

No. 824,118.

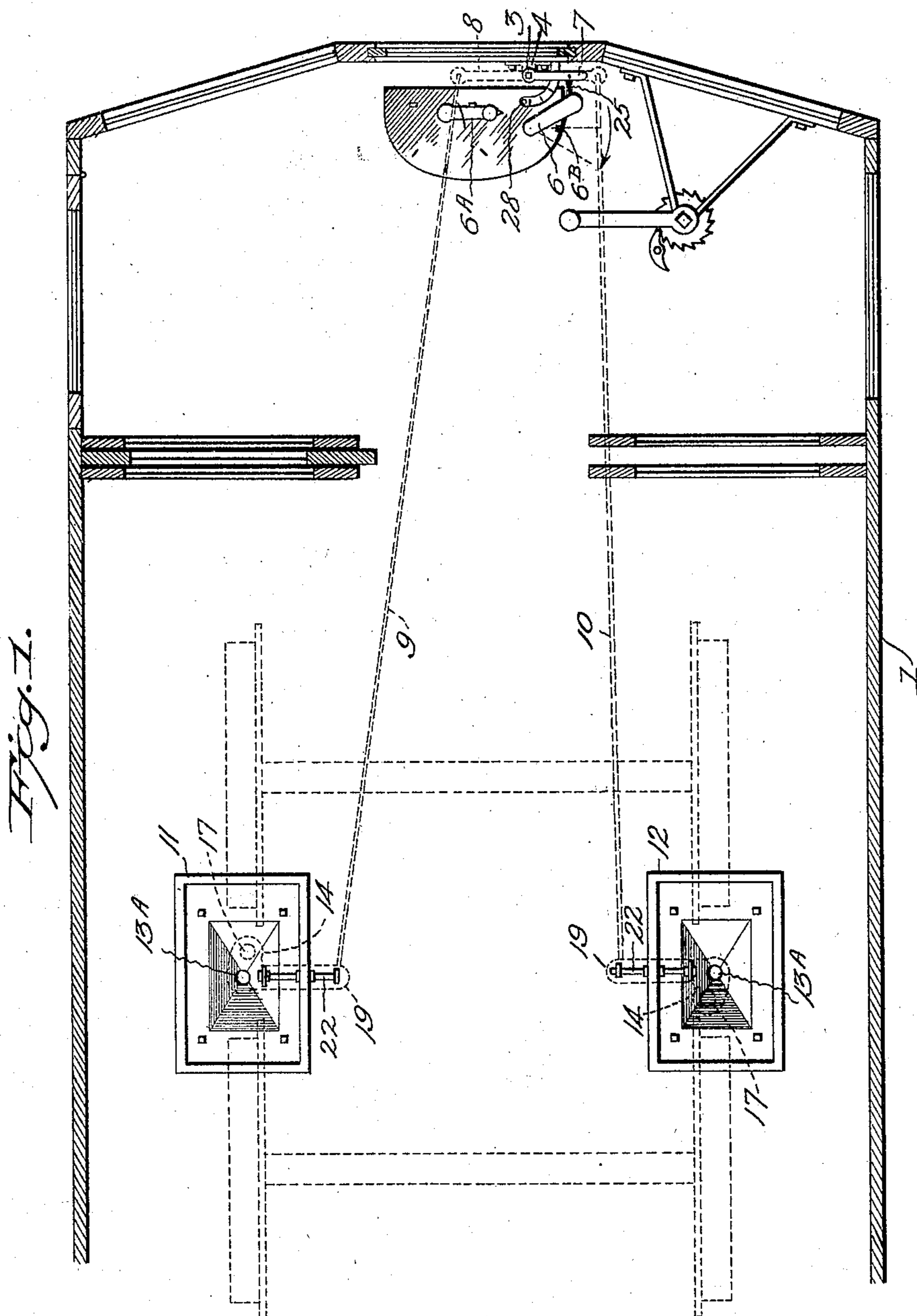
PATENTED JUNE 26, 1906.

D. HOGAN.

TRACK SANDING DEVICE FOR STREET RAILWAY CARS.

APPLICATION FILED MAR. 23, 1906.

2 SHEETS—SHEET 1.



Witnesses:

G. Sargus Elliott.

Adella M. Towle.

By

H. S. Bailey. Attorney.

Inventor:

Dennis Hogan.

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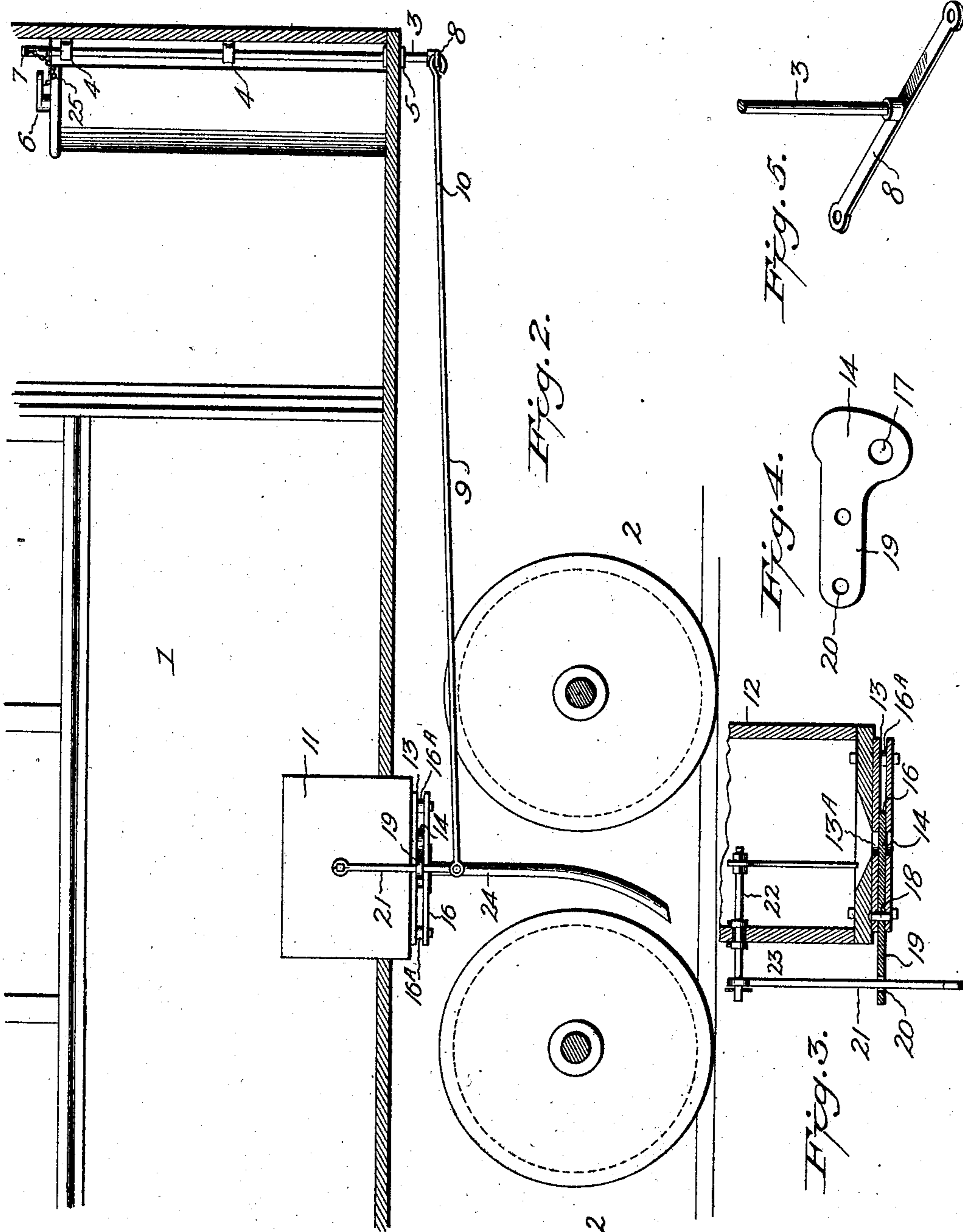
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Inventor:
Dennis Hogan

Attorney

UNITED STATES PATENT OFFICE.

DENIS HOGAN, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO
JOSEPH SCHWARZ, OF DENVER, COLORADO.

TRACK-SANDING DEVICE FOR STREET-RAILWAY CARS.

No. 824,118.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed March 23, 1906. Serial No. 307,647.

To all whom it may concern:

Be it known that I, DENIS HOGAN, a citizen of the United States of America, residing in the city and county of Denver and State of Colorado, have invented a new and useful Track-Sanding Device for Street-Railway Cars, of which the following is a specification.

My invention relates to improvements in sanding devices for sanding the rails and wheels of street-car railways; and the objects of my invention are, first, to provide a sanding device for street-car railway-tracks that can be operated in case of emergency to automatically discharge sand on the track by the shut-off movement by the motorman of the electric-current-operating lever; second, to provide a sanding device that can be operated on either side of either the front or rear truck or on both sides of both trucks, and, third, to provide a sand-supply apparatus that can be operated by the motorman in case of accidents by the same movement of the switch-operating lever as is necessary to shut off the current from the car and to reverse it and at the same time can be operated independently of the car.

I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional plan view of a portion of a car, showing the application of my improved device thereto. Fig. 2 is a vertical longitudinal sectional view of Fig. 1 on the line 2 2. Fig. 3 is a vertical sectional view through the sand-box, showing the valve, the operating-lever, and stirrer. Fig. 4 is a plan view of the valve; and Fig. 5 is a perspective view of the lower end of the rod to which the cross-head is secured, which connects with the sand-valve-operating rods.

Similar figures of reference refer to similar parts throughout the several views.

Referring to the drawings, the numeral 1 designates a street-railway car showing my track-sanding device applied thereto, and 2 represents a fragment of a street-car track. In the cab of the car I pivotally secure to the dashboard and to the floor a vertical rod 3, by means of brackets 4, which are secured to the dashboard, and the bearing 5, which is secured to the floor of the car. This rod is positioned in front of the switch-lever 6, and it extends through the car-floor and its upper end stands about even with the top of the

car's electric-current's cut-out switch-lever 6, and on its top end a hand-grasping lever 7 is placed, by means of which it may be turned through about a quarter of a circle. This lever is placed within easy reach of the motorman's right hand and in front of the switch-lever. The current-cut-out lever 6 is independent of the regular car starting and running switch-lever 6^A and is used to connect and disconnect the car to the current-supply of the overhead wires and to connect to it so that the car can be run ahead or backward as this lever is moved either forward or backward of a central notch 6^B, in which the switch is placed when the current is cut out.

To the lower end of rod 3 I secure a cross-arm 8, and to the opposite ends of this cross-arm I pivotally secure the ends of two rods 9 and 10, the opposite ends of which extend to two sand-holding boxes 11 and 12, which are on opposite sides of the front truck. I have illustrated two of these sand-boxes, and as they and their operating mechanism are alike a description of one will answer for both. I preferably place these sand-boxes above and centrally between the wheels of the forward trucks of the car, although, if desired, they can be placed in front of either the front or rear trucks, and I have illustrated these sand-boxes attached only to the front trucks, although, if desired, they can be placed on the rear trucks also. The sand-boxes consist of boxes of any desired or suitable shape, and they are positioned to extend from above the car-floor, through it, and at any desired distance below it.

A plate 13 is secured to the bottom of the sand-box, and at the center of the box a discharge-aperture 13^A is formed, which leads through the plate to a valve 14. This valve consists of a thin disk-shaped metal plate that rests up against the bottom of the plate 13 of the bottom of the sand-box and is held there by a lower plate 16, which is positioned at a short space below the plate 13 by bolt-washers 16^A and is bolted through the washers to the bottom of the sand-box plate 13. The space between the plates is made to fit the thickness of the valve and to permit the valve to slide freely between them.

A discharge-aperture 17 is formed through the valve to register with the discharge-aperture in the bottom of the sand-box. This valve is pivotally connected by a bolt 18 to

the plates and the bottom of the sand-boxes to swing or oscillate against the bottom of the sand-box, and it is provided with a handle portion 19, that extends out beyond its disk portion and beyond the box and contains a perforation 20, through which a short rod 21 extends loosely, said rod being arranged to project both above and below said handle a short distance. The lower end of this rod I pivotally secure to the end of the rod 10, and its upper end is secured to a short shaft 22, which extends at right angles from the upper end of the rod 21, through the side of the box to its central portion and is rotatably supported in a bearing 23, that is secured to the side of the box. Within the box and to the end of the rod 22 I secure a sand-stirring device of any suitable character, which, as illustrated, comprises a blade of metal, which depends from the end of the shaft centrally over the discharge-aperture in the bottom of the sand-box. The opposite box is equipped with a valve and valve mechanism in a similar manner, and to the bottom plate of these sand-boxes I secure a sand-feed spout 24, which extends close to the track at a short distance in front of the tread of the rear wheels of the truck.

To the free end of the operating hand-lever 7 I secure one end of a chain 25, the opposite end of which is attached to the end of the car's current cut-off switch-lever 6.

The operation is as follows: The sand-box-operating lever and the car's current-supply lever both stand substantially at right angles across the front of the motorman, when the current is entirely cut off from the car, the current-switch being positioned in a notch 6^B in the top of the switch-box. Then to switch the current on the car the switch-lever is moved forward toward the operating-lever of the sand-box valves at about an angle of from twenty to twenty-five degrees, and the chain is made just long enough to permit the lever 6 to be drawn back to the notch 6^B without moving the sand-box lever, which is normally in position to close the sand-valve, it being understood that this current-switch is used only to turn on or cut off the supply of current of the car from the overhead wires or current-supply or to reverse the car, the regular car-switch 6^A being operated to start up and to run the car independent of this switch-lever 6, and when these levers are thus connected by the chain the sand-box valves are closed, and the lever 6, controlling the valves through the rods 9 and 10 and the cross-arm 8, is free to be operated at the will of the motorman to open the valves of the sand-boxes independent of the current-switch of the car and supply sand to the track, which the motorman accomplishes by simply grasping the lever 6 and moving it any part of a right-angled distance toward him and toward the switch-lever, thus slacking the chain

the distance he moves the valve-operating lever, depending on whether he desires to throw the valves wholly or only partially open to secure a part or the whole of the flow of sand the valves are capable of discharging, an index 28 being provided under the lever to indicate the quarter, half, and three-quarter positions of the opening stroke of the valves. This movement of the sand-box lever pulls on the rod 9 and pushes on the rod 10, and the valves are moved in reverse directions as they pivotally swing across the discharge-apertures of the sand-boxes, while the rods 21 are rocked and the sand-stirrer within the box and its shaft oscillate, thus loosening the sand, if it is damp, and breaking up the lumps, and the sand feeds through the discharge-aperture in its bottom and through the valve-aperture into and through the spout onto the track. When, however, the car is running and an accident occurs, it is the duty of a motorman to reverse the current and start the car backward as soon as possible, and to do this he instantly grasps the current-switch lever 6 and throws it to the opposite limit of its movement, thus reversing the current, and in doing so the chain draws the sand-box lever and swings it around to fully open the valves of the sand-boxes, thus instantly applying sand to the track and aiding the brakes to stop the car. My invention thus places at the command of the motorman the instant use of the sand in emergencies to assist him in stopping the car with the same movement of the hand that reverses the line-current, while allowing him free and independent use of the sand at all times on upgrades and on icy or sleety tracks without touching the car's current-supply switch.

My invention is essentially adapted to be applied at very small expense to the sand-boxes of street-cars in use, as it can be applied in a very short time without interfering with the position or arrangement of the sand-boxes, and its application does not interfere with or require any change in the electrical apparatus of the car.

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

1. In sanding device for street-car tracks, the combination with the car and its current-supply switch-lever, of sand-holding boxes arranged on said car, having valve-controlled discharge-apertures operatively arranged in the bottom of said car, a motorman's operating-lever operatively arranged on said car, means for connecting said lever to said valves to open and close the same, and a flexible connection between said current-switch and said lever whereby a current-reversing movement of said switch operates said lever to open said sand-box valves.

2. In a sanding device for street-car tracks,

the combination with the car's current-supply switch, of the sand-boxes arranged in operative relation to the track between the wheels, valves arranged in the bottom of said sand-boxes, sand-distributing tubes extending from said boxes to close to said tracks, a valve-operating lever arranged on said car in reach of a motorman, and means for connecting said lever to said switch-lever so that an operative reversing movement of said switch opens said valves.

3. In a sanding device for street-car tracks, the combination with the car and its current-supply switch, of a rod rotatably mounted in said car adjacent to said switch, a hand-operating lever secured to said rod, sand-boxes connected to said car to discharge sand on said track, discharge-valves on said sand-boxes operatively connected to said rod, a chain arranged to operatively connect said levers together in such a manner that an operative current-reversing movement of said switch-lever will open said sand-box valves.

4. In a sanding device for car-tracks, the combination with the car and the switch-lever, of the hand-operating lever, the lever-rod pivotally mounted on said car, the cross-arm at the lower end of said rod, the sand-boxes on said car, the swinging valves connected to said sand-boxes, the rods connecting said valves with said operating hand-lever, and the chain connecting said sand-box operating-lever and said switch-lever operatively together so that an operative movement of said switch-lever to reverse said current will open the valves of said sand-boxes.

5. In a sanding device for street-railway tracks, the combination with the car, its trucks and wheels, and the current-switch, of sand-boxes arranged in the car between and over the wheels of the truck, having sand-discharge apertures in the bottom of said boxes, a plate-valve arranged to swing over said discharge-apertures, having a discharge-aperture therein, a sand-stirrer in said sand-boxes, an operative rod and lever on said car, a cross-arm at the lower end of said operating-lever, rods extending from the opposite ends of said cross-arm to said plate-valves, rods connected to said valves and lever-operating rods for operating said stirrers, and a chain connecting said switch-lever with said valves operating-rod's lever arranged to permit an operative current-reversing movement of said switch-lever to open said sand-box valves and operate said sand-box stirrers, said levers and chain being arranged to permit said sand-box valves to be operated by their operating-lever independent of said current-switch lever, as specified.

6. In a sanding device for street-car tracks, the combination with the tracks, the car, the

wheeled truck, and the current-connecting switch operatively arranged on said car of a pair of sand-boxes secured to said car between the wheels of said truck having sand-discharge apertures in the bottoms of said boxes, a discharge-tube connecting with the discharge-aperture of each box, and arranged to convey the sand to said track, a valve pivotally secured to each of said boxes and arranged to control said discharge-apertures of each sand-box, a lever on said valve, a plate below said valve arranged to hold it in operative relation to said discharge-aperture, an oscillating shaft extending into each of said sand-boxes, a blade depending from said shaft over said discharge-aperture, a rock-arm pivotally secured to said valve-lever of each sand-box, and secured at one end to said oscillating shafts, a rod pivotally connected at one end to the opposite end of each of said rock-arms, an operating-rod and lever mounted on said car adjacent to said switch-lever, a cross-arm on the lower end of said operating-lever pivotally connected at its opposite ends to the opposite ends of said rods, and a chain secured at one end to the end of said operating-rod's lever, and at its opposite end to the end of said switch-lever, and arranged and adapted so that when said switch-lever is moved to reverse the actuating electric current, the chain will draw and move the operating-lever and rods to open the valves of said sand-boxes and thereby discharge sand onto said track.

7. In a sanding apparatus for street-railway cars, the combination with the track and the car, having an electric-current connecting switch-operating lever, of the sand-boxes on said car provided with a sand-discharge aperture and with sand-discharging tubes, the valve-plate secured to the bottom of said sand-boxes, the plate secured below said first-named plate with a valve-space between them, the oscillating valve pivotally secured to said sand-boxes between said plates to control said boxes' discharge-apertures, and means for operating said valves in conjunction with the current-reversing movements of said switch-lever, and also independently of it, as specified.

8. In a sanding apparatus for street-railway cars, the combination with the switch-lever of the sand-boxes, the oscillating valves, and stirrers connected thereto, the operating-rods and rock-arms and cross-arms, the operating-rod connected to said cross-arm, the hand-operating lever connected to said operating-rod, and the chain connecting said operating-lever and switch-lever together, as specified.

9. In a sanding apparatus for street-railway cars, the combination of the switch-lever with the sand-boxes, the valves, the sand-stirrers, the operating-rods, the hand-operating lever, a flexible connection between said

switch-lever and said valve-operating lever
arranged to permit said valve to be opened or
closed independently of said switch-lever,
and also arranged to permit a current-revers-
5 ing movement of said switch-lever to operate
said valve-lever and open said valves, as
specified.

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

DENIS HOGAN.

Witnesses:

G. SARGENT ELLIOTT,
BESSIE THOMPSON.