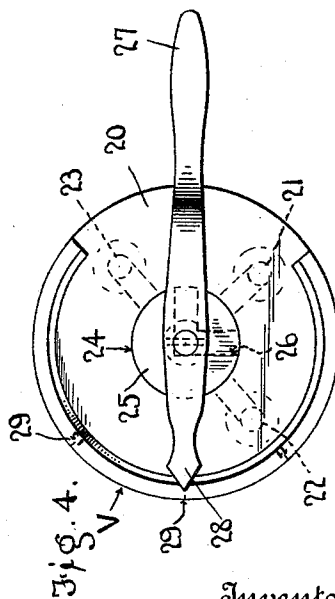
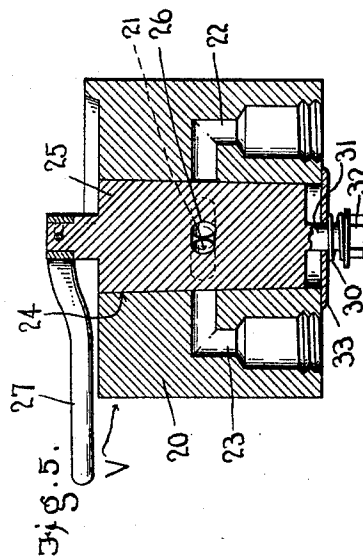
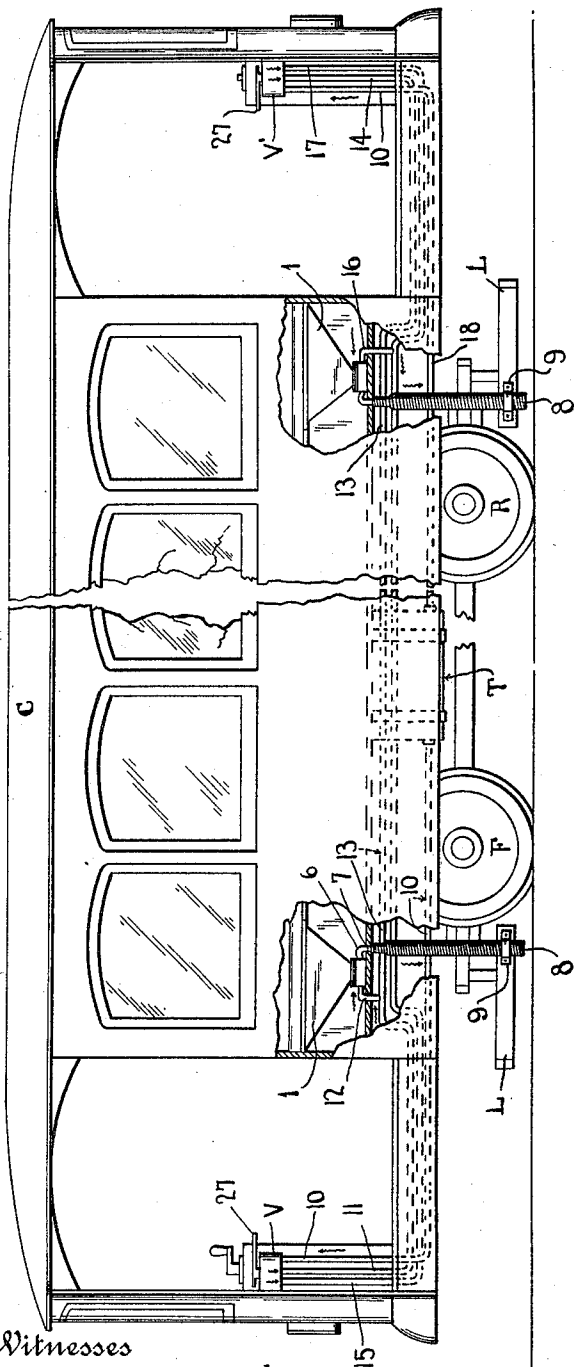


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 TRACK SANDING DEVICE.
 APPLICATION FILED MAR. 11, 1912.

1,030,523.

Patented June 25, 1912.

2 SHEETS-SHEET 1.



Witnesses
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by *H. C. Colamer, Jr.*
 Attorneys

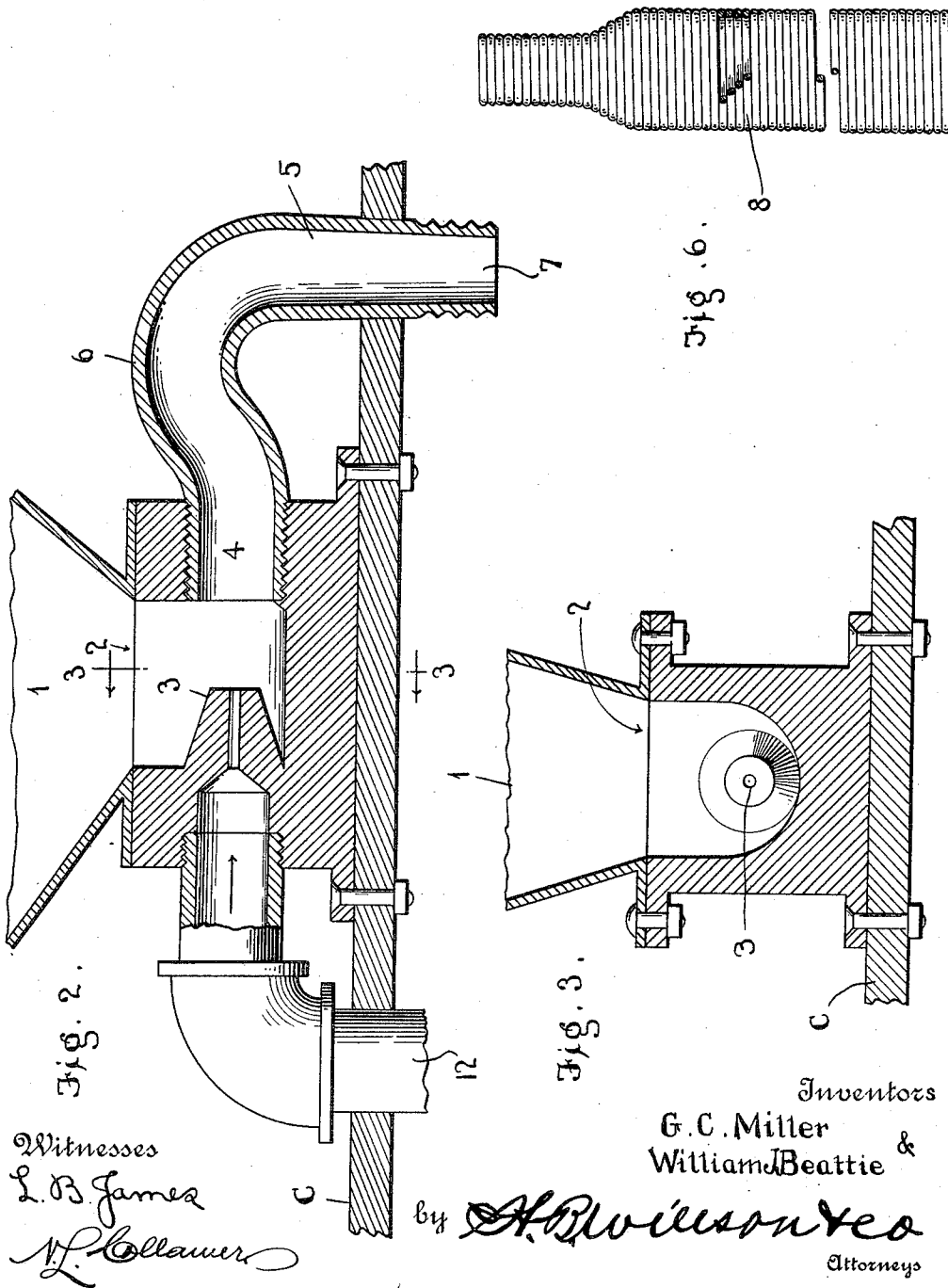
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UNITED STATES PATENT OFFICE.

GEORGE C. MILLER AND WILLIAM J. BEATTIE, OF FITCHBURG, MASSACHUSETTS.

TRACK-SANDING DEVICE.

1,030,523.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed March 11, 1912. Serial No. 683,017.

To all whom it may concern:

Be it known that we, GEORGE C. MILLER and WILLIAM J. BEATTIE, citizens of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Track-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 relates to sanding devices for cars, and more particularly to those in which the sand is delivered under the pressure of a fluid such as air or steam; and the object of the same is to improve the construction and arrangement of the fluid blast system so that the track may be sanded either in front of the forward truck or in rear of the rearmost and by an operator at either end of the car.

The following specification and claims set forth one embodiment of our invention, as typically illustrated in the accompanying drawings wherein—

Figure 1 is a side elevation of a motor car (whose motive power, however, need not be illustrated or described) the same equipped with an air-brake or other tank for compressed air, and showing our invention as applied thereto. Fig. 2 is an enlarged longitudinal section through the air jet and the inlet end of the nozzle, both of which are located at the lower end of the sand hopper; and Fig. 3 is a cross section on the line 3—3 of Fig. 2. Fig. 4 is a plan view, and Fig. 5 a vertical section through one of the controlling valves which are employed in our system. Fig. 6 is a detail of the nozzle, partly broken away.

In the drawings the letter C designates a car which for the purposes of this specification may be a trolley car equipped with an air-brake system whereof only the reservoir or tank T for compressed air need be considered in this connection, F and R designate respectively the foremost and rearmost wheels of the front and rear trucks, and L in the present instance designate life guards carried by the trucks adjacent said wheels and forming supports for our improved nozzles which are thereby held contiguous to the wheels so that sand may be delivered onto the rails whether the car is traveling over a straight or a curved track.

It will be observed from Fig. 1 that much of the detail of this invention is duplicated at the opposite ends of the car, and we need therefore describe the construction at one end only, with the exceptions which will be apparent hereinafter. It is also possible that the sanding devices will be duplicated at the other side of the car, not visible in Fig. 1, although in some instances it is considered sufficient to apply sand to only one rail.

The numeral 1 designates a hopper for sand, whose inclined bottom 2 is pierced through one wall with an opening through which extends a fine pipe constituting a jet 3 for any suitable fluid such as air or steam, and the hopper is pierced in its opposite wall with an opening into which is screwed the inner end 4 of a pipe 5 having a bent neck 6 so that its outer end 7 extends downward. The nozzle 8 is composed of a large coiled spring of preferably round wire and with its convolutions lying in rather close contact, its upper end being connected to the outlet end 7 of the pipe 5, and its lower end being clipped as at 9 to any suitable support adjacent the wheel, such as the life guard L. The presence of the bent neck 6 and more particularly of the convolutions of the coil itself breaks up any lumps or cakes of sand which may be blown into the nozzle and prevents an excessive blast from blowing the fine sand straight through the nozzle and scattering it to either side of the rail where its usefulness would be lost, and the flexibility of a coiled spring permits the nozzle to move from side to side at its lower end so that it may follow curves in the track, while a metal tube is of course preferable to a rubber hose if the fluid employed should happen to be steam or the exhaust gases from a gas engine which might have a deleterious effect upon rubber.

The principal feature of our invention, and which may be employed with advantage in connection with nozzles of the kind described above, consists in a system for supplying a fluid under pressure—such as compressed air—to the jet or jets at either end of the car and from a point at either end of the car and preferably within reach of the operator standing there. Leading from the tank T is a fluid supply pipe 10 which passes along beneath the car body and upward through the floor of the platform to a three-way valve V of any suitable type,

and leading from the valve casing are two pipes 11 and 15 which pass thence downward through the platform and along beneath the car body as shown. What might be called the "front" jet pipe 11 has a branch 12 leading upward to the jet 3 in the forward hopper, beyond which it is continued as at 13 to and beneath the rearward hopper, and thence upward as at 14 to the valve V' at the other end of the car; whereas the other pipe 15 which might be called the "remote jet pipe" leads past the branch 12 for the front hopper, itself has a branch 16 connected with the jet of the rear hopper, and beyond this branch it also leads upward to the valve at the rear end of the car. Such valve is supplied by a supply pipe 18 leading rearward from the tank T and which is a duplicate of the pipe 10 excepting as to its location.

When now the motorman on the front of the car wishes to sand the track forward of the front wheels F, he moves his valve V so as to throw the pipes 10 and 11 into communication, and air from the tank is blown out the jet 3 in the front hopper whereas it cannot of course escape through the then closed valve V' at the rear end of the car. Having used sufficient sand, he closes his valve and sanding ceases. If he should be on a hill and his car starts backward over slippery rails, or if he should wish to back his car at any time and place when the rails are slippery, he has but to set the valve V so as to throw the pipes 10 and 15 into communication, and air from the tank is blown out the jet in the rear hopper whereas it cannot of course escape through the closed valve V'. The latter might also be operated simultaneously or independently by the conductor or other operator standing on the rear platform, and this platform becomes the front end of the car when the operators change places on the return trip.

Details of the three-way valve are shown in Figs. 4 and 5, more for purposes of illustration than because it is necessary to use a valve of this construction. Herein the casing 20 has ports 21, 22, and 23 opening into its bore 24, the ports 22 and 23 being disposed opposite each other with the port 21 midway between and quartering to them. This port is connected with the supply pipe, as 10 or 18, and the other two ports with the other two pipes above described. The tapering valve plug 25 has a right-angular port 26 so disposed that the plug may be turned within the bore 24 to cause its port to connect the inlet port 21 with either of the others, or it may be placed at a neutral position as seen in Fig. 4 and no fluid will escape out of the supply pipe. Any suitable form of handle 27 will be attached to the upper end of the plug, and an index 28 moves over marks 29 to show the operator

the position of the plug and its port at any time. By preference the plug is held in its seat by an expansive spring 30 coiled on the stem 31 of the plug between a nut 32 thereon and a washer 33 which surrounds the stem and extends over the lower end of the bore 24 in the valve casing. This and other details may be amplified or modified to suit varying conditions, and we reserve the privilege of making such changes in all parts of our invention as do not necessarily involve a departure from the principle outlined in the claims below. As above intimated, our improved system, with or without the exact valve described, could be used with any form of nozzle, while yet maintaining the advantages possible to the system itself.

What is claimed as new is:

1. In a track sanding device, the combination with a car mounted on wheels, a nozzle in front of the forward wheel and another in rear of the rearmost wheel, sand hoppers for said nozzles, and a tank containing a fluid under pressure, of a three-way valve at each end of the car, a supply pipe leading from the tank to the valve, two other pipes leading from the valve to the two hoppers respectively, and means connected with each pipe whereby a blast therethrough will force sand out of one nozzle.

2. In a track sanding device, the combination with a car mounted on wheels, nozzles adjacent the foremost and rearmost wheels, means for supplying sand to the nozzles, and devices for respectively controlling the supply of sand to each nozzle, of a tank containing a fluid under pressure, a three-way valve at each end of the car, supply pipes leading from the tank to the valves, and two other pipes leading from each valve, one of them to the controlling device for one nozzle and thence onward to the other valve, and the other pipe past said controlling device and nozzle and to the controlling device for the other nozzle and thence onward to the other valve.

3. In a track sanding device, the combination with a car mounted on wheels, nozzles adjacent the foremost and rearmost wheels, independent hoppers for the nozzles, a tank on the car containing a fluid under pressure, and a device in each hopper for controlling the supply of sand to its nozzle, of a three-way valve at each end of the car, supply pipes leading from the tank to the valves, two other pipes connecting the valves and leading past the hoppers, and a branch from each of these pipes leading to the controlling device in one hopper only.

4. In a track sanding device, the combination with a car mounted on wheels, hoppers carried by the car above the foremost and rearmost wheels and having inclined bottoms pierced with holes through their

opposite walls, a fluid jet nozzle in one hole
and a pipe in the opposite hole of each
hopper, a coil spring nozzle leading from
the outer end of the pipe to the adjacent
5 wheel, and a tank carried by the car and
containing a fluid under pressure, of a three-
way valve at each end of the car whose cas-
ing has three ports communicating with its
bore and whose plug has an angular port
10 adapted to establish communication between
the intermediate port in the casing and
either of the others, a supply pipe leading
from said tank to the intermediate port of
each casing, two other pipes respectively

connecting the other ports in the casing with 15
the corresponding ports in the casing of the
other valve, and a branch from each of these
pipes leading to the jet nozzle in one hopper
only.

In testimony whereof we have hereunto 20
set our hands in presence of two subscribing
witnesses.

GEORGE C. MILLER.
WILLIAM J. BEATTIE.

Witnesses:

JEREMIAH H. KELLIHER,
JOHN F. McGRATH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."