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TRACK SANDING DEVICE

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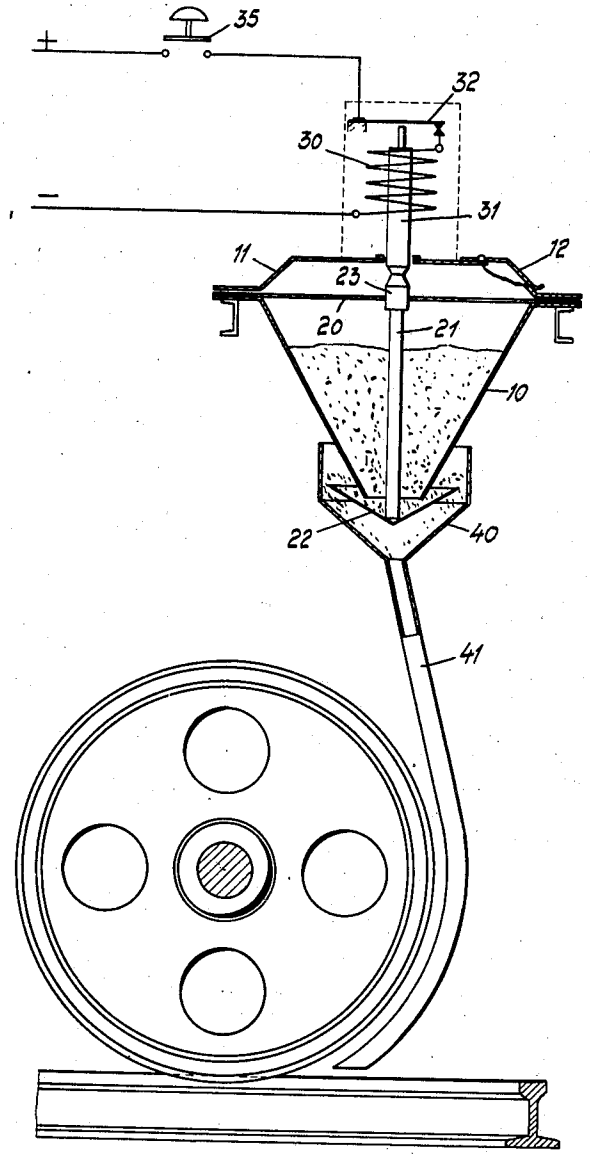

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TRACK SANDING DEVICE

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4 Claims. (Cl. 291—23)

My invention relates to improvements in gravity track sanding devices of the type in which the sand is released from a storage bin by an electrically operated dispensing mechanism.

The principal object of the invention is to provide an improved track sanding device of the type concerned which is always ready for instantaneous use which consists of only a few parts of extremely simple design and which can be manufactured and fitted on vehicles such as railroad and tram cars, also on travelling cranes etc. at relatively low cost.

The invention further aims at thus re-designing the sanding device concerned that it will require little supervision and will yet give reliable service under conditions of hard usage for long periods of time; viz. because of being safe against becoming accidentally clogged through "bridging" of the sand or getting out of duty through causes not under the control of the operator, for instance through excessive wear of vital parts which are hidden inside the device and are difficult of access for inspection and repair.

Other objects of the invention will become incidentally apparent hereinafter to practioners conversant with the working of track sanding devices which are on duty under adverse conditions.

The nature and scope of the invention are briefly outlined in the appended claims and will be more fully understood by the following specification taken together with the accompanying drawing in which a track sanding device exhibiting the salient features of the invention is diagrammatically shown by way of an example.

In the drawing 10 designates a substantially vertically disposed receptacle—bin or tank—for storing sand which can be fed into the latter through an intake port provided in a protecting cover 11 and being closed by a hinged lid 12.

The sand storage bin 10 is formed with a conical bottom and a discharge port centrally positioned therein.

Closely underneath said discharge port and coaxially thereto a sand dispensing tray 22 is yieldingly arranged in such position, that intermediate the discharge port and the tray there is a gap always open for the passage of the sand.

In the embodiment of the invention shown by way of an example the tray 22 is cone or cup shaped and has an annular edge which outwardly and upwardly projects relatively to said discharge port to an extent as to cause the sand to spontaneously stay on the tray, while the latter is at rest, and to flow over the annular edge of said tray, while the latter is vibrated.

Power operated vibrating or shaking means are provided for actuating said dispensing tray 22: In the embodiment of the invention shown in the drawing by way of an example said vibrating means comprise

(1) An electromagnetically operated hammer 31 which is free to speedily oscillate within a solenoid 30 and which operates a circuit breaking mechanism of known design, diagrammatically indicated at 32,

(2) A power transmission rod 21 having at its upper end an anvil 23 and having attached to its lower end the said dispensing tray 22,

(3) A supporting member adapted to yieldingly support the said power transmission rod 21 and the dispensing tray 22.

As indicated in the drawing I prefer to use as supporting member a highly elastic and resilient plate 20 or membrane at the centre of which the anvil 23 of rod 21 is fastened for instance by welding or through clamping screws (not shown).

It will be noted that the membrane 20 allows the dispensing mechanism—rod 21 and tray 22—to freely oscillate or vibrate up and down without the aid of any guiding or bearing members whatever which would require lubrication or be subject to rapid wear.

Another advantage is obtained by the use of a resilient membrane as a supporting element and securing the latter to the upper rim of the bin 10 as indicated in the drawing. The vibrations of the membrane 20 are directly imparted to and will spread all over the side walls of the bin with the result that "bridging" of the sand within the latter which would interfere with the proper flow of the sand through the discharge port is effectively prevented.

The generation and propagation of vibrations throughout the side walls of the bin 10 may be further enhanced by supporting the bin exclusively at its upper rim, as diagrammatically indicated in the drawing.

The operation of the track sanding device shown and described above is as follows:

By closing the electric circuit at 35, the operator sets to work the oscillating hammer 31; by the impacts of the latter upon anvil 23 the membrane 20, transmission rod 21 and dispensing tray and—last but not least—the bin 10 are violently vibrated with the result that the sand passes in a continuous current through the discharge port of the bin and is thrown off the tray 22.

The dispensed sand is collected in a funnel 40 and delivered to the rails or track upon which the wheeled vehicle runs through a pipe 41. While the device is not in operation the tray 22 and the sand resting on it act as a closure for the bin and check the flow of the sand out of the former.

Various changes and modifications may be made in the design and structural details of the improved track sanding device shown and described hereinbefore, without substantially deviating from the spirit and the salient features of the invention.

For instance instead of a solenoid 30 and an oscillating hammer 31 a rotary vibrating mechanism operated by electricity or other power may be adopted to suit special requirements;—the membrane 20 may be replaced by another resilient supporting means—for instance adjustable wire springs.

A tubular power transmission element of light weight such as a pipe and a cup shaped tray or a flat tray having an upturned circumferential rim may be substituted for rod 21 and the conical tray 22 shown in the drawing by way of an example.

What I claim is:—

1. In a track sanding device, a sand storage bin having a conical bottom and a discharge port centrally positioned therein, a sand dispensing tray, yieldingly arranged closely underneath the said discharge port coaxially thereto, so as to form a gap for the passage of the sand, and having an annular edge, which outwardly projects relatively to said discharge port to an extent as to cause the sand issuing through said gap to remain on the tray forming a seal to close the opening between the discharge port and the tray, while the latter is at rest, and to flow over said annular edge of the tray, while the latter is vibrated, and means for vibrating said tray.

2. In a track sanding device, a sand storage bin having a conical bottom and a discharge port centrally positioned therein, a sand dispensing tray, yieldingly arranged closely underneath the said discharge port coaxially thereto, so as to form a gap for the passage of the sand, and having an annular edge, which outwardly projects relatively to said discharge port to an extent as to cause the sand issuing through said gap to remain on the tray, while the latter is at rest, and to flow over said annular edge of the tray, while the latter is vibrated, and means for vibrating said tray—said vibrating means comprising an electromagnetically operated oscillatory hammer and a power transmission rod cooperatively interconnecting said hammer and tray.

3. In a track sanding device, a sand storage bin having a conical bottom and a discharge port centrally positioned therein, a sand dispensing tray, yieldingly arranged closely underneath the said discharge port coaxially thereto, so as to form a gap for the passage of the sand, and having an annular edge, which outwardly projects relatively to said discharge port to an extent as to cause the sand issuing through said gap to remain on the tray, while the latter is at rest, and to flow over said annular edge of the tray, while the latter is vibrated and means for vibrating the said tray and bin.

4. In a track sanding device, a sand storage bin having a conical bottom and a discharge port centrally positioned therein, a sand dispensing tray, yieldingly arranged closely underneath the said discharge port coaxially thereto, so as to form a gap for the passage of the sand, and having an annular edge, which outwardly projects relatively to said discharge port to an extent as to cause the sand issuing through said gap to remain on the tray, while the latter is at rest, and to flow over said annular edge of the tray, while the latter is vibrated and means for vibrating the said tray and bin,—said vibrating means comprising an electromagnetically operated oscillatory hammer, a power transmission rod cooperatively interconnecting said hammer and tray, and a resilient bridge plate, cooperatively interconnecting said power transmission rod and the bin.

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