

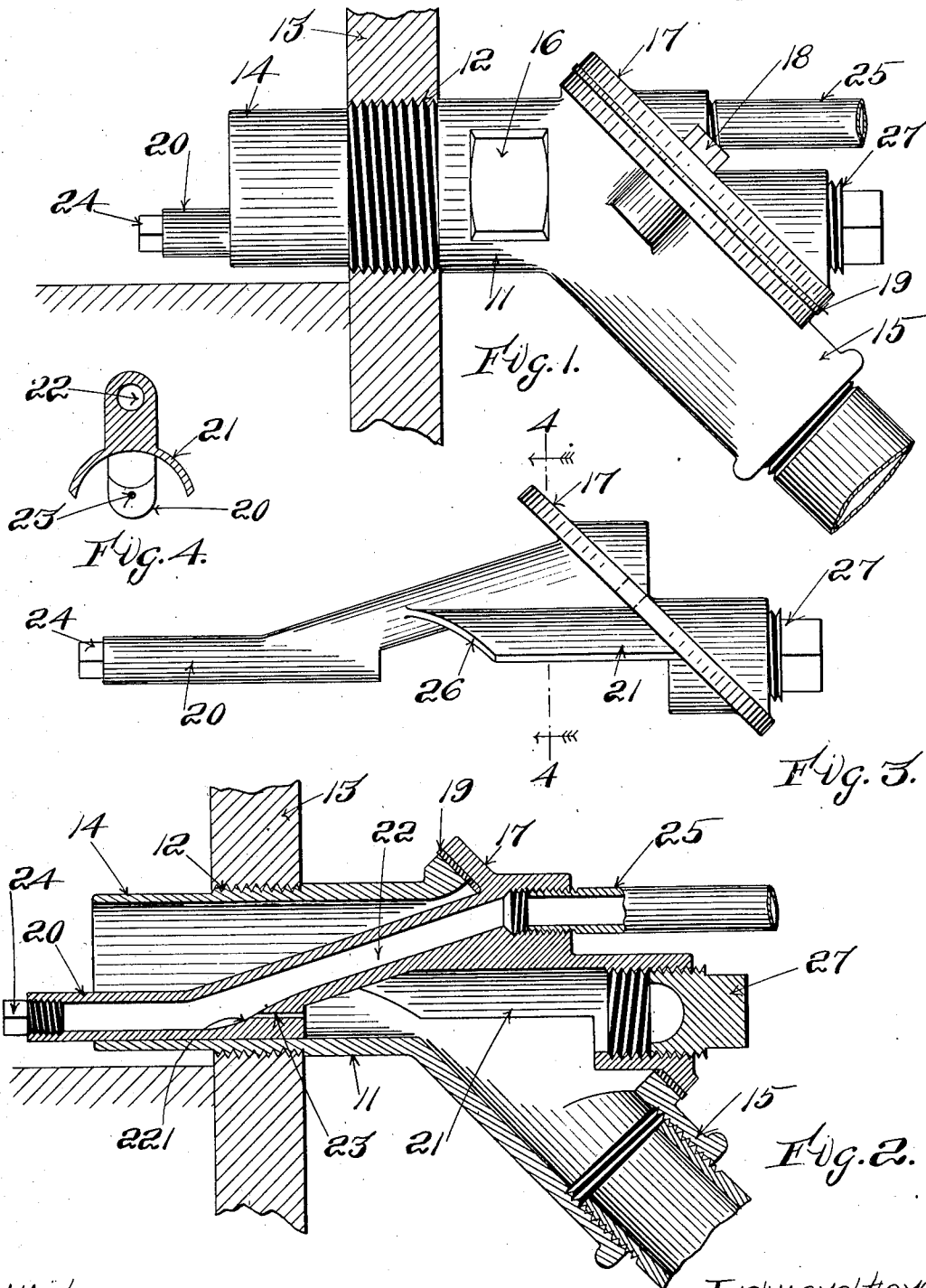
No. 892,151.

PATENTED JUNE 30, 1908.

J. H. HANLON.
SANDER.

APPLICATION FILED NOV. 30, 1907.

2 SHEETS—SHEET 1.



Witnesses:
John H. Parker
R. Wallace.

Inventor:
John H. Hanlon
by Macdonald, Calver, Copeland & Dill.
Attorneys.

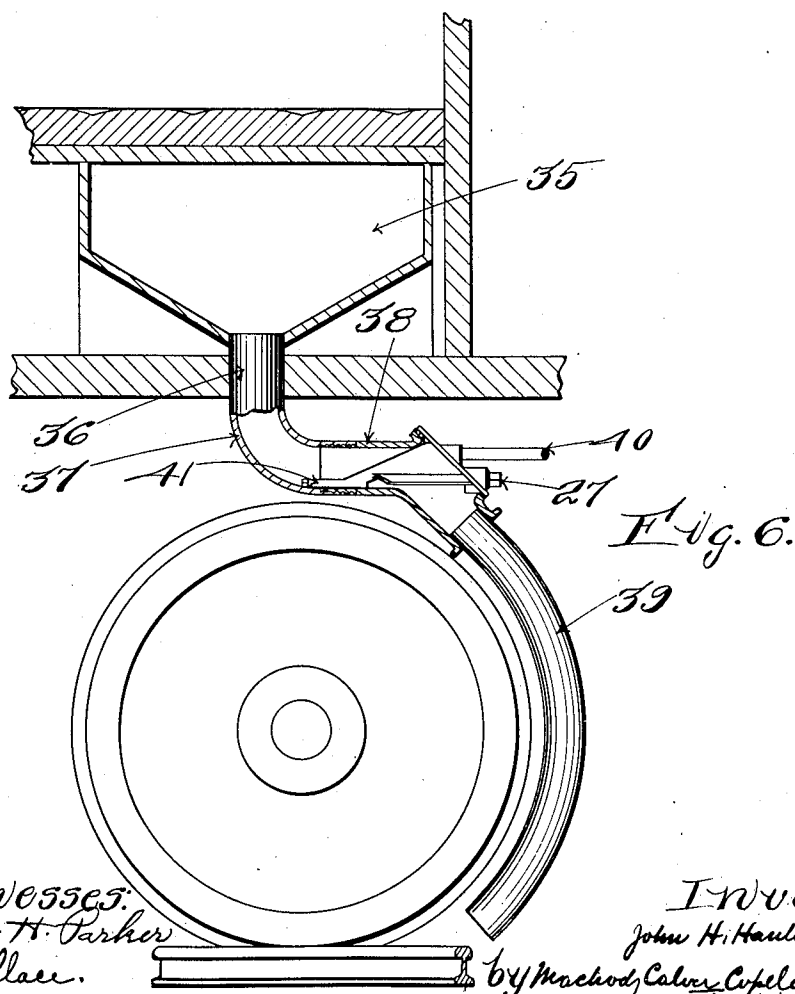
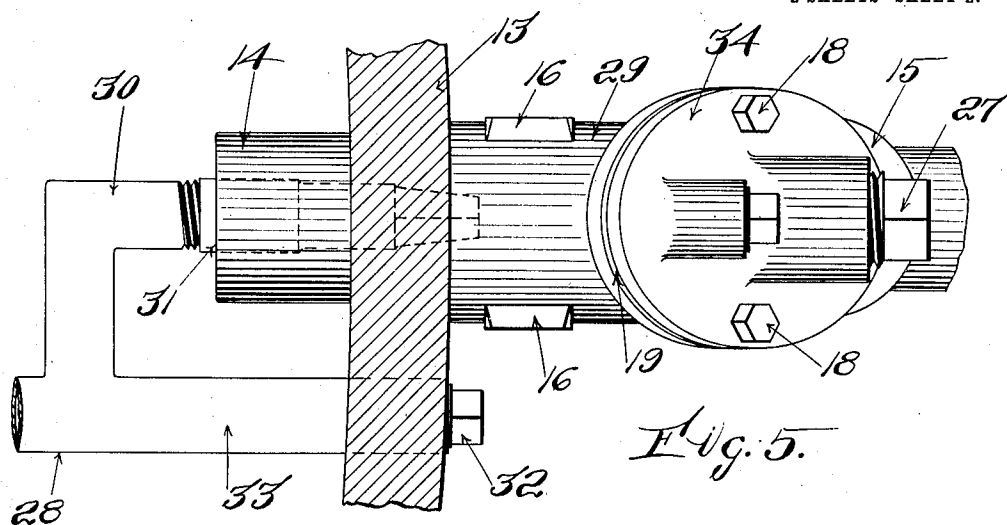
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UNITED STATES PATENT OFFICE.

JOHN H. HANLON, OF SOMERVILLE, MASSACHUSETTS.

SANDER.

No. 892,151.

Specification of Letters Patent.

Patented June 30, 1908.

Application filed November 30, 1907. Serial No. 404,547.

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 Sanders, of which the following is a specification, reference being had therein to the accompanying drawings.

My present invention has for its object an improvement in track sanders and has to do particularly with that class of sanders in which the sand is projected through the sand pipe leading to the rails by means of a jet of compressed air.

While the invention is intended particularly for use on locomotives, it is also adapted for use on street cars and other vehicles which require sanders.

The present invention has particularly for its object to provide a sander which may be readily removable from the exterior of the sand box, without the necessity of removing the sand from the interior of the sand box in case the sander should become clogged, but if desired it may also be used with an air pipe inside the sand box, or may be placed at a distance from the sand box receiving the sand therefrom through a pipe down which the sand falls under the action of gravity.

The invention also provides an air jet or nozzle which is less likely to become clogged than those heretofore employed, but to which access may be readily had should it become clogged. The sander is also especially adapted to draw the sand from the very floor of the box, thus making it possible to use the same more economically than heretofore.

The invention will be fully understood from the following description taken in connection with the accompanying drawings, and the novel features thereof will be 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 sander embodying my invention. Fig. 2 is a longitudinal section of the parts seen in Fig. 1. Fig. 3 is a side elevation of the air nozzle, shield and cover. Fig. 4 is a section on line 4—4, Fig. 3, looking in the direction of the arrows. Fig. 5 shows a sand box equipped with my improved sander and an air pipe within the box. Fig. 6 shows my sander as used upon a street car, the sand being supplied to the sander through a down-

wardly extending pipe to the lower end of which the sander is attached.

Referring to the drawings,—The body of the sander is indicated at 11. It is provided near the left hand end, as shown in Fig. 1, with screw threads 12 adapted to engage the wall of the sand box or dome 13, with its end projecting somewhat into the interior of the sand box, as shown at 14, so that the sand used by the sander may not be drawn from that portion of the sand which lies directly against the wall of the sand box as sand which lies directly against the wall of the sand box sometimes contains bits of scale or is damp or moist, and on that account is not likely to feed well. The other end of the sander is provided, as shown at 15, with a connection for the sand delivery pipe which leads to the the rails. For convenience in removing the sander from the dome, I provide a flattened part 16 for engagement with a wrench. As will be seen from the drawings, the body of the sander is substantially in the form of an elbow, the parts of which lie at an oblique angle to each other. At the turn of the elbow a clean-out opening is provided, and this opening is closed by the cover 17 which is secured to the body of the sander by means of the cap screws 18, a rubber gasket 19 being provided to insure a tight closure.

The air discharge nozzle 20 and shield 21 are preferably attached to the said cover 17 so that all the interior structure of the sander may be removed with the cover 17 when it is desired to clean the interior of the sander. In the drawings, the parts are shown as cast in a single piece with the cover. An air duct 22 leads obliquely downward from the upper side of the cover to the air discharge nozzle, the air discharge aperture of which is shown at 23. The said air duct 22 is of comparatively large area, as compared with the air discharge aperture 23, and the said air discharge aperture enters the said air duct 22 obliquely and at a point above the bottom of the said air duct. It will be seen that there is no square shoulder within the air duct near the opening into the air discharge aperture from the air duct, but on the contrary there is a smooth inclined surface 221, so that there is no tendency for scale, dust, or dirt to collect and block the air discharge aperture. The tendency of the dirt is to remain below the opening into the air discharge aperture but if for any reason a particle of scale hap-

pens to fall on the opening to the air discharge aperture when the sander is not being used, it is likely to be discharged and blown back therefrom when the air is turned on.

5 The air duct 22 is extended inwardly, that is toward the interior of the sand box, from the air discharge aperture, and its rear end is closed by a plug 24 thereby forming a trap for the collection of scale, grease or other

10 foreign substances, such as are likely to be present in the air pipe. The air is supplied to the said nozzle by means of the air pipe 25. It will be seen that if at any time the air discharge aperture becomes clogged, the nozzle may be readily removed by taking off the

15 cover 17 and withdrawing therewith the said air discharge nozzle. The plug 24 may then be removed and the trap and air discharge aperture cleaned.

20 In order that there may be no tendency on the part of the sander to blow back into the box instead of driving the sand down the air discharge pipe, I provide the shield 21 which extends forward from near the air discharge aperture 23 to the cover 17, the said shield 21 being downwardly curved on two sides as shown in Fig. 4. This shield also helps to direct the sand and air and thereby to cause a greater vacuum back of the nozzle and increase the sucking action on the sand in the source of sand supply. It also tends to protect the air pipe from wear under the action of the sand. The inner end of the said shield is also cut away as shown at 26 to admit a

30 more direct flow of sand into the sander, and to give as large a passageway for the sand as possible so that small stones will not clog the sander. Directly opposite to the air discharge aperture 23 is an opening closed by a plug 27, but said plug 27 screws only a short distance into said opening, thereby leaving a space wherein the sand may lodge and form a sand and air cushion which effectually prevents the wearing away of the parts. The

40 said air discharge nozzle 23 is located very near the bottom of the sander so that the sand is drawn from a point on the bottom of the box when my device is directly connected with the sand box. This results in greater

50 economy in the use of sand.

It will be seen from the foregoing that my improved sander may be readily cleaned both as regards the air discharge aperture and the sand intake by removing the cover 17 when the entire interior of the sander is accessible.

55 The sander is also particularly adapted for use with unscreened sand as there are no apertures of small area through which the sand has to pass and consequently there is no danger of clogging.

It is sometimes desirable to have the air pipe for the sander enter the body of the sander from the inside of the sand box instead of from the outside as is shown in Fig.

60 1. In this case, I construct my improved

sander as shown in Fig. 5, where the air pipe is designated 28, and the sander 29. A branch 30 of the air pipe 28 leads to the air discharge nozzle 31, while the main portion of the pipe passes through the wall of the sand box and is closed by a plug 32. It will be seen that the portion 33 of the air pipe 28 which extends beyond the branch 30 serves as a trap into which all foreign substances in the air pipe tend to lodge. The nozzle employed may be of any convenient form and may be readily removed by a socket wrench after the cover 34 has been removed. Thus far the application of my sander directly to the sand box or sand dome has been described, but it is frequently desired to use the sander at a distance from the sand box, as is necessary in street cars and sometimes in locomotives. This use of my sander is illustrated in Fig. 6, where the sand box is designated 35. From this, leads the sand intake pipe 36 which is provided at its lower end with a large elbow 37 into which is screwed the sander 38. The sand discharge pipe is shown at 39 and the air pipe at 40. The sand falls by gravity down the sand intake pipe 36 and is then forced down the sand delivery pipe 39 by the jet of air from the nozzle 41.

I claim as my invention:

1. In a pneumatic track sander, the combination of a sander-body comprising an elbow and provided with a clean-out opening, a cover for said clean-out opening and an air nozzle passing through the said cover and lying on the floor of the interior of the sander-body.

2. In a pneumatic track sander, the combination of a sander-body comprising an oblique angled elbow and provided with a clean-out opening, a cover for said clean-out opening and an air nozzle attached to said cover and lying on the floor of the interior of the sander-body.

3. In a pneumatic track sander, the combination of a sander-body comprising an elbow, a clean-out opening, a cover therefor, an air nozzle and a shield depending downwardly from the said air nozzle.

4. In a pneumatic track sander, the combination of a sander-body comprising an oblique angled elbow, a clean-out opening at the turn of the elbow, a cover therefor, an air nozzle, and a shield depending downwardly from the said air nozzle, the said air nozzle lying on the floor of the sander-body.

5. In a pneumatic track sander, the combination of a sander-body and an air discharge nozzle within said sander-body, the said air discharge nozzle having an air duct and an air discharge aperture, said air duct being inclined at the point where it unites with the said air discharge aperture.

6. In a pneumatic track sander, the combination of a sander-body and an air discharge

nozzle within said sander-body, the said air discharge nozzle having an air duct and an air discharge aperture, said air duct being inclined at the point where it unites with the said air discharge aperture, and being extended downwardly and rearwardly of the said air discharge aperture to form a trap for foreign substances in the air duct.

7. In a pneumatic track sander, the combination of a sander-body comprising an elbow provided with a clean-out opening, a cover for said clean-out opening, and an air nozzle

passing through the said cover and lying on the floor of the interior of the said sander-body, said cover having therein an air cushion substantially opposite to the aperture of the said air nozzle.

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

JOHN H. HANLON.

Witnesses:

GEORGE L. DIKE,
ALICE H. MORRISON.