No. 837,460. PATENTED DEC. 4, 1906.

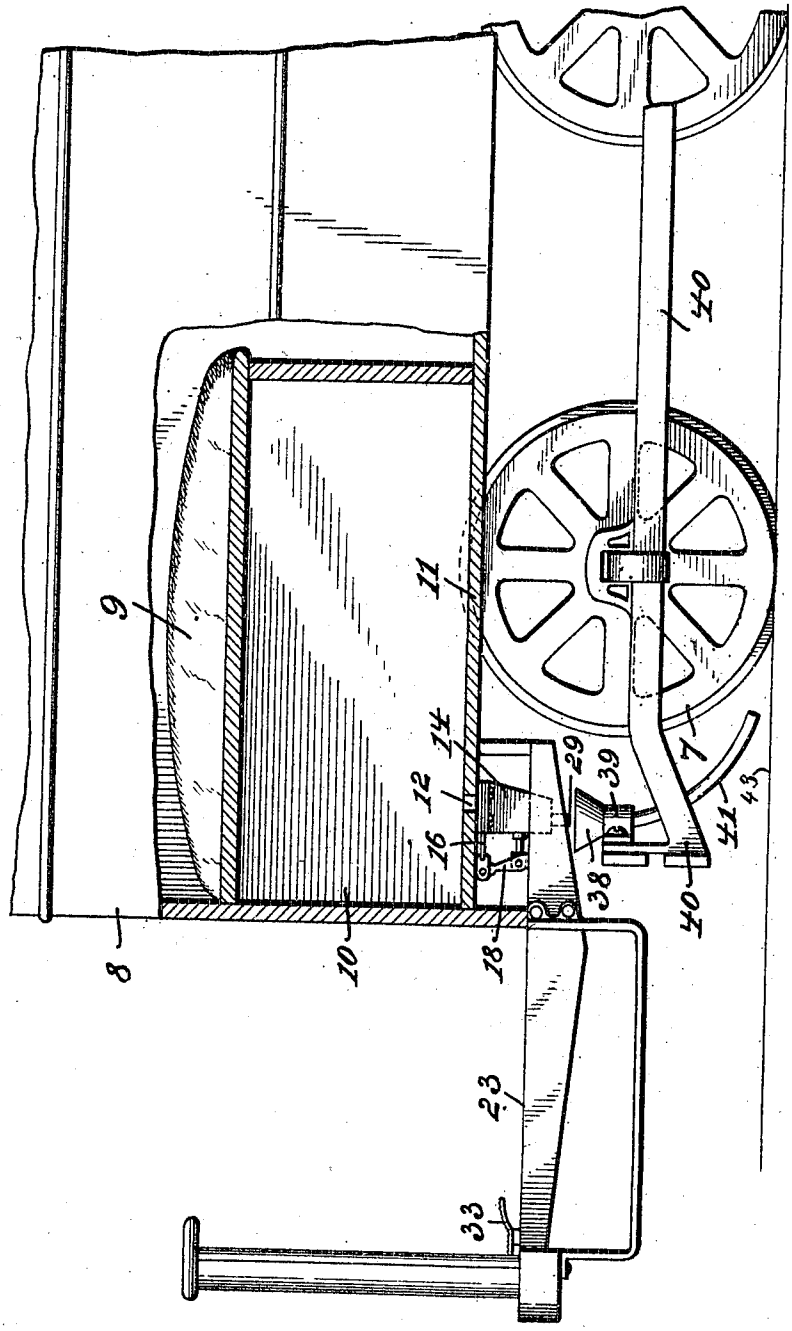
A. H. FLEXER.

SANDING APPLIANCE FOR TROLLEY CARS.

APPLICATION FILED JULY 24, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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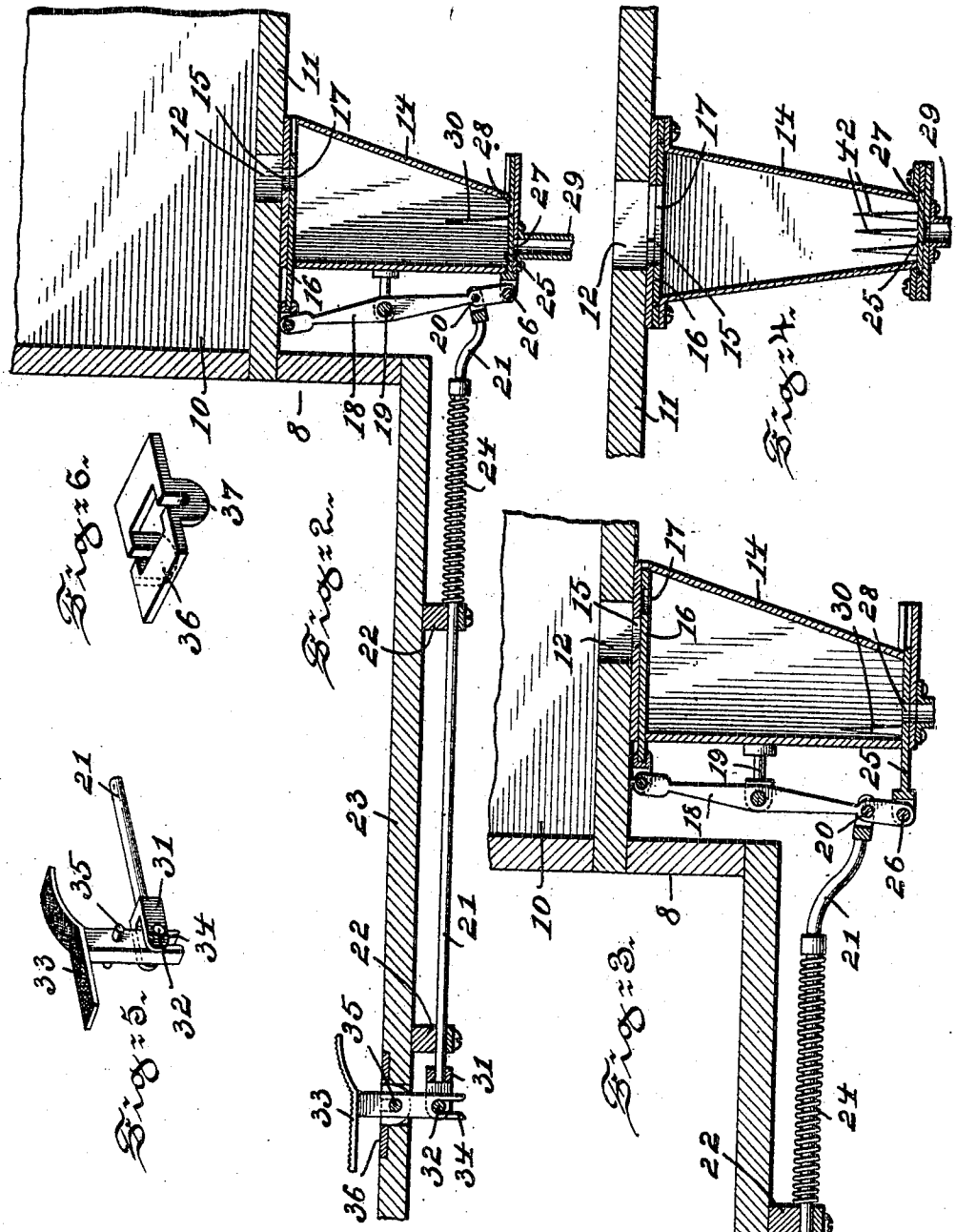
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SANDING APPLIANCE FOR TROLLEY-CARS.

No. 837,460. Specification of Letters Patent. Patented Dec. 4, 1906.

Application filed July 24, 1906. Serial No. 327,488.

To all whom it may concern:

Be it known that I, ALFRED H. FLEXER, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sanding Appliances for Trolley-Cars, of which the following is a specification.

My invention has relation to a sanding appliance for trolley-cars; and in such connection it relates more particularly to the construction and arrangement of such an appliance.

The principal objects of my invention are, first, to construct a sanding appliance for trolley-cars so as to discharge the same in predetermined quantities uniformly over the rail; second, to provide for this purpose a storage-receptacle for the sand, with a discharge-receptacle of predetermined size, into which the sand from the storage-receptacle descends and fills by gravity; third, to provide the discharge-receptacle with coupled slide-valves for controlling, respectively, the inlet and outlet thereof; fourth, to provide means connected with the valves which when actuated closes the inlet for sand to the discharge-receptacle by one of the valves and simultaneously opening the outlet-opening thereof by another valve and when released automatically opening the inlet and closing the outlet opening of the receptacle; fifth, to arrange certain of the actuating means so as to render the same removable to prevent actuation of the appliance by unauthorized persons; sixth, to provide the slide-valve controlling the outlet-opening of the discharge-receptacle with means to insure exit of sand therefrom by the stirring up of the same prior to the discharge thereof from said receptacle, and, seventh, to provide means arranged below the discharge-receptacle for conducting sand in front of certain of the wheels of the car and upon the rail.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a view illustrating, partly in side elevation and partly in section, a portion of a trolley-car, a storage-receptacle for sand arranged under one of the seats thereof, a discharge-receptacle communicating therewith and arranged below the floor of the car, means for controlling the inlet and outlet of sand therefrom and connected with said receptacle and the platform of said car, and means for conducting the sand in front of certain of the wheels of the car, all embodying main features of my said invention. Fig. 2 is a view, enlarged, illustrating in section a portion of the body and platform of the car, the storage and discharge receptacles for the sand, slide-valves for controlling the inlet and outlet of the discharge-receptacle, and means for manually and automatically actuating the same. Fig. 3 is a similar view illustrating the valves in manually-actuated position. Fig. 4 is a view at a right angle to Fig. 2, illustrating the discharge-receptacle and means carried by one of the slide-valves for stirring up the sand therein; and Figs. 5 and 6 are respectively perspective detail views illustrating a treadle and the connection thereof with an actuating mechanism for the slide-valves and a bearing for the treadle.

Referring to the drawings, 8 represents a trolley-car. Below one of the seats 9 thereof is arranged a storage-receptacle 10 for sand, which by means of an opening 12, arranged in the floor 11 of the car 8, is in open communication with a receptacle 14, suitably secured to the floor 11 and having an opening 15 registering with the opening 12 of the receptacle 14, which in turn registers with an opening 17, arranged in a slide 16. The slide 16, forming a valve controlling the openings 12 and 15, is movably arranged in the upper end of the discharge-receptacle 14 and is held in an open or inoperative position in the same by a lever 18, pivotally connected by a bracket 19 with the discharge-receptacle 14 and engaged at the point 20 by a rod 21, carried by brackets 22, secured to the under side of the platform 23 of the car 8. A spring 24, mounted on the rod 21, tends to hold the lever 18, and by the same the valve 16, in an open position, while at the same time a valve 25, controlling an outlet-opening 27 of the discharge-chamber 14, is held by the lever 18, to which it is pivotally connected at the point 26, in a closed or operative position, as illustrated in Fig. 2. In these positions of the slide-valves 16 and 25 sand stored in the receptacle 10 is permitted to freely pass into the discharge-receptacle 14 through the openings 12, 15, and 19 respectively arranged in the receptacles 10

and 14 and the slide-valve 16, until the receptacle 14 is filled with sand, which is held therein by the slide-valve 25 closing the outlet 27 thereof. The rod 21 at the free end is provided with a forked bracket 31, the bolt 32 of which is engaged by the forked end 34 of a treadle 33, which by means of a bolt 35 engaging the slotted extension 37 of a bracket 36, carried by the platform 23, is removably connected therewith, as illustrated in Fig. 2.

When it becomes necessary to sand the rail upon which the wheels 7 of the trolley-car 8 run, the treadle 33 by the foot of the operator is depressed at one end, thus swinging the same on the bolt 35 in the bracket 36 and moving the forked end 34 thereof forward. This movement by means of the rod 21 is transmitted to the lever 18, which shifts the slide-valves 16 and 25 into the positions shown in Fig. 3. The inlet-openings 12 and 15, permitting the sand to enter the discharge-receptacle 14, are now closed by the slide-valve 16, thus cutting off further supply of sand thereto, while at the same time an opening 28, arranged in the slide-valve 25, is brought into a position in which the same registers with the discharge-opening 27 of the discharge-tube 29. The sand in the receptacle 14 is now permitted to freely discharge therefrom by passing through the openings 28 and 27 into the discharge-tube 29, which conducts the sand into a receiving-funnel 38, secured by a bracket 39 to the framework 40 of the running-gear of the trolley-car 8. From the funnel 38 by means of a curved tube 41, terminating in proximity to the tread of the wheels 7, the sand is conducted directly upon the track 43 in front of the wheels 7, thus insuring proper action of the same upon the wheels. By the support of the funnel 38 and discharge-tube 41 by the framework 40 of the car 8 the side movements of the body of the car carrying the discharge-receptacle 14 are not transmitted to the tube 41, and thus proper discharge of sand on the rail 43 by the tube 41 is at all times insured.

In order to prevent sticking or clogging of sand in the discharge-receptacle 14, the slide-valve 25, closing the outlet-opening 27 thereof, is provided with prongs 42, preferably tapering to a point at their free ends. When the slide 25 is actuated by the lever 18, the prongs 42 by being moved through the sand loosen the same sufficiently to insure its proper exit through the openings 27 and 28, respectively, of the slide-valve 25 and receptacle 14 and the discharge-tube 29.

As soon as the treadle 33 is relieved of the pressure exerted thereon by the foot of the operator the spring 24 by actuating the rod 21 and through the intervention of the lever 18 shifts the slide-valves 16 and 25 automatically back into a normal position, as illustrated in Fig. 2. In this position the opening 17 of the valve 16 registers with the inlet-openings 12 and 15, respectively, of the storage-receptacle 10 and discharge-receptacle 14, while the outlet-opening 27 is closed by the slide-valve 25. Sand will again enter the discharge-receptacle 14 and replace the sand discharged therefrom through the outlet 27 thereof.

A storage-receptacle 10 and a discharge-receptacle 14 are arranged at each end of the car 8, and each of the platforms 23 thereof is provided with actuating mechanism for the slide-valves 16 and 25, such as illustrated in Figs. 2 and 3.

In order to prevent the actuation of the treadle 33 by unauthorized persons and also to enable the operator to use the same treadle on each of the platforms 23 of the car 8, the same can be readily disengaged from the rod 21 by merely lifting and then bringing the forked end 34 out of engagement with the bolt 32 of the rod 21 and the bolt 35 out of engagement with the extensions 37 of the bracket 36, as will be readily understood from Figs. 5 and 6.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an appliance of the character described, a receptacle adapted to receive sand having an inlet and outlet, means connected with each other for controlling the inlet and outlet thereof, means arranged to permit of the manual and automatic actuation of said controlling means, and means removably connected with said actuating means adapted when manually operated to permit of discharge of sand from said receptacle and to prevent entrance of sand thereto.

2. In an appliance of the character described, in combination with a car, two superposed receptacles forming respectively, storage and discharge receptacles for sand and each having an inlet and outlet connected with the car-body, means connected with the discharge-receptacle for normally closing the outlet and opening the inlet to permit of entrance of sand from the storage-receptacle into the discharge-receptacle, means for controlling the inlet and outlet closing means connected with the platform of the car and adapted, when actuated, to prevent entrance of sand from the storage-receptacle into the discharge-receptacle and to permit of the simultaneous exit of sand therefrom, and means connected with the framework of the running-gear of the car for conducting sand independently of the movements of the car-body in front of certain of the wheels thereof.

3. In an appliance of the character described, in combination with a car, two superposed receptacles connected with the car-

body forming respectively storage and discharge receptacles for sand and each having an inlet and outlet, means connected with the discharge-receptacle for normally closing the outlet and opening the inlet to permit of entrance of sand from the storage-receptacle into the discharge-receptacle, means for controlling the inlet and outlet closing means connected with the platform of the car, means removably connected with the platform for engaging said controlling means, said controlling means, when actuated by said removable means, adapted to prevent entrance of sand from the storage-receptacle into the discharge-receptacle and to permit of the simultaneous exit of sand therefrom.

4. In an appliance of the character described, in combination with a car, two superposed receptacles connected with the car-body forming respectively storage and discharge receptacles for sand and each having an inlet and outlet, means connected with the discharge-receptacle for normally closing the outlet and opening the inlet to permit of entrance of sand from the storage-receptacle into the discharge-receptacle, means for controlling the inlet and outlet closing means connected with the platform of the car, means removably connected with the platform for engaging said controlling means, said controlling means, when actuated by said removable means, adapted to prevent entrance of sand from the storage-receptacle into the discharge-receptacle and to permit of the simultaneous exit of sand therefrom, and means connected with the framework of the running-gear of the car for conducting sand independently of the movements of the car-body in front of certain of the wheels thereof.

5. In an appliance of the character described, in combination with a car, two superposed receptacles forming respectively, storage and discharge receptacles for sand and each having an inlet and outlet connected with the car-body, means connected with the discharge-receptacle for normally closing the outlet and opening the inlet to permit of entrance of sand from the storage-receptacle into the discharge-receptacle, means for controlling the inlet and outlet closing means connected with the platform of the car and adapted, when actuated, to prevent entrance of sand from the storage-receptacle into the discharge-receptacle and to permit of the simultaneous exit of sand therefrom, and means carried by the outlet-closing means of the discharge-receptacle adapted to loosen the sand in the same.

6. In an appliance of the character described, in combination with a car, two superposed receptacles connected with the car-body and forming, respectively, storage and discharge receptacles for sand and each having an inlet and outlet, slide-valves connected with the discharge-receptacle for normally closing the outlet and opening the inlet to permit of entrance of sand from the storage-receptacle into the discharge-receptacle, a lever connecting the valves with each other, a spring-controlled rod connected with the car-platform for actuating said lever and by the same said valves, and a treadle removably connected with the car-platform and said rod, said treadle when manually operated and when actuating said rod and lever, and by the same said valves, adapted to prevent the entrance of sand from the storage-receptacle into the discharge-receptacle and to permit of simultaneous exit of sand therefrom.

7. In an appliance of the character described, in combination with a car, two superposed receptacles connected with the car-body and forming, respectively, storage and discharge receptacles for sand and each having an inlet and outlet, slide-valves connected with the discharge-receptacle for normally closing the outlet and opening the inlet to permit of entrance of sand from the storage-receptacle into the discharge-receptacle, a lever connecting the valves with each other, a spring-controlled rod connected with the car-platform for actuating said lever and by the same said valves, and a treadle removably connected with the car-platform and said rod, said treadle when manually operated and when actuating said rod and lever, and by the same said valves, adapted to prevent the entrance of sand from the storage-receptacle into the discharge-receptacle and to permit of simultaneous exit of sand therefrom and prongs carried by the valve controlling the outlet of said discharge-receptacle adapted to loosen the sand prior to the discharge of the same from said receptacle.

8. In an appliance of the character described, in combination with a car, two superposed receptacles connected with the car-body and forming, respectively, storage and discharge receptacles for sand and each having an inlet and outlet, slide-valves connected with the discharge-receptacle for normally closing the outlet and opening the inlet to permit of entrance of sand from the storage-receptacle into the discharge-receptacle, a lever connecting the valves with each other, a spring-controlled rod connected with the car-platform for actuating said lever and by the same said valves, and a treadle removably connected with the car-platform and said rod, said treadle when normally operated and when actuating said rod and lever, and by the same said valves, adapted to prevent the entrance of sand from the storage-receptacle into the discharge-receptacle and to permit of simultaneous exit of sand therefrom, a funnel

connected with the running-gear of the car, a tube extending therefrom, said funnel and tube adapted to conduct sand discharged from the discharge-receptacle independently of the movements imparted thereto by the car-body, in front of certain of the wheels of said car.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

ALFRED H. FLEXER.

Witnesses:
GEO. W. REED,
THOMAS M. SMITH.