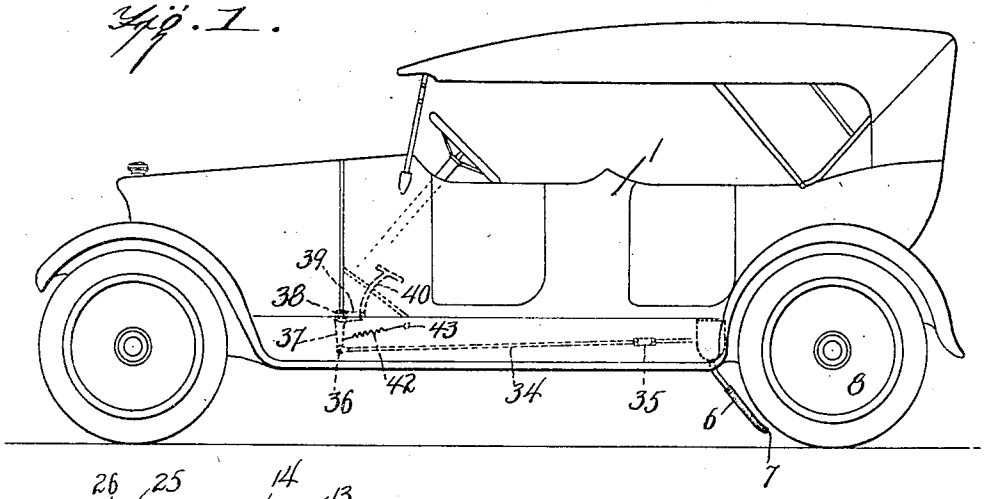
P. R. SHAILER.

SANDING DEVICE FOR AUTOMOBILES.

APPLICATION FILED AUG. 7, 1920.

1,387,620. **Patented Aug. 16, 1921.**

Fig. 1.



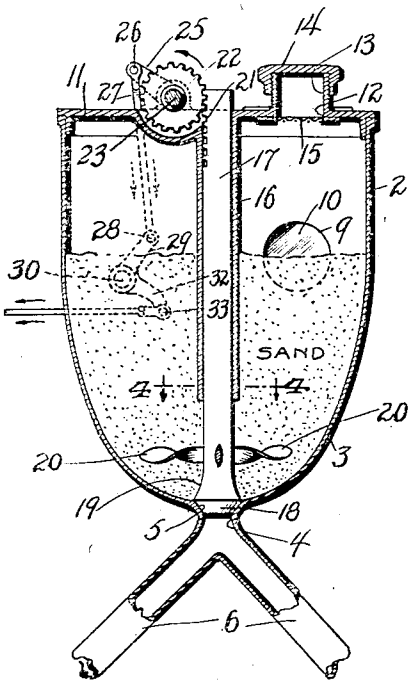


Fig. 3.

Fig. 2.

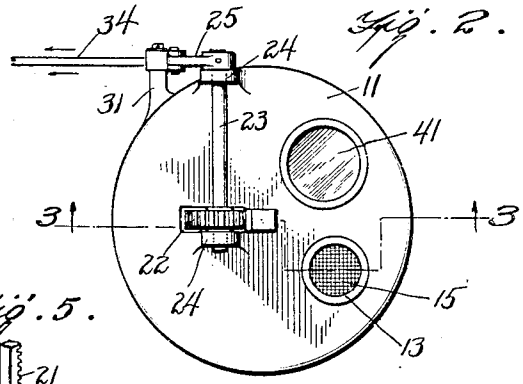
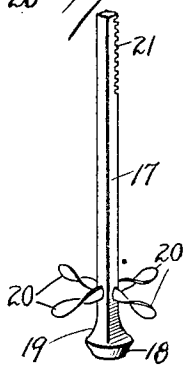


Fig. 5.



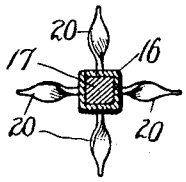


Fig. 4.

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SANDING DEVICE FOR AUTOMOBILES.

1,387,620. Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed August 7, 1920. Serial No. 401,931.

To all whom it may concern:

Be it known that I, PAUL R. SHAILER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Sanding Devices for Automobiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a novel construction of sanding device more particularly intended for automobiles, including self-propelled trucks, but which is adapted for use with road vehicles, generally, such as wagons, carriages, etc., and for use with railway cars and locomotives, and which is actuated by the operator, for preventing skidding of the moving conveyance equipped therewith.

A further object is to provide a sanding device of this character, which is preferably controlled by the driver through a pedal, or lever.

A further object is to provide a sanding device peculiarly adapted for use on automobiles, which will be extremely simple in construction, thoroughly practical from a manufacturing standpoint, and entirely efficient in operation.

With these objects in view, the invention resides, generally stated, in a hopper, or container, for sand, disposed in proximity to the driving wheels of the automobile, a valve controlling the outlet from said hopper, and connections between the valve stem and a pedal, or lever, within convenient reach of the operator, for opening said valve to permit egress of the sand in front of the driving wheels of the machine.

As one example of an application of my invention, it is disclosed in the accompanying drawing (which, together with the reference characters thereon, forms a part of this specification) as installed in an automobile. Briefly described:

Figure 1 is a view in side elevation of an automobile equipped with my sanding apparatus;

Fig. 2 is a top plan view of the hopper and part of the mechanism for operating the valve;

Fig. 3 is a sectional view on the line 3, 3 of Fig. 2, looking in the direction of the arrows;

Fig. 4 is a horizontal sectional view on the line 4, 4 of Fig. 3, looking in the direction of the arrows, and

Fig. 5 is a detached detail view, in perspective, of the valve and the agitators carried thereby.

Referring now in detail to the drawing:

1 designates an automobile, which may be of conventional construction, forming no part of my invention.

2 designates a hopper, or sand receptacle, which may be of suitable construction, preferably having a lower curved, or tapering, portion 3, having in its bottom an opening 4, constituting the exit for the sand contained within the hopper. Said opening is preferably annular in horizontal section, and the side wall thereof is preferably tapering, as shown at 5, to provide a valve seat.

Depending from the bottom of the hopper 2, and communicating with the exit 4, and disposed in an inclined position with reference to the axis of the hopper 2, are divergent pipes 6, 6, the exits, or nozzles, 7 of said pipes being directly in front of the automobile driving wheels 8.

The hopper 2 is preferably constructed of metal and is provided in its side wall with an opening 9, closed by a transparent member 10, preferably of glass, and constituting a peep-hole.

The open top of the hopper 2 is normally closed by a cover 11, which may be removably secured to the hopper, against accidental displacement, in any suitable manner. Said cover 11 is provided with an opening 12, constituting a filling opening. A nipple 13 is carried by the cover 11 and encircles the opening 12 and is exteriorly threaded at its free end for engagement with a screw cap 14, which normally closes said nipple. Advantageously, the opening 12 is protected by a screen 15, so that sand poured into the hopper through the nipple 13 will be filtered, or strained.

The cover 11 is also provided with a central, open-ended tube 16, preferably non-circular in cross section, as shown in Fig. 4.

Slidable within said tube 16 (which, when the cover 11 is disposed on the hopper 2, is within the latter) is a valve stem 17 of a cross sectional shape corresponding to the cross sectional shape of the tube, so that said

stem is held against rotation in the reciprocation thereof. Said stem 17 is provided at its lower end with a truncated, cone shaped valve 18, fitting the valve seat 5 and normally closing the exit 4 of the hopper 2. The valve stem 17, adjacent the valve 18, is flaring, or curved, as shown at 19, so that, when the valve 18 is lifted, said curved portion 19 will tend to force the sand upward, thus agitating the same and insuring a free escape thereof through the exit 4.

Said valve stem 17 is also provided, toward its lower end with agitating members 20, four of such members being shown in the drawing, but any suitable number may be employed as may be desired. Each of said agitators 20 consists, in this instance, of a curved, or twisted, blade, similar to the propeller blade on a steamship, or airplane. Preferably, each of the flat faces of the valve stem 17 is provided with one of these agitating members 20.

The end of the valve stem 17, projecting through the cover 11, is provided with a longitudinally extending series of rack teeth 21, meshing with a cog wheel 22, fast on a shaft 23, rotatably supported in bearings, or ears, 24, 24, carried by the cover 11.

The end of the shaft 23, adjacent the circumferential edge of the cover 11, is secured to one end of a crank 25, the other end of the latter being pivotally connected, as shown at 26, to one end of a depending link 27, pivotally connected at its lower end, as shown at 28, to one arm 29 of a bell crank lever, fulcrumed at 30 on a bracket 31, carried by and projecting from the side wall of the hopper 2. The other arm 32 of the bell crank lever is pivotally secured, as shown at 33, to one end of a rod 34, preferably in two sections, united by a turn-buckle 35. The other end of said rod 34 is pivotally connected, as shown at 36, to one arm 37 of a bell crank lever, fulcrumed, as shown at 38, to the automobile, the other arm 39 of said lever being pivoted to the brake pedal 40, disposed within convenient reach of the operator and as found upon all automobiles. Instead of a pedal for actuating the sanding mechanism, a hand actuated brake lever may be used for this purpose; or the sanding mechanism may of course be actuated otherwise than by the brake pedal or lever.

The cover 11 of the hopper 2 is preferably provided with a transparent panel 41, constituting a peep-hole.

In operation, it will be seen that, by pressing the pedal 40, by the operator's foot, the bell crank lever 37—39 is rocked on its fulcrum 38, thereby throwing the arm 37 of said lever forward, the latter pulling upon the rod 34, which rocks the bell crank lever 29—32 on its fulcrum 30, so that the arm 39 thereof is swung downward, imparting a pull upon the link 27 and rocking the crank 25, thereby rotating the cog wheel 22 through the arc of a circle in the direction of the arrow in Fig. 3, and, by reason of the engagement of the teeth of said wheel with the teeth 21 of the valve stem 17, raising the latter and lifting the valve 18 from its seat 5, permitting the sand within the hopper to escape through the exit 4 and thence through the pipes 6, 6 to the ground in front of the driving wheels 8.

Any suitable means for automatically returning the parts to normal position after the operation just described, may be provided, and in this instance, I have shown a coiled retractile spring 42, secured at one end to the depending arm 37 of the bell crank lever 37—39, and secured at its other end, as shown at 43, to the automobile.

It will be apparent from the above description of the construction and operation of my sanding mechanism that it is susceptible of use in connection with any make of automobile, or truck, or locomotive, or railway or street-car, or road vehicle.

It will be understood, of course, that the sand is applied under the traction wheels of the vehicle for the purpose of increasing the traction. Under ordinary conditions the requirement for such traction increases either at stopping or starting of the vehicle, or at least when the brakes are applied for retarding the action. The connection of the sanding arrangement with the brake lever, either foot lever or hand lever, therefore, accomplishes the purpose aimed at in that when the vehicle is stopped by applying the brake, sand will be applied in front of and under the traction wheels. When the vehicle is to be started, the sand thus previously applied will still be in position to assist in the tractional engagement of the wheel with the pavement. Of course, in the case of skidding, or the like, it is normally the action to apply the brakes, and with the device above described, the application of the brakes will simultaneously apply the sand under and before the traction wheels making a positive grip and skidding will thus be automatically prevented by the application of the brakes.

What I claim to be new is:

A sanding device, comprising a hopper having an exit, a removable top for said hopper, carrying a depending, open-ended tubular member, a valve controlling the escape of sand through said exit and carrying a valve stem slidable in said tubular member, and projecting through said top, said projecting end being provided with rack teeth, a gear meshing with said rack teeth, and means for rotating said gear through the arc of a circle.

In testimony whereof I hereunto affix my signature.

PAUL R. SHAILER.