(No Model.)

H. B. MORSE.

AUTOMATIC SAND BOX.

No. 596,527. Patented Jan. 4, 1898.

FIG. 1

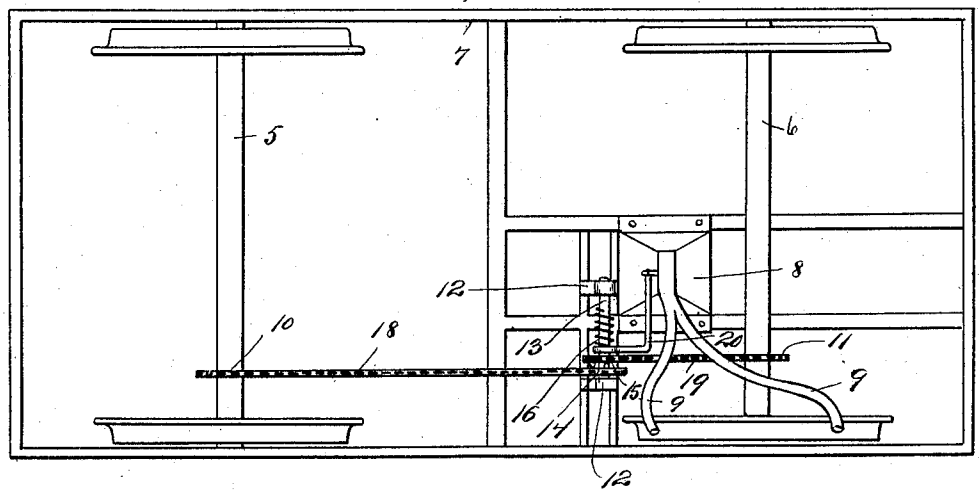


FIG. 2

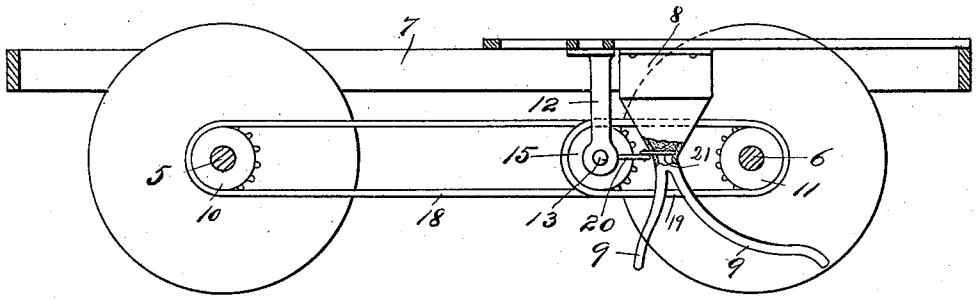


FIG. 3

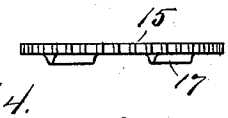
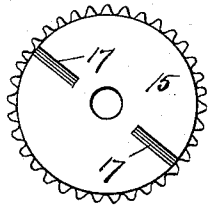


FIG. 4.



WITNESS

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HARVEY BALDWIN MORSE, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO CHARLES F. STRANGER, OF PLYMOUTH, MASSACHUSETTS.

AUTOMATIC SAND-BOX.

SPECIFICATION forming part of Letters Patent No. 596,527, dated January 4, 1898.

Application filed September 15, 1897. Serial No. 651,774. (No model.)

To all whom it may concern:

Be it known that I, HARVEY BALDWIN MORSE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Automatic Sand-Boxes, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to sand-boxes, and more particularly to a class thereof which are adapted to act automatically and sand the track whenever this may be necessary by reason of the spinning of the driving-wheel or the difficulties encountered in braking on a downgrade.

The object of my invention is to provide a sand-box of the above-described class which will sand the track automatically when this is made necessary or desirable by reason of the wheels not catching the track, as in hill-climbing, starting a heavy load, or when the track is slippery.

It is also the object of my invention to provide an automatic sand-box which will act when owing to any reason the car does not respond readily to the brake.

A still further object is to provide a box of the above-described class which is simple in construction, infallible in operation, and which can be applied to motor-cars of any construction.

The invention consists in the novel features of construction hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings, Figure 1 is a plan view of my improved sand-box, showing it properly attached to an ordinary motor-car; Fig. 2, a side elevation thereof; Fig. 3, a side view of a sprocket-wheel equipped with cams, and Fig. 4 a plan view thereof.

Like numerals refer to like parts through the several views.

In the accompanying drawings, 5 and 6 denote car-axles, and 7 the frame of the truck of a car. To the truck of said car is firmly attached the sand-box 8, which is suitably equipped with a sliding valve 21 of ordinary construction. This box transmits the sand contained therein to the track by means of feed-pipes 9, one on each side of a wheel of a car.

On the axles of the car are rigidly mounted sprocket-wheels, as 10 and 11. Suspended from the car-truck by means of rods 12 is a spindle 13, having mounted thereon sprocket-wheels 14 15. Mounted on this spindle is also a spiral spring 16, which is so attached to said spindle at one end as to hold the sprockets 14 and 15 in contact with each other. These sprockets 14 15 are equipped with cams, as 17, and communicate, respectively, with the sprockets 10 and 11 by means of ordinary chains 18 19. Mounted on the spindle 13 is an arm 20, which communicates with the valve of the sand-box. Said arm is preferably made integral with a collar encompassing said spindle.

The various sprocket-wheels are of such dimensions as that, irrespective of the diameters of the wheels, the axles of which they are mounted upon, the rotation of the two sprockets 14 and 15 will be uniform.

The operation of my improved sand-box is as follows: The various sprocket-wheels being so arranged as to rotate the wheels 14 and 15 in unison when the car is in motion, these sprockets will remain in the position shown in Fig. 1 as long as the motor-wheels of the car preserve the proper relative speed. When, however, owing to a heavy load, slippery tracks, or to the sliding of the car after the brake has been applied, the relative speed of rotation of the axles upon which the sprockets 10 and 11 are mounted is destroyed, one of said sprockets, as 14, will revolve either more slowly or more rapidly upon the spindle 13, thus bringing the cams 17 of each in contact and by compressing the spring 16 open the valve in the sand-box by means of the arm 20, thus sanding the tracks on either side of the wheel. This operation will be repeated until the car comes to a standstill or until the proper relative speed of the two axles is resumed, at which time the sprockets 14 and 15 will have resumed their former relations by reason of the pressure exerted by the spring 16. The sprocket-chains connecting the various sprockets admit of sufficient play to prevent the cams from stopping on a center, thus

avoiding any possibility of a continuous flow of sand when this is not required.

The above-described device can be applied to an eight-wheel double-truck car as well as to the ordinary four-wheel vehicle, and is equally efficient on a car when double motors are employed, said motors being fed by "series" and "multiple," which invariably results in one wheel slipping before the other. The operation of the device in all these cases is identical, the variation merely being one of practical use and not in construction.

By the means above described the objects of my invention are attained. I have produced an automatic sand-box which will sand the track whenever this may be made necessary, which may be applied to motor-cars of any construction, and which is simple in construction and infallible in operation.

It is to be understood that it is not my intention to limit the invention to the precise construction herein shown and described, as there may be many variations in minor details of construction without departing from the spirit of my invention.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a sand-box, the combination with a sand-chamber, means for transferring sand therefrom, and a valve, of a gear-wheel mounted on each axle, a gear-wheel mounted intermediate said first-mentioned gear, a laterally-sliding gear, connections between each of said intermediate gears and a gear on one axle and connections between said sliding gear and said valve, substantially as described.

2. In a sand-box, the combination with a sand-chamber, means for transferring sand therefrom, and a valve, of a sprocket-wheel mounted on each axle, a sprocket-wheel as 15, mounted on a spindle, a laterally-sliding sprocket 14, connections between said sprockets, and the sprockets on the respective axles, and between said sprockets and said valve, substantially as shown and described.

3. In a sand-box, the combination with a sand-chamber, means whereby sand is transmitted therefrom to the track, and a valve, of a sprocket-wheel mounted on each axle of the car, sprocket-wheels 14, 15, mounted on a spindle, sprocket-chains passing respectively over the sprockets on the axle and the last-mentioned sprockets, and connections between said last-mentioned sprockets and said valve, said sprockets being provided with cams thereon, whereby a lateral motion is produced to open said valve, substantially as shown and described.

4. In a sand-box, the combination with a sand-chamber, means whereby sand is transmitted therefrom to the track, and a valve, of a sprocket-wheel mounted on each axle of the car, sprocket-wheels 14, 15, mounted on a spindle, sprocket-chains passing respectively over the sprockets on the axle and the last-mentioned sprockets, and connections between said last-mentioned sprockets and said valve, said sprockets being provided with cams thereon, whereby a lateral motion is produced to open said valve, and means whereby said cams are held in contact, substantially as shown and described.

5. In a sand-box, the combination with a sand-chamber, means whereby sand is transmitted therefrom to the track, and a valve, of a sprocket-wheel mounted on each axle of the car, sprocket-wheels 14, 15, mounted on a spindle, sprocket-chains passing respectively over the sprockets on the axle and the last-mentioned sprockets, and connections between said last-mentioned sprockets and said valve, said sprockets being provided with cams thereon, whereby a lateral motion is produced to open said valve, and a spiral spring whereby said sprockets are held in constant contact, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 10th day of September, 1897.

HARVEY BALDWIN MORSE.

Witnesses:
RICHARD F. ANDREWS, Jr.,
JOHN E. ANDREWS.