

A. L. BACON.  
SAND BOX FOR CARS.  
APPLICATION FILED MAR. 22, 1907.

Fig. 1.

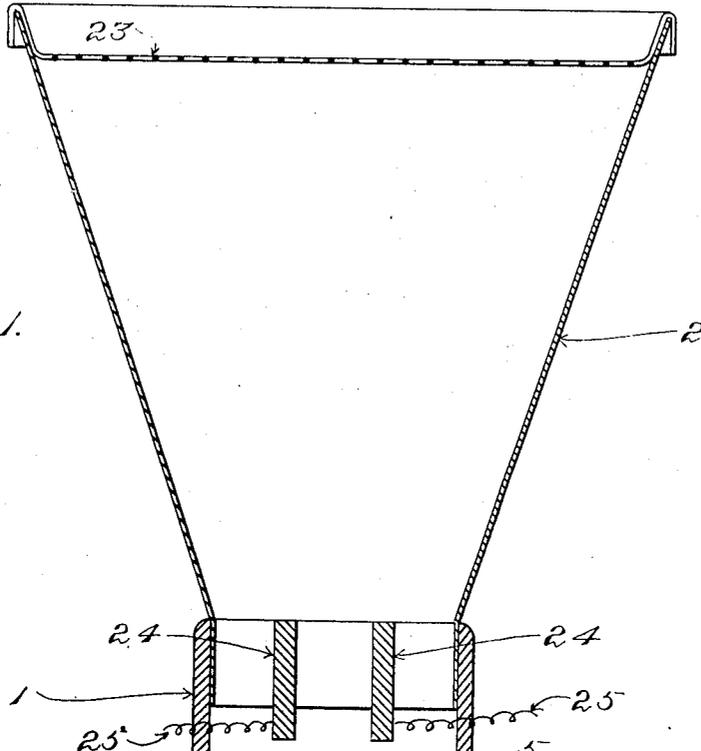
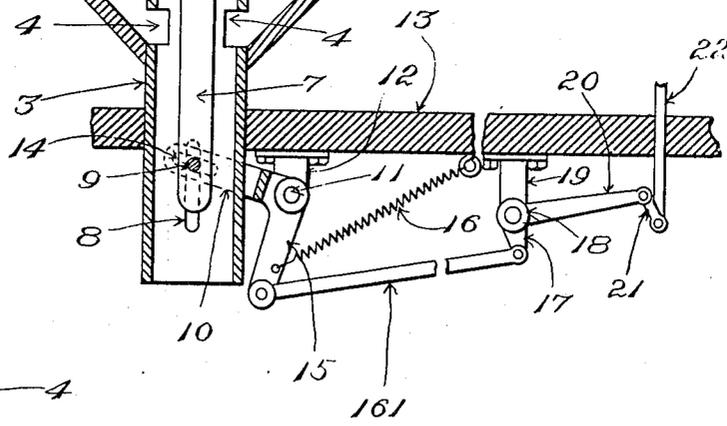
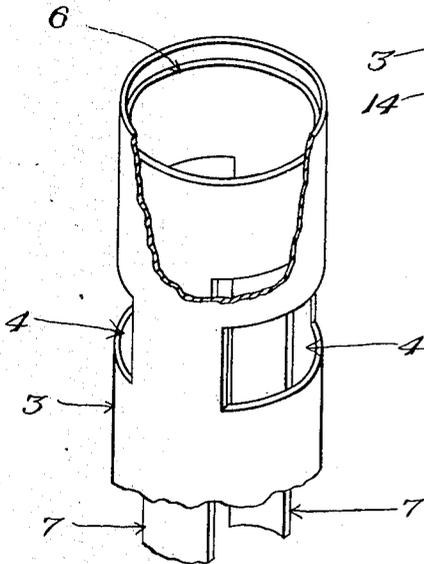


Fig. 2.



Witnesses:  
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Edith J. Anderson.

Inventor:  
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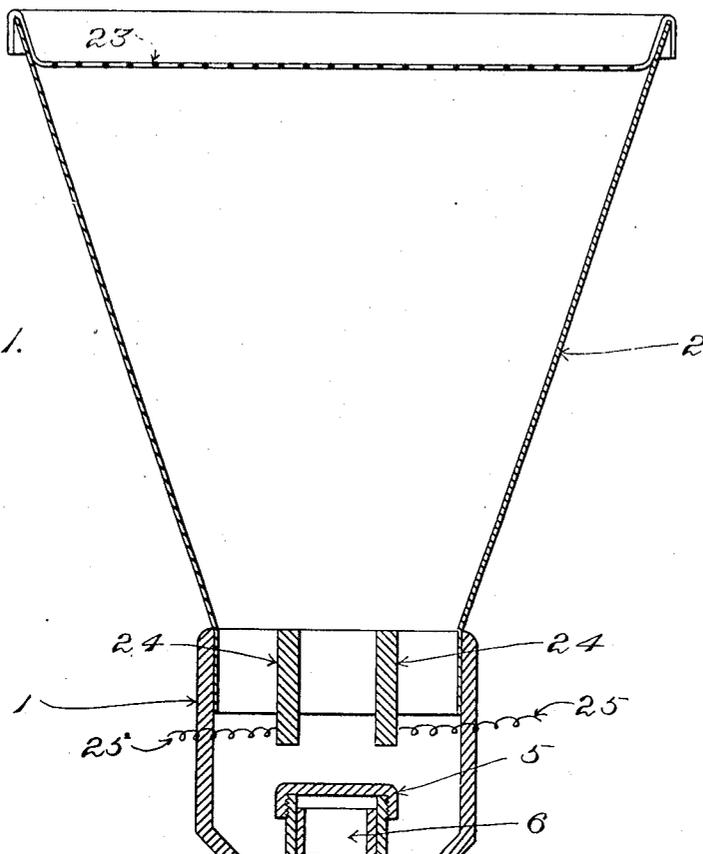
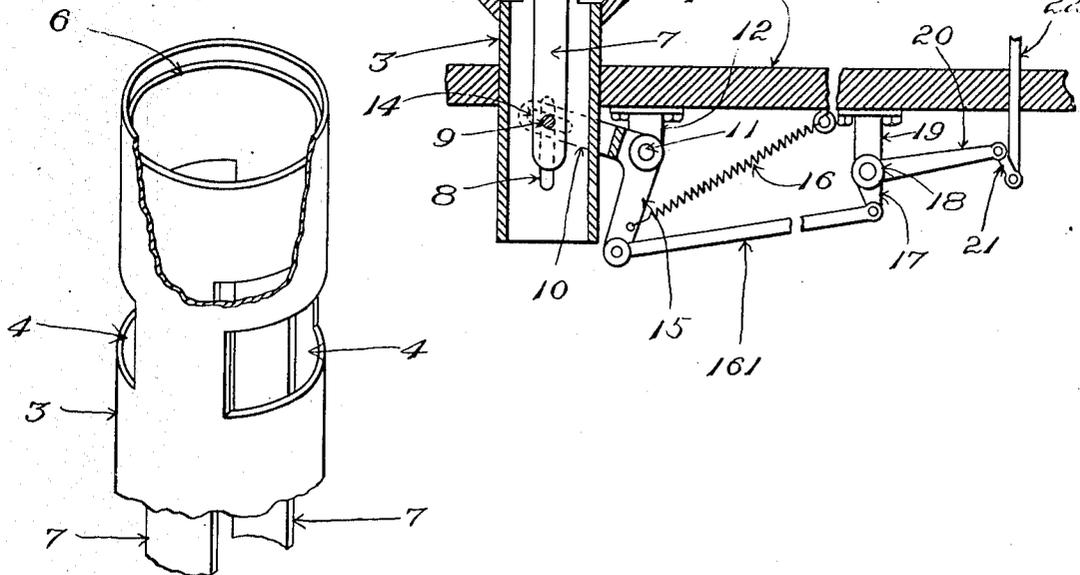


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# UNITED STATES PATENT OFFICE.

ABBOTT L. BACON, OF FRANKLIN, MASSACHUSETTS.

## SAND-BOX FOR CARS.

No. 872,104.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed March 22, 1907. Serial No. 363,805.

To all whom it may concern:

Be it known that I, ABBOTT L. BACON, a citizen of the United States, residing at Franklin, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Sand-Boxes for Cars, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists chiefly in improved means for electrically heating the supply of sand contained within a sand-box, and in an improved outlet-valve.

The invention is illustrated in the accompanying drawings, in which latter,—

Figure 1 is a view mainly in vertical section of a sand-box having my invention applied thereto. Fig. 2 is a sectional detail of the valve-arrangement.

Having reference to the drawings,—the box or hopper to receive the supply of sand may in practice be of any approved and suitable form, character, and construction. As represented herein, it consists of a cast-iron base-portion 1, and a sheet-metal upper or body-portion 2, these two parts being connected together at the top of the said cast-iron base-portion. At 3 is a delivery-pipe fitted to a hole in the lower part of the said base-portion, and through which the sand may pass when it is permitted to escape from the interior of the sand-box. The upper end of the said delivery-pipe extends upwardly within the base-portion several inches from the bottom of the latter, forming a tubular valve-casing, and above the said bottom is formed with lateral openings or holes 4, 4, for the flow of sand from the interior of the base-portion into the delivery-pipe. The top end of the portion of the delivery-pipe which rises within the interior space inclosed by the base-portion is covered and closed by a cap 5 which is removably screwed upon the same. Within the delivery-pipe is contained the movable valve-member 6 by means of which the outflow of the sand through the delivery-pipe is controlled. This valve-member is cylindrical to fit the interior of the delivery-pipe, and is movable within the latter to enable it either to occupy a position in which it closes the lateral holes or openings 4, 4, to shut off the flow of sand, or to be raised so as to more or less completely open the said holes or openings to permit the desired flow of sand.

Fig. 1 shows the valve-member in its

highest position with the holes or openings entirely open. For the actuation of the said movable valve-member it is provided at opposite sides with downward extensions 7, 7. Through holes in the lower ends of these extensions and also through vertical slots, one of which is shown at 8, in the delivery-pipe, a pin 9 extends transversely, the opposite ends of the said pin projecting at the exterior of the delivery pipe at the opposite sides of the latter into position for being engaged or connected with the operating mechanism of the movable valve-member. The said operating mechanism may be variously contrived, constructed, and arranged to suit the requirements in practice. In the construction which is shown in the drawings arms 10, 10, (one of which is represented as partly broken away) project from a rock-shaft 11 supported by a stand 12 extending downward from the car-floor 13, the said arms being formed with longitudinally extending slots, one of which is shown at 14, receiving the ends of the transverse pin. A downwardly extending arm 15 of the said rocker has connected therewith one end of a contracting spiral spring 16, the other end of which is connected with a suitable fixed point of the car-floor, the said spring acting with a tendency to keep the movable valve-member in its lowest position, closing the lateral holes or openings 4, 4. At 161 is a rod having one end thereof connected to the downwardly extending arm 15 of the rocker, and the other end thereof connected to the downwardly-extending arm 17 of a second rocker 18 which is supported by a stand 19 attached to the under side of the car-floor, the said rocker 18 having a horizontally-extending arm 20 which is joined by a link 21 to a rod or plunger 22 extending upward through the car-floor into position to be moved by the hand or foot, as may be provided for, of the motor-man.

When the rod or plunger 22 is moved downward by the motor-man it transmits movement through the described connections to the movable valve-member to raise the latter and thus open the holes or openings 4, 4, to a greater or less extent for the outflow of sand. It will be perceived that the movable valve-member is entirely inclosed within the upward extension of the delivery-pipe and thereby shielded from the volume of sand within the lower portion of the sand-box, except as the sand may press

upon the portions of the valve-member which are exposed through the holes or openings 4, 4. Also, that the valve-member is operated by connections extending upward from below within the delivery-pipe. There is, therefore, no interference of the sand or its pressure with the free movement of the valve-member in opening or closing. Inasmuch as the valve-member does not work within the volume of sand contained in the sand-box, it does not have to displace the sand or any portion of it in being moved into either the open or the closed position.

The valve-member 6 is formed as a section of a tube or pipe, with the extensions 7, 7, extending downward from its lower edge. The opening through the same prevents compression of the air in the upper part of the delivery-pipe 3 above the valve-member as the latter is raised, thus obviating resistance from this cause to the easy and complete raising of the valve-member, and it also permits the escape downward of any particles of sand which may find their way to the top of the valve-member.

At 23 is a removable screen or grating extending across the hopper near the top of the latter, and designed to arrest stones or gravel which are sufficiently large to clog the holes or openings 4, 4.

At 24, 24, are heating devices comprising rigid bars or plates extending crosswise of the sand-box and constructed in any well-known manner to be heated electrically, the electric connections being indicated at 25, 25. These bars or plates may be of any required shape in cross-section, and when in plate form will be set in upright position, as indicated, so as to present the more extended surfaces thereof vertically. The number of these bars or plates may vary. In some instances, I may employ one only, and in others a greater number than two. They extend across the interior of the sand-box in the lower portion thereof so that in practice they are surrounded and covered by the sand which is contained in the sand-box. The space above between and below the same is unobstructed for the reception of sand. They impart heat to the sand which surrounds and covers them, such heat being applied at the interior of the mass of sand, and therefore being enabled to act most efficiently and without loss. As the sand is used from the bottom of the sand-box, fresh sand flows down from above into contact with and past the plates or bars.

I claim as my invention:—

1. A sand-box having an outlet, a delivery-pipe extending from said outlet and a cy-

lindrical valve-casing above the latter closed at its top, a movable valve-member for closing said outlet, which is moved upwardly within the said valve-casing to open the valve for the flow of sand and is shielded by the closed valve-casing from the mass and pressure of the sand, and means for operating the said valve-member from below, such means extending upwardly within the delivery-pipe.

2. In a sand-box, the combination with a tubular valve-casing extending up within the sand-chamber, closed at its upper end, and having a lateral hole or opening through which sand may flow from the sand-chamber to the interior of the valve-casing, said valve-casing having a delivery-pipe continuation, of a valve-member within said valve-casing, which is shielded thereby from the mass and pressure of the sand, and which is moved upward inside said valve-casing to open the valve for the flow of sand, and means for operating the said valve-member from below.

3. In a sand-box, the combination with a tubular valve-casing extending up within the sand-chamber, closed at its upper end and having a lateral hole or opening through which sand may flow from the sand-chamber to the interior of the valve-casing, said valve-casing having a delivery-pipe continuation, of a valve-member vertically movable within said valve-casing to open and close the valve to permit or discontinue the flow of sand and which valve-member is shielded within the valve-casing from the mass and pressure of the sand, and operating means for the said valve-member.

4. In a sand-box, the combination with the sand-receptacle, of one or more electrically-heated rigid plates or bars located within extending across the lower part of the sand-chamber, located intermediately with relation to the width of the sand-chamber, and adapted to be surrounded and covered by the sand, with the space above between and below the same unobstructed for the reception of the sand.

5. In a sand-box, the combination with a sand-receptacle, of an electrically-heated flat plate or bar extending across the lower part of the sand-chamber, located intermediately with relation to the width of the sand-chamber, with its width arranged vertically, and adapted to be surrounded by the sand.

In testimony whereof I affix my signature in presence of two witnesses.

ABBOTT L. BACON.

Witnesses:

CHAS. F. RANDALL,  
EDITH J. ANDERSON.