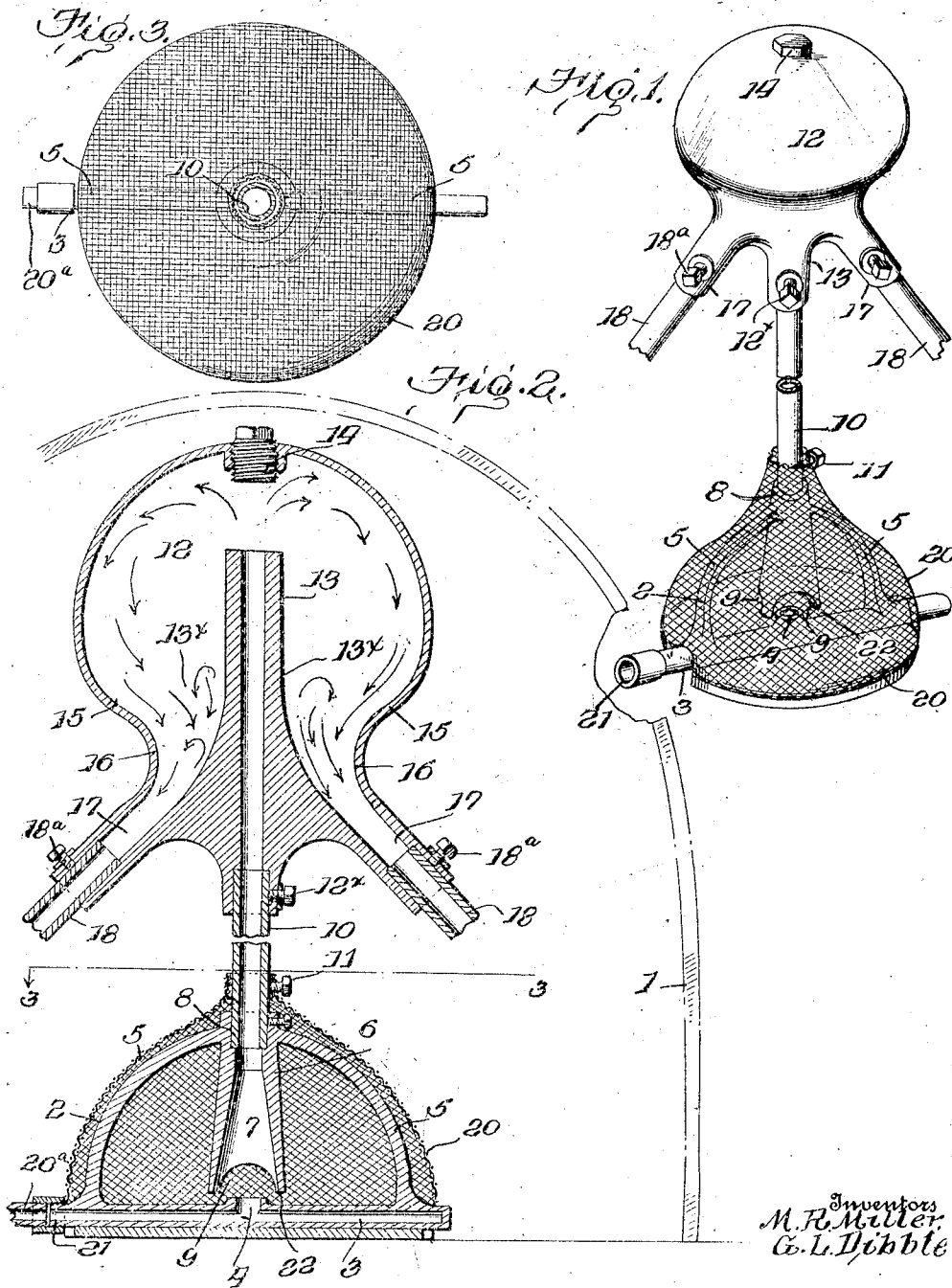


TRACK SANDING APPARATUS FOR LOCOMOTIVES.

APPLICATION FILED SEPT. 6, 1916.

1,205,918.

Patented Nov. 21, 1916.



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UNITED STATES PATENT OFFICE.

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TRACK-SANDING APPARATUS FOR LOCOMOTIVES.

1,205,918.

Specification of Letters Patent.

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Application filed September 6, 1916. Serial No. 118,677.

To all whom it may concern:

Be it known that we, MARK R. MILLER and GEORGE L. DIBBLE, citizens of the United States, MARK R. MILLER residing at Charleston, in the county of Charleston, South Carolina, and GEORGE L. DIBBLE residing at Florence, in the county of Florence and State of South Carolina, have invented certain new and useful Improvements in Track-Sanding Apparatus for Locomotives, of which the following is a specification.

This invention relates to improvements in track sanding apparatus for locomotives.

The object of the invention is to provide a track sanding apparatus which will effectively blow the sand from the sand dome to a distributing chamber to disintegrate the sand so that same may pass freely in a granulated state through the outlet pipes to the track.

A further object of the invention is to provide means for blowing the sand from the dome to a distributing chamber in a straight line to prevent the sand in its passage wearing out the metal and destroying the utility of the device.

It is also one of the objects of the invention to so construct the distributing chamber as to cause the dissipated sand to travel in spiral paths to the exit ducts to lend additional force to the delivery of the sand to the track pipes.

A further object of the invention is to provide specially constructed means for mounting the parts in the dome.

The invention also comprehends improvements in the details of construction and arrangement of parts which will be hereinafter described and particularly pointed out in the claims.

In the drawings:—Figure 1 is a perspective view of our invention. Fig. 2 is a vertical central section of the same. Fig. 3 is a cross section on the line $x-x$ of Fig. 2.

The numeral 1 indicates a sand dome usually employed on a locomotive. Centrally disposed in the dome 1, is a frame 2, comprising a tubular member 3, formed with a central opening 4, which constitutes a nozzle, and extending from the base are arms 5, and depending centrally therefrom, and terminating over the opening 4, is a member 6. The member 6 is formed with a tapered bore 7, and at its upper end it is formed with a

pipe seat 8. In opposite sides of the lower end of the member 6, are recesses 9, to form a convenient passage for the sand passing to the mouth of the member. Mounted in the seat 8, is a vertical pipe 10, held in fixed position by a set screw 11. The upper end of this pipe fits in a socket formed in a central extension on a distributing chamber 12, and is held in place by a set screw 12*. The distributing chamber is formed with a central hollow projection 13, which communicates with the pipe 10, the lower walls 13* of the hollow extension gradually tapering downwardly and outwardly, as clearly shown in Fig. 2, for a purpose to be described. The upper part of the distributing chamber is semi-spherical, and is spaced from the upper end of the hollow extension 13, and in the top, in direct alinement with the hollow extension, is a screw plug 14. Below the semi-spherical portion of the chamber the walls converge, as at 15, from whence on opposite sides of the chamber, said walls gradually curve downwardly and outwardly as at 16, and form with the walls 13* oppositely disposed outwardly extended ducts 17. Connected with the ducts are pipes 18, held in place by set screws 18*, the pipes leading to the track in the usual way.

Surrounding the frame 2, is a sieve 20, tapered toward the top and fitting snugly the pipe 10, the sieve preventing foreign substances, or lumps of sand choking the mouth of the member 6.

In operation, sand is introduced in the dome, and the tubular member is supplied with compressed air through a pipe 20*, connected at the open end 21. The air is forced through the nozzle 4, and through the vacuum effect produced at the bottom of the element 6, the sand is drawn through the space 22, and the recesses 9, into the enlarged mouth of said member. The air acting directly on the sand in the member 6 and pipe 10, blows the sand particles through the tubular extension 13, up against the plug 14, and is there dissipated and thrown in shower-like form against the wall of the semi-spherical portion of the chamber 12. The sand is thus spread in all directions, hence it is impossible for the friction of the sand wearing out the metal. The sand is blown against the plug 14, and in time this particular element will be worn out, but an-

other can be quickly substituted. By spacing the tubular extension from the top of the chamber, and providing said chamber with semi-spherical walls, and arranging the parts so as to cause the air to blow the sand in a direct vertical line, the sand will not cut the metal to any appreciable degree, a factor which is of considerable practical importance in devices of this character.

When the sand is blown through the tubular extension, if perchance there should be lumps or the like, which may have passed through the screen, said lumps when striking against the plug and subsequently against the semi-spherical walls, will be dissipated, and the full effect of the granulated sand will be obtained on the track. The fine shower of sand caused by the semi-spherical walls is kept in a state of agitation, and is driven by the air, and guided by the walls 15 and 13, to the ducts 17, and thence forced through the pipes to the track.

The arrows in Fig. 2 of the drawing indicate conventionally the movement of the sand passing from the chamber to the ducts. This spiral or whirling action augments the force of the air on the sand, with the consequent result that the sand is given added driving force through the ducts.

Because of the arrangement of the frame and screen, the sand is sifted before reaching the mouth of the element 6, consequently the mouth can be larger than usual, with the result that a large supply of sand may be supplied to the action of the air coming from the opening 4, with little or no unnecessary friction on the parts.

The invention is extremely simple in construction, and is effective in operation. The arrangement of the structural details is such that while the sand is in a solid stream, it always travels in a straight line, which is a decided economical advantage. It is only when the stream of sand is dissipated that it is subjected to an irregular path, and then the parts are of such form and proportion that it does not wear away the metal, nor is its force toward the ducts reduced.

It has been found that atmospheric conditions affect the sand in the traps of track sanders, causing the sand to clog and prevent its passage to the tracks. Because of the screen only fine particles can reach the mouth of the pipe and because of the construction, etc., of the distributing chamber, said chamber and the ducts and pipes leading therefrom are always open and clean when the air is turned off.

What we claim is:—

1. In a track sander, the combination of a base having a vertical tubular element open at the bottom, a nozzle located centrally under the open end of the tubular element, a vertical pipe communicating with the tubular element, a distributing chamber hav-

ing a semi-spherical upper portion and a centrally disposed tubular extension communicating at its lower end with the vertical pipe and its upper end terminating and spaced from the semi-spherical portion of said chamber, the lower portion of the sand chamber converging and subsequently flared outwardly, the outer walls of the central tubular extension forming two sand outlet ducts.

2. In a track sander, the combination of a vertical pipe having an enlarged mouth at its lower end, a blast nozzle centrally located at the enlarged mouth at the end of the vertical pipe, a distributing chamber at the upper end of the pipe, the upper portion of the said chamber being of semi-spherical form, the chamber having a centrally disposed tubular extension, the lower end of which communicates with the vertical pipe, the upper end of said tubular extension terminating and in spaced relation with the semi-spherical walls of the chamber, the lower portion of the said chamber below the upper end of the tubular extension having two outwardly extending ducts.

3. In a track sander, the combination of a vertical pipe having an enlarged mouth at its lower end, a blast nozzle centrally located at the enlarged mouth at the end of the vertical pipe, a distributing chamber at the upper end of the pipe, the upper portion of the said chamber being of semi-spherical form, a detachable plug centrally located in the top of the sand chamber, the chamber having a centrally disposed tubular extension, the lower end of which communicates with the vertical pipe, the upper end of said tubular extension being in alignment with and terminating in spaced relation with the plug, the lower portion of the said chamber below the upper end of the tubular extension having ducts for the passage of sand.

4. In a track sander, the combination of a base frame comprising a horizontal tubular member formed with a centrally disposed opening, arms extending upwardly from the horizontal tubular member, and a vertically disposed tubular member having a tapered bore and supported centrally on the arms, the lower end of the vertical tubular member being centrally disposed over the opening and having recesses cut in opposite walls to form sand passages for the entrance of sand when air is blown through the opening, a screen surrounding the mouth of the vertical tubular member, a vertical pipe communicating with the vertical tubular member, a chamber having a central tubular extension communicating with the vertical pipe, the upper portion of the chamber being downwardly curved, and the upper end of the tubular extension terminating within and spaced from the curved walls of the chamber, said chamber having sand outlet

ducts in its lower portion below the plane of the upper end of the tubular extension.

5. In a track sander, the combination of a sand distributing chamber formed semi-spherical at its upper portion and converging below said semi-spherical portion and terminating in two outwardly extending sand ducts, the chamber having a central vertical tubular extension terminating in spaced relation with the semi-spherical walls of said chamber, the outer walls of the vertical tubular extension tapering outwardly from the top and merging into the walls of the ducts, and means for forcing sand under pressure through the central vertical extension.

6. In a track sander, the combination of a sand distributing chamber, semi-spherical at the upper portion, a detachable plug centrally disposed in the top of the distributing chamber, said chamber having a central vertical tubular extension, the upper end of

which is in alinement with and spaced from the detachable plug, and a sand duct formed in the chamber below the top of the vertical tubular extension.

7. In a track sander, the combination of a vertically disposed pipe having an enlarged mouth at its lower end, means at the mouth of the pipe for forcing air and sand through said pipe, a sand distributor chamber having a sand outlet duct and having a centrally disposed tubular extension, the upper end of which is spaced from the top of the chamber, its lower end being in communication with the vertical pipe, the walls of said chamber being curved to cause the sand blown from the tubular extension to follow spiral paths in passing to and out the duct.

In testimony whereof we affix our signatures.

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