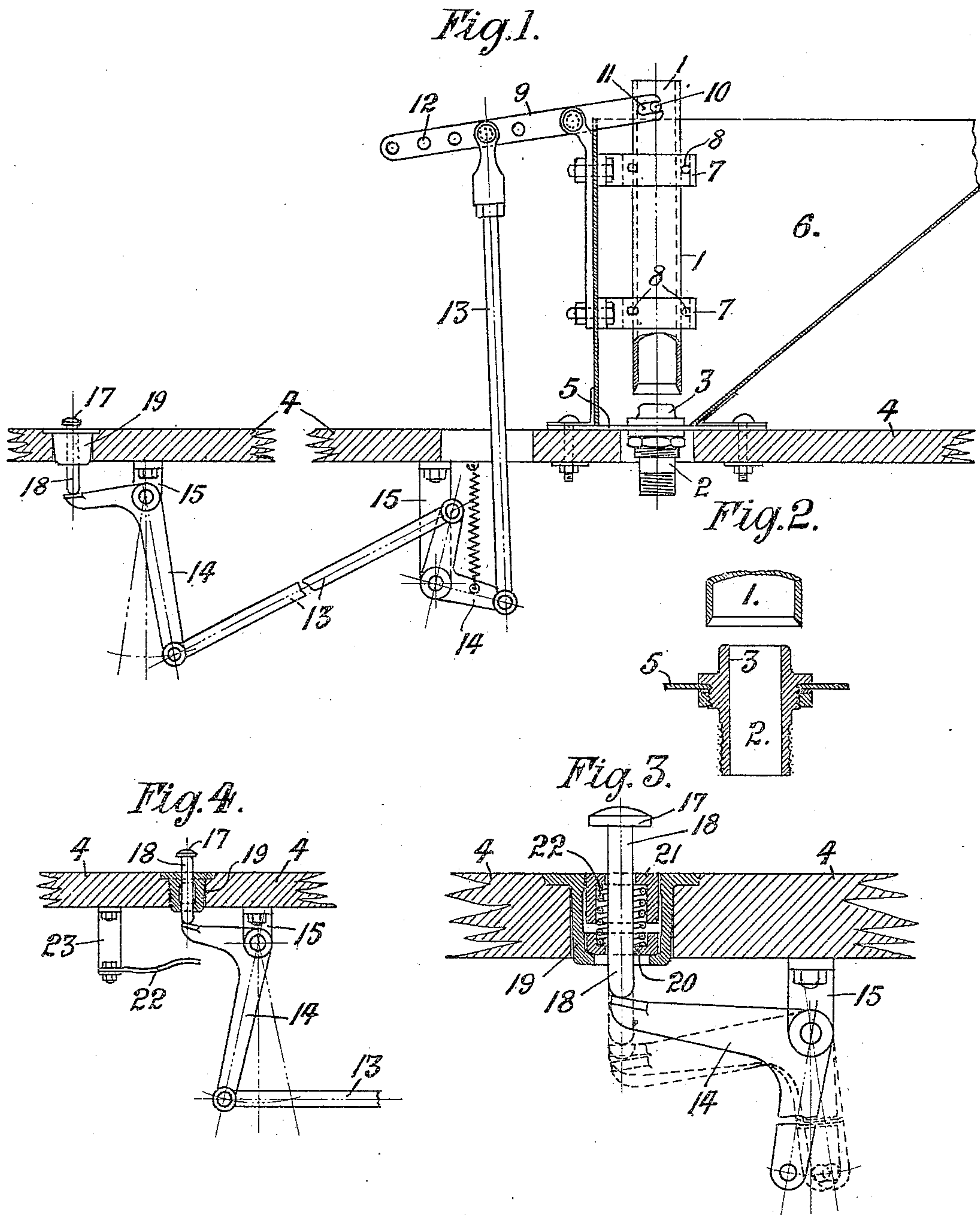


J. TAYLOR.  
VEHICLE AND LOCOMOTIVE SANDING APPARATUS.  
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Attest.  
Bent. M. Stahl.  
Edward A. Sarton

Inventor.  
John Taylor.  
by *Ami Wallace White* Atty.



# UNITED STATES PATENT OFFICE.

JOHN TAYLOR, OF LIVERPOOL, ENGLAND.

VEHICLE AND LOCOMOTIVE SANDING APPARATUS.

956,651.

Specification of Letters Patent.

Patented May 3, 1910.

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*To all whom it may concern:*

Be it known that I, JOHN TAYLOR, a subject of the King of England, residing at 7 Strand street, Liverpool, in the county of Lancaster, England, have invented new and useful Improvements in and Connected with Vehicle and Locomotive Sanding Apparatus, of which the following is a specification.

This invention relates to apparatus used on locomotives and other vehicles for supplying sand to the rails, wherein the flow of the sand to the track is controlled by a valve.

The primary object of this invention is to enable the said pipe or conduit to be easily and quickly cleaned or cleared when the same becomes choked or clogged with sand, which in practice is found to frequently occur, when the track is wet or muddy, and when rainy weather prevails.

To attain the object of this invention, a tube having a through way passage is mounted in line with the conveyer pipe or conduit, so as to enable a clearing rod or bar, inserted therein to be moved or operated through the orifice of the valve controlling the flow of the sand, into the conveyer pipe or conduit, for the purpose of forcibly clearing any sand which has become clogged therein, and which is choking the conduit, and preventing the sand passing or flowing therethrough. The tube forms a part of the controlling valve, and is adapted to be operated through the medium of levers, and a foot or other actuated device; and in some cases is arranged in such a manner as to cause a normal quantity of sand to be supplied to the track, when a medium pressure is applied to the actuated device; and to cause an abnormal or excessive quantity of sand to be supplied to the track when excessive pressure is applied to the device, such as would be requisite when the sanding device is employed in conjunction with the braking of the wheels in the case of an emergency.

A sanding apparatus involving the improvements under this invention is shown in the accompanying drawings, in which—  
Figure 1 is a part sectional elevation illustrating a controlling valve and means for operating it. Figs. 2 and 3 are sectional illustrations to a larger scale of details shown in Fig. 1. Fig. 4 is a part sectional elevation of a modification of part of the operating means.

In the drawings, 1 designates the lift valve which is arranged above the conveyer conduit 2, and adapted to be moved toward and away from the upper end or nozzle 3 of the conduit, as hereinafter explained.

The conveyer conduit 1 is connected to the framework 4 of the vehicle through the medium of the plate 5, to which it is attached by a nut as shown, or equivalent means, such as bolts or the like. The lower part of the conduit projects through an aperture in the framework, and is provided with ribs, screw threads, or the like for the attachment of a pipe connection as indicated; while the upper end or nozzle 3 is of smaller cross sectional area than the lift valve 1, and is provided with a rounded upper edge so as to offer no resistance to the passage of the sand thereover. The nozzle projects upwardly into the sand containing hopper 6, of which the plate 5 forms the bottom; and to one of the sides of the hopper, which is preferably vertically disposed, are attached guides 7, which embrace the tubular lift valve 1, and in which it works; the guides being provided on the interior with three or more guide pipes 8.

The lift valve is actuated through the medium of a forked lever 9, carried in a suitable bearing, attached to the hopper, and having bifurcated ends adapted to engage with pins 10 provided on each side of the valve, the pins fitting within slots 11 formed in each arm of the lever. The lever is also formed with a number of apertures 12 at the opposite end to that of the bifurcated end, for enabling the connections with the operating mechanism to be adjusted as desired, to suit the quality of the sanding material, and to vary or regulate the quantity of sand liberated at each actuation of the operating mechanism.

The lower end of the valve 1 is chamfered or beveled off on its inner surface, so that when the valve is being closed, the beveled end passes easily and quickly through the sand toward the nozzle; and it may be held in suspension with its end overlapping the nozzle 3, or come to rest on the flange formed on the nozzle.

The preferred form of the lift valve and nozzle is circular in cross section, the one being disposed concentrically relatively to the other. The valve is open throughout its length, and being arranged in line with the conveyer conduit, it affords a means for



cleaning the valve conduit 2—and the nozzle—and clearing them of any obstruction, even if the vehicle is at work by introducing a rod, bar, or the like down it into the  
 5 conduit. This construction of valve also affords a means for ventilating the passage through which the sand passes, and the valve and storage receptacle, causing both to be maintained in a comparatively dry state,  
 10 thus preventing the sand particles clogging or adhering together, or to the valve or conduit, which it is very liable to do at times when sanding apparatus is more or less essential.

15 The connections between the lever 9 and the foot actuated device comprise connecting rods 13 and bell crank levers 14 which are shown as being suitably supported to the framework 5 by brackets 15.

20 The foot actuated device—shown in detail in Fig. 3—comprises a head 17 and pin 18, working in a guide box 19 attached to the framework 5. The guide box is fitted with a spring controlled arrangement, comprising a fixed bottom plate 20, a movable  
 25 plate 21 and a spring 22 mounted between them, and this arrangement is provided for the purpose of enabling an abnormal quantity of sand to be supplied, in the case of an  
 30 emergency. To obtain the abnormal supply, the foot actuated device 17 is so depressed as to cause the movable plate 21 to be depressed also, and enable the valve to be opened to its fullest extent, as shown by the  
 35 extreme dotted position seen in Fig. 3, indicating the position of the bell crank lever. By means of this spring controlled device, the operator of the sanding apparatus can tell by the feel of the foot upon it, when the  
 40 valve is opened to the normal extent and a normal quantity of sand is being supplied to the permanent way, or when it is opened the extra and extreme amount, and an abnormal quantity of sand is being supplied.

45 The closed position of the bell crank lever is shown in full lines, while the intermediate dotted position indicates its position when a normal quantity is being supplied, and as would occur under ordinary circumstances.

50 A modification of the foot actuated device is shown in Fig. 4 wherein the pin portion 18 is adapted to move in the guide box 19, the upper and lower ends of which are so adapted as to be a working fit to the said  
 55 pin. In this modification the spring controlling mechanism is separate from the box 19, the spring 22, being flat instead of coiled, and carried on a bracket arm 23 attached to the framework 5. The operation  
 60 of this arrangement is the same as that previously described, the foot actuated device being depressed until the crank lever is moved just into contact with the spring for normal discharges of sand, while for abnor-

mal discharges of sand the spring is depressed by a further depressing of the foot actuated device. 65

Although the lift valve which provides a throughway passage to the conveyer conduit, has been described and shown as being 70 of greater cross sectional area than the nozzle, the cross sectional area of both these parts may be approximately equal, and the lower end of the valve adapted to abut against the upper end of the nozzle when 75 in the closed position; or it may be smaller than the nozzle and adapted to enter into it; and further, the forms of the parts described may be varied in different ways to suit special cases without departing from 80 the invention.

It is to be pointed out that means for enabling a normal and abnormal quantity of sand to be supplied to the track are not broadly new, as it has been proposed heretofore to provide a punch bolt adapted to be 85 turned by the operator's foot for enabling an abnormal quantity of sand to be supplied to the track, and to be pressed down for a normal supply. 90

What is claimed is:—

1. In a vehicle or locomotive sanding apparatus, a throughway tube having its interior unobstructed adapted to serve as a means for controlling the passage of sand 95 to the conveyer or discharge conduit; substantially as set forth.

2. In vehicle or locomotive sanding apparatus, a tubular valve adapted to be raised and lowered, and having an unobstructed 100 passage arranged in line with the discharge conduit, and adapted to operate in conjunction with the nozzle of the discharge conduit for controlling the outlet of sand; substantially as and for the purposes set forth. 105

3. In a vehicle or locomotive sanding apparatus, a tube having an unobstructed interior extending between a point above the discharge conduit of the sand container, and near the bottom of same, and a point above 110 the upper sand level of the container.

4. In vehicle or locomotive sanding apparatus, a lift valve adapted to control the supply of sand; a foot operated part; connections connecting the said foot operated 115 part and the valve; and a spring normally inactive on said foot operated part, and adapted to be operated thereby when moved an abnormal amount; substantially as set forth. 120

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN TAYLOR.

Witnesses:

SOMERVILLE GOODALL,  
 WILLIAM FRANCIS PARRY.