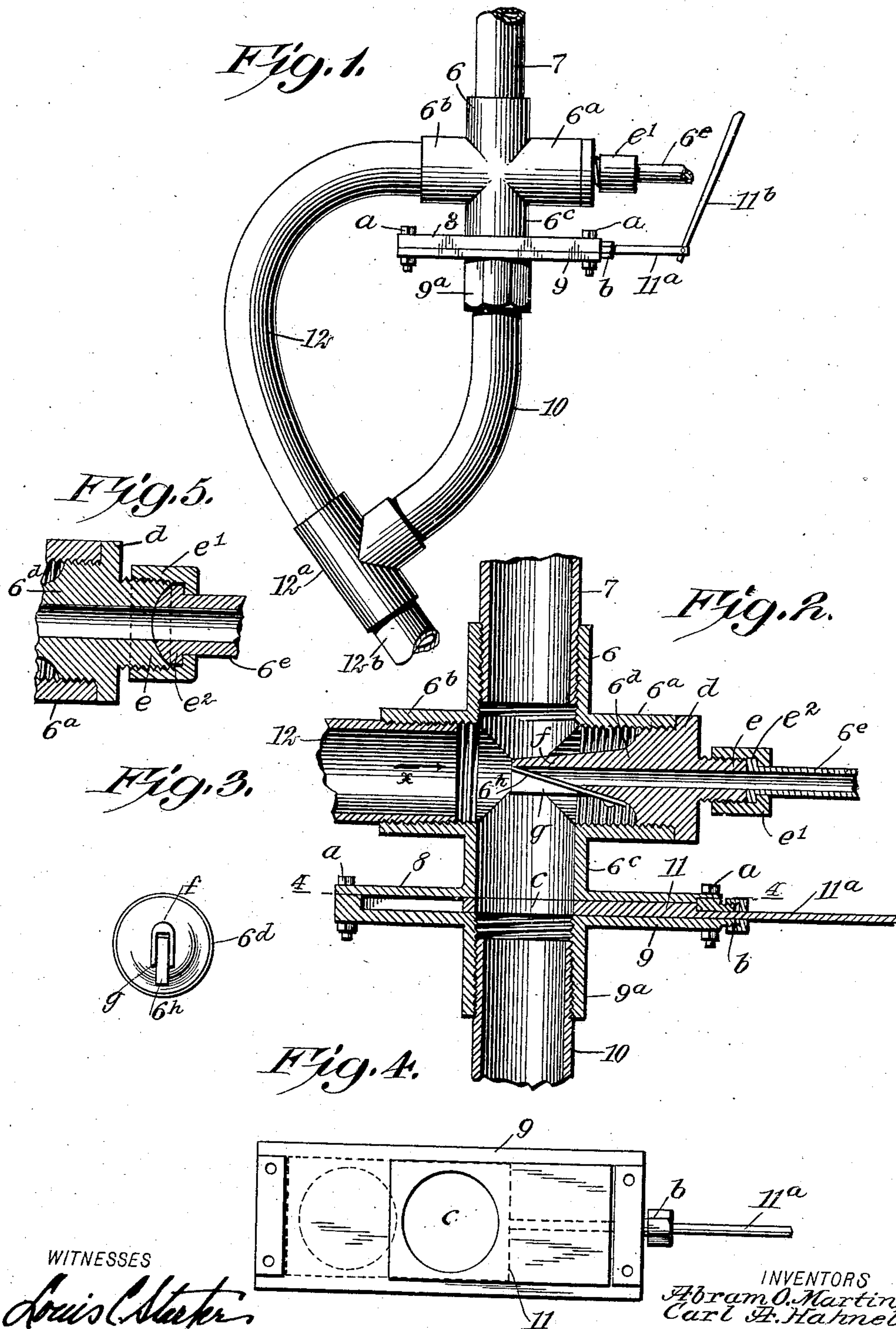


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PATENTED APR. 7, 1908.

A. O. MARTIN & C. A. HAHNEL.
SANDING APPARATUS FOR LOCOMOTIVES.

APPLICATION FILED AUG. 17, 1907.



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ABRAM O. MARTIN AND CARL A. HAHNEL, OF DENISON, TEXAS.

SANDING APPARATUS FOR LOCOMOTIVES.

No. 884,282.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed August 17, 1907. Serial No. 389,022.

To all whom it may concern:

Be it known that we, ABRAM O. MARTIN and CARL A. HAHNEL, both citizens of the United States, and residents of Denison, in the county of Grayson and State of Texas, have invented new and useful Improvements in Sanding Apparatus for Locomotives, of which the following is a full, clear, and exact description.

10 This invention relates to apparatus used for dispensing dry sand in front of the wheels of a locomotive to prevent their slipping on the track.

The purpose of the invention is to provide 15 novel details of construction for an apparatus of the indicated character, which adapt the improved sanding device for reliable service, prevent clogging of the same with wet sand, and furnish a coacting shut-off 20 valve that enables the discharge of sand from the elevated sand holding box to be arrested when this is desired.

The invention consists in the novel construction and combination of parts, as is 25 hereinafter described and defined in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference 30 indicate corresponding parts in all the views.

Figure 1 is a side view of the improved sanding apparatus arranged for service; Fig. 2 is an enlarged sectional side view of 35 the improvement and ends of feed pipes connected therewith; Fig. 3 is an end view of a sand feeding device that is a feature of the invention, seen in direction of the arrow *x* in Fig. 2; Fig. 4 is a detached plan view of a 40 shut-off valve that co-acts with the sand dispensing means, the plane of separation being indicated by the line 4—4 in Fig. 2; and Fig. 5 is an enlarged sectional detail view of parts of the sand dispenser, showing 45 a preferred form for attaching an air pipe connection to the dispenser nozzle.

The body preferably employed as a detail of the sand dispenser proper is in the form of a hollow casting, having four branches, 6, 50 6^a, 6^b, 6^c, that are arranged oppositely in pairs, that is to say, the branches 6 and 6^c are axially alined in a vertical plane, and the

branches 6^a, 6^b, are axially coincident in a plane at right-angles with the axis of the branches first mentioned. 55

The branch 6 is internally threaded and receives the threaded end of a pipe 7, that is shown broken away but in complete condition extends to a sand holder not shown, usually located on the boiler of a locomotive. 60

The branch 6^c is shown as formed with an integral flat-cap-plate 8 on its lower end, which fits upon and marginally corresponds with the side walls of a valve-case 9, whereon the cap-plate is removably secured by bolts 65 *a*, as shown in Figs. 1 and 2.

Upon the case 9 a tubular socket 9^a is formed that is alined with the branch 6^c, and is threaded internally for reception of a discharge pipe 10 which will hereinafter be further described. In the case 9 is slidably 70 fitted a gate-valve 11, that is furnished with a valve-stem 11^a at one end, said stem being projected through a stuffing-box *b* at one end of the valve-case, and thence is extended a 75 suitable length toward the cab of the locomotive having the improvement, and may terminate in a lever 11^b or other equivalent means for sliding the gate-valve from the interior of the engine cab, as occasion may re- 80 quire.

The gate-valve 11 is circularly apertured as at *c* near the inner end thereof, said aperture being equal in diameter to that of the branch 6^c, whereby sand fed down through 85 the sand-pipe 7 will pass freely through the gate-valve 11 when it is adjusted as shown in Fig. 2, and when the valve is slid completely within the case it will cut off the flow of sand and seal the pipe 7. 90

It may here be explained that it is also feasible to place the valve which has been described, in the pipe 7, above the horizontal branches 6^a, 6^b, and thus adapt it for a closure of said pipe and arrest of the flow of sand 95 for a purpose that will be hereinafter set forth.

The invention principally consists in the novel construction of a sand dispensing device that is constructed as follows: 100

In the interiorly threaded branch 6^a, a plug 6^d is screwed, it being peripherally threaded near its outer end, the latter terminating in a radial flange *d* that is impinged

upon the true end of the branch named. The plug 6^d is centrally perforated, and has a nipple *e* extended from its flanged outer end. This nipple, that is similarly perforated in
 5 alinement with the bore of the plug, is externally threaded and receives thereon a cap-nut *e'*.

As shown in Fig. 5, the preferred construction is to cup the outer end of the nipple *e*,
 10 this concavity receiving the convexed end of an air conveyer pipe 6^e, whereon the cap-nut is fitted, the latter bearing upon a radial flange *e*² that is formed on the end of the air-pipe. It will be obvious that if the joint be-
 15 tween the concave and convex surfaces on the nipple *e* and end of the pipe 6^e are ground together, or a thin washer of suitable material is introduced therebetween, a proper clamping adjustment of the cap-nut *e'* will
 20 secure the air pipe 6^e on the plug 6^d in an air tight condition.

At a suitable distance from the flange *e*² the body of the plug 6^d is reduced and tapered slightly toward the inner end thereof,
 25 said end portion *f* being laterally flattened and the lower wall thereof cut away to produce a slot thereat, as appears at *g* in Fig. 2. Upon the lower side of the plug, forward of the slot *g*, the wall of the plug is sloped to-
 30 ward said slot and affords a seat whereon a thin resilient tongue plate 6^h is secured at the forward end thereof. The tongue plate 6^h fits neatly in the slot *g* and has slightly pressure at its free end upon the upper wall
 35 of the plug at its inner extremity which said tongue plate normally closes, but is vibrated more or less so as to open an air passage by air pressure introduced through the pipe 6^e. In the branch 6^b, a by-pass pipe 12 is secured
 40 by one end thereof, and as shown in Fig. 1 is bent downward and toward the pipe 10, the lower ends of said pipes being connected by a T-fitting 12^a.

To facilitate the connection of the pipes 10
 45 and 12, there is a polygonal formation given to the exterior of the socket 9^a, to enable the use of a wrench, the valve case 9 being free from the branch 6^c when said connection of parts is being made.

50 When the sand is dry and the dispenser device is to be used, the gate valve 11 is closed and an air jet is passed through the air pipe 6^e, and it is to be understood that suitable means is to be provided for control of the
 55 force of the air jet. Sand is now fed down the supply pipe 7 and is met by the thin air jet that passes through the inner end of the nozzle plug 6, the spring tongue 6^h yielding so as to permit a proper volume of air to pass it.
 60 The air and sand together pass down the by-pass pipe 12 and thence into a conductor pipe 12^b, that extends from the T-fitting 12^a to a point for discharge of the sand, usually just

forward of the tread of the driving wheel said device is to supply with sand. 65

It will be seen that the quantity of sand fed may be accurately controlled, and in case of any impediment, such as wet sand being passed down the pipe 7, it will usually drop
 70 past the nozzle 6^d and lodge on the valve gate 11, which at times may be opened to permit such accumulations to escape down the conductor pipe by gravity. If, from any cause, the sand passed down the pipe 7 is not perfectly dry, that is essential for a free move-
 75 ment, the air pressure through the pipe 6^e should be increased, which will force the sand down the by-pass pipe 12 in increased amount. When sand in a greater amount is required for preventing the slipping of the
 80 locomotive wheels, the gate valve 11 may be partially or completely opened, and thus permit a direct passage of more or less sand down through it, which will supplement the amount fed by the dispenser's device. 85

Having thus described our invention, we claim as new and desire to secure by Letters Patent:

1. In a sanding apparatus, the sand dispensing device, comprising a hollow body
 90 having four branches disposed oppositely in pairs, one horizontal branch having an air jet nozzle plug therein, the plug having an air passage therethrough controlled by a resilient tongue plate; a sand conducting pipe ex-
 95 tended from the opposite horizontal branch, a sand supplying pipe in an upright branch that feeds sand past the air jet nozzle plug, and another sand conducting pipe opposite the sand supplying pipe. 100

2. In a sanding apparatus, the sand dispensing device, comprising a hollow body having four branches disposed oppositely in
 105 pairs, the uppermost branch being connected to a sand supply pipe, a jet nozzle plug having an air passage therethrough, and a resilient tongue plate held to vibrate across said passage, means for supplying an air jet to
 110 said plug, a by-pass pipe extended from the branch that is opposite the air jet plug, and another sand conducting pipe in connection with the lowermost branch outlet.

3. In a sanding apparatus, the sand dispensing device, comprising a hollow body having inlet and outlet branches, a sand feed-
 115 ing pipe on one inlet branch, a sand conducting pipe on an outlet branch, an air jet nozzle plug on an inlet branch opposite the sand conducting pipe, said nozzle plug having an air passage therethrough, and a thin resilient
 120 tongue plate held at the discharge end of the nozzle plug diagonally across the air passage, and means for controlling the opening in the remaining branch.

4. In a sanding apparatus, the combination of a hollow body having four branches, a 125

sand supply pipe on one branch, a by-pass
pipe on a second branch, a jet nozzle plug
adapted to blow an air jet across the sand fed
into the hollow body and force the sand into
5 the opposite by-pass pipe, means carried by
the jet nozzle for controlling the flow of air
therethrough, and a gate valve for control-
ling the downward passage in the remaining
branch outlet.
10 In testimony whereof we have signed our

names to this specification in the presence of
two subscribing witnesses.

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