

J. H. HANLON.
 TRACK SANDER.
 APPLICATION FILED MAY 7, 1909.

952,111.

Patented Mar. 15, 1910.

Fig. 2.

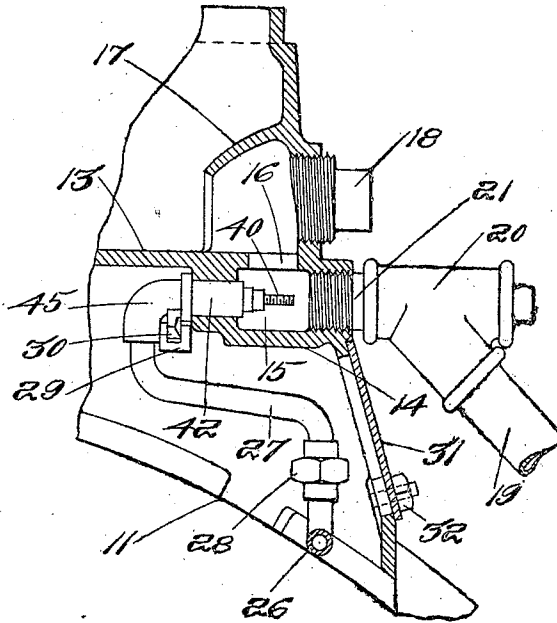


Fig. 1.

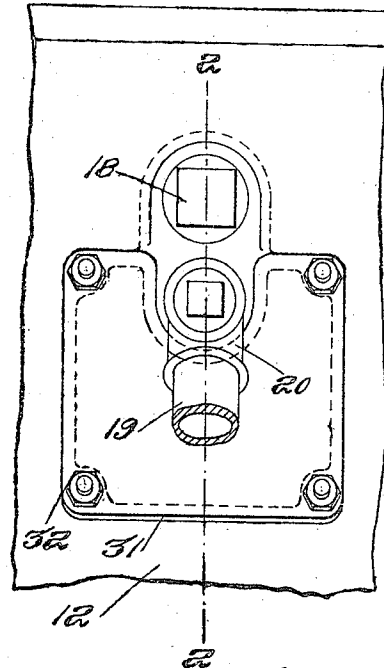


Fig. 3.

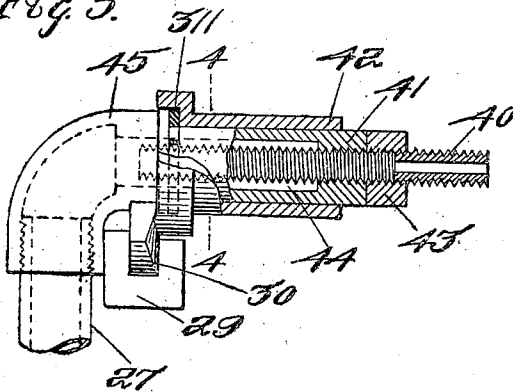
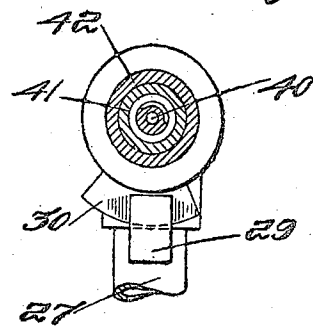


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN H. HANLON, OF SOMERVILLE, MASSACHUSETTS.

TRACK-SANDER.

952,111.

Specification of Letters Patent. Patented Mar. 15, 1910.

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To all whom it may concern:

Be it known that I, JOHN H. HANLON, citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Track-Sanders, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to devices by means of which sand is forced by a jet of compressed air through a pipe to the wheels of locomotives, electric cars and the like, to improve the traction. Heretofore in devices of this class, it has been generally customary either to place the device above the floor of the sand box in such position that it occupies some of the sand space, or else it has been placed on the exterior of the sand box and in such a position that in case of collision or the like the whole device is likely to be destroyed. Sanders as heretofore usually constructed have also been composed of a considerable number of parts which have to be carried in stock, and special tools have frequently been required to be carried for use in cleaning the sander should the air nozzle become clogged with scale or other foreign substances, or in case the sander itself becomes obstructed by pebbles or roots in the sand.

My present invention has for its particular object a sander which leaves the floor of the sand box free from all obstruction and which is so located that in case of collision no injury is likely to be done to it further than the breaking off of the sand-delivery pipe.

The body of the sander embodying my invention is cast integral with the base of the sand box and underneath the floor thereof, sand being admitted to the interior of the sander body through a hole in the floor. The air pipe supplying the compressed air to the sander is located under the lagging of the locomotive boiler and is entirely protected. Means are also provided for getting at the various parts of the sander for the purpose of cleaning the nozzle or removing stones or other obstruction from the interior of the sander body. Provision is also made for adjustment of the position of the air nozzle to regulate the amount of sand delivered by the sander, it being possible quickly to change the sander from a suction sander, in which the sand is sucked from

the sand box, to a blast sander, in which the sand falls by gravity, and is driven forward by a blast of compressed air. In an intermediate position of the nozzle the action of the two is combined.

The invention will be fully understood from the following description taken in connection with the accompanying drawings, and the novel features are pointed out and clearly defined in the claims at the close of the specification.

In the drawings,—Figure 1 is a side elevation of a portion of the base of the sand box embodying my invention. Fig. 2 is a section on line 2—2, Fig. 1. Fig. 3 is a detail partly in section of the adjustable and removable air nozzle and the bushing in which it is located. Fig. 4 is a section on line 4—4, Fig. 3.

Referring now to the drawings and more particularly to Figs. 1 and 2, at 11 is shown the boiler and at 12 the base of the sand box which rests upon the boiler in the well known manner. The floor of the sand box is indicated at 13 and is cast integral with the base 12. On the under side of the floor 13 and close to the outside wall of the base, is located the sander body 14. The sander body has a central chamber 15 into which the sand from the interior of the sand box enters through the aperture 16. A clean-out opening closed by a plug 18 gives access to the aperture 16 so that the engineer may remove stones, bits of roots, damp sand or the like, which are likely to find their way into the aperture 16 and obstruct it. Said clean-out opening is protected by the hood 17 so that the sand in the sand box will not flow out in case the plug 18 is removed.

The sand delivery pipe 19 communicates by the Y fitting 20 and pipe-nipple 21 with the interior of the sander body 14. The Y fitting 20 furnishes a sand cushion which prevents the pipe being cut out by the sand blast in the manner described and claimed in one of my previous patents.

At the rear of the sander body there is located the air nozzle by means of which the compressed air from the pipe 26 is discharged. The discharge nozzle 40 is screw-threaded and screwed (see Fig. 3) into the end of a sleeve 41 which passes through a bushing 42 which is expanded into a hole at the rear of the sander body 14, so that the said bushing is fixed in place in the said hole. The discharge nozzle 40 is of a length

about equal to the width of the chamber 15 of the sander body and may be screwed into the sleeve 41 for a greater or less distance to regulate the amount of sand to be delivered by the sander. If the orifice is
 5 located well to the right (see Fig. 3), the action of the sander will be to draw the sand forward from the interior of the sander body by suction; whereas, if the end of the
 10 air discharge nozzle 40 is located at about the center of the chamber of the sander body or to the left thereof, the action will be simply that of a blast, the sand being driven before the compressed air, and there
 15 being little or no sucking action. Where the sand operates by suction, the amount of sand delivered will be much less than in the case where it acts as a blast. The sand discharge nozzle is firmly fixed in place after
 20 adjustment by a lock nut 43. It will also be seen that the end of the air discharge nozzle 40 projects back into a chamber 44 in the sleeve 41 so that an annular space is left, forming a pocket or trap in which particles
 25 of scale, dirt, grease, or the like, such as are sometimes found in the air pipe, will collect instead of being drawn into the passage of the discharge nozzle and clogging it.

The sleeve 41 is in one piece with an elbow 45 which is connected to the bent pipe 30 27, itself connected by the union 28 to the air pipe 26. Fixed to said elbow 45 is a hook or slotted cam member 29 which engages a cam 30 fast to the bottom of the
 35 bushing 42. It will, therefore, be seen that the air discharge nozzle may be readily removed for the purpose of cleaning or adjustment in the following manner: The cover 31 which closes a large hand hole in
 40 the side of the base of the sand box is removed by undoing the nuts 32. The workman may then reach in and unscrew the union 28. The bent pipe 27 may then be swung about a quarter turn upward moving
 45 the elbow 45, sleeve 41 and air discharge nozzle 40 at the same time about the axis of the air discharge nozzle. This partial rotation of the elbow 45 moves the hooked or
 50 slotted cam member 29 out of engagement with the fixed cam 30 on the bushing 42 and disengages the parts so that they may then be slid backward (*i. e.* to the left in Fig. 2) and removed. There is sufficient
 55 space between the boiler and the floor of the sand box so that this operation may be conveniently performed. The parts are put in place again by reversing the operation. It will be seen that the cam 30 is so constructed that it pulls the elbow 45 forward
 60 and compresses a gasket 311 between the shoulder of the elbow and the bushing 42, thereby insuring a tight joint at this point.

From the foregoing it will be seen that it is possible to remove the nozzle very quickly
 65 and with the use of no tools other than a

monkey wrench. It will also be seen that access may be had very easily to all the interior of the sander for the purposes of cleaning or adjustment. The interior of the sand box is left wholly unobstructed, but at the
 70 same time the sander is so located that in case of wreck, it will not be likely to be injured further than the sand discharge pipe being knocked off, since it is protected by the base of the sand box.

What I claim is:

1. In a pneumatic track sander, the combination with the base and floor of the sand box, of a sander body beneath the said floor
 80 having a sand inlet hole through the said floor and a sand discharge hole through the wall of the base, and an air discharge nozzle within said sander body and opposite to said sand discharge hole.

2. In a pneumatic track sander, the combination with the base and floor for the sand box, of a sander body beneath the said floor
 85 having an inlet hole through the said floor and a sand discharge hole through the wall of the base, and an air discharge nozzle within said sander body and opposite to said sand discharge hole, said air discharge
 90 nozzle being slidably mounted in said sander body.

3. In a pneumatic track sander, the combination with the base and floor of the sand box, of a sander body integral therewith
 95 and located beneath the said floor having a sand inlet hole through the said floor and a sand discharge hole through the side wall of said base, said base having a hand hole about the said sand discharge hole, and an air discharge nozzle removable through the said
 100 hand hole.

4. The improved pneumatic track sander comprising a sander body having sand inlet
 105 and discharge holes, an air discharge nozzle revoluble and slidable in a hole in said body, and two cam members, one for said air nozzle and one for said sander body engaging each other to hold the parts in place.

5. In a pneumatic track sander, the combination with a sander body having an interior chamber provided with sand inlet and
 110 discharge holes, of an air discharge nozzle in the said chamber, the position of the orifice of said discharge nozzle being adjustable with relation to the said sand inlet hole to vary the amount of sand delivered by the
 120 sander.

6. In a pneumatic track sander, the combination with a sander body having an interior chamber provided with sand inlet and
 125 discharge holes, of a sleeve and screw-threaded air discharge nozzle in the said chamber, the said air discharge nozzle being thereby movable in the said sleeve to vary the position of its orifice with relation to the said sand inlet hole and regulate the amount of sand discharged, and the said sleeve being
 130

slidable in the said body to facilitate the removal of the air discharge nozzle.

7. The improved pneumatic track sander comprising a sand box base having the floor of the sand box in one piece therewith, a sander body under said floor and receiving sand from the box through a sand inlet hole in said floor, and having a sand discharge hole through said base, a bushing in a hole in said sander body opposite to said sand discharge hole, a sleeve slidable in said bushing, an air discharge nozzle carried by said sleeve, and two cam members, one on said sleeve and one on said bushing and engaging each other to hold the parts in place.

8. The improved pneumatic track sander comprising a sand box base having the floor of the sand box in one piece therewith, a

sander body under said floor and receiving sand from the box through a sand inlet hole in said floor and having a sand discharge hole through said base, a bushing in a hole in said sander body opposite to said sand discharge hole, a sleeve revoluble and slidable in said bushing, an air discharge nozzle carried by said sleeve, and two cam members, one on said sleeve and one on said bushing and engaging each other to hold the parts in place.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN H. HANLON.

Witnesses:

GEORGE P. DIKE,
ALICE H. MORRISON.