

April 22, 1930.

L. L. HOPKINS

1,755,823

SANDING DEVICE FOR VEHICLES

Filed May 17, 1928

2 Sheets-Sheet 1

Fig. 1.

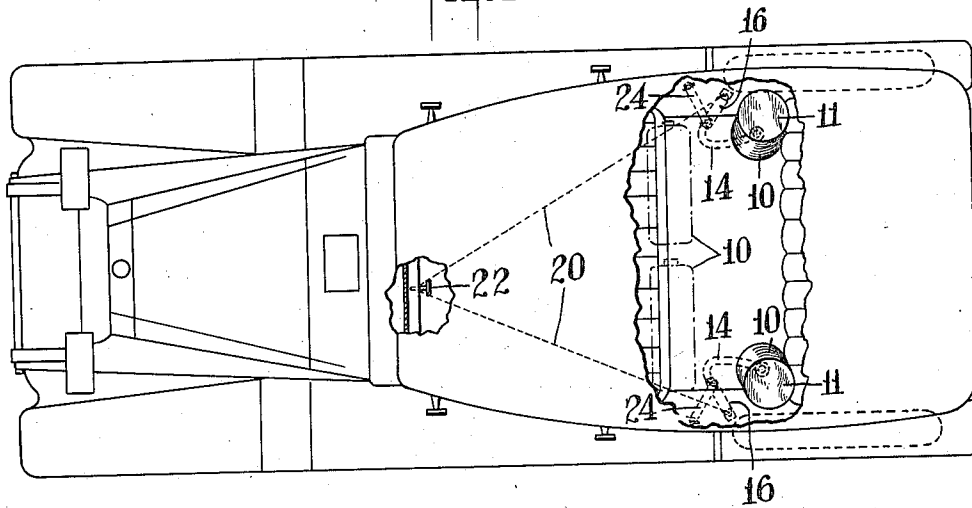
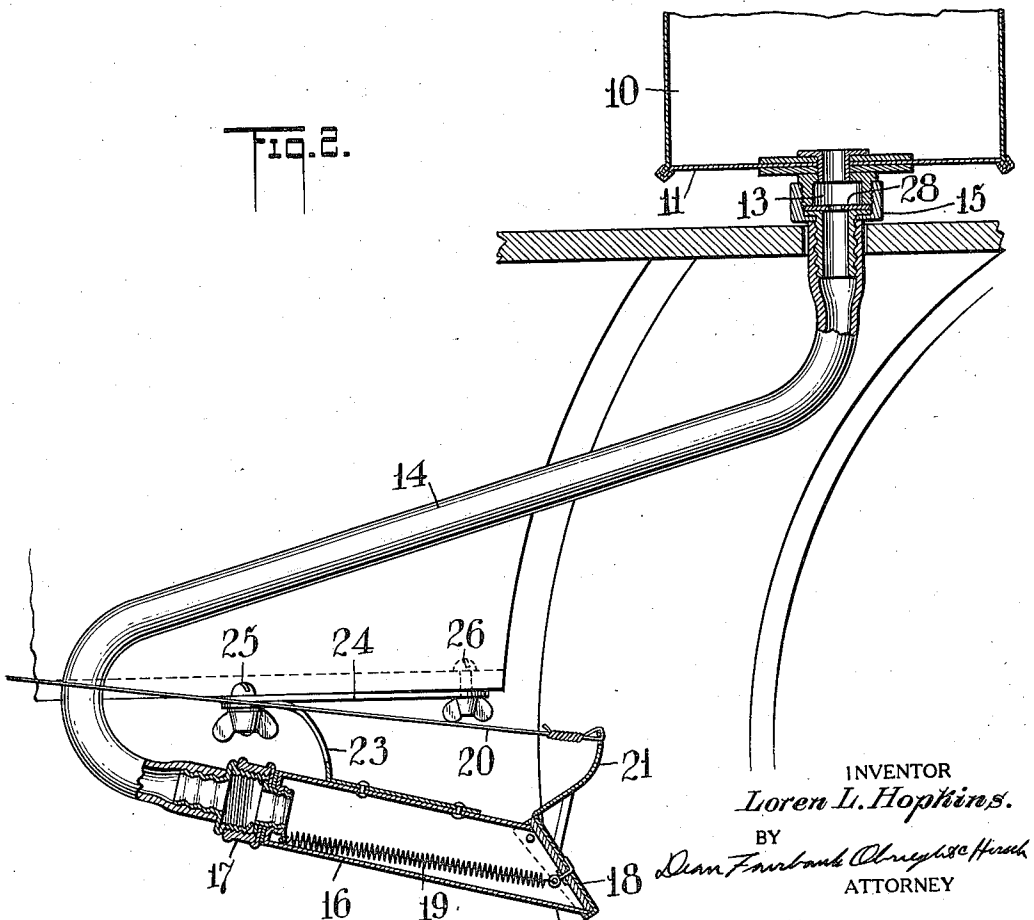


Fig. 2.



INVENTOR
Loren L. Hopkins.

BY

Dean Fairbank Olney & Co. Housh
ATTORNEY

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L. L. HOPKINS

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Fig. 3.

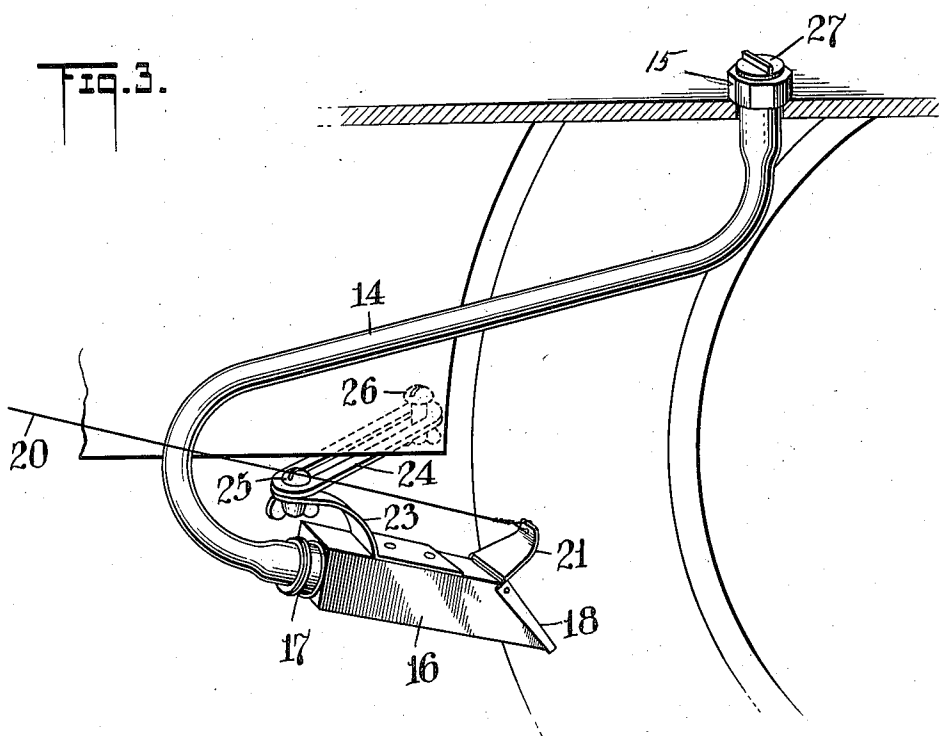
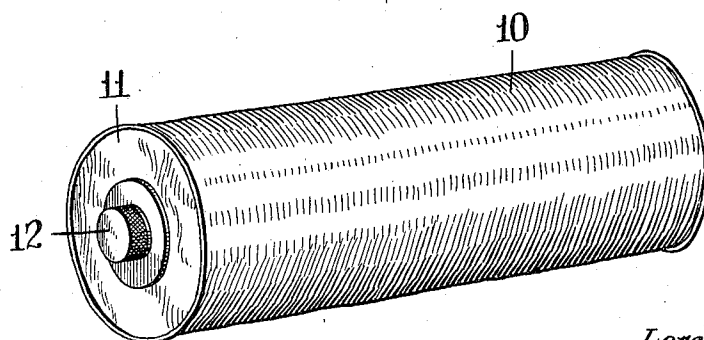


Fig. 4.



INVENTOR

Loren L. Hopkins.

BY

Dean F. Smith & Co. Attorneys

ATTORNEYS

UNITED STATES PATENT OFFICE

LOREN L. HOPKINS, OF WEST NEW YORK, NEW JERSEY

SANDING DEVICE FOR VEHICLES

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Many different devices have heretofore been proposed for applying sand to prevent an automobile from skidding, but so far as I know none has met with commercial success.

In order to operate satisfactorily it is important that the sand be kept dry so as to flow freely the instant desired, and that the apparatus be free from unnecessary complications. It should also be cheap to manufacture, easy to apply to existing cars, comparatively inconspicuous, and easy to operate. One object of my invention is to fulfil the foregoing desirable conditions.

A further object is to effect the hermetic sealing of the sand supply during periods of non-use, and to prevent entrance of air during delivery of the sand. This is particularly important as one of the most common occasions for the use of sand to prevent skidding is when the pavement is wet from rain. The air at such times is usually saturated with moisture, and to admit such air to the sand container while delivering some of the sand will dampen the sand remaining in the container and it will cake so that it will not flow freely when further use of such remaining sand is desired.

A further object is to automatically vary the rate of sand delivery during use. By means of my improved apparatus I first permit a rapid flow of sand to coat the periphery of the tire, and then a slower flow sufficient to merely replace the sand which is thrown, rubbed or falls off during rotation of the wheel.

A further object is to provide for the flow of sand solely by gravity, thus eliminating all complicated apparatus for mechanical delivery or for blowing it by compressed air or exhaust gas.

A further object is to provide a simple means for automatically agitating the sand in the discharge nozzle when the nozzle is opened, thus insuring instant and free flow should this part of the sand be caked by moisture entering the nozzle or from other causes.

A further object is to so construct the sand container that it may be used normally

as a footrest, and a plurality of such interchangeable containers may be carried on the car and used in succession if desired.

As an important feature of my improved construction the sand container is made of flexible water-proof material which adapts it to collapse during delivery of the sand, and without admitting air. It also permits the walls to be pressed in or moved to break up any caking of the sand should such occur, and it also renders the container more suitable for a footrest in the car, or for a stool or seat.

As another feature the nozzle is provided with a closure normally held in place by a spring within the nozzle, which spring moves transversely of the passage as the closure is opened. This spring thus acts to break up any cakes or lumps of sand in the nozzle and starts the free flow of the sand.

As another feature the nozzle is made of considerably larger cross-sectional area than the conduit delivering thereto, whereby the rate of flow will decrease as soon as the sand normally stored in the nozzle has been discharged.

As another feature the nozzle is so supported preferably from the under side of the running board, that it may be readily adjusted to the desired position in respect to the tire for use, and may be moved to one side or to an inconspicuous position during dry weather when there is little or no likelihood of skidding.

In the accompanying drawings I have illustrated merely one embodiment of my invention, but it will be understood that various changes may be made in the details of construction and arrangement of the parts within the scope of the appended claims, and without departing from the spirit of my invention. In these drawings:

Fig. 1 is a somewhat diagrammatic plan view of an automobile provided with my improved apparatus.

Fig. 2 is a side elevation of the apparatus, certain parts being shown in section.

Fig. 3 is a perspective view of certain of the parts shown in Fig. 2, the sand container being removed, and

Fig. 4 is a perspective view of the sand container.

In the construction illustrated there are provided a pair of sand containers which may be carried in the tonneau between the front and rear seats, and which may be connected to separate conduits leading to nozzles disposed adjacent to the two rear tires.

In Fig. 4 I have illustrated one of the sand containers which may be of substantially cylindrical cross-section with a flexible peripheral wall 10 and end walls secured thereto. These walls are made of strong waterproof material which is sufficiently flexible to permit bending of the walls and to permit collapsing of the container as the sand is delivered therefrom. In one end wall 11 there is provided a filling and discharge opening which is normally closed by a cap 12 which may be threaded on to a discharge nipple 13 connected air-tight in any suitable manner to the end wall. There are provided at least two of these sand containers, but there may be any desired number for carrying a reserve supply of sand. Normally the containers are disengaged from the rest of the apparatus and may be laid on the floor of the car directly in the rear of the front seat so as to serve as footrests. They may also be removed from the car and used as seats or stools.

Due to the fact that each container is sealed air-tight by the cap, which preferably has a washer therein, the sand if dry when put in the container may be kept in this condition until ready for use.

For conducting the sand from the container there is provided a conduit 14 which is preferably a piece of flexible hose. One end of this conduit extends through the floor of the car and is provided with a suitable form of coupling 15, whereby it may be screwed on to the nipple 13 of the sand container to form a substantially air-tight joint between them. The opening through which the conduit extends is so positioned that the sand container when in a substantially vertical position will interfere to the least possible extent with the comfort of the passengers on the rear seat. The holes in the floor for these conduits are preferably positioned closely adjacent to the opposite ends of the rear seat, as shown particularly in Fig. 1. This also permits the minimum length of hose from the containers to the rear tires.

At the end of the conduit there is provided a nozzle 16 which may be secured to the conduit by any suitable form of nipple 17. The nozzle is of materially greater cross-sectional area than the hose so that it will serve as a storage chamber for a limited amount of the sand. The end of the nozzle is normally sealed by a closure 18 which is pivoted at the upper side and provided with a washer for engaging the inclined end of the nozzle to pre-

vent the admission of air or moisture to the nozzle.

The inner side of the closure is connected to a spring 19 which extends lengthwise of the nozzle so that as the closure is opened the spring will move transversely of the sand in the nozzle and break up any caking and start the flow. The closure may be operated in any suitable manner, as for instance by a cable 20 connected to an arm 21 projecting at an angle from the closure adjacent to the hinge support of the latter, whereby upon pulling on the cable the nozzle will be opened. The front end of this cable may extend beneath the floor of the car to a suitable point within convenient reach of the driver, and there connected to suitable means whereby the cable may be pulled whenever desired. I have illustrated merely conventionally a handle 22 connected to the two cables leading to the two nozzles adjacent the rear tires.

Each nozzle is supported preferably from the underside of its corresponding running board, and by mechanism which will permit of the rigid supporting of the nozzle and such adjustment thereof as may be required. As illustrated the nozzle has a bracket 23 which is connected to a slotted link 24 by a bolt 25 and thumb nut, and this link is secured to the under side of the running board by a second and similar bolt 26 and a thumb nut. This permits of the longitudinal adjustment of the link in respect to the bolt 26, and also the swinging of the link about this bolt as a center. It also permits the nozzle to be swung about the bolt 25 as a center, and permits this bolt to be slid along the link to bring the nozzle to the desired position. The bracket 23 is preferably of sheet metal which is of such thickness and flexibility that it may be bent to change the angle of the nozzle, but when bent will retain its adjusted position.

The nozzle is preferably positioned so as to direct the sand against the surface of the tire, and is preferably so positioned that this sand is directed on to the periphery at the inner edge or side of the tread. In dry weather when there is no immediate liability of skidding, the bolts 25 and 26 may be loosened and the nozzle brought to and secured in a position beneath the body of the car or at the desired spacing from the tire, or in any suitable, inconspicuous position.

The containers, as previously noted, are normally disconnected from the conduit, sealed with the cap 12, and laid on the floor of the car or in the storage compartment. When the container is so disconnected the upper end of the conduit is preferably sealed with a suitable closure or plug 27 so as to prevent the access of air or moisture to the portion of the sand which is normally stored in the conduit and the nozzle.

At the upper end of the nozzle there is

preferably provided a washer 28 which has an aperture smaller than the cross-sectional area of the conduit.

In applying my improved device to the car, it is merely necessary to bore the two holes in the floor for the conduits 14, and to bore a hole in each of the running boards for the corresponding bolts 26. The cables are extended beneath the floor and connected to the handle 22 which may be a foot pedal, lever or other suitable device. When the driver believes that there is any liability of skidding the closures 28 and the caps 12 are removed, and the two containers connected in substantially vertical position to the two conduits. The nozzles are easily adjusted to the proper position if they are not already so positioned. When the driver operates the handle there is at first a comparatively large volume flow of sand from the nozzle to coat the tire. Thereafter there is a smaller flow of sand while the conduit itself is emptying, and after that there will be a still slower flow due to the restriction of the washer 28. The instant the flow of sand is shut off by the closure 18, sand will continue to flow to fill the nozzle and the conduit, and restore the parts for the next period of use.

It will be noted that the parts are of simple design and inexpensive to manufacture, and that the apparatus may be easily applied without the necessity for material alteration in the car or the services of a skilled mechanic. When the sand container is in erect position for use it may be held in place in any suitable manner, as for instance by a retaining cord.

The sand container may be of any desired shape other than that illustrated and different shapes may be made to adapt them to different types of automobile bodies. For a sedan the containers are preferably positioned as illustrated in Fig. 1, but for a single seat car, such as a coupé, the containers should be positioned in the rear compartment.

The containers may be provided with removable fabric coverings to match the upholstery and such coverings may have snap fastenings to engage with co-acting parts on the car to hold the containers in either storage or operative positions.

Although the container is provided on the car primarily for delivering sand through the conduit to prevent skidding, the fact that it is normally detached from the conduit and readily portable, adapts it for use in directly delivering sand for other purposes, for instance, to put out an oil or gasoline fire for which purpose water is not suitable.

Sand may be delivered through the conduits and nozzles not only to prevent skidding, but also in case the road has been freshly oiled. When used under such conditions, it tends to prevent oil from being thrown from the tires onto the mudguards. Such oil as is

thrown will be mixed with sand and more readily removed from the mudguards.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A sanding device for vehicles, including a nozzle for delivering sand in advance of the vehicle wheel, a conduit connected to said nozzle, and a collapsible sand container formed of material impervious to moisture and connected to said conduit.

2. A sanding device for vehicles, including a collapsible sand container formed of flexible waterproof material sealed against the admission of air or moisture, and a conduit connected thereto for delivering sand adjacent to a wheel of the vehicle.

3. A sanding device for vehicles, including a collapsible sand container formed of flexible waterproof material sealed against the admission of air or moisture, and a conduit connected thereto for delivering sand adjacent to a wheel of the vehicle, said container and said conduit being separable, and said container having means for sealing it when detached from said conduit.

4. A sanding device for vehicles, including a conduit projecting through the floor of the vehicle body and having a delivery nozzle adjacent to a wheel of the vehicle and a collapsible sand container of flexible waterproof material normally sealed against the admission of air and moisture, and connected to said conduit.

5. A sanding device for vehicles, including a conduit projecting through the floor of the vehicle body and having a delivery nozzle adjacent to the wheel of the vehicle, and a sand container of flexible waterproof material normally sealed against the admission of air and moisture and adapted to collapse as sand is delivered therefrom, and detachably secured to said conduit, and when detached adapted to serve as a footrest.

6. A sanding device for vehicles, including a substantially cylindrical sand container of flexible, waterproof material, normally sealed against the admission of air and moisture and adapted to collapse as sand is delivered therefrom, and a conduit for delivering sand to a point adjacent to a wheel of the vehicle, means for normally sealing the opposite ends of said conduit against the admission of air and moisture, and means for connecting said container to one end of said conduit to establish communication therebetween.

7. A sanding device for vehicles, including a conduit having an inlet end projecting through the floor of the vehicle, a nozzle at the opposite end of said conduit, and a collapsible sand container detachably secured to said inlet end and having means for normally maintaining it hermetically sealed.

8. A sanding device for vehicles, includ-

ing a flexible conduit having one end projecting through the floor of the vehicle, a nozzle secured to the opposite end, adjustable means for supporting said nozzle and permitting adjustment of the latter in respect to a wheel
5 of the vehicle and a closure carried by the nozzle and movable in respect thereto for controlling the delivery through the nozzle.

9. A sanding device for vehicles, including a flexible conduit, means for detachably securing a sand container to one end thereof,
10 a nozzle at the opposite end, means for adjusting the position of the nozzle in respect to a wheel of the vehicle and a closure carried by the nozzle and movable in respect thereto
15 for controlling the delivery through the nozzle.

10. A sanding device for vehicles, including a sand delivery nozzle, a slotted link, means for securing said link to the underside
20 of the running board of a vehicle and permitting angular and longitudinal movement of said link, and means for adjustably securing said nozzle to said link.

11. A sanding device for vehicles, including an elongated sand container having flexible waterproof walls adapted to be supported in upright position within the body
25 of the vehicle, said container being collapsed whereby sand may be delivered therefrom without accompanying entrance of outside air, a conduit adapted to be connected to said container and extending through the floor of the vehicle, and means for adjusting the position of the opposite end of the conduit in
30 respect to a wheel of the vehicle.

12. A sanding device for vehicles, including a sand container of elongated, substantially cylindrical form, having collapsible, flexible, watertight walls adapted to be supported in an upright position and permit delivery of sand without admission of air, and means for delivering sand from said container to a point adjacent to a wheel of the
35 vehicle.

13. A sanding device for vehicles, including a collapsible sand container having flexible walls of waterproof material, a threaded nipple at one end of said container, and means for normally closing said nipple to hermetically seal said container
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Signed at New York in the county of New York and State of New York this 14 day of May, A. D. 1928.

LOREN L. HOPKINS.