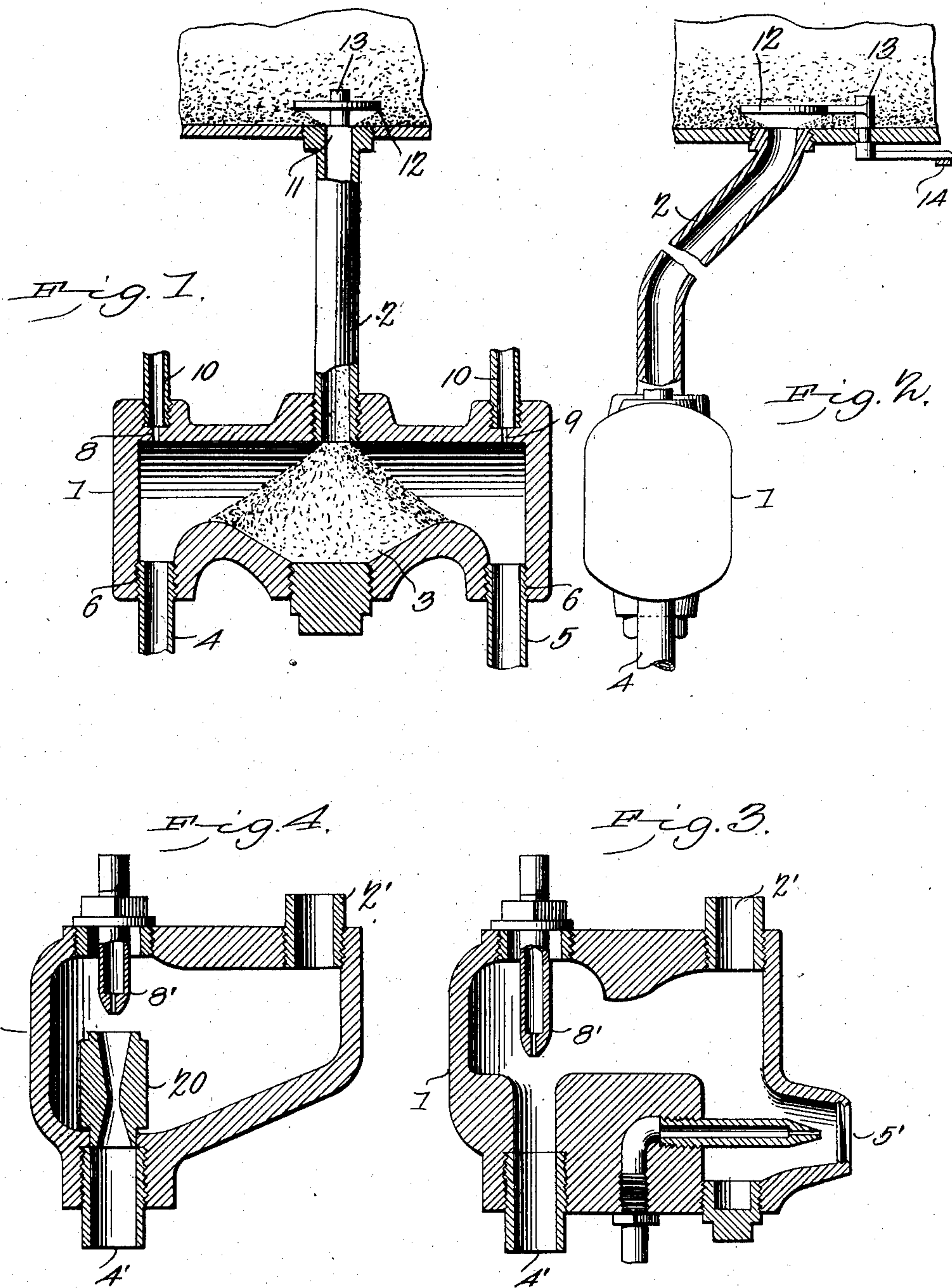


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PATENTED AUG. 18, 1903.

J. H. WATTERS.
TRACK SANDING DEVICE.
APPLICATION FILED MAR. 18, 1903.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN HENRY WATTERS, OF ANNISTON, ALABAMA.

TRACK-SANDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 736,895, dated August 18, 1903.

Application filed March 18, 1903. Serial No. 148,419. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY WATTERS, a citizen of the United States, residing at Anniston, in the county of Calhoun and State of Alabama, have invented a new and useful Track-Sanding Device, of which the following is a specification.

This invention relates to certain improvements in track-sanders.

One of the principal objects of the invention is to provide a track-sanding device whereby the liability of clogging of accumulated sand in the pipes is lessened by providing for the discharge of the sand under the influence of a downwardly-directed jet of air.

A further object of the invention is to provide a track-sander of the ejector type in which provision is made for feeding under pressure or for direct gravity-feed of the sand-box in the event of the failure of the air.

A still further object of the invention is to provide a track-sander in which provision is made for maintaining a comparatively small body of sand in order to lessen the danger of caking in the chamber of the sander and, further, to so arrange the structure as to provide for the ready cleaning out of the casing and the supply-pipe which connects the latter to the main sand-box.

A still further object of the invention is to provide a device of this class which may be applied to either side of the engine without necessitating any change in the structure or in the arrangement of the coupling members.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation of a track-sander embodying the invention. Fig. 2 is a transverse sectional elevation of the same. Figs. 3 and 4 are views illustrating slight modifications of the invention.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In track-sanders in use at the present time the discharge of sand is in the majority of cases effected by means of a laterally-directed jet of air through a pipe extending in a horizontal direction or at a slight angle to the horizontal, so that there is at all times a tendency for the sand to accumulate and cake or become solidified to some extent, and when the air is turned on the feed fails to take place. Another objection to sanding devices of the ordinary character is that there is usually a quantity of sand remaining in the feed-pipe between the main sand-box and the sander, and this also has a tendency to cake. To overcome these objections, I employ a sanding device in which there will be little or no sand left in the connecting-pipe after the sander has been actuated and in which the jet or jets for discharging the sand are directed downwardly through vertical pipes to thus prevent the accumulation of any sand therein.

In Fig. 1, 1 represents a metallic casing formed of a single-piece casting, the upper central portion of which is connected by a pipe 2 to the lower portion of the sand-box, the sand delivered from the latter falling into a pocket or recess 3 at the lower portion of the chamber of the sander in convenient position to be discharged through tubes 4 and 5, leading, respectively, to the front and the rear of the driving-wheels of the engine. The pocket or recess 3 is sufficiently large to retain the quantity of sand necessary to allow the feeding operation to start immediately after the air is turned off and to hold all of the sand which may remain in the connecting-pipe 2 after the air-jets cease without allowing the sand to accumulate in said pipe and choke the same. At the central portion of the bottom of the same and communicating with the pocket 3 is a threaded opening 4 for the reception of a threaded plug 5, the external face of which is of rectangular or of polygonal form and may be engaged by a wrench or other suitable tool and removed whenever it becomes necessary to clean the sander of accumulated material, and it will be noted that the cleaning-opening is directly

in alinement with the connecting-pipe 2, so that by the insertion of a straight implement of any character the feeding-pipe may also be cleaned. At the opposite end portions of the sander are threaded openings 6 to receive the threaded ends of the discharge-tubes 4 and 5. These openings are arranged, respectively, in vertical alinement with contracted openings 8 and 9, through which jets of air are directed from pipes 10, leading from a source of pressure-supply and under the control of the engineer, so that downwardly-directed jets of air may be forced into the chambers in direct alinement with the discharge-tubes, and thus create a slight vacuum at the end portions of the sander, causing the discharge of sand therefrom and by effecting a corresponding partial vacuum in the connecting-pipe 2 cause the flow of the same from the sand-box to the pocket 3. In order to prevent the direct flow of sand by gravity from the sand-box to the pocket 3, the discharge-port 11 of the sand-box in communication with the upper end of the pipe 2 is covered by a valve 12, the area of which is considerably greater than the port. This valve extends over the port, but is arranged at a slight distance above the same—say from three-quarters of an inch to one inch—and is mounted on a stud 13 and connected by a link 14 to an operating-handle 15, so that when necessary it may be moved from over the port and allow the sand to flow by gravity through the pipe 2. When the valve is arranged in normal position, the distance from its lower outer edge to the edge of the port is so great that the angle of flow of the sand will be insufficient to permit any direct gravity flow from the sand-box through the discharge-port, and it is only when the air in the tube 2 is partially exhausted that the weight of the sand in the box and the air-pressure above the sand compels the feed to the sander. If at any time the air should fail, the valve may be readily removed from its normal position over the port and the sand allowed to flow by gravity direct to the sander and from thence to the track.

In Fig. 3 is illustrated a modification of the structure embodying the essential features of the invention. In this case the invention is shown as applied to an existing form of sander, wherein the sand-box is connected to the sand-chamber by means of a pipe 2' and is discharged through openings 4' and 5' to the track. The vertically-disposed air-jet pipe 8' is located immediately above and in vertical alinement with the outlet 4', so that the latter opening is kept clear from the sand-chamber to the discharging end adjacent to the track.

A further modification of the invention is illustrated in Fig. 4, wherein a removable sleeve 20 is arranged in the mouth of the outlet-opening, and the bore of the sleeve is preferably of smaller diameter at the center

than at the opposite ends of said sleeve in order that the effectiveness of the air-jet may be increased. When constructed in this manner, the device acts on the injector principle and by creating a slight vacuum within the sand-chamber causes a flow of sand through the sleeve-outlet to the track. In the event of failure of the air-jet the sleeve may be readily removed by the engineer or fireman and the sand allowed to flow by gravity from the chamber to the track, the outlet being within the angle of rest of the sand.

Having thus described the invention, what is claimed is—

1. The combination in a track-sander, of a casing having a sand-discharge opening, a sand-feeding device for supplying sand to the casing at a point out of alinement with the opening, and an air-pipe having a terminal discharge-opening in direct vertical alinement with the sand-discharge opening.

2. The combination in a track-sander, of a casing having a bottom sand-discharge opening, an air-pipe leading to the casing and adapted to discharge a jet of air downward in vertical alinement with the discharge-opening, and a sand-supply means arranged out of vertical alinement with the two openings and serving for the delivery of sand to the casing.

3. The combination in a track-sander, of a casing having a bottom sand-discharge opening, an air-jet pipe arranged in vertical alinement therewith, and a sand-feed pipe so disposed with relation to the discharge-opening that both lie within the angle of rest of the sand.

4. The combination in a track-sander, of a casing, a sand-feed pipe communicating with the upper central portion of the casing, a receiving-pocket formed in the lower portion of the casing at a point below the feed-opening, a removable plug forming the bottom of the pocket, said discharge-openings arranged at points near the opposite ends of the casing, and air-jet openings at the top of the casing in alinement with the sand-discharge openings.

5. In a track-sander, a casing having sand-receiving pockets or recesses, a removable plug forming a portion of the bottom of the pocket, a sand-feed pipe in direct vertical alinement with the plug, sand-discharge pipes connected to the bottom of the casing at points on opposite sides of the pocket, and air-jet openings formed in the upper portion of the casing in direct vertical alinement with the sand-discharge pipes.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN HENRY WATTERS.

Witnesses:

JOHN J. KELLY,
E. J. COSGROVE.