No. 836,870. PATENTED NOV. 27, 1906.

N. B. DODGE.

TRACK SANDING APPARATUS.

APPLICATION FILED MAR. 1, 1905.

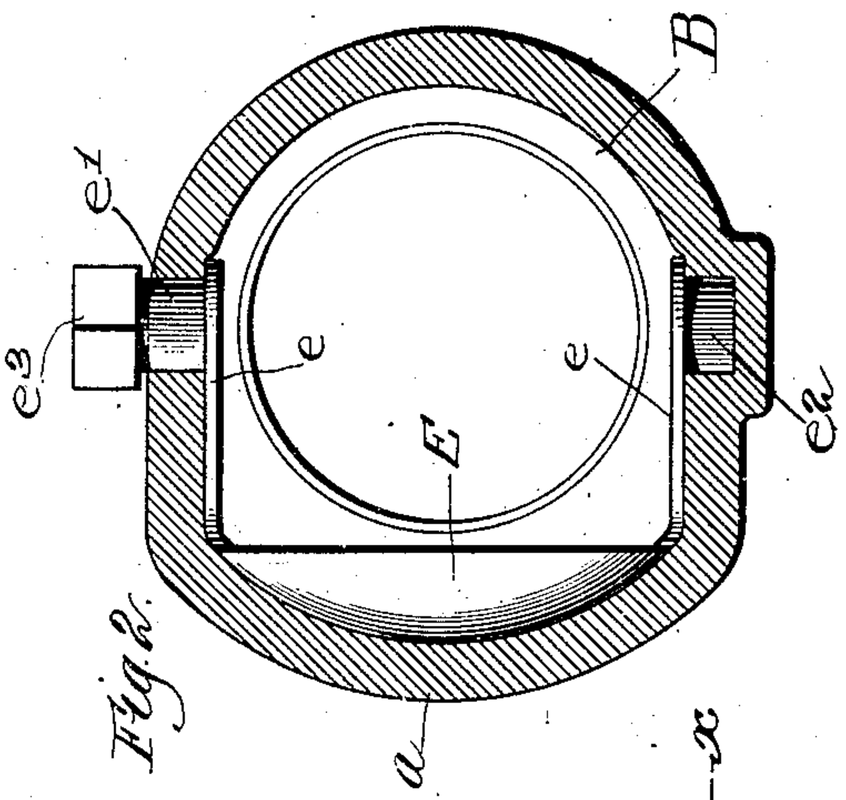

Fig. 2.

Fig. 1.

Witnesses.
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TRACK-SANDING APPARATUS.

No. 836,870. Specification of Letters Patent. Patented Nov. 27, 1906.

Application filed March 1, 1905. Serial No. 247,842.

All whom it may concern:

Be it known that I, NATHANIEL B. DODGE, a citizen of the United States, residing at Fitchburg, county of Worcester, State of Massachusetts, have invented an Improvement in Track-Sanding Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to a device for feeding or supplying sand to the rails of a traction-railway. It finds its ordinary use in connection with electric street-railways and steam-railways.

It is essential in such a device that it shall be possible at any and all times and upon any emergency to supply sand at once to the track. The sand is liable to become damp or compacted, and thus will clog the pipes. The exit-pipes from the sander, especially at points near the track, are also frequently clogged with snow, ice, and dirt.

It is the object of this device to secure a quick-acting track-sander which shall of itself be capable of removing all obstructions and of feeding the sand in whatever condition it may be.

The present invention secures these ends in a simple and efficient manner and makes use of air as the means for feeding the sand and cleaning out the device.

The drawings show the essential parts of the device, the connections to the sand-box, the track, and the air-supply not being shown.

In the drawings, Figure 1 represents in vertical central cross-section the preferred form of track-sanding device. Fig. 2 is a view in horizontal cross-section, taken on the line $x\,x$, Fig. 1, to illustrate more fully the cut-off valve.

The casing A of the sander is shown and is preferably formed of a single casting. The casing preferably contains two chambers—the main chamber B, which is essential and to which the sand is fed and from which it is ejected by the air-nozzle, and the auxiliary chamber C, which is preferable, because it allows of the provision of a plurality of exit-ports, either of which may be used.

The main chamber of the casing is provided at its upper end with a screw-threaded port D, to which is connected the sand-supply pipe extending to the sand-box, which should be placed above the vertical plane of the port.

A cut-off valve E is provided for the port D, by means of which the supply of sand to the sander may be entirely cut off close to the operative parts, thus enabling the cleaning out of the device or the removal of the air-nozzle without a waste of sand. It is essential that the cut-off valve should not obstruct the free and ready flow of sand when the device is in operation. Provision is therefore made for placing the cut-off valve when in its open position at one side of the main chamber and out of the way of the flow of sand.

The cut-off valve in its preferred form, as illustrated, is shaped to form a hollow segment of a sphere. It has two depending arms $e\ e$, pivoted at $e'\ e^2$, in the main chamber. One of the pivots, as e^2, need not extend through the wall of the chamber; but one, as e', is extended through the wall of the chamber and provided with means whereby the valve may be turned, such means being shown as a polygonal shank e^3, adapted to receive a wrench.

The cut-off valve when closing the port takes the position shown in dotted lines in Fig. 1 and is seated around the edge of the port, preventing any flow of sand. When in its inoperative position, it takes the position shown in full lines in Fig. 1, the chamber being recessed or formed with a pocket, as indicated at a, to receive the cut-off valve in this position and leave the passage-way for the flow of sand unobstructed.

The bottom of the casing is provided with a port closed with a plug F, through which entrance may be had to the main chamber for the removing of stones or other obstructions.

The exit-port from the main chamber is located at the lower portion at one side, as at G, and in the form shown opens into the auxiliary chamber C.

The compressed air for operating the sander is conveyed to the main chamber through a nozzle screwed into a port in the main chamber, herein shown as opposite to the exit-port G; but it is only essential that the exit-port should be so arranged as to present the end of the nozzle opposite the exit-port G.

The air-nozzle H is shown as provided with a suitable connection h to the air-supply pipe. It is provided with two air-passages h', extending centrally through the nozzle and having the flaring mouth h^2 and the concentric annular air-passage h^3 terminating mid-

way of the nozzle end. This concentric annular air-passage connects with the central air-passage by holes h^4 and is formed by fitting a sleeve h^5 over a shoulder upon the nozzle end.

Above and partially surrounding the exit-port G is located a shelf or projection J from the wall of the chamber, the upper side of the shelf being formed with an incline to prevent the lodgment of sand thereon. The projection J and the end of the air-nozzle are so arranged that the end of the air-nozzle passes under the shelf.

The auxiliary chamber C is provided with a plurality of exit-ports c' c^2, to either of which the pipe leading to the track may be secured, the others being closed by a suitable plug. In the drawings the port c^2 is shown as provided with a pipe K, leading to the track, and the port c' is shown as closed with a plug L. The position of the pipe when applied to the port c' is indicated in dotted lines.

In the operation of the device the cut-off valve E is normally open or in the position shown in full lines in Fig. 1. The sand then feeds down into the main chamber, when the air-blast is partially turned on, and the air rushing out through the central passage-way h' of the nozzle under the shelf J feeds the sand out through the exit-port G and down onto the track. The action of the air forms a vacuum in the main chamber B, thus securing the feeding of the sand into the main chamber. If, therefore, the sand becomes clogged in the supply-pipe or is damp or for any other reason does not run freely, the vacuum formed in the main chamber secures the proper supply and feeding of the sand. The device has been found very effective and certain in this particular. The air issuing from the annular passage h^3 fluffs or stirs up the sand and tends to supply it properly and guide it from the exit-port G, from which it is fed.

When the exit-pipes of the sander become clogged in any way, it is only necessary to turn on the air-blast with greater force, when the air will drive out all obstructions and at the same time will be found to act in such a manner as to produce back pressure in the main chamber B and prevent the sand from being fed to any appreciable extent.

When it is desired to remove the working parts of the sander or take out any large stones or other obstructions from the main chamber, the cut-off valve E is turned to its upper position (shown in dotted lines) and the plug F is removed at the bottom chamber.

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

1. A track-sanding device comprising a chamber provided with a sand-supply port and an exit-port, an air-nozzle projecting into the chamber and directed toward but not entering said exit-port, a shelf projecting from the wall of the chamber above the exit-port and extending over the end of the air-nozzle, a cut-off valve located at the top of said chamber.

2. A track-sanding device comprising a chamber provided with a sand-supply port and an exit-port, an air-nozzle projecting into the chamber and directed toward but not entering said exit-port, a shelf projecting from the wall of the chamber above the exit-port and extending over the end of the air-nozzle, a pivoted cut-off valve located at the top of said chamber, a recess in the side wall of the chamber adapted to receive the cut-off valve in its open position.

3. A track-sanding device comprising a chamber provided with a sand-supply port and an exit-port, an air-nozzle projecting into the chamber and directed toward but not entering said exit-port, a shelf projecting from the wall of the chamber above the exit-port and extending over the end of the air-nozzle, a pivoted cut-off valve located at the top of said chamber, a recess in the side wall of the chamber adapted to receive the cut-off valve in its open position, means located on the outside of the device for operating said valve.

4. A track-sanding device, a chamber provided with a sand-supply port and an exit-port, an air-nozzle provided with a central air-passage and a concentric annular air-passage opening midway of the nozzle, a shelf projecting from the wall of the chamber above the exit-port and extending over the end of the air-nozzle.

5. A track-sanding device comprising a chamber, a sand-supply port located at the top of said chamber, means for ejecting the sand from the chamber, a pivoted cut-off valve for said sand-supply port, a recess in the side wall of the chamber adapted to receive the cut-off valve in its open position, means located on the outside of the chamber for operating said valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NATHANIEL B. DODGE.

Witnesses:
BLANCHE L. SMITH,
THOMAS CASEY.