Sept. 16, 1941. J. C. McCUNE 2,256,290

SAND CONTAINER

Filed Oct. 31, 1940

Fig. 1.

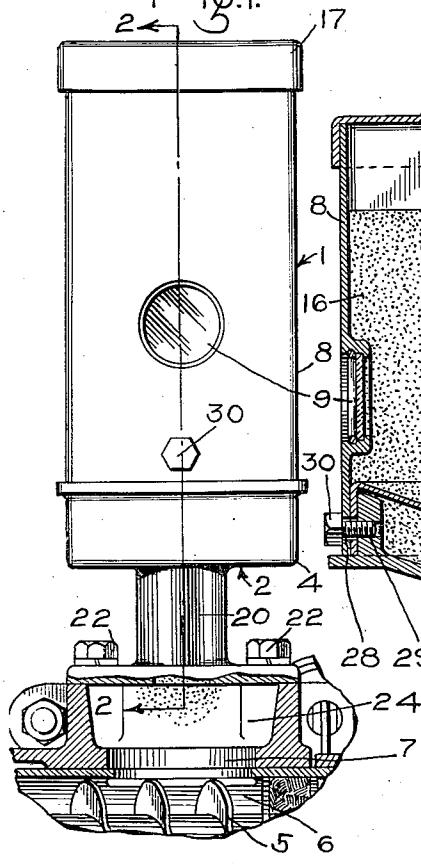



Fig. 2.

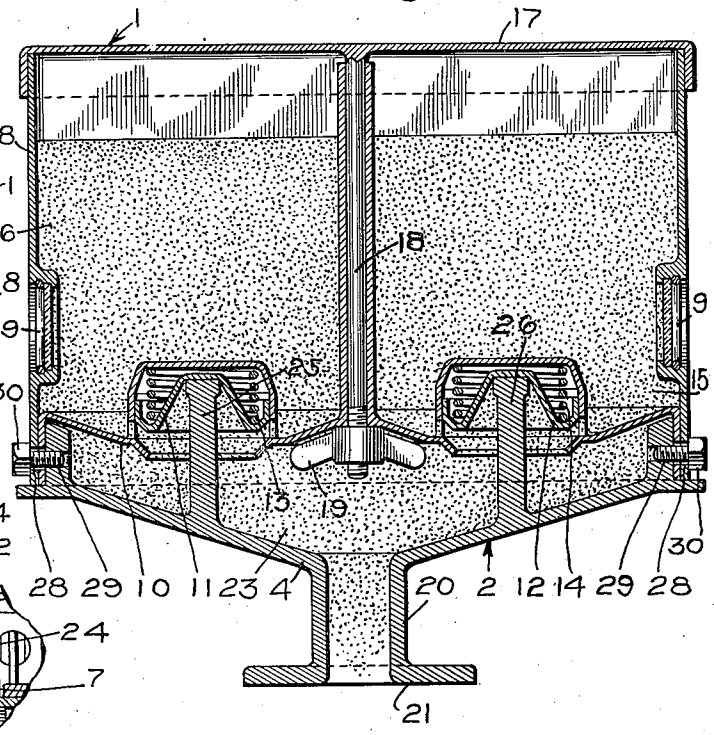
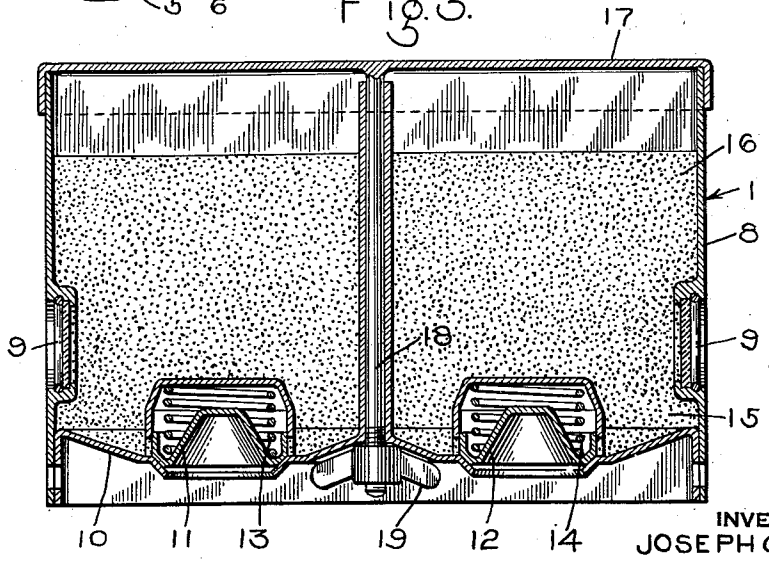



Fig. 3.




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2,256,290

## SAND CONTAINER

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Application October 31, 1940, Serial No. 363,667

4 Claims. (Cl. 291—38)

This invention relates to sanding apparatus for either railway vehicles or road vehicles, and more particularly to the type employing a sand container for carrying a supply of sand for sanding the surface over which the wheels of a vehicle are to roll, for increasing the traction between the wheel and the surface.

Sand containers heretofore used on railway vehicles have been designed as an integral part of the vehicle or attached thereto in a manner substantially forming an integral part thereof. These containers are inspected periodically and when necessary are replenished with dry sand, the replenishing operation being usually performed from the inside of the vehicle. These containers are usually of such size as to carry sufficient sand for a complete trip or train run. However, the amount of sand used for any given trip varies in accordance with the operating and track conditions encountered during the trip.

In modern trains which operate at much higher speeds than has been customary in the past, greater and quicker acting braking forces are required to decelerate or stop the train in the relatively short distances required to meet operating schedules and ensure the safety of the trains. In order to avoid slipping or sliding of the wheels under these trains various arrangements have been proposed, and some are in use which operate to sand the rails under the train more frequently than has been done in the past. In certain arrangements sand is even applied simultaneously to the rails at a plurality of different locations throughout the length of train in order to obtain the maximum of protection.

Heretofore, sand has usually been carried in containers or receptacles provided on or in the vehicle bodies where plenty of space is available. However, on modern high speed trains the available space either inside or outside the vehicle body for sand carrying containers is very limited and since the amount of sand consumed has been materially increased, inspection of said sand containers must be more frequent to insure that the vehicle is provided with an adequate sand supply. The arrangements of sand containers, inside the vehicle takes up considerable room and are such that the inspection and replenishing of the containers with sand enroute causes annoyance and in some cases inconvenience to the passengers.

The principal object of the invention is to provide a sand container or receptacle for a vehicle which is constructed and arranged so as to eliminate any inconvenience to passengers and at the same time dispense with the need for inspection of the sand containers by a highly trained inspector.

According to the invention this object is accomplished by providing a portable sand carrying container or receptacle adapted to be readily associated with or disassociated from the sanding equipment permanently fixed to the vehicle, so that, when it is discovered by inspection that the sand container on the vehicle is nearly empty, it may be readily removed from the vehicle and another fully charged container substituted therefor, by even an unskilled workman.

Other objects and advantages will be apparent from the following more detailed description of the invention.

In the accompanying drawing Fig. 1 is an end elevational view of the sand container or receptacle shown detachably secured in place to a mounting bracket which is fixed to a portion of the sand delivery system, which portion of the system is shown in section; Fig. 2 is a longitudinal sectional view of the container and its mounting bracket, taken on the line 2—2 of Fig. 1. Fig. 3 is a sectional view showing the sand container or receptacle removed from the mounting bracket.

As shown in the drawing, the sanding system comprises a sand container or receptacle 1 which is detachably secured to a mounting bracket 2. This bracket, as shown in Fig. 1 of the drawing, is secured to a portion of a sand delivery system which may be of the type shown and described in the copending application of Joseph C. McCune, Serial No. 297,115, filed September 29, 1939.

This type of sanding system comprises a conveyor screw 5 which is mounted in a bore 6, and is arranged to carry sand from an inlet port 7 to an outlet port (not shown), for delivery to the surface over which a wheel of the vehicle rolls.

According to the invention, the portable sand container or receptacle 1 comprises a casing 8 having at opposite ends thereof windows 9 and having a hopper bottom 10 provided with valves 11 and 12 which are normally held closed by springs 13 and 14, respectively, for cutting off communication from a sand storage chamber 15 defined by the walls and hopper bottom of the container. This chamber is adapted to be charged or filled with dry sand 16 through the open upper end of the container which open end is closed by a removable cover 17. In the present embodiment of the invention, the cover

17 is secured to the container by means of a bolt 18 and a wing nut 19 and is for the purpose of excluding moisture and foreign matter from the sand.

The mounting bracket 2 comprises a casing 4 having the opposite sides thereof sloped downwardly and inwardly to a hollow tube-like sand conducting portion 20 which is provided at the end thereof with a flange 21. This flange is adapted to be secured in any suitable manner, such for instance as by cap screws 22, to the sanding system in a manner to establish communication between a chamber 23 in the casing and the sand inlet port 24 leading to the conveying screw 5 of the sanding system.

The mounting bracket 2 is also provided with upwardly extending projections 25 and 26 which are so arranged as to engage the valves 11 and 12, respectively, in the container 1 when the container is positioned on the mounting bracket 2.

When the container 1 is being thus positioned the closed valves 11 and 12 first rest on the upper end of the projections 25 and 26, respectively. The container is then forced downwardly relative to the bracket to the position in which it is shown in Fig. 2, so that the valves 11 and 12 will be opened against the opposing pressure of the biasing springs. With the container 1 thus positioned on the bracket 2, an opening 28 provided at each end of the container 1 aligns with a screw-threaded opening 29 provided in each end of the bracket 2. A cap screw 30 is then inserted through each opening in the container 1 and is screwed into the opening 29, so as to rigidly clamp the container to the bracket 2. Now with the container 1 thus secured in place, the projections 25 and 26 maintain the valves 11 and 12 open against the opposing force of the springs 13 and 14, respectively, thereby maintaining an open communication between chambers 15 and 23 through which sand may flow by gravity from chamber 15 to chamber 23 and thereby through the hollow tube like portion 20 to the inlet port 24 of the sanding system.

It will be understood that when an empty or partially empty container 1 is to be removed from the mounting bracket 2 in order to substitute a charged or full container, the cap screws 30 are removed and the container 1, as a unit, may be removed from the bracket. As the container is being separated from the bracket, the springs 13 and 14 act to close the valves 11 and 12, respectively, so that any sand remaining in the container is not lost or spilled.

It will here be noted that a plurality of charged containers may be kept on hand at regular train stops or may even be carried on the vehicle, so that when the sand in the container is running low the charged or full container may be substituted for the empty container. The windows 9 provide means for visually determining the amount of sand in a container.

To open the container for refilling purposes the wing nut 19 is backed off the bolt 18 and the cover 17 removed, but this can only be done while the container is free of the bracket since with the container secured to the mounting bracket, the wing nut 18 is not accessible and the cover cannot be removed. This prevents unauthorized persons from tampering with the sand containers.

While one illustrative embodiment of the invention has been described in detail, it is not the intention to limit the scope to that embodiment or otherwise than by the terms of the appended claims.

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

1. In a sanding apparatus for vehicles, the combination with a sanding system, of a bracket included in the system and having a sand conducting passage, a sand container removably carried by said bracket, valve means carried by a fixed part of said container and operative to control a communication from the interior of the container to the passage in the bracket, means on said bracket for holding said valve means in position to maintain said communication open, resilient means for actuating said valve means to close said communication, a removable top cover for the sand container, said cover being entirely separate from said valve means, and means for clamping said cover to the container, said means being so constructed and arranged as to be accessible to remove said cover only when the container is free from said bracket.

2. A sand storage container for attachment to and removal from sanding systems for vehicles, comprising a sand containing chamber provided with a fixed hopper bottom, a communication leading from said hopper bottom to the exterior of the container, valve means carried by said bottom for normally closing said communication, said valve means being accessible from the exterior of the container and being yieldable upwardly to open said communication, a removable top cover for the sand container, and means cooperating with said bottom for clamping said cover to the container, said means being so constructed and arranged as to be accessible to remove said cover only when the container is free from said sanding system, and said valve means being entirely independent of said cover and the cover clamping means.

3. In a sanding apparatus for vehicles, the combination, with a sanding system, of a funnel shaped bracket included in the system having a sand chamber and a sand conducting discharge passage leading from said chamber; a sand container comprising a casing removably secured to said bracket, said casing comprising a hopper bottom, a communication leading from the interior of the container to said chamber and valve means carried by said bottom interiorly of the container for controlling said communication; a projection carried by said bracket for actuating said valve means to a position to open said communication; spring means carried by said bottom for actuating said valve means to close said communication upon removal of the container from said bracket; a removable cover for the sand container having a central depending leg adapted to extend through the hopper bottom to the exterior of the container; and a nut arranged on the exterior of the container and having screw-threaded engagement with said leg and cooperating with said bottom for clamping said cover to the container, said nut being accessible to remove the cover only when the container is free of the bracket.

4. In a sanding apparatus for vehicles, the combination, with a sanding system, of a funnel shaped bracket included in the system having a sand chamber and a central sand conducting discharge passage leading from said chamber, a sand container removably secured to said bracket for supplying sand to said chamber, said con-

tainer comprising side walls, a hopper bottom and a removable top cover, said hopper bottom being provided with a central upwardly extending tubular projection, and with a sand communication leading from the exterior of the container to said chamber, valve means carried by said bottom interiorly of the container for controlling said communication, said removable cover having a stem extending downwardly through said tubular extension and through said bottom to the exterior of the container, a nut having screw-threaded engagement with said stem for clamping said cover to the container, said nut being located exteriorly of the container so as to be accessible for removal of the cover when the container is free from the bracket, and means carried by the bracket for actuating said valve means to open said communication from the container to said chamber upon assembly of said container upon said bracket.

JOSEPH C. McCUNE.