

(No Model.)

2 Sheets—Sheet 1.

J. YEAGER.  
SANDING DEVICE FOR RAILWAYS.

No. 527,825.

Patented Oct. 23, 1894.

FIG. 1.

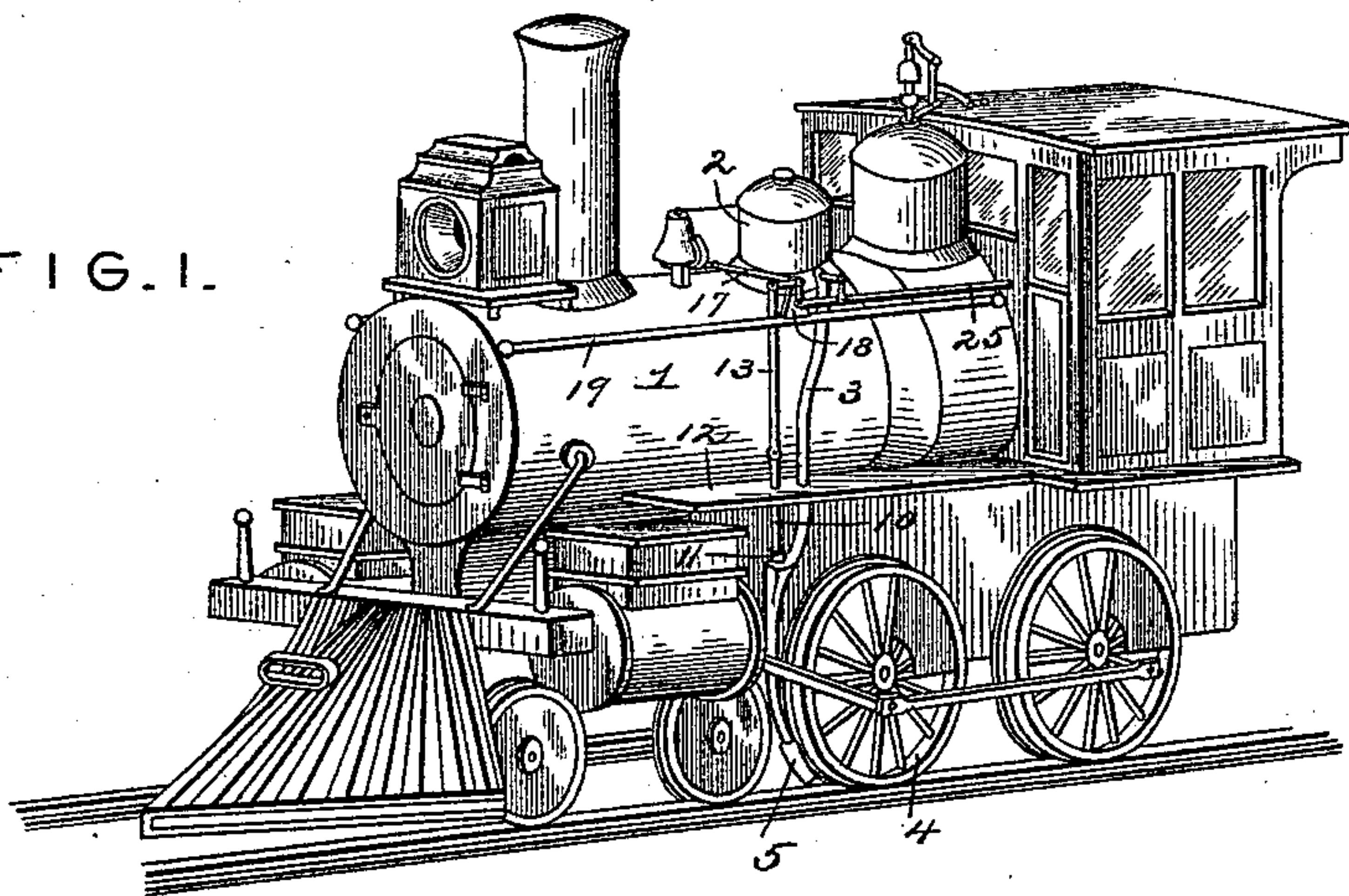


FIG. 2.

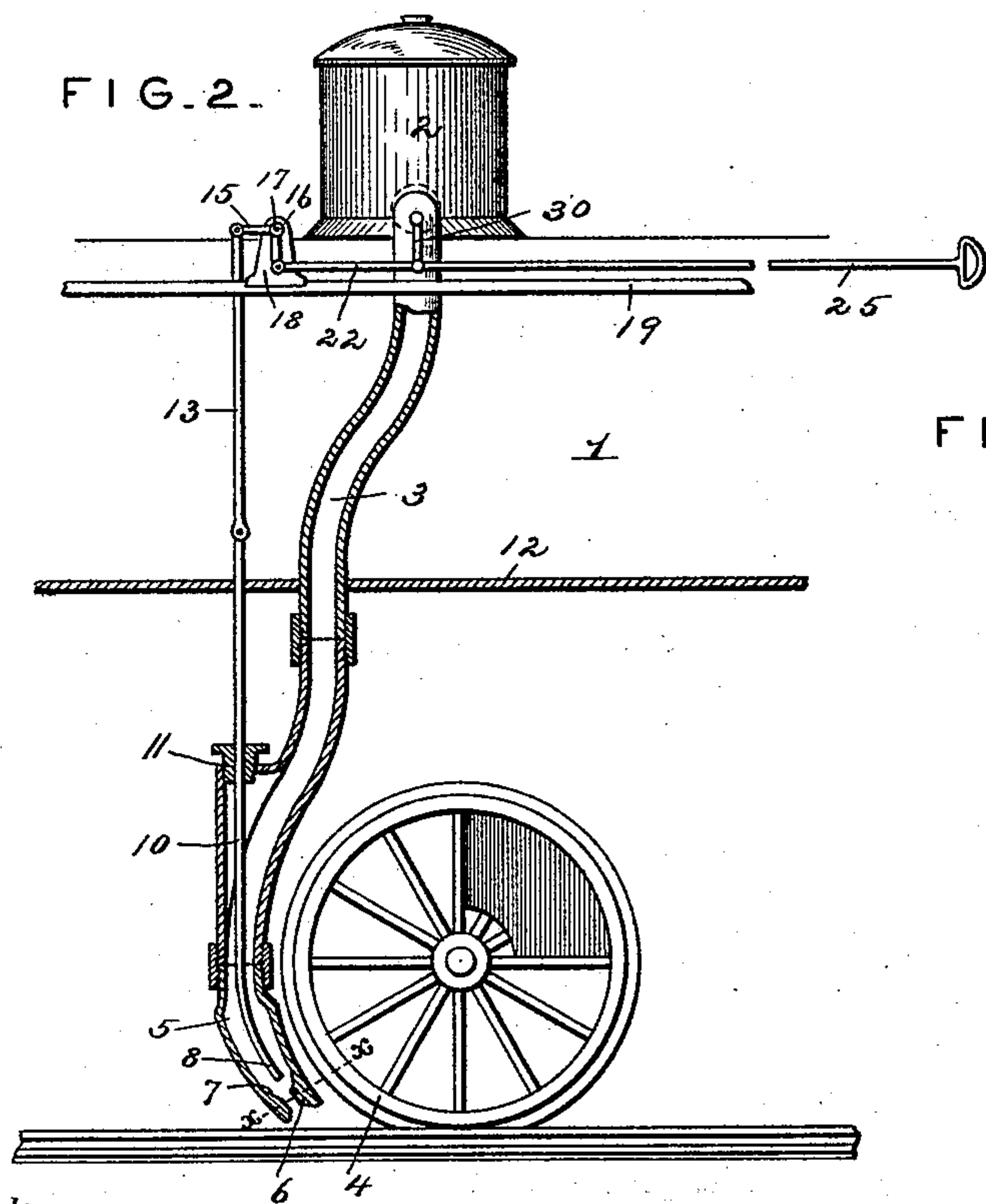
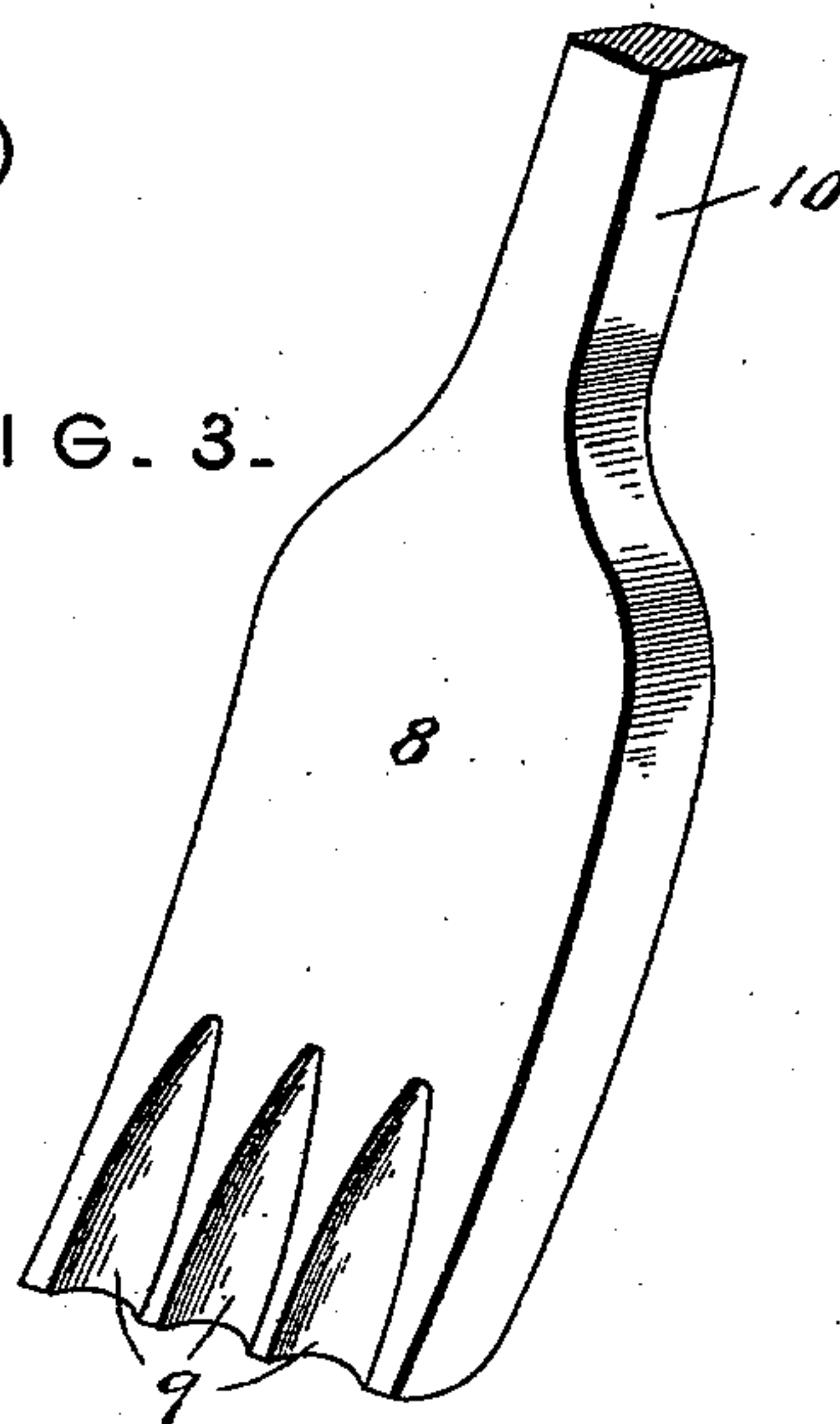


FIG. 3.



Inventor

John Yeager.

Witnesses

Harry L. Amer.

J. B. Brown.

By his Attorneys.

C. A. Snow & Co.

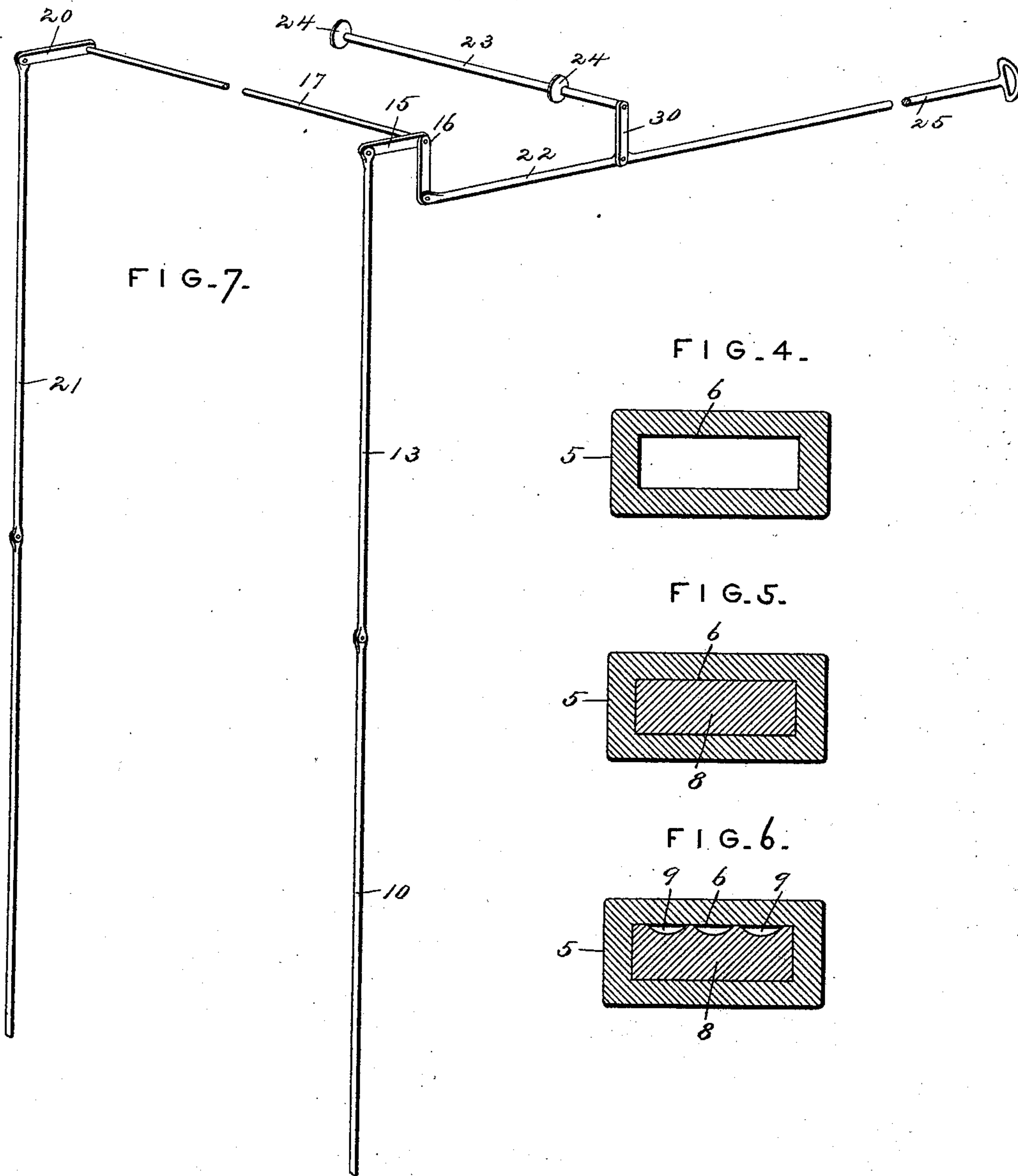
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Inventor

John Yeager.

Witnesses

Harry L. Amer.

J. D. Dumas

By His Attorneys,

C. A. Snow & Co.



# UNITED STATES PATENT OFFICE.

JOHN YEAGER, OF CONEMAUGH, PENNSYLVANIA.

## SANDING DEVICE FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 527,825, dated October 23, 1894.

Application filed April 28, 1894. Serial No. 509,382. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN YEAGER, a citizen of the United States, residing at Conemaugh, in the county of Cambria and State of Pennsylvania, have invented a new and useful Sanding Device for Railways, of which the following is a specification.

My invention relates to an improvement in that class of sanding devices which are provided with a plug or foot adapted to operate in the nozzle of the sand pipe and to regulate the flow of sand therefrom; and it consists of certain improvements in the foot and in the attendant parts, whereby the delivery of the sand is made more regular and capable of more complete control.

In the accompanying drawings: Figure 1 represents a perspective view of a locomotive engine to which my improvements are applied; Fig. 2, a section taken longitudinally through the sanding pipe and extending to the connections thereof; Fig. 3, an enlarged perspective of the plug or foot for regulating the flow of sand; Fig. 4, a cross-section on the line  $x-x$  of Fig. 2; Fig. 5, a sectional view showing the nozzle when closed by the foot; Fig. 6, a similar view showing the nozzle partially open; Fig. 7, an enlarged perspective view of the operating rod and its attachments.

The reference numeral 1 indicates the boiler of the locomotive, which boiler may, of course, be of any preferred construction, and which is provided with the sand-box 2, mounted on the upper side thereof. 3 indicates the sand-conveying conduit or pipe which communicates with the bottom of the sand-box and proceeds down the side of the boiler to a point directly above the track, where it is arranged to empty its contents, as is well known. Pipe 3 is formed with a series of gradual curves whereby it is located in the correct position, and this is with its nozzle directly in front of the driving-wheel 4.

The nozzle consists of an enlarged portion 5, formed concentric with the main portion of the pipe, and having its lower end flattened laterally to make an elongated opening, and this opening is decreased in size by the thickened portion 6, formed on the interior of the nozzle and having the upwardly and outwardly inclined faces 7, whereby the foot is guided on its passage to and into the opening

of the nozzle. It will be noticed that the true opening of the nozzle is that of the thickened portion 6, and this opening is shaped as a parallelogram, as will be seen by reference to Fig. 4 of the drawings. Arranged in the enlarged portion 5 of the nozzle, and capable of reciprocating vertically therein, is the foot 8, which consists of a piece of cast metal curved slightly to conform to the shape of the enlarged portion 5, and of a size in cross-section equal to the size of the opening in the part 6 of the nozzle, so that the foot will fit snugly in the opening and normally close the same. Formed in the lower end of the foot 8, and at the rear side thereof, are the vertical slots 9, which are substantially semicircular in shape and taper from their upper to their lower ends.

By means of the foot 8 the opening in the nozzle may be closed, partially closed, or completely opened. Thus, by moving the foot so that the plane portion thereof will fill the nozzle-opening, the nozzle will be closed, as shown in Fig. 5. By raising the foot so that grooves or slots 9 will lie within the opening, a passage will be formed for the escape of the sand, though it be only a partial opening, as shown in Fig. 6. Finally, by raising the foot so that it will entirely disengage the opening, so that its upper end will lie above the opening, the passage will be complete, as shown in Fig. 4.

Formed integral with, or rigidly secured to, the upper end of the foot 8 is the rod 10, which projects up through the pipe 3 for about one-third its length, where it passes out by way of the stuffing-box 11, and from the box 11 it proceeds up past and through the foot-board 12 of the engine. At a point just above the foot-board 12 the rod 10 is connected by a knuckle-joint to the shaft 13. The shaft 13 continues in axial alignment with the rod 10, and has its upper end pivotally connected to the arm 15 of the bell-crank 16.

The bell-crank 16 is fixed to the transverse shaft 17, which, in turn, is journaled in the boxes 18 of the hand-rails 19 of the engine, whereby the bell-crank is fulcrumed so as to be capable of its characteristic movements. Fixed to the remaining, or opposite, end of the shaft 17 is the crank 20, which has the



rod 21 pivotally connected thereto. The rod 21 extends down the side of the engine and corresponds in function and construction to the rod 10, it being understood that the sand-  
 5 pipe 3 is duplicated on each side of the engine, as is usual in all sanding devices. The remaining arm of the crank 16 is connected to the approximately horizontal rod or pit-  
 10 man 22, which proceeds rearwardly to the rock-shaft 23. Shaft 23 extends into the lower end of the box 2 and toward the center thereof, and is rockably mounted in position.

Fixed to the shaft 23, just over the inner end of pipe 3, is the valve-plate 24. By this  
 15 means, as the shaft 23 rocks it will swing the plate 24 before and away from the pipe 3, and open and close the same. Connected to the rod 23, by means of a crank 30, is the usual  
 20 operating rod 25, which extends rearwardly to the engineer's cab, and by which the apparatus is operated.

By this construction the sanding pipes on either side of the engine may be operated by reciprocating the rod 25, it being understood  
 25 that the foot and attendant rods on the opposite side of the engine are operated through the medium of the shaft 17.

In using my invention, the box 2 is filled with sand or ashes, as may be desired, and,  
 30 supposing it was desired to apply a full charge of sand, the rod 25 is operated to move the feet 8 down through the nozzles of pipes 3, so as to clear them of any obstruction. This  
 35 will open valves 24 and allow the sand to fill the pipes 3, it being stopped from passing out by means of the feet 8. The usual rod 25 is  
 40 next drawn back, which will close valves 24 and raise feet 8, thereby allowing the sand from pipes 3 to fall onto the track. It will  
 45 be seen that by moving the feet 8 in different positions different amounts of sand can be delivered. Thus to move the feet so as to  
 50 bring the grooves or slots 9 into horizontal alignment with the openings of the nozzles of the pipes, the sand will be delivered in small streams and a small amount deposited. It will be seen, however, that even though the amount deposited be small, it will be equally distributed over the tread of the track, and  
 55 not applied in a single line as ordinarily.

The valve-plate 24 and its attendant part, the shaft 23, are not essential to my invention, and may therefore be dispensed with at will; they being the common sand-valve

mechanism as used on every locomotive engine. 55

It will be understood that while I have described the invention in the singular, it will be duplicated on each side of the engine; that is, there will be a sand-pipe with its regu-  
 60 lating foot on each side of the engine, both of which feet are operated by the shaft 17 and rod 22. By means of the rod 10 and shaft 13 the length of the strain on the stuffing-box is relieved, and the two rods allowed  
 65 free movement. In addition to this the stuffing-box operates to keep the water out of the pipe 3, and thereby prevents clogging on the inside.

It will be understood that the feet 8 are  
 70 normally located in the enlarged parts 5 of the pipes 3, and that, when operated, it will be pushed down to clear the nozzle of any clog that it may have. This will be attended  
 75 by an opening of valve-plates 24 and a filling of the pipes 3 with sand, so that it may be delivered in the desired amount by raising the feet, as explained above.

Having described my invention, what I claim is— 80

1. A sanding device for railways, and consisting of a pipe communicating with the sand-box and arranged to deliver its contents onto the track, said pipe having a trans-  
 85 versely-elongated emitting nozzle, and a plug located in the nozzle and having formed in one side a series of parallel and vertical slots adapted to form passages out of the pipe, said  
 90 plug having a plane portion adapted to completely fill the nozzle, whereby the nozzle may be opened to various degrees, substantially as described.

2. A sanding device for locomotives, consisting of a pipe communicating with the sand box and having its lower end formed  
 95 with a contracted opening, and a plug fitting in said opening and capable of completely filling the same, and of moving in and out thereof, a portion of said plug being formed  
 100 with a depression, capable of registering with the said opening, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN YEAGER.

Witnesses:

SAMUEL E. YEAGER,  
 WILLIAM YEAGER.