(No Model.)

H. W. JORDAN, G. W. MILLS & L. JORDAN.

SAND BOX FOR RAILWAY CARS.

No. 365,076. Patented June 21, 1887.

Fig. 1.

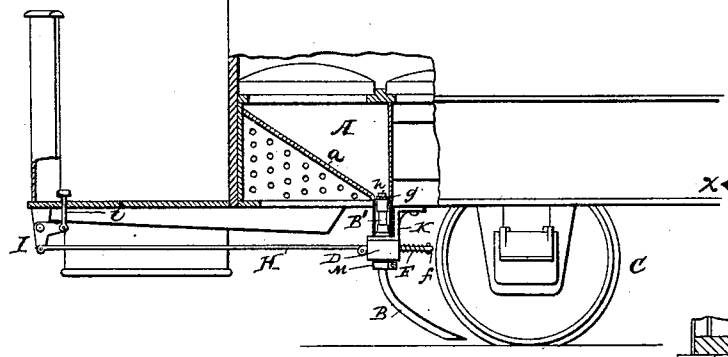


Fig. 3.

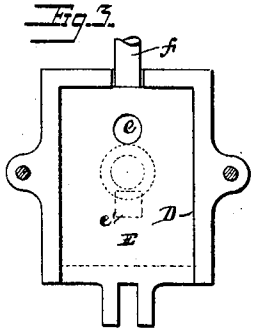


Fig. 4.

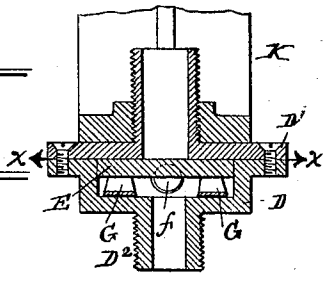


Fig. 2.

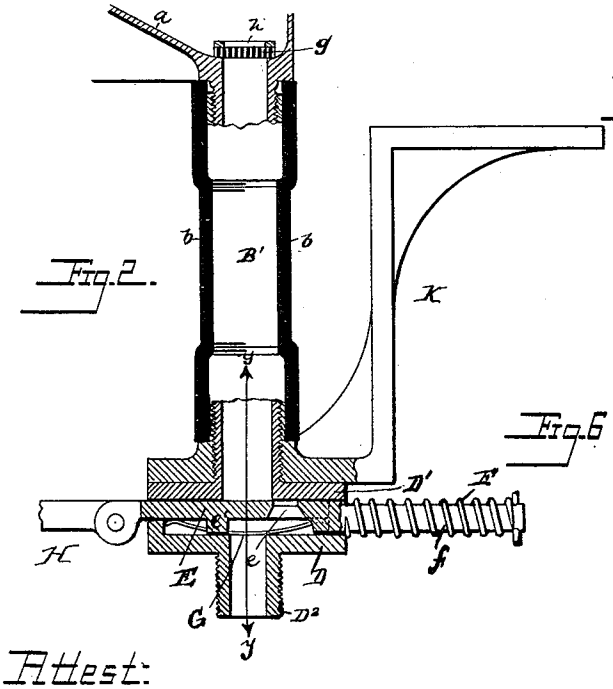


Fig. 5.

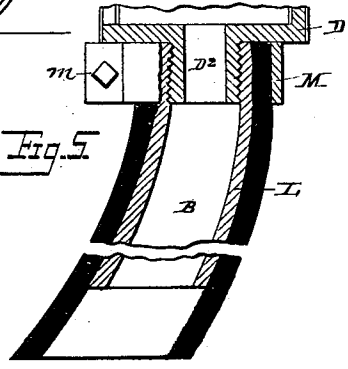
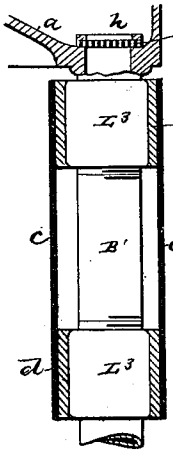


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY W. JORDAN, OF HOBOKEN, AND GEORGE W. MILLS, OF ELIZABETH, NEW JERSEY, AND LOUIS JORDAN, OF NEW YORK, N. Y.

SAND-BOX FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 365,076, dated June 21, 1887.

Application filed October 28, 1886. Serial No. 217,473. (No model.)

To all whom it may concern:

Be it known that we, HENRY W. JORDAN, a citizen of the United States, residing at Hoboken, in the county of Hudson and State of New Jersey, GEORGE WASHINGTON MILLS, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, and LOUIS JORDAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Sand-Boxes for Railway-Cars, of which the following is a specification.

This invention relates to improvements in sand-boxes for railway-cars; and it consists, essentially, in a tube for conducting the sand from the reservoir to the track, which tube is made of some flexible material like rubber, and which is also a good non-conductor, the said tube being in this way flexible, so that it may have a motion independent of the car.

The invention further consists in a non-conducting covering or an air-space placed upon or surrounding the sand-conducting tube, and also constructing the sand-reservoir with an air-space and perforated sides; also, in the combination, with a sand-reservoir and its discharge-tube, of a valve properly guided in a chest and mechanism for operating said valve so as to control the discharge of sand from the reservoir, the valve being subjected to the action of a spiral spring having a tendency to retain the same in its closed position, and to the action of a spring, whereby it is held in close contact with its seat, all of which is more fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a street-car with a portion broken away to more plainly show our improved sand-box. Fig. 2 is a vertical central section of the lower part of the sand-box on a larger scale than the preceding figure. Fig. 3 is a horizontal transverse section in the plane *x x*, Fig. 4. Fig. 4 is a vertical section in the plane *y y*, Fig. 2. Fig. 5 is a vertical section of the discharge-tube. Fig. 6 is a vertical section of the lower part of the sand-box and discharge-tube, showing the discharge-tube surrounded by a tubular jacket.

Similar letters refer to similar parts throughout the several figures.

In the drawings, the letter A designates the sand-reservoir. The bottom *a* of this reservoir is inclined so as to make the sand-receptacle itself virtually a hopper. The unoccupied space of the reservoir lying beneath this, aided by the perforated portion of its side, which admits of a current of air, forms the means whereby the sand is kept in a dry condition. This is a matter of great importance, for if the sand or other material should become muddy or thickened up by confinement it would not flow. This reservoir A is provided with a discharge-tube constructed in two parts, B and B′, which lead down and under the wheel C of the car. This lower discharge-tube, B, is preferably made of a rubber tube.

The proper curvature to be given the tube B for leading the sand directly in front of the tread of the wheel may be accomplished in any of the well-known ways—viz., a curved coiled spring, or, as shown in Fig. 5, by inserting a curved nipple, L, which is screwed onto the tubular shank D^2 of the casing D. A strap, M, is tightly bound around the top of the tube B to hold it firmly to the nipple L.

By using a rubber discharge-tube we overcome a great many of the disadvantages experienced by the use of an iron discharge-tube. It is necessary, in order that a proper distribution of the sand may take place, that the discharge-tube shall be as near the track as possible; but this cannot be done with iron tubes, on account of the upward and downward throw of the car, unless they are placed on the axle-box, which is often very inconvenient. By using a rubber tube many advantages are obtained. The iron tube presents a surface to which mud and moisture adhere. Freezing up in cold weather and being choked up with mud are things of an every-day occurrence. Such would not be the case if a rubber tube is used. The rubber tube, being flexible, will have a vibration of its own derived from but independent of the car, thus

dislodging anything that may form either on the outside or inside, causing a more perfect flow of sand, and should the car fall so low that the tube strikes the track it will either double upon itself or slide off to one side.

In order that the upper discharge-tube, B′, may be properly protected from the action of the elements, we either tightly cover the tube and connections with rubber or other non-conductor, as shown at *b*, Fig. 2, or by constructing an air-case around it, as shown at *c*, Fig. 6, in which *d d* are two wooden rings tightly surrounding the couplings L^3, to which the jacket *c* is secured. This jacket can be made of tin, wood, or any other desirable material. A casing, D, having a suitable cover, D′, is located in the discharge-tube B, and both casing and cover are provided with tubular threaded shanks, whereby they are coupled to the discharge-tube. In this casing is situated a valve, E, Figs. 2, 3, and 4, which is provided with a suitable port or opening, *e*, that opens the discharge of sand through the tube B when in line therewith. A seat is provided for this valve in the cover of the casing D, against which the valve is constantly pressed by means of springs G G, which are interposed between the back of the valve and the bottom of the casing. A rod, *f*, Fig. 2, which extends from one end of the valve beyond the casing D, is encircled by a spiral spring, F, that is confined between the casing and lugs or projections on the post, so that the tendency of the spring is to return the valve to its closed position and retain it in such position. To move the valve in the proper direction to bring the port or opening in line with the receiving end of the casing, so as to permit the discharge of sand from the reservoir, any well-known mechanism may be employed—such, for instance, as shown in the drawings. The valve is connected by a link, H, Fig. 1, to one arm of a bell-crank lever, I, the other arm of which is connected with a push-rod, *i*, which projects through the platform in a convenient position to be operated by the attendant. The spring F returns the valve to its closed position when the bell-crank lever is released.

It is desirable that the valve should remain in a locked position when not in use, and various devices may be used to lock it against accidental opening, though we prefer the device shown and claimed in our application, Serial No. 205,024.

In order to prevent as much as possible large lumps of sand or stones from entering the discharge-tube, we provide a screen, *g*, held down by the ring *h*, or equivalent, as in Figs. 2 and 6. It is preferable to employ some sort of a stirrer to break up any lumps of sand that may be in the reservoir and insure a free flow thereof, and we have shown and claimed one preferred form in our application, No. 205,024, before referred to.

As shown in the drawings, the discharge-tube is supported in a hanger, K, which is secured to the car-bottom.

The operation is as follows: When it is desired to sand the track, the operator presses down the push-rod *i*, and through the instrumentality of the bell-crank-lever I and connecting-link H moves forward the valve E, compressing the spring F until the port or opening *e* is in line with the upper discharge-tube, B′. The sand from the reservoir A falls by gravity, assisted by the oblique bottom of the reservoir *a*, through the screen *g*, into the upper discharge-tube, B′, onto the top of the valve E, where it awaits the opening of the valve. The lug *e′*, Fig. 2, regulates the forward movement of the valve E, and also keeps the springs G G separated. When the valve is moved forward, as before stated, the sand passes through the port *e*, through the shank D^2, into the lower discharge-tube, B, and out upon the track. When, at the discretion of the operator, a sufficient quantity of sand has been distributed on the track, he removes his foot from the push-rod *i*, which allows the spring to assume its normal position, drawing the valve, link, bell-crank lever, and push-rod into the position shown in the drawings.

What we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the sand-reservoir A and its discharge-tube B B′, of the valve-casing D, communicating with the discharge-tube, the valve E therein, provided with an opening or port, *e*, the springs G G, for holding the valve to its seat, the lug *e′* on the valve E, for limiting the throw of the valve and separating the springs, the spring F, for retaining the valve in its closed position, push-rod *i*, bell-crank lever I, and link H, for operating the valve, substantially as shown and described.

2. The combination, with a sand-reservoir and a valve and means to operate the same, of a flexible discharge-tube, substantially as and for the purposes hereinbefore shown and described.

3. The combination, with the reservoir A and valve-casing D, of a flexible discharge-tube, B, provided with a curved nipple, L, or equivalent, to give it the proper curvature, substantially as hereinbefore shown and described.

4. The combination, with the reservoir A and valve-casing D, of the upper discharge-tube, B′, provided with an air-space or non-conducting covering, substantially as and for the purpose hereinbefore shown and described.

5. A sand-reservoir provided with an inclined bottom, air-space below, and perforated sides, substantially as and for the purpose hereinbefore shown and described.

6. In a sand-box for railway-cars, the combination of a sand-reservoir, A, provided with an inclined bottom, *a*, air-space beneath, and perforated sides, the upper discharge-tube, B′, provided either with an air-space or non-conducting covering, casing D, lower discharge-

tube, B, valve E, provided with the port or opening *e*, lug *e'*, rod *f*, means for working the valve, consisting of the push-rod *i*, bell-crank lever I, link H, and spring F, all constructed and operating as and for the purpose hereinbefore shown and described.

7. A flexible discharge-tube for distributing sand in front of the wheels of a vehicle, which tube is carried by the vehicle, the motion of which causes the said tube to shake, substantially as and for the purpose hereinbefore shown and described.

8. The combination, with the reservoir, of an upper discharge-tube, a screen above said tube, a valve, and a flexible discharge-tube, substantially as described.

9. The combination, with the discharge-tube, of the sliding valve having a spring-carrying extension and a controlling-lug and the springs for holding said valve in position.

10. The combination, with the discharge-tube, of the separable valve-casing connected to said tube, the spring-pressed valve in said casing, means for operating the valve, and a spring for retracting it, substantially as described.

11. The sliding valve having a spring-carrying extension and a controlling-lug and the springs for holding said valve in position.

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Witnesses:
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