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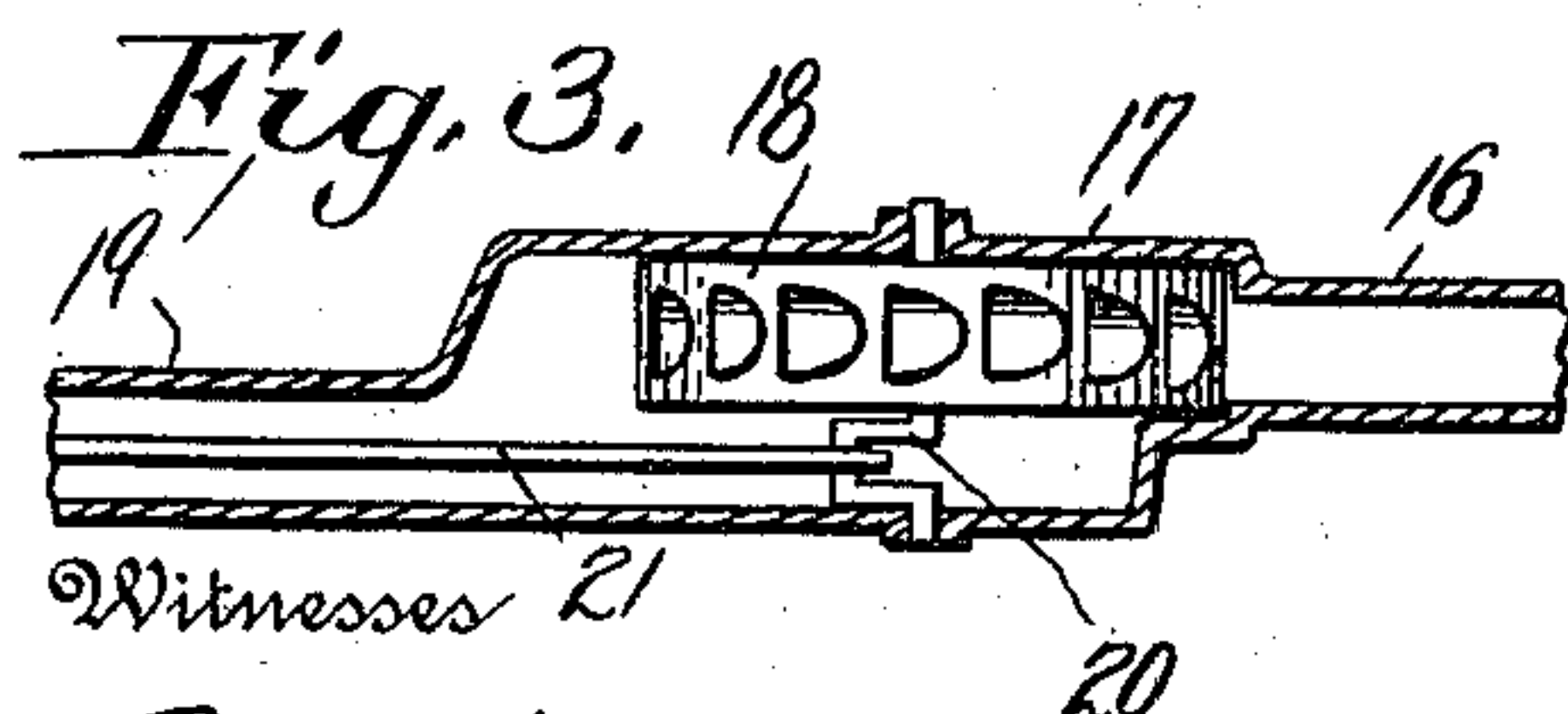


Fig. 4.

W. H. Smith

N. A. T. L. E. Attorney

UNITED STATES PATENT OFFICE.

WILLIAM HENRY SMITH, OF CONNELLSVILLE, PENNSYLVANIA.

TRACK-SANDER.

975,803.

Specification of Letters Patent.

Patented Nov. 15, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM HENRY SMITH, a citizen of the United States, residing at Connellsville, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Track-Sanders, of which the following is a specification.

The present invention relates to certain new and useful improvements in the construction of track sanders such as are commonly employed in connection with locomotives and the like for feeding sand to the rail immediately in advance of the driving wheel to prevent slipping of the latter, and the object of the invention is the provision of a device of this character embodying novel features of construction whereby the sand is prevented from becoming clogged in the sand pipe and a uniform flow of sand is always obtained when the valve is opened.

The invention further contemplates a track sander which is comparatively simple and inexpensive in its construction, which will operate effectively in all kinds of weather and under all conditions, and which can be readily kept in perfect repair.

With these and other objects in view, the invention consists in certain combinations and arrangements of the parts as will more fully appear as the description proceeds, the novel features thereof being pointed out in the appended claims.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a vertical sectional view through a track sanding device constructed in accordance with the invention. Fig. 2 is an enlarged detail perspective view of a portion of the agitating rod. Fig. 3 is an enlarged sectional view on the line 3—3 of Fig. 1, and Fig. 4 is a similar view on the line 4—4 of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawing by the same reference characters.

Specifically describing the present embodiment of the invention, the numeral 1 designates the sand pipe which may be mounted upon the locomotive in any desired manner, the upper end of the sand pipe being in communication with the sand box, while the lower end of the sand pipe is curved in-

wardly toward the wheel 2 and terminates directly over the rail 3 so as to deposit sand upon the rail when the device is in operation. A valve casing 4 is interposed at a suitable point in the sand pipe 1 and has a slide 5 mounted therein. This slide normally closes the sand pipe 1 so as to prevent the flow of sand therethrough, but is formed with an opening 6 which can be moved into registry with the sand pipe so as to leave the same unobstructed. Extending through the sand pipe 1 is a flexible agitating rod which is formed of a series of loosely connected sections 7. By reference to Fig. 2, it will be observed that alternate joints between the various sections 7 of the agitating rod are arranged at substantially right angles to each other so that the said rod can be flexed freely in all directions and will readily accommodate itself to any curves in the sand pipe. Each of the sections 7 of the agitating rod has a series of transverse pins 8 inserted within the same so as to provide lateral arms which project upon opposite sides of the rod. Attention may be directed to the fact, that as shown on the drawing, the pins 8 at the ends of the sections 7 serve as the pivot pins by means of which the said sections are connected to each other. As will be hereinafter more fully described, when the device is in operation, a reciprocating movement is imparted to the agitating rod, and the sand is thereby prevented from becoming clogged in the sand pipe as very frequently happens in rainy and wet weather with the sanding devices which are in use at the present time. The agitating rod is shown as received in a slot 9 in the valve slide 5 when the said valve is moved into a closed position, a lip 10 being provided which projects from the valve casing 4 immediately under the slot 9 so as to prevent the sand from passing through the said slot when the valve is closed. With this construction, it will be apparent that the agitating rod will not interfere in any manner with the action of the slide valve, but that the latter can be readily moved into either an open or closed position as may be desired.

The valve slide 5 is connected by a rod 11 to a piston 12 which operates within a cylinder 13. A spring 14 which surrounds the piston rod 11 and is interposed between the end of the cylinder and the piston normally tends to move the piston toward the outer end of the cylinder so as to hold the valve

in a closed position. The outer end of this cylinder 13 communicates with a compressed air pipe 15, and one side of the cylinder communicates through a pipe 16 with a casing 17 within which a turbine wheel 18 is rotatably mounted. This casing 17 communicates with a passage 19 which leads to the sand pipe 1 so that after the compressed air has acted upon the turbine wheel 19 to rotate the same, it will enter the sand pipe and assist in causing the sand to flow freely through the same. The turbine wheel 18 is rigid with the crank shaft 20 upon which it is mounted, and this crank shaft is connected by a pitman 21 to one of the links or sections 7 of the agitating rod. It will thus be obvious that when the compressed air is admitted to the turbine wheel for the purpose of rotating the same, the agitating rod will be reciprocated up and down within the sand pipe.

The upper end of the pipe 16 is normally closed by the piston 12 as indicated in Fig. 1, and the device is then in an inoperative position. When it is desired to feed sand to the track, compressed air is admitted to the pipe 15 so as to act upon the piston 12. The pressure of this air against the piston will move the said piston against the action of the spring 14 so as to open the slide valve 5 and also leave the upper end of the pipe 16 unobstructed. The compressed air will then flow through the pipe 16 so as to rotate the turbine wheel 18 and operate the agitating rod, as has been previously described. It will thus be obvious that by merely opening a valve of some suitable form and permitting the compressed air to flow through the pipe 15, the main valve will be opened and the agitating rod reciprocated so as to cause the steady and uniform flow of sand through the sand pipe. As soon as the supply of compressed air is shut off from the pipe 15, the spring 14 acts upon the piston 12 to close the main valve and shut off communication between the compressed air pipe and the pipe 16.

While I have described one specific form of the invention, I do not wish to be restricted to the exact details shown therein, since minor changes can be made without departing in any manner from the spirit of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a track sander, the combination of a sand pipe communicating with a lateral passage; agitating means mounted within the sand pipe so as to reciprocate therein, a rod entering the sand pipe through the lateral passage and having an operative connection with the agitating means, and means cooperating with the rod to reciprocate the agitating means.

2. In a track sander, the combination of a sand pipe, agitating means mounted within the sand pipe, a turbine, an air pipe leading from the exhaust of the turbine to one side of the sand pipe, and a rod arranged within the air pipe, the said rod producing an operative connection between the turbine and the agitating means within the sand pipe.

3. In a track sander, the combination of a sand pipe, a valve for the sand pipe, and agitating means arranged within the sand pipe, the said agitating means being constructed independent of the valve and extending upon both sides of the same.

4. In a track sander, the combination of a sand pipe, a jointed agitating rod mounted within the sand pipe so as to reciprocate therein, a turbine wheel, and an operative connection between the turbine wheel and the jointed agitating rod.

5. In a track sander, the combination of a sand pipe, and a jointed agitating rod arranged within the sand pipe, the various joints of the agitating rod having axes at angles to each other.

6. In a track sander, the combination of a sand pipe, a jointed agitating rod extending through the sand pipe, the said agitating rod being composed of a number of sections which are connected to each other by pivot joints having their axes at angles to each other, and transverse pins applied to the agitating rod.

7. In a track sander, the combination of a sand pipe, a valve for the sand pipe, agitating means arranged within the sand pipe so as to reciprocate back and forth therein and move independently of the valve, and means for simultaneously opening the valve and throwing the agitating means into operation, the said agitating means continuing to reciprocate back and forth as long as the valve remains in an open position.

8. In a track sander, the combination of a sand pipe, a valve for the sand pipe, agitating means arranged within the sand pipe so as to reciprocate back and forth therein and move independently of the valve, an air cylinder, a piston mounted within the air cylinder, and means whereby the valve and agitating means are simultaneously controlled by the movements of the said piston, the agitating means continuing to reciprocate back and forth as long as the valve is open.

9. In a track sander, the combination of a sand pipe, agitating means within the sand pipe, an air cylinder, a piston mounted within the air cylinder, a valve for the sand pipe having an operative connection with the piston, a turbine wheel, an operative connection between the turbine wheel and the agitating means, and means whereby the supply of a motive medium to the turbine

wheel is controlled by the action of the piston.

10. In a track sander, the combination of a sand pipe, agitating means mounted within the sand pipe, an air cylinder, a piston mounted within the air cylinder, a valve for the sand pipe having an operative connection with the piston, a turbine wheel, an operative connection between the turbine wheel and the agitating means, a supply pipe leading from the turbine wheel to the cylinder and normally closed by the piston, and means for admitting compressed air to the cylinder for moving the piston to open the valve and uncover the supply pipe leading to the turbine wheel.

11. In a track sander, the combination of a sand pipe, agitating means within the sand pipe, an air cylinder, a piston mounted within the air cylinder, a spring normally tending to move the piston toward one end of the air cylinder, a valve for the sand pipe having an operative connection with the piston, a turbine, an operative connection between the turbine and the agitating means, and a compressed air pipe leading to the cylinder, the compressed air acting upon the piston to move it against the spring and open the valve and being then led from the cylinder to the turbine.

12. In a track sander, the combination of a sand pipe, an agitating rod mounted with-

in the sand pipe, an air cylinder, a piston mounted within the air cylinder, a spring normally tending to move the piston toward one end of the air cylinder, a valve for the sand pipe having an operative connection with the piston, a turbine casing in communication with both the sand pipe and the air cylinder, the piston within the air cylinder normally shutting off communication between the turbine casing and the interior of the cylinder, a turbine wheel mounted within the turbine casing, a crank operated by the turbine wheel, a pitman connecting the crank to the agitating rod, and a compressed air pipe leading to the cylinder, the compressed air acting upon the piston to move it against the spring so as to open the valve and establish communication between the cylinder and the turbine casing.

13. In a track sander, the combination of a sand pipe, an agitating rod mounted within the sand pipe, a turbine, an operative connection between the turbine and the agitating rod for reciprocating the same back and forth within the pipe, and means for admitting compressed air to the turbine.

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

WILLIAM HENRY SMITH.

Witnesses:

N. S. BROOKS,
JOHN E. COBLE.