No. 652,726. Patented June 26, 1900.

C. W. SHERBURNE.

TRACK SANDING DEVICE.

(Application filed Dec. 30, 1899.)

(No Model.) 2 Sheets—Sheet 1.

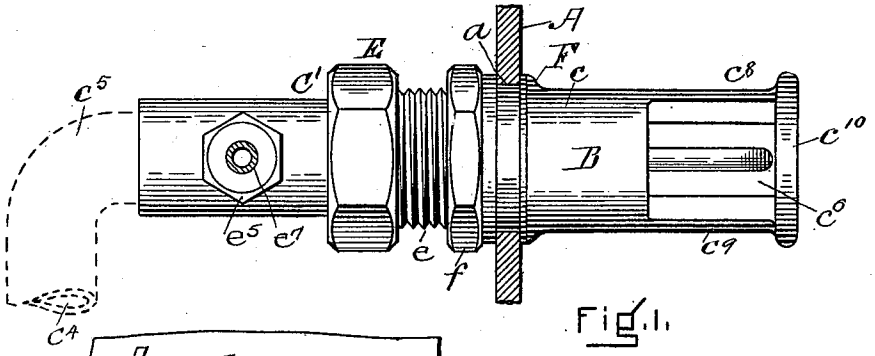


Fig. 1.

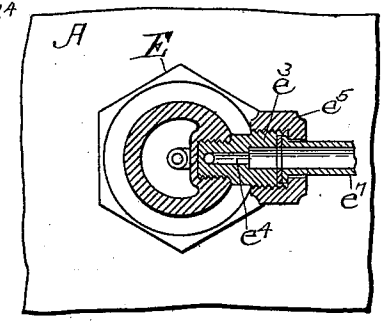


Fig. 3.

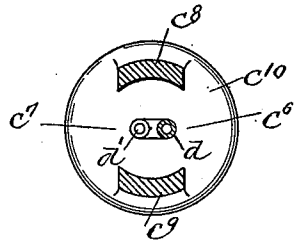


Fig. 4.

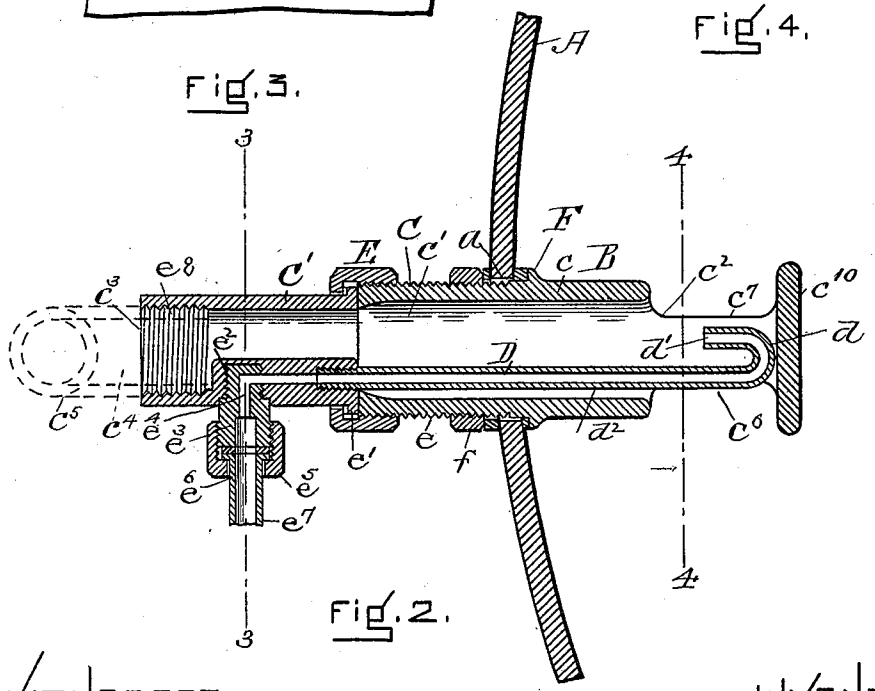


Fig. 2.

WITNESSES

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TRACK SANDING DEVICE.

(Application filed Dec. 30, 1899.)

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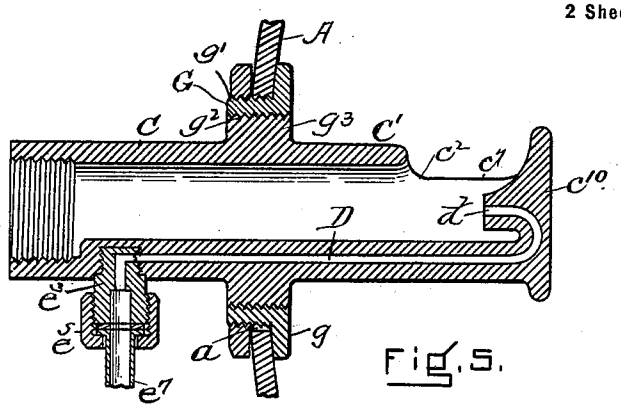


Fig. 5.

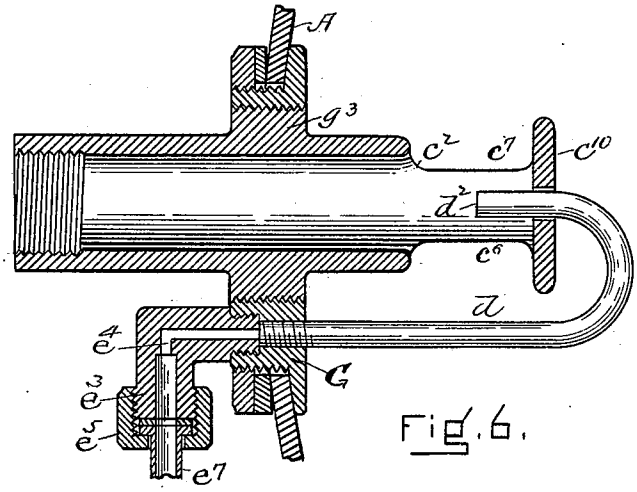


Fig. 6.

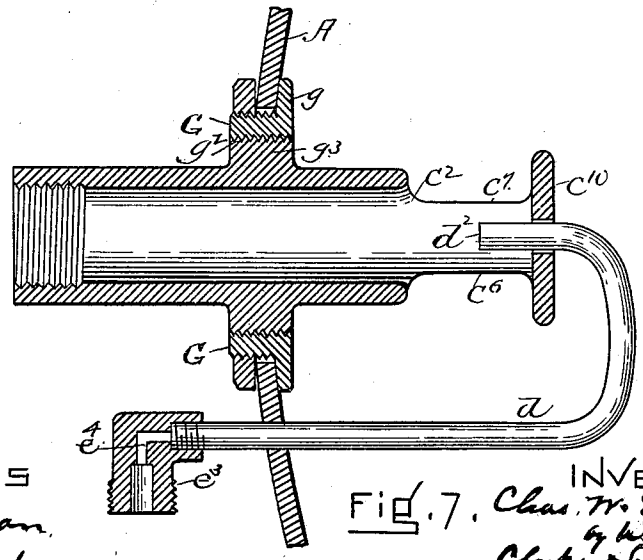


Fig. 7.

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES W. SHERBURNE, OF BOSTON, MASSACHUSETTS.

TRACK-SANDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 652,726, dated June 26, 1900.

Application filed December 30, 1899. Serial No. 742,119. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. SHERBURNE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Track-Sanding Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

My present invention relates to a sand-ejector which is in the nature of a complete entity in that it is so constructed that the operation of the simple placing thereof in the sand-box, its attachment to the wall thereof, and its connection at the outer side of the sand-box with the air-supply pipe and with the sand-delivery pipe is all that is required to install it. It preferably is in the shape of a structure or case which is adapted to extend through a hole in the wall of the sand-box and to be secured to said wall and so that its inner portion shall be contained within the chamber of the sand-box and its outer portion shall be on the outside of the wall of the sand-box in an accessible position. It is constructed to provide at its inner end within the sand-box a sand-inlet and at its outer end a sand-outlet, with which the sand-inlet is connected by means of a passage. It also contains an air-supply passage which at its inner end coöperates with the sand-inlet and at its outer end is contained in a section of the structure or case adapted to be connected with an air-supply pipe.

In the drawings, Figure 1 is a view of my improved device in side elevation, also showing in vertical section a portion of the wall of the sand-box. Fig. 2 is a view in horizontal section of the device and a portion of the sand-box wall. Fig. 3 is a view in vertical section upon the dotted line 3 3 of Fig. 2. Fig. 4 is a view in vertical section upon the dotted line 4 4 of Fig. 2. Figs. 5, 6, and 7 illustrate modified constructions of the invention, to which reference is hereinafter made.

Referring to the drawings, A represents a portion of the wall of a sand-box in which is formed upon its side and near its bottom a hole *a* for the reception of the track-sanding device or ejector B, of which one only is shown. It will be understood, however, that usually the sand-box will have one on each side and sometimes two on each side, according to the requirements of the locomotive.

The track-sanding device or ejector comprises a hollow shell or case *c*, preferably cylindrical in shape and preferably having means for its attachment to the wall of the sand-box, in which is the longitudinal passage *c'*, extending from the sand-inlet c^2 at its inner end to its outlet c^3 at its outer end, where it connects with the passage c^4 of the sand-delivery pipe c^5. The sand-inlet c^2 may be of any desired shape. It is represented in the drawings as provided by the removal of sections of the sides of the shell or case at its inner end to secure the side openings c^6 c^7 to the sand-inlet. The sections c^8 c^9 of the shell or case and the unperforated end c^{10} serve as a partial cover, hood, or protection for the inner end of the pipe or part of the shell or case providing the air-supply passage.

D is the air-passage, extending lengthwise the case or shell from or near its outer end to or near its inner end, where it is curved backward at *d* that its outlet *d'* may face the sand-inlet c^2 and that air delivered through the passage may be forced from its outlet through the sand-inlet and sand-passage *c'* into the sand-delivery pipe. This passage D, I preferably arrange within the shell or case *c*. It may be provided by means of an independent pipe d^2, as represented at Fig. 2, suitably attached to the case or shell, or it may be formed in the shell itself, or it may be provided by an independent pipe parallel with the shell.

The shell or case may be in one or more pieces. In the drawings I have represented it in two parts—namely, the part C and the part C'. The latter is in the nature of a coupling. It is attached to the part C by the coupling-nut E, which screws upon the exterior thread *e* of the part C and engages the flange *e'* of the coupling C'. The coupling is also represented as having one end of the air-supply pipe d^2 attached to it and as also having a portion of the air-passage D, which ends in a threaded hole e^2, into which a nipple e^3, having the passage e^4, screws, the said nipple serving to deflect the air-passage to a right angle and afford means for coupling to the case or shell, by means of the coupling-

nut e^5, the end e^6 of the air-supply pipe e^7, connecting a source of air-supply (which may be the train-brake system) with the air-passage D. The section C′ also has the interior screw-thread e^8 for use in coupling the end of the sand-delivery pipe C^5 thereto.

The track-sanding device is also represented as having a shoulder F, which forms an abutment upon the inner side of the sand-box wall, and a locking-nut *f*, adapted to screw upon the threaded section *e* against the outer surface of the sand-box wall and against the shoulder F. Suitable packing may be interposed between the shoulder and the nut, if desired. When this form of the invention is employed, the device is attached to the sand-box wall in the following way: The coupling-section C′ is removed from the section C and also the locking-nut *f*. The section C is then located in the hole *a* of the sand-box wall, with its inner portion in the chamber of the sand-box and its outer portion outside the wall. The nut *f* is then screwed home to clamp the case or shell to the wall and the coupling-section C′ then attached to the section C and to the sand-distributing and air-supply pipes.

The section C of the case or shell may be placed from the inside of the sand-box or from the outside. I prefer the latter construction, and in Fig. 5 I have represented a form of construction for accomplishing this purpose. The hole *a* in the sand-box wall is enlarged and threaded. Into this is screwed the sleeve G, having a flange *g*. The sleeve has the exterior thread *g′*, which engages the thread about the hole and also takes a clamping-nut and the interior thread g^2. The interiorly-threaded hole g^2 is of a size sufficient to permit of the passage of the inner end of the case or shell, the case or shell being provided with a threaded enlargement g^3, which screws into the threaded hole g^2. This construction permits the parts C C′ to be made integral and the whole case or shell to be used as a coupling in uniting the sand-distributing pipe to the sand-box wall and so as to leave the nipple e^3 in proper position to attach to the end of the air-supply pipe. In said figure I have also shown the air-supply passage as formed by casting.

In Figs. 6 and 7 I have shown a modification in construction in which the air-supply pipe, instead of passing from one end to the other of the shell or case within it, is arranged upon the outside thereof and is supported in whole or in part by the sleeve G or the sand-box wall. This variation is shown in order that the scope of my invention may be better understood, as I consider that it includes any construction in which the sanding device is applied to the wall of the sand-box without requiring internal fitting and connection of the parts thereof within the sand-box and in which the connections with the sand-distributing pipe and the air-supply pipe are made with the sand-ejector outside the sand-box and in which the ejector is attachable and removable as a whole from the sand-box by simply inserting a portion of it into the chamber of the box through a hole therein and uniting it to the box or a support by a clamping device or by screwing.

Any medium other than compressed air for forcing or feeding the sand in a manner similar to that in which it is fed by compressed air may be used.

I would say that the guard c^{10} may have any desired size with respect to the sand opening and inlet. I prefer that it be large enough to prevent sand from flowing by gravity into the sand-inlet and through the ejector-passage.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A track-sanding device comprising a structure having a central sand-passage therethrough with a sand-inlet at its inner end and a sand-outlet at its outer end, said device having also an air-passage which is mainly eccentric to said passage, said air-passage having an inlet at its outer end and an outlet at its inner end and said air-passage outlet facing the central portion of said sand-passage so as to direct the air-blast straight through the latter.

2. A track-sanding device comprising a structure having a central sand-passage through it, and an eccentric air-passage which is mainly eccentric to said sand-passage and which eccentric air-passage runs straight inward for the larger portion of its length and then curves and recurves so as to open outward into said sand-passage.

3. A track-sanding device comprising a structure having a central sand-passage through it, and an eccentric air-passage which is mainly eccentric to said sand-passage and which eccentric air-passage runs straight inward for the larger portion of its length and then curves and recurves so as to open outward into said sand-passage, the said device having a shield or guard, as c^{10}, at its inner end, beyond the recurved portion of said air-passage, for checking the free entrance of sand to said sand-passage.

4. In a track-sanding apparatus, the combination with a sand-box, of a sand-ejecting device detachably secured to the wall of said box and extending partly without and partly within said wall, the said ejecting device having at its outer part a sand-outlet and an air-inlet, and a central sand-passage through it, and said device having at its inner part a sand-inlet and an air-outlet, the latter opening into said sand-passage from an eccentric air-passage which curves upon itself at its inner part.

5. In a track-sanding apparatus, the combination with a sand-box, of a sand-ejector attached to a wall of said box and extending partly without and partly within said box, said ejector having a sand-passage through it and

an eccentric air-passage communicating with the inner part of said sand-passage, the inner part of said ejector having one or more webs or sections, as c^8, c^9, with one or more side openings as c^6, c^7, between them, and said ejector having also the guard c^{10} at its extreme inner end.

6. A track-sanding apparatus attachable to a track-sanding box as a whole from outside the box, and provided with two passages extending lengthwise it, one of which has an opening at its inner end to connect it with the chamber of the sand-box and an opening at the outer end to connect it with a sand-distributing pipe, and the other of which has a nozzle or outlet at the inner end of the apparatus arranged to direct an air-blast through the said first-named passage and into said sand-delivery pipe and has also at its outer end means of connection with an air-supply pipe outside the sand-box.

7. A track-sanding apparatus provided upon its exterior with means for attachment to a sand-box and having a single sand-delivery passage arranged longitudinally therewith provided with an opening to the sand-box at its inner end and adapted to open into a sand-delivery pipe at its outer end outside the sand-box, and also provided with an air-injecting nozzle at its inner end within the opening to the sand-box and arranged to deliver and direct a jet of air through the sand-passage of the apparatus into the passage of the sand-delivery pipe, the said nozzle having a supply-pipe extending outward therefrom within the case of the apparatus and to a point at or near its outer end.

8. A track-sanding apparatus comprising a case or shell attachable to the wall of a sand-box and having an unobstructed, longitudinal sand-delivering passage open at its inner end to the chamber of the sand-box and at its outer end to a sand-delivery passage, an air-injecting outlet or nozzle arranged to direct a current or blast of air from the inner end of said sand-passage through the said passage and an air-supply passage contained within the casing or shell connected at its inner end with the nozzle and having its outer end connectible with an air-supply pipe outside the wall of the sand-box.

9. A track-sanding apparatus comprising a shell or casing having means for attachment to the wall of a sand-box and so that a portion of the shell or casing shall be within the box and a portion of the shell or casing shall be without the box, a longitudinal sand-feeding passage in said shell or casing, a lateral opening at the inner end of said shell or casing connecting the chamber of the sand-box with said passage, an air-injector or blast-nozzle arranged in said opening at or adjacent to the lateral entrance to said longitudinal passage to force air and sand through said passage and from the outer end thereof, and means connecting said nozzle or injector with an air-supply pipe outside the sand-box.

10. A track-sanding apparatus comprising a shell or casing attachable to the wall of a sand-box so that a portion of the shell or casing shall be within the box and a portion of the shell or casing shall be without the box and having a longitudinal sand-feeding passage provided with a lateral opening at its inner end and connecting the chamber of the sand-box with said passage, an air-injector or blast-nozzle arranged at or adjacent to the lateral opening to said longitudinal passage to force air and sand through said passage and from the outer end thereof, means connecting said nozzle or injector with an air-supply pipe outside the sand-box and means at the outer end of the shell or casing to connect it with a sand-delivery pipe or coupling.

11. A track-sanding apparatus comprising a shell or casing attachable to the wall of a sand-box so that a portion of the shell or casing shall be within the box and a portion of the shell or casing shall be without the box and having a longitudinal sand-feeding passage provided with a lateral opening at its inner end to connect the chamber of the sand-box with said passage, a shield or guard opposite the inner end of said passage integral with the shell or casing, an air-injector or blast-nozzle arranged at or adjacent to the lateral opening to said longitudinal passage to force air and sand through said passage and from the outer end thereof, and means connecting said nozzle or injector with an air-supply pipe outside the sand-box and the outer end of the shell or casing with a sand-delivery pipe or coupling.

12. In a track-sanding apparatus, a sand-receptacle comprising a casing having a portion provided with a sand-feeding passage having at its inner end a sand-inlet and at its outer end a sand-outlet, combined with a sand-distributing pipe attached to said casing from the outer side thereof at said sand-outlet and an air-delivery pipe also attached to said casing from the outer side thereof and provided with a return-bend or nozzle arranged to direct an air-blast into the inner part of said sand-feeding passage to force the sand outward through said passage and said sand-outlet into said sand-distributing pipe.

CHARLES W. SHERBURNE.

Witnesses:
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J. M. DOLAN.