

H. VISSERING.
 TRACK SANDING APPARATUS.
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1,023,100.

Patented Apr. 9, 1912.

Fig. 1.

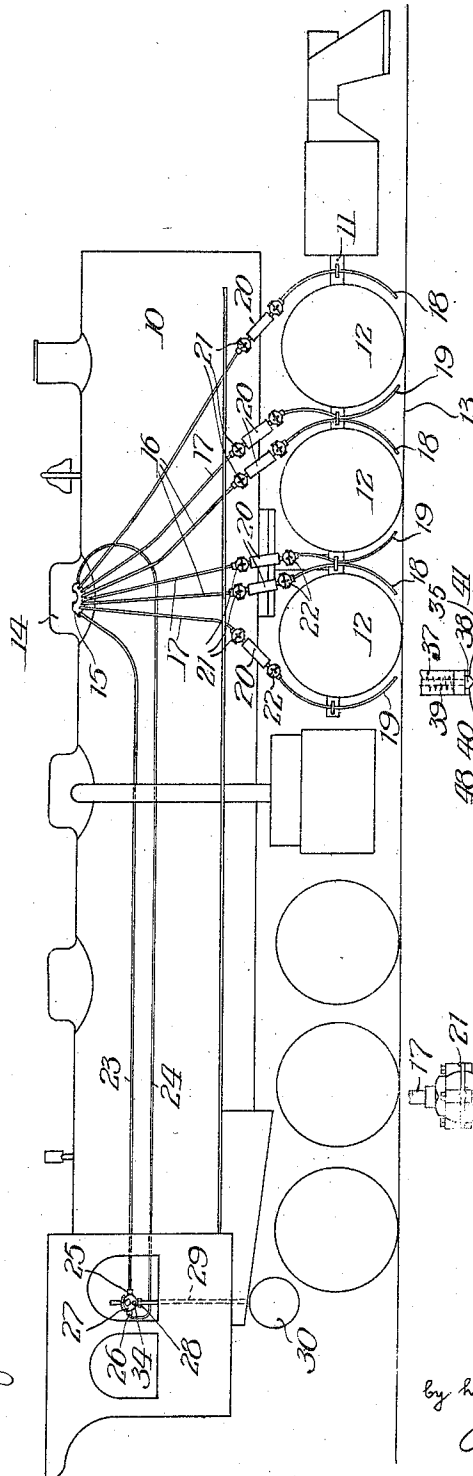


Fig. 2.

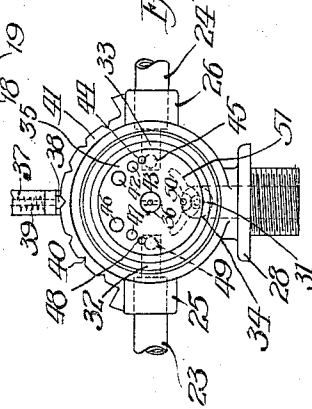
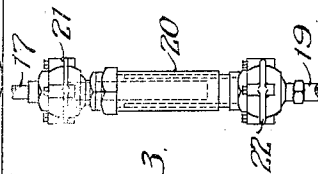


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRY VISSERING, OF CHICAGO, ILLINOIS.

TRACK-SANDING APPARATUS.

1,023,100.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY VISSERING, a citizen of the United States, and a resident of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Track-Sanding Apparatus, of which the following is a specification.

My present invention relates in general to sand strewing apparatus, and more particularly to apparatus for applying sand to railroad tracks in front of the driving wheels of a vehicle moving thereupon as well when it is running backward as when it is running forward, and has special reference to sanding apparatus operable by fluid pressure.

The principal objects of my present invention are the provision of an improved form of apparatus wherein I employ simplified operating mechanism whereby the engineer or driver of the vehicle may apply sand before the driving wheels irrespective of the direction of movement of the engine or vehicle and this by manipulation in alternate directions of a single operating member; the provision in an apparatus of the character described of graduating means whereby the volume of the sand supplied may be varied or the supply may be made intermittent, and a given volume of the sand thus used most effectively; the provision in a duplex sander system of unitary operating means provided with means for sounding a practically constant alarm regardless of the position of the operating member when it is alternately opened upon actuation of any part of the apparatus, whereby the user may be apprised of any movement of the member from lap or closed position; and generally to improve, cheapen and simplify apparatus characterized as above specified.

Apparatus of the present character as commonly used is objectionable in the following principal respects, viz: two operating devices, such as valves in the case of pneumatic sanding apparatus, are generally used, one connected to the "front" and the other to the "rear" sand ejectors, thus increasing the cost of equipment, and by duplication complicating the system and confusing the user who does not find the operating member conveniently at hand in its customary place in the case of an emergency, no means are provided for operating

both sets of sanders from a common point, and no means are provided for varying the amount of sand supplied as is often desirable according to the condition of the track or roadway.

In attaining the stated objects and overcoming the disadvantages mentioned, and gaining such further benefits as may be hereinafter disclosed, I have provided a construction one embodiment of which is illustrated in the accompanying drawings, wherein—

Figure 1 is an elevational view of a railway locomotive having my improved track sanding apparatus applied thereto; and Figs. 2 and 3 are elevational views, partly in section and on an enlarged scale, of the operating valve and a portion of the sand delivery conduit shown in Fig. 1.

Referring first to Fig. 1, it will be noted that I have here illustrated somewhat conventionally an articulated locomotive of the Mallet type, 10, the trucks 11 thereof being pivotally movable relatively thereto and the wheels 12 running on tracks 13. For supplying sand to the tracks 13, I utilize the usual sand dome 14 and trap 15, the dome and trap structures being connected on each side of the engine by sand delivery pipes 16—16—16 and 17—17—17 with ejector devices 18—18—18 and 19—19—19 respectively, the members 16—18 being arranged in advance of the wheels 12 for delivering sand in front thereof when the engine is running forward, and the members 17—19 being arranged to the rear of the wheels 12 for delivering sand in front thereof when the engine is running backward. Between each of the members 16 and 18, and 17 and 19, which are of a number suitable to the number of wheels 12, I interpose a flexible and reciprocating extensible member 20 universally jointed at 21 to the corresponding member 16 or 17 and at 22 to the corresponding member 18 or 19.

For ejecting sand contained in the trap 15 through the members 16—18 or 17—19 in alternation, I preferably provide as actuating fluid conductors, the pipes 23, 24 connected as indicated at 25, 26 to an operating device here illustrated as a valve 27 connected at 28 by a pipe 29 to a source of fluid pressure, such as a pressure tank 30 sup-

plied by the compressor of the air brake system (not shown).

Referring now more particularly to Fig. 2, it will be apparent that in the valve device 27, communication between the high pressure passage 31 connected to the tank 30, and the low pressure passages 32, 33 connected to the trap and the passage 34 communicating with the atmosphere whereby the alarm is sounded, a whistle being desirably inserted in said passage to accentuate the sound of the escaping air, is normally interrupted by the valve 35 whose stem 36 extends through the casing and carries an operating handle 37 provided with a latch 38 adapted to be held in contact by a suitable spring 39, for which a housing is provided in the handle, with notches 40 in a quadrant 41 formed on the periphery of the casing of the valve. To permit the establishment of operative connection between the inlet or high pressure passage 31 and the outlet or low pressure passages 32, 33, and simultaneously the alarm passage 34, it will be noted that I have provided in the valve a series of passages 46, 47, 48 adapted to register successively with the passage 32 through the opening 49, when the handle 37 is moved to the right of the position shown, and likewise a series of passages 42, 43, 44 adapted to register successively with the passage 33 through the opening 45, when the handle 37 is moved in the opposite direction; likewise that the passage 50 is adapted to establish connection with the alarm passage 34 when the handle 37 is moved in either direction, by means of the irregularly shaped groove 51 formed in the seat of the valve 35 and communicating with said passage 34.

In the operating of sander apparatus embodying my present invention, when the user moves the handle 37, causing the port 48 and passage 49, or the port 44 and passage 45, to register, at the same time the port 34 will be caused to register with the groove 51 and air at high pressure will rush through the passages 31, 50, 34 making a hissing or whistling sound which will continue and attract the operator's attention to the fact that the valve is open, and air and sand being discharged, until the handle 37 is again moved to the lap position shown.

In cases where the device is in uninterrupted use as where the track is being sanded on a long grade, the warning sound may be shut off temporarily by pressure of the finger upon the orifice of the passage 34 or the whistle, but it will be noted that the device cannot be left open without the knowledge of the user, since when the finger is lifted the hissing or whistling will be resumed.

It is to be observed that when the handle 37 is moved to the first notch in either di-

rection, the smaller of the series of ports, 48 47 46, or 44 43 42 is brought into communication with the corresponding outlet passage, and thus but a comparatively small amount of fluid allowed to escape and a relatively small amount of sand ejected, that when a further movement is given the handle a larger port 47 or 43 will be uncovered, and that when the valve is finally moved to the extreme limit shown the largest port 46 or 42 will be opened, though by virtue of the fact that the groove 51 is continuous from end to end the warning sound will accompany any movement of the valve sufficient to uncover any one of the several series of ports. By the operation here described it will appear that the engineer will be able fully to control the amount of sand delivered to the track and thereby greatly to husband the supply of sand but also to be much more economical in the use of air, and that he will further be able by suitable manipulation of the valve to gradually increase the amount of sand delivered, to graduate the delivery step-by-step, or to throw out a full volume, all as operating conditions may dictate. It will be further apparent that by the use of the construction and arrangement of parts illustrated and described I have combined in a single system the requisite unitary operating means for ejecting sand adjacent the point of contact of the locomotive and rail, whereby wastage is avoided, facility and certainty in operation is attained, and compensation made for movement of the ejector devices carried by the truck relatively to the delivery pipes supported by the boiler.

Having thus described my invention and illustrated its use what I claim as new and desire to secure by Letters Patent is the following:

1. In a duplex track sanding apparatus, the combination of a compressed fluid apparatus; a sand supply apparatus having front and rear sand discharge pipes; a valve device having a plurality of conduits to the said supply apparatus and a conduit from the compressed fluid apparatus and a valve casing interiorly divided into a plurality of chambers by a valve seat and connected to said conduits, and having a plurality of said conduits connected on one side of the valve seat and another of/said conduits connected on the other side of the said valve seat; a regulating valve mounted in said casing and having a handle projecting therefrom for admitting fluid from said compressed fluid apparatus to said sand supply apparatus conduits in alternation; and alarm means between said fluid apparatus and the sanding apparatus and in communication with the inlet and with one of the outlet conduits and operative when the valve is opened in either direction and

inoperative when the valve is closed, the several sand discharge pipes being alternately in communication through the sand supply apparatus with said compressed fluid apparatus when the valve is alternately opened.

2. In a duplex sanding apparatus, the combination of a compressed fluid apparatus; a sand supply apparatus having front and rear discharge pipes; a valve device having a plurality of conduits to the said supply apparatus and a conduit from the compressed fluid apparatus and a valve casing interiorly divided into a plurality of chambers by a valve seat and connected to said conduits, and having a plurality of said conduits connected on one side of the valve seat and another of said conduits connected on the other side of said valve seat; a regulating valve mounted in said casing and having a handle projecting therefrom and graduated means for admitting fluid from said compressed fluid apparatus to said sand supply apparatus conduits in alternation; the several sand discharge pipes being alternately in communication through the sand supply apparatus with said compressed fluid apparatus when the valve is opened.

3. In a duplex sanding apparatus, the combination of a compressed fluid apparatus; a sand supply apparatus having front and rear discharge pipes; a valve device having a plurality of conduits to the said supply apparatus and a conduit from the compressed fluid apparatus and a valve casing interiorly divided into a plurality of chambers by a valve seat and connected to said conduits, and having a plurality of said conduits connected on one side of the valve seat and another of said conduits connected on the other side of said valve seat; a regulating valve mounted in said casing and having a handle projecting therefrom and a series of ports graduated in size for admitting fluid from said compressed fluid apparatus to said sand supply apparatus conduits in alternation; the several sand discharge pipes being alternately in communication through the sand supply apparatus with said compressed fluid apparatus when the valve is opened.

4. In a duplex sanding apparatus, the combination of a compressed fluid apparatus; a sand supply apparatus having front and rear discharge pipes; a valve device having a plurality of conduits to the said supply apparatus and a conduit from the compressed fluid apparatus and a valve casing interiorly divided into a plurality of chambers by a valve seat and connected to said conduits, and having a plurality of said conduits connected on one side of the valve seat and another of said conduits connected on the other side of said valve seat; a regulating valve mounted

in said casing and having a handle projecting therefrom and graduated means for admitting fluid from said compressed fluid apparatus to said sand supply apparatus conduits in alternation, and alarm means between said fluid apparatus and the sanding apparatus and in communication with one of the conduits, and operative when the valve is open and inoperative when the valve is closed; the several sand discharge pipes being alternately in communication through the sand supply apparatus with said compressed fluid apparatus when the valve is opened.

5. In a duplex track sanding apparatus, the combination with an engine having a truck pivoted thereto, of a compressed fluid apparatus; a sand supply apparatus having front and rear sand discharge members including sand delivery pipes carried by the engine and ejectors carried by the trucks; a valve device having a plurality of conduits to the said supply apparatus and the compressed fluid apparatus and a valve casing interiorly divided into a plurality of chambers by a valve seat and connected to said conduits, and having a plurality of said conduits connected on one side of the valve seat and another of said conduits on the other side of said valve seat; a regulating valve mounted in said casing and having a handle projecting therefrom for admitting fluid from said compressed fluid apparatus to said sand supply apparatus conduits in alternation, the several sand discharge pipes being alternately in communication through the sand supply apparatus with the compressed fluid apparatus when the valve is opened, and said several sand discharge pipes being provided with flexible connections between said sand delivery pipe and said ejector member, to compensate for the movement of the truck.

6. In a duplex track sanding apparatus, the combination with an engine having a truck pivoted thereto, of a compressed fluid apparatus; a sand supply apparatus having front and rear sand discharge members including sand delivery pipes carried by the engine and ejectors carried by the trucks; a valve device having a plurality of conduits to the said supply apparatus and the compressed fluid apparatus and a valve casing interiorly divided into a plurality of chambers by a valve seat and connected to said conduits, and having a plurality of said conduits connected on one side of the valve seat and another of said conduits on the other side of said valve seat; a regulating valve mounted in said casing and having a handle projecting therefrom for admitting fluid from said compressed fluid apparatus to said sand supply apparatus conduits in alternation, the several sand discharge pipes being alternately in communication through

the sand supply apparatus with the compressed fluid apparatus when the valve is opened, and said several sand discharge pipes being provided with extensible connections between said sand delivery pipe and said ejector member, to compensate for the movement of the truck.

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

HARRY VISSERING.

Witnesses:

PAUL CARPENTER,
MARTHA WESTMAN.