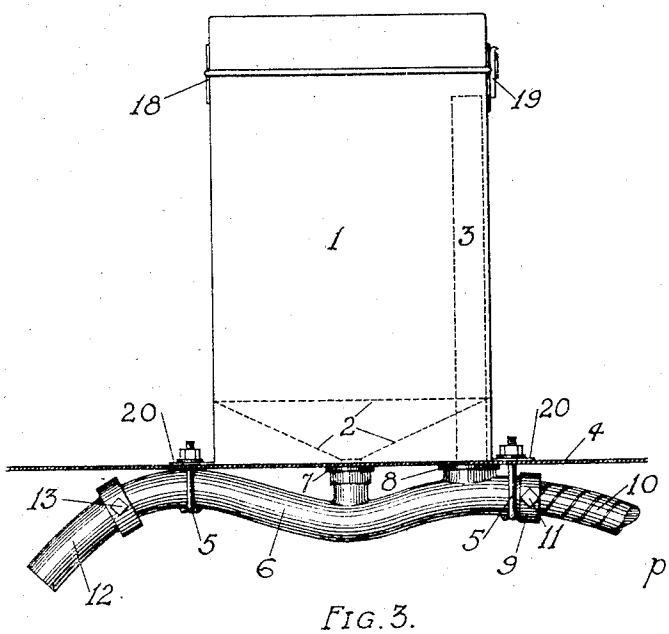


FIG. 3.

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UNITED STATES PATENT OFFICE

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MECHANISM FOR REGULATABLY SPREADING SAND OR GRIT

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This invention relates to apparatus for distributing sand, ashes, or similar grit on a slippery pavement to facilitate starting or prevent skidding of a motor vehicle, and has for its object an improved organization of parts by means of which there may be forcibly and regulatably ejected from a suitable supply source a sufficient quantity of such material to cover the slippery surface with which the driver has to deal at any particular time. Essentially it involves the expulsion of a proper and non-wasteful quantity of such material, by subjecting it to the action of a blast of exhaust gas, which is temporarily diverted from the exhaust pipe of the engine by selective manipulation of a suitable valve, which temporarily shunts the exhaust current from its usual course and against a deposited quantity of sand, ashes, or the like, which is otherwise held inactive and in non-scatterable position. The preferred embodiment of my improved device is illustrated in the accompanying drawings, in which

Figure 1 is a vertical sectional elevation.

Figure 2 is a plan view, showing more or less diagrammatically the relation of the apparatus to a suitably positioned control valve.

Figure 3 is an elevational view of the device taken from the same position as Figure 1.

The container or grip box 1, which is provided with a tapering or inverted funnel shaped bottom 2, may be fastened to any suitable portion of a vehicle chassis as, for example, the running board 4 in any approved way, as by means of U-bolts 5 which pass through the flanges 20 of the box 1 and the running board 4 of the motor vehicle. Rising within the interior of the container, preferably for assembly reasons, along one side wall, is a riser pipe 3, which is open at the top, and which is connected at the bottom end with the pipe 6, which is secured beneath the running board and which is connected at one end with the flexible or other tubing 10 by means of the set screw 11. This pipe 10 leads to connection with the dash-controlled exhaust cut-out valve 22, into and beyond which leads the exhaust pipe 21.

As brought out in Figures 1 and 3 particularly, the pipe 6 is of wavy or up-and-down cross sectional contour, so that immediately beneath the hole in the center of the funnel shaped bottom 2 of the container there is a valley or a depression into which a little hill of sand or grit may descend by gravity, its position and normal extent being indicated by the dots 23. Both the connection of the lower end of the riser pipe 3 and of the hole 2 through the sloping bottom of the container may, if desired, be guarded and made air-tight by the use of washers 7 and 8, as shown. The opposite end of this pipe 6 from that with which the inlet pipe 10 is connected is containued in first rising and then downwardly inclined form, the latter or discharge end being indicated at 12 and being positioned in suitable relation to the course of the traction wheels so that sand or grit ejected therefrom will furnish traction along the line of their travel. The top of the box is closed and rendered relatively air-tight by the cover 14, preferably encircled at its edge by the gasket 15. This cover may be further held in place by the pressure of the leaf spring 16, which depends from the under side of the outer cover 17, which latter is openably held in position on top of the container 1 by the catch 19 and hinge 18 respectively. Preferably, of course, one of these devices is located on each running board of the vehicle so that, if needed, equal traction may be afforded to the wheels; such arrangement is suggested by the showing in Figure 2 of the pipes 10 and 24, though the remaining operative parts appurtenant only one of them, as 10, are illustrated; the corresponding parts served by the pipe 24 would be the same.

The operation of my improved device is as follows:

In ordinary running of the vehicle, when no traction problems are encountered, the cut-out valve 22 is so adjusted as to leave the engine exhaust pipe 21 unobstructed and close the pipes 10 and 24, each of which is, as above stated, connected with its corresponding wavy pipe 6 in the apparatus on one running board or the other, thus letting the

exhaust from the engine pass through the shell and out through the open end of the exhaust pipe 21 in the normal course. When, however, it is desired to scatter sand or grit in the course of the traction wheels, the cut-out valve 22 is so thrown as to close further egress through the open end of the pipe 21 and divert the engine exhaust through the pipes 10 and 24, thus directing the force thereof against the accumulated pile of sand 23 in the central dip or valley of the pipe 6 of each apparatus and ejecting it through its discharge end 12. As soon as the accumulated pile 23 has been ejected, more sand or grit will descend through the opening in the sloping bottom 2 of the container for similar action upon it by the exhaust blast. This latter would not occur, but on the contrary, upon the exhaustion of the accumulated pile of sand 23, the blast from the pipe 6 would then drive upwardly through the hole in the bottom of the container rather than allow further sand to fall therethrough, were it not for the connection of the pipe 6 with the riser pipe 3, through which a part of the exhaust blast is diverted to the top of the container, because of the top end of the pipe 3 leading thereto, and consequently furnishing a greater pressure on the top of the sand supply than would be exerted through the hole in the bottom of the container 2 which, it will be noted, is of appreciably less diametrical size than the riser pipe 3. With the pressure forces thus not merely balanced, but actually over-balanced in favor of the further descent of the granular material through the hole in the bottom of the container, the action of gravity may be relied upon to continue the flow of a further quantity of sand into the pipe 6, for action upon it by the exhaust blast in the manner already described; and preferably, in order to give additional force to the diverted exhaust blast passing through the pipe 6, this latter pipe and its supply pipe 10 should be made of about half the diameter of the motor exhaust pipe 21.

It will also be obvious that the exact structural lines herein disclosed need not be adhered to so long as provision be made for the accumulation of a suitable initially ejectable quantity of the sand in such a position in the apparatus that it cannot be dislodged by the ordinary jarring incident to the travel of the vehicle. It will thus be seen that while the contouring of the pipe 6 herein disclosed seems to be the preferable means for accomplishing this result, other equivalent forms could be substituted with like functional result and without departure from the fair spirit and scope of my invention.

What I claim is:

In combination with a supply container provided with a discharge outlet in its bottom, a vertically disposed riser pipe positioned within said container, said pipe having an open top end, a vertically sinuous discharge pipe with which the lower end of said riser pipe is connected, and into which granular material located within the container may pass by gravity, and a relatively distantly positioned valve appurtenant said discharge pipe and the exhaust pipe of a motor, by whose opening a blast of gas may be diverted into said discharge pipe, for effecting the dislodgment through the open end thereof of the supply of granular material that has made its way thereinto from said container.

In testimony whereof I sign this specification.

JULES A. BUYCK.