No. 897,985. PATENTED SEPT. 8, 1908.

H. F. MENTZEL & J. H. MOSER.

SANDING DEVICE.

APPLICATION FILED FEB. 17, 1908. 2 SHEETS—SHEET 1.

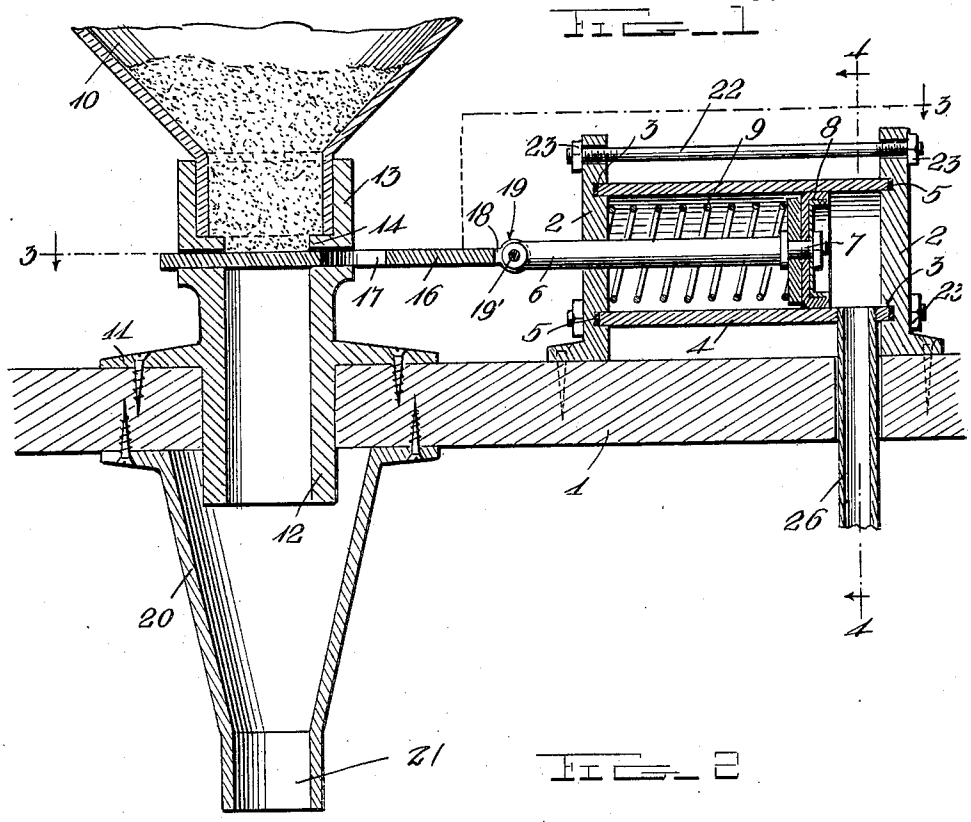

Fig. 1

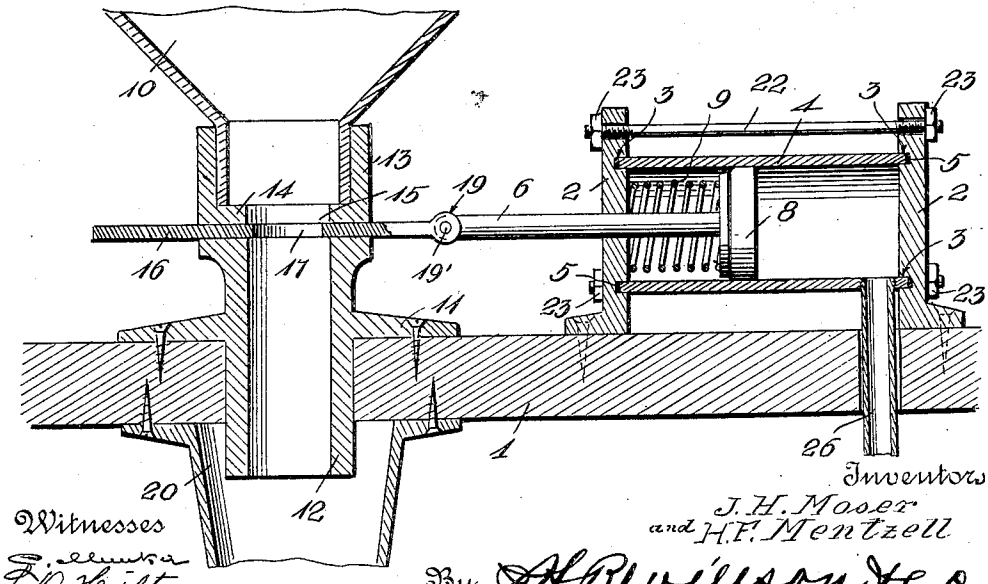

Fig. 2

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FIG. 3

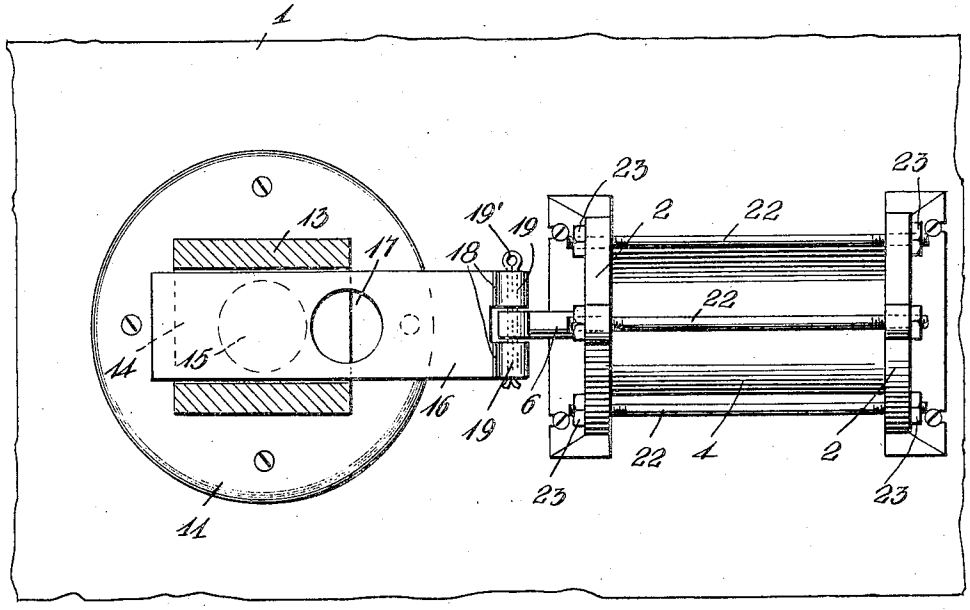
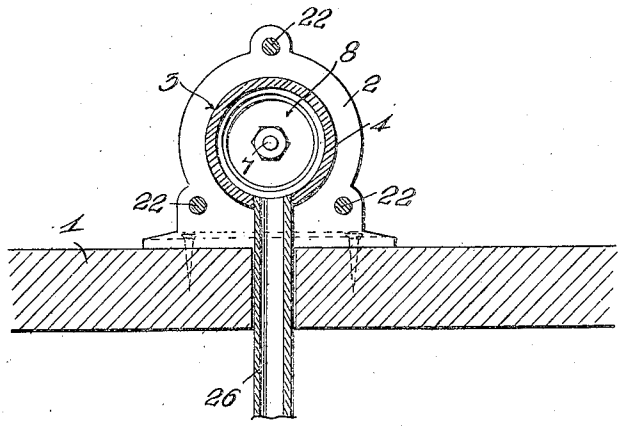


FIG. 4



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UNITED STATES PATENT OFFICE.

HARRY F. MENTZEL, OF TARENTUM, AND JAMES H. MOSER, OF PARNASSUS, PENNSYLVANIA.

SANDING DEVICE.

No. 897,985. Specification of Letters Patent. Patented Sept. 8, 1908.

Application filed February 17, 1908. Serial No. 416,411.

To all whom it may concern:

Be it known that we, HARRY F. MENTZEL, a citizen of the United States, residing at Tarentum, Allegheny county, Pennsylvania, and JAMES H. MOSER, a citizen of the United States, residing at Parnassus, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Sanding Devices; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to new and useful improvements in sanding devices for street railway cars.

The principal object of the invention is the production of a simple, inexpensive and efficiently operating device of this kind through the use of which the sand may be kept absolutely dry.

With these and other objects in view the invention consists in certain novel features of construction, combination and arrangement of parts, illustrated in the drawings and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a central longitudinal section of a device, constructed in accordance with the invention, Fig. 2 is a similar view, the discharge opening of the slide-valve being in registration with the discharge opening in the bottom of the sand hopper or receptacle, Fig. 3 is a horizontal section taken on the plan indicated by the dotted lines 3—3 of Fig. 1 and Fig. 4 is a cross section taken on the line 4—4 of Fig. 1.

In the embodiment illustrated the numeral 1 indicates the floor of the street railway car, upon which is fixedly mounted two upright longitudinally spaced supporting frames 2 the inner faces of which are formed with annular recesses or sockets 3 to receive the ends of a cylinder 4, packing rings 5 being interposed between the inner walls of said annular recesses or sockets and the ends of the cylinder to prevent leakage of air from the latter. A piston-rod or pitman 6 extends through the inner frame 2, the inner end of the pitman being formed with a reduced threaded portion or stem 7, to which is detachably fastened the piston 8. A helical or coiled spring 9 is interposed or arranged between the piston 8 and the inner frame 2, the tendency of which is to exert pressure upon the piston.

A sand hopper or receptacle support 10 is arranged in rear of the cylinder, said support being formed with an annular base or flange 11, which is adapted to be screwed to the floor of the car and with a depending or downwardly extending tubular extension 12 which extends through a corresponding opening formed in the car floor and projects a suitable distance below the same.

The upper end 13 of the hopper support, is of box like formation to receive the discharge end of the hopper, the bottom 14 of said box like portion being formed with a central discharge opening 15, which registers with the bore of the tubular extension. The slide valve 16 is arranged to slide longitudinally beneath the hopper supporting box and is formed with a discharge port or opening 17 to register with said discharge port or opening 15. The front end of the slide valve is bifurcated and the arms 18 of its bifurcated portion are formed with eyes 19. The rear end of the piston rod is connected with the slide valve by inserting it in the bifurcation of the valve, and inserting a connecting pin 19′ through the eyes of the arms 18 and through a corresponding aperture formed in the rear end of the piston rod.

The casing 20 is securely bolted under the floor of the car in position to incase the lower projecting end of the tubular extension 12, the lower end of the casing projecting below the tubular extension and being of downwardly decreasing tapered form, and the extreme lower end of the same terminating in a cylindrical extension 21 through which the sand is fed to the track.

The upright frames 2 are securely braced in position by connecting rods or members 22 which extend through said members and project beyond the same, the projecting portions of the connecting rods or members being threaded to receive fastening nuts 23 adapted to screw against the outer faces of the upright members.

In practice the discharge port or opening 17 of the slide valve is normally held out of registration with the discharge opening of the sand hopper or receptacle by the pressure exerted upon the piston 6 by the coil spring 9 arranged within the cylinder 3.

When it is desired to deliver sand to the track, air under pressure is admitted behind

the piston, the air being led into the cylinder by a conducting pipe 26, communicating with the front end of the same, in which case the piston rod or pitman 6 is caused to move rearwardly, against the tension of the coil spring until the discharge port or opening of the slide-valve is in registration with the discharge port or opening of the hopper or sand receptacle, permitting the supply of sand to the track. To cut off the supply of sand, the supply of air to the cylinder is cut off, in which case the pitman or piston rod is returned to its normal or initial position by the pressure exerted by the coil spring 9, shifting the discharge port or opening of the slide-valve out of registration with the discharge port or opening of the hopper.

From the foregoing description taken in connection with the drawings, it is thought that the construction and operation of the invention will be readily understood without requiring a more expanded explanation.

Having thus described our invention, what we claim and desire to secure by Letters-Patent is:—

1. A sanding device of the character specified, embracing a hopper supporting member formed with a discharge port or opening and with a depending tubular extension designed to extend through the floor of a street railway car, casing inclosing the projecting portion of the tubular extension and extending below the same, a slide valve formed with a discharge port or opening to register with that of the hopper supporting member, a cylinder fixedly mounted on the car floor, a piston arranged in the cylinder, a pitman between the piston and slide valve, a resilient element for normally exerting pressure upon the piston to maintain the discharge port or opening of the slide valve out of registration with the discharge opening of the hopper supporting member and means for leading a pressure fluid into the cylinder behind the piston.

2. A device of the character specified comprising a hopper support having a tubular cylindrical body formed at its upper end with an enlarged approximately rectangular hopper supporting portion having a discharge port to register with the bore of the hopper support body, a slide valve formed with a discharge opening to register with the bore of the hopper support body, mounted to slide through the hopper supporting portion of the hopper support, and yieldable means for normally maintaining the discharge opening of the slide valve out of registration with that of the hopper supporting portion of the hopper support.

3. A sanding device of the character specified embracing a hopper support having a tubular body adapted to extend through the floor of a railway car, a hopper supported thereby, a slide valve mounted to slide through the hopper support above the car floor and immediately beneath the hopper, said valve having a discharge port to register with the bore of the hopper body, a cylinder mounted upon the floor of the car near the hopper, a piston in the cylinder, a pressure spring arranged between one end of the cylinder and piston, and a conducting pipe for leading a pressure fluid into the cylinder in front of the piston.

4. In a sanding device for railway cars, a pair of cylinder supporting frames mounted upon the floor of the car, a cylinder mounted between said frames, a piston in the cylinder, a tubular hopper support mounted upon and extending through the floor of the car, a slide valve having a discharge opening to register with the bore of the hopper support, a connection between the slide valve and piston, a coil spring arranged in the cylinder between the piston and one of the cylinder supporting frames to normally hold the discharge opening of the slide valve out of register with the hopper support, and means for leading a pressure fluid into the cylinder to actuate the piston.

In testimony whereof we have hereunto set our hands in presence of subscribing witnesses.

HARRY F. MENTZEL.
JAMES H. MOSER.

Witnesses to the signature of H. F. Mentzel:
H. G. JOHNSTON,
SNODEN MASK.

Witnesses to the signature of J. H. Moser:
CHAS. M. BEATTY,
D. M. AMER.