

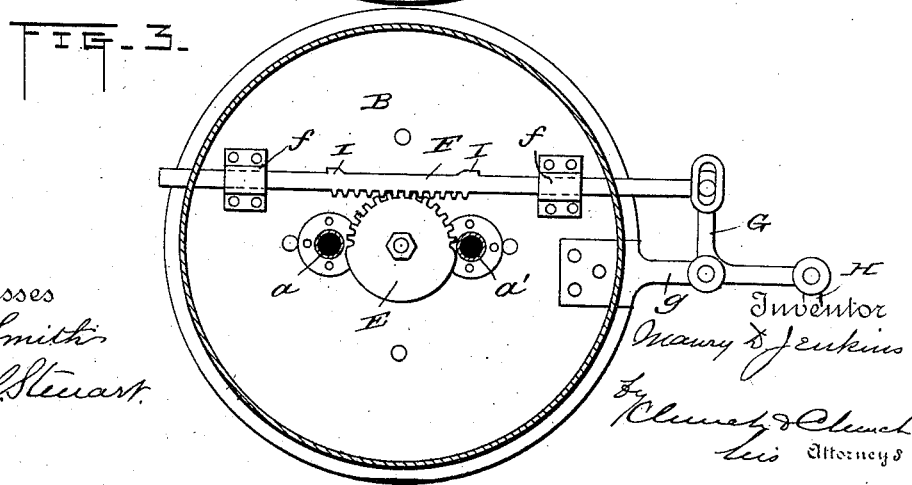
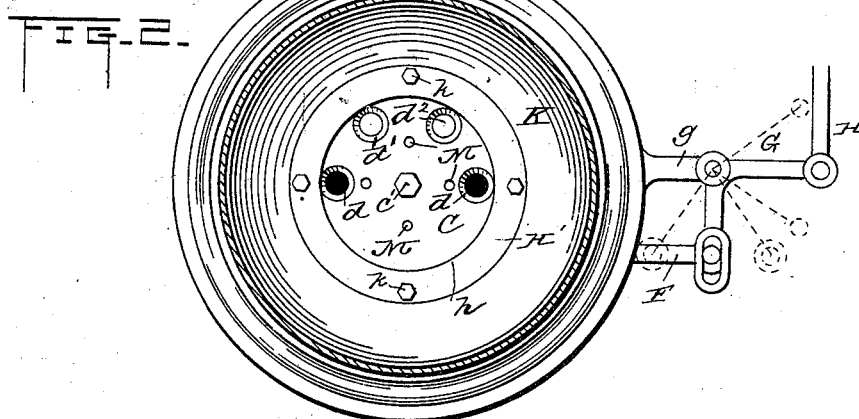
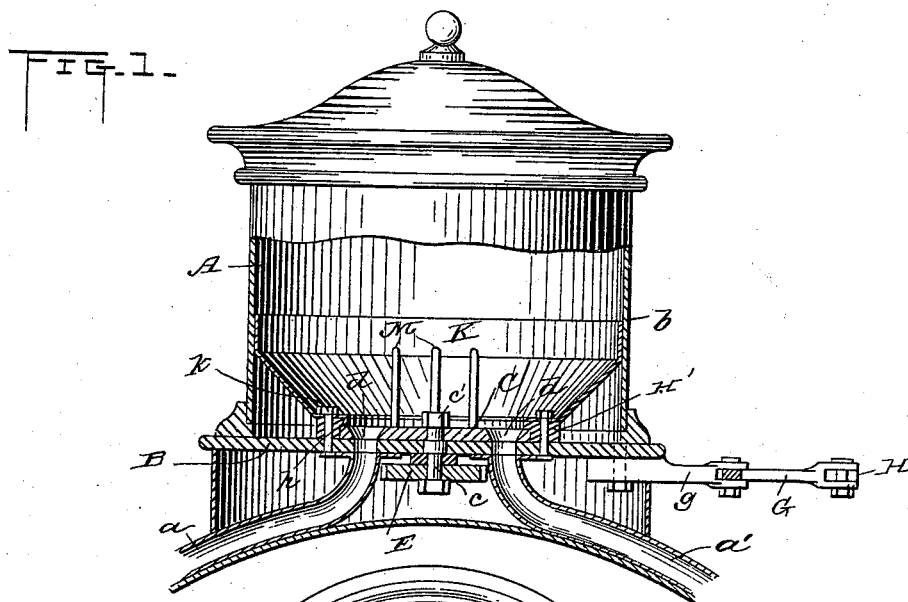
(No Model.)

M. D. JENKINS.

SANDING APPARATUS FOR LOCOMOTIVES.

No. 418,568.

Patented Dec. 31, 1889.



UNITED STATES PATENT OFFICE.

MAURY D. JENKINS, OF HARRISBURG, PENNSYLVANIA.

SANDING APPARATUS FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 418,568, dated December 31, 1889.

Application filed January 28, 1889. Serial No. 297,827. (No model.)

To all whom it may concern:

Be it known that I, MAURY D. JENKINS, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain
5 new and useful Improvements in Sanding Apparatus for Locomotives; and I do hereby declare the following to be a clear, full, and exact description of the same, reference being
10 had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in the apparatus for applying sand in front of the drive-wheels of a locomotive to increase
15 the friction of the wheels on the rails, and consequently the traction of the engine.

Heretofore the sanding apparatus for locomotives has been so constructed as to necessitate the sanding of both rails simultaneously,
20 which, while it works well on a straight track, is attended with difficulties in rounding curves, owing to the fact that one rail is longer than the other, and as the pairs of wheels are rigidly connected together one
25 wheel has to slip a distance corresponding to the difference in the length of the rails. Thus when sand is applied to both rails under such circumstances, while the traction of the driver
30 tending to overcome train-resistance is increased, the resistance to the slip of the opposite wheel to compensate for the inequality in the length of the rail is also greatly increased, the result being that the total tractive force of the locomotive is not increased
35 to as great an extent as on a straight track, and consequently the maximum load cannot be drawn around curves without an increased fuel consumption.

My invention has for its object to provide
40 an apparatus for overcoming in a measure the difficulties pointed out; and to this end it consists in an improved apparatus for controlling the flow of the sand to one or both rails; enabling the engineer to apply sand
45 only in front of the drivers tending to overcome train-resistance, leaving the others free to slip to compensate for the inequality in the length of the rails; and the invention further consists in certain novel details of construc-

tion and combinations and arrangements of 50 parts of the apparatus to be hereinafter described and pointed out, particularly in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a vertical sectional view through a sander 55 constructed in accordance with my invention. Fig. 2 is a horizontal section through the same above the valve. Fig. 3 is a section below the valve, looking upward.

Similar letters of reference in the figures 60 represent the same parts.

The sand box or dome A is, as usual, centrally mounted over the boiler of the locomotive in order that sand passages or "leads" *a a'* may pass down on each side of the boiler 65 to the rails immediately in front of the drive-wheels.

In the preferred construction of dome and valve illustrated the base or bottom B is secured in position and has apertures therein 70 registering with the sand-leads *a a'*, and on this base the circular wall *b* of the dome and the mechanism for regulating the supply of sand are mounted. The valve C is of the circular-disk pattern, held rigidly on a central 75 bolt *c* by means of nuts *c'*, and has four apertures or ports *d d' d'' d'''* therein, as shown in Fig. 2, two of which *d* are oppositely arranged and adapted to simultaneously register with the sand-leads *a a'*, respectively, while the 80 others are disposed to one side and are adapted to register with the leads on opposite sides at different times. Thus when the port *d'* is registered with the left-hand lead the opposite lead is shut off entirely, and vice versa. The 85 central bolt *c* extends way through the bottom of the dome and has a gear wheel or pinion E mounted on its downward extension, as shown in Figs. 1 and 3, shoulders or projection *e* preferably being arranged on the 90 central portion of the bolt, against which the disk valve and pinion abut to prevent binding against the bottom, as will be readily understood.

For the purpose of operating the valve a 95 rack-bar F engages the pinion E, being held in engagement therewith by the slides or stops *f*, secured to the bottom of the dome through

which its works, the bar itself being moved by the bell-crank lever G, pivoting on the stud or projection *g* and operated by the rod H, extending back into the cab of the locomotive. Stops I on the rack-bar engage the slides or stops F on the bottom of the dome, serving as indicators and to limit the movement of the bar, they being preferably so arranged relative to the ports *d'* *d*² as that when the bar is at the extreme of movement in one direction port *d'* will register with the left-hand sand-lead and when in the opposite direction port *d*² will register with the right-hand sand-lead, as before explained; but, as is obvious, other forms of indicators may be employed to indicate the position of the valves. The intermediate position of the rack-bar moves the ports *d* over the leads, as will be readily understood by referring to Fig. 2, wherein the different positions are shown in dotted lines.

In order to prevent the sand from working under the valve and to facilitate its passage through the same, as well as to hold the valve more securely in position, a retaining ring or guard H', with an overhanging lip *h*, is secured around the edge of the valve, as shown. The sides of the dome are preferably inclined inward to bring the sand to the valve at the center of the dome by means of a conical piece of metal K, fitting closely to the sides of the dome, or secured thereto in any preferred manner, and held in position by the bolts *k*, which also pass through and hold the ring or guard H' in position. As there are no obstructions immediately over the valve, I locate sand breakers or pins M M thereon, which serve to pulverize the sand should the same become caked or not flow freely to the valves, the breakers of course turning with or being operated by the valves.

By means of an apparatus constructed as herein described it will be seen that the engineer can with great facility regulate the flow of the sand to one or both sides of the locomotive, as heretofore described, and while the form and construction of the apparatus are exceedingly simple and preferable in every way I do not wish to be understood as limiting myself thereto, as it is obvious that the same may be modified and changed in many respects with ordinary mechanical skill without departing from the spirit of my invention—as, for instance, independent valves for controlling the flow of sand may be employed to accomplish the same result, or any of the existing sanding apparatus can be changed to meet the requirements.

Having thus described my invention, what I claim as new is—

1. The combination, with the sand box or dome and the leads extending to the rails on both sides of the locomotive, of single-valve mechanism controlling the flow of sand through each lead independent of the other, substantially as described.

2. The combination, with the sand box or dome and the leads extending to the rails on both sides of the locomotive, of a valve having ports for each lead, one of which registers with one lead independently of the registration of the other with the opposite lead, substantially as described.

3. In a sander for locomotives, the combination, with the sand box or dome and leads extending down on both sides, of the valve having the oppositely-arranged ports therein simultaneously registering with the sand-leads and the ports independently registering with said leads, substantially as described.

4. In a sander for locomotives, the combination, with the sand box or dome and the leads extending down on both sides, of the valve having the ports therein independently registering with the leads, the pinion connected to the valve, and the rack-bar engaging said pinion to operate the valve, substantially as described.

5. In a sander for locomotives, the combination, with the sand box or dome and the leads extending down on both sides, of the valve having the ports therein independently registering with the leads, the pinion connected to the valve, the rack-bar engaging the pinion to move the valve, and the indicator for indicating which port is registering with its lead, substantially as described.

6. In a sander for locomotives, the combination, with the sand box or dome and the leads extending down on both sides, of the circular disk-valve having the ports therein independently registering with the leads and operating mechanism, substantially as described.

7. In a sander for locomotives, the combination, with the sand box or dome and the leads extending down on both sides, of the circular disk-valve having the oppositely-arranged ports therein simultaneously registering with the sand-leads and the ports independently registering with said leads, substantially as described.

8. In a sander for locomotives, the sand receptacle and leads extending down on each side, in combination with the circular disk-valve having the ports registering with each of the leads, the central bolt on which the disk-valve is mounted, the gear-wheel connected to said bolt below the valve, and the rack-bar engaging said gear-wheel, substantially as described.

9. In a sander for locomotives, the sand receptacle and leads extending down on each side, in combination with the circular disk-valve having the ports registering with each of the leads, the central bolt on which the disk-valve is mounted, the gear-wheel on the bolt below the valve, and the retaining-ring with the overhanging lip surrounding the valve, substantially as described.

10. In a sander for locomotives, the sand receptacle and leads, in combination with the

valve in the bottom of the receptacle and the breakers or pins secured to said valve, substantially as described.

11. In a sander for locomotives, the combination, with the receptacle and leads, of the
5 inclined bottom to the receptacle, formed of the independent piece held in position by the

bolts passing through the bottom of the receptacle, substantially as described.

MAURY D. JENKINS.

Witnesses:

H. C. JENKINS,
JAMES JENKINS.