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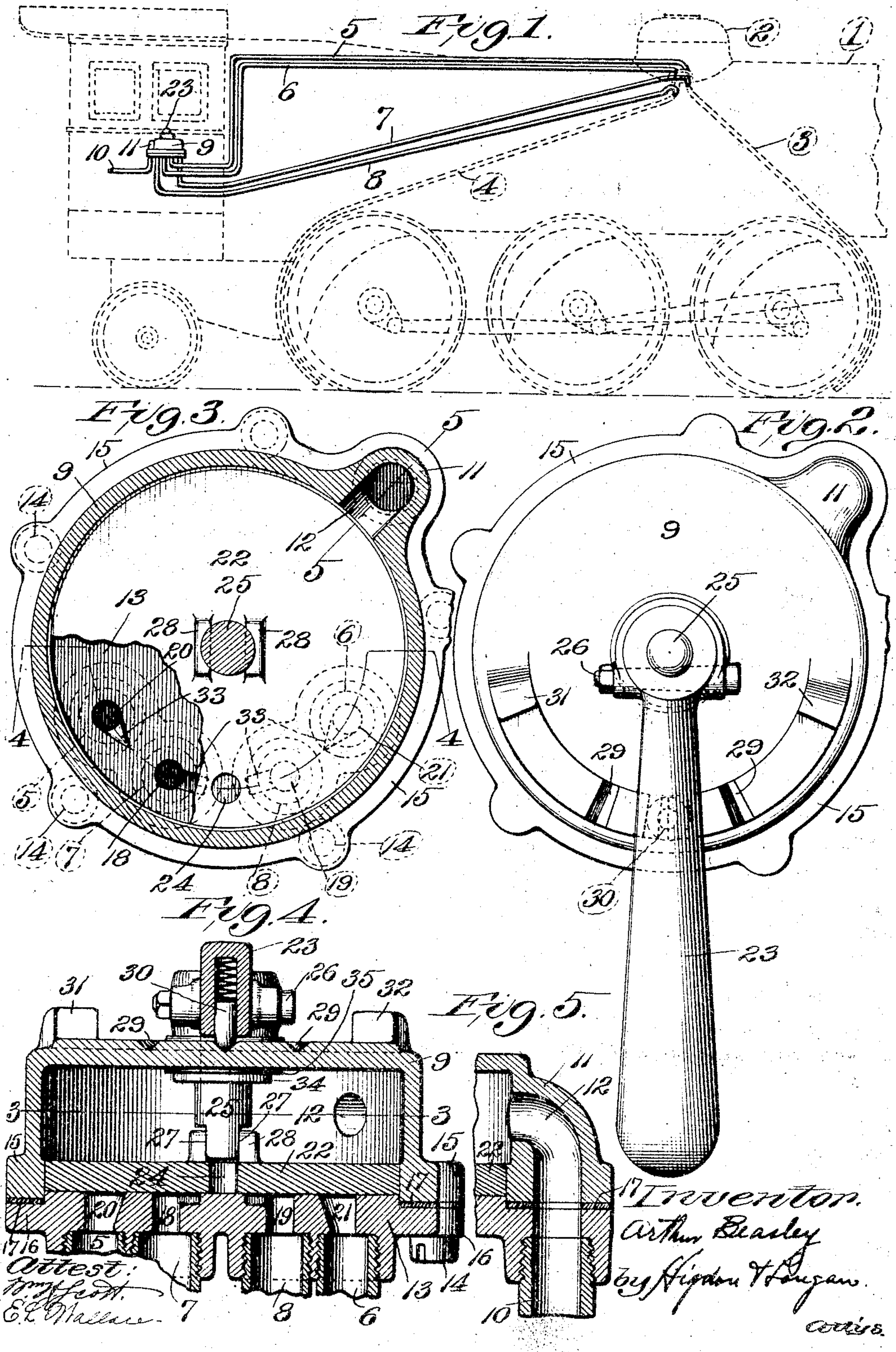
LOCOMOTIVE SANDER VALVE.

APPLICATION FILED JAN. 22, 1912.

1,047,883.

Patented Dec. 17, 1912.



UNITED STATES PATENT OFFICE.

ARTHUR BEASLEY, OF EAST ST. LOUIS, ILLINOIS.

LOCOMOTIVE SANDER-VALVE.

1,047,883. Specification of Letters Patent. Patented Dec. 17, 1912.

Application filed January 22, 1912. Serial No. 672,741.

To all whom it may concern:

Be it known that I, ARTHUR BEASLEY, a citizen of the United States, and resident of East St. Louis, Illinois, have invented certain new and useful Improvements in Locomotive Sander-Valves, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved locomotive sander-valve, and consists in the novel construction herein described and pointed out in the annexed claims.

The object of my invention is to provide an improved locomotive sander-valve by means of which both the forward and rear sand-pipes may be quickly and efficiently cleaned throughout their length immediately preceding each application of sand to the rails; and which will quickly and effectually dislodge from the interior of said sand-pipes any adhering sand or other obstruction immediately after each application of sand to the rails.

In the drawings: Figure 1 is a diagrammatic side elevation of a portion of a locomotive engine having my invention applied thereto; Fig. 2 is a top plan view of my locomotive sander-valve; Fig. 3 is a sectional plan view of the same, the section being taken on the line 3—3 of Fig. 4; Fig. 4 is a sectional elevation of same, the section being taken on the line 4—4 of Fig. 3; and Fig. 5 is a detail vertical section showing the main reservoir pipe-connection with the sander-valve casing, the section being taken on line 5—5 of Fig. 3.

The numeral 1 indicates a locomotive having the usual sand-box 2, forward sand-pipes 3, and rear sand-pipes 4, all constructed as heretofore, and adapted to deliver sand from said sand box to the forward sand-pipes 3 when the engine is moving forward and through the sand-pipes 4 when the engine is backing. Said sand-box 2 is provided with the customary sand delivery valves (not shown) to which the usual operating air-pipes 5 and 6 respectively are connected, so that when a blast of air is supplied to the sand-valve of the forward sand-pipe 3 through the said air-pipe 5, sand will be delivered and discharged through the said forward sand-pipes 3; and when a blast of air is delivered to the sand-valve of the rear sand-pipe 4 through said air-pipe 6, a quantity of sand will be delivered through the said rear-sand-pipe 4.

The numerals 7 and 8 respectively indicate additional air pipes which extend forwardly from the sander-valve casing 9 to the upper ends of said sand pipes 3 and 4, the front end of said air-pipe 7 being connected to the said forward sand-pipe 3, and the front end of the said air-pipe 8 being connected to the said sand-pipe 4, at a point closely adjacent the sand box, and each of said pipes 7 and 8 preferably has its delivery end within the said sand pipes 3 and 4 provided with a common nozzle, whereby a blast of air will be forcibly discharged downwardly within said sand-pipes 3 and 4 from top to bottom of same for the purpose of quickly and efficiently cleaning said sand pipes immediately preceding and following each application of sand to the rails. This operation is brought about by the manipulation of the improved engineer's sander-valve in the locomotive cab, the casing of which is herein marked with the numeral 9, and to which all of the air-pipes 5, 6, 7, and 8 are connected in a manner which will now be described in detail.

The numeral 10 indicates the air supply pipe which is to be connected as usual to the main reservoir for supplying air to the sanding mechanism. The said pipe 10 I will hereinafter designate as the "reservoir pipe." The reservoir pipe 10 is attached to the casing 9 by being screwed into a threaded boss 11, the interior of which communicates with the interior of the said casing through a passage 12.

The base-plate 13 of the casing 9 is provided upon its undersurface with a series of threaded bosses into which the ends of the air pipes 5, 6, 7 and 8 are threaded. (See Fig. 4.) Said base-plate 13 is preferably made separate from the said casing 9 and is secured thereto by means of common screws or bolts 14, which clamp firmly together the marginal flanges 15 and 16 of the said casing and base-plate 13, there being a suitable gasket 17 in the joint for the purpose of making a tight joint between the adjacent surfaces of said flanges. Formed in the said base-plate 13 is a series of ports, which are in communication with the interior of the air pipes 5, 6, 7 and 8; the port 18 communicating with said air pipe 7; the port 19 communicating with said air pipe 8; the port 20 communicating with the said air

pipe 6 and the port 21 communicating with the said air-pipe 5, and each of the said ports is adapted to be placed in communication with the interior of said casing 9, whenever the valve-disk 22 is adjusted for such purpose by means of the engineer's handle 23. The said valve disk 22 is provided with a single port 24, which passes vertically through the same and is adapted to distribute the air from the interior of the said casing 9 to the various ports 18, 19, 20 and 21 upon rotating or rocking said valve-disk.

The engineer's handle 23 is loosely connected to the valve-disk 22 to permit the air pressure within the casing 9 to press the said disk into close contact with the underlying seat and thus form a tight joint upon said seat. This is preferably accomplished in the manner shown in the drawing wherein the numeral 25 indicates the vertical stem of said valve-disk, the said handle 23 being fixed to the upper end of said stem by means of a suitable bolt 26, whereby when said handle is oscillated the said stem will be correspondingly rocked or rotated. The said valve-disk stem 25 passes through a vertical opening formed centrally of the casing 9 and said stem extends downwardly within said casing and is provided at its lower portion with opposite flattened sides 27, which engage loosely between opposite lugs 28 projecting from the upper surface of the said valve-disk 22, so that the said stem and valve-disk may have a relative axial movement, and yet the valve-disk will be rocked whenever the stem is rocked.

For holding the engineer's handle 23 in the various positions to which it may be adjusted, I provide a series of V-shaped notches or depressions 29 upon the upper surface of the said casing 9, which are adapted to be engaged consecutively by a spring pressed dog 30 carried by said handle and normally urged into contact with the walls of the said notches 29.

The numerals 31 and 32 respectively indicate stop lugs which project upwardly from the upper surface of the said casing 9 in the path of the said engineer's handle 23, for the purpose of limiting in both directions the movement of said handle.

As shown in Figs. 3 and 4, the upper ends of the base plate ports 18, 19, 20 and 21 are provided with lateral enlargements 33, which I will term ducts, and each of said ducts extends from the port of which it forms a part, in a direction toward the normal or running position occupied by the port 24 of the valve-disk 22. Hereinafter I will term the said port 24 the supply port. By means of said ducts 33 the operator is enabled to more gradually apply the air to the air pipes 5, 6, 7, and 8 than could be done were said ducts omitted. The said disk stem 25 is provided with a shoulder 34 between which and the adjacent surface of the casing 9 is located a gasket 35 for the purpose of making a tight joint between said stem and said casing.

The operation is as follows: The engineer's handle 23 is shown in running position, so that air from the reservoir pipe 10 freely enters the interior of the casing 9, but can not pass to any of the air pipes by reason of the supply port 24 being out of alinement with any of the said air pipe ports.

When it is desired to clean the forward sand pipes 3 and discharge sand therethrough to the rails, the engineer moves the engineer's handle 23 from the running position in such direction that the supply port 24 in the valve disk 22 is caused to register with the port 18 in the base plate 13, thereby causing a blast of air to pass from said supply port into said port 18, and into and through the forward air pipe 7 and thereby quickly and effectually cleaning the forward sand pipes 3, and dislodging from the interior of said sand pipes at any point in the length thereof any adhering sand or other obstructions. This cleaning operation immediately precedes each application of the sand, and as the engineer's handle 23 is moved farther in the same direction the supply of air will be cut off from said air pipe 7 and air will be discharged through the part 20 into the forward air pipe 5 to discharge a quantity of sand from the sand box into the previously cleaned sand pipes 3.

Returning the engineer's handle 23 to its normal running position, of course, cuts off the air from said pipe 5 and stops the discharge of sand through the forward sand pipes 3 and it also, again cleans the sand pipes 3 by discharging another blast of air downwardly through the same. This operation is repeated in the reverse order when it is desired to clean and discharge sand through the back sand pipes 4.

What I claim is:

1. The improved locomotive sanding mechanism, comprising means constructed to discharge a preliminary cleaning high-pressure blast of air into the upper portion of the forward sand pipes, at a point closely adjacent the sand-box, to clean them throughout their lengths preceding each application of sand to the rails.

2. The improved locomotive sanding mechanism, comprising means constructed to discharge a preliminary high-pressure cleaning blast of air into the upper portion of both forward and rear sand pipes, at a point closely adjacent the sand-box, to clean them throughout their lengths, preceding each application of sand to the rails.

3. The improved locomotive sanding mechanism, comprising means constructed to discharge a high-pressure cleaning blast

of air into the upper portion of the forward sand pipes, at a point closely adjacent the sand-box, to clean them throughout their lengths, immediately preceding and after each application of sand to the rails.

4. The improved locomotive sanding mechanism, comprising means constructed to discharge a high-pressure cleaning blast of air into the upper portion of both forward and rear sand pipes, at a point closely adjacent the sand-box, to clean them throughout their lengths, immediately preceding and after each application of sand to the rails.

5. The improved locomotive sanding mechanism, comprising a sander-valve having an engineer's handle, a reservoir pipe connected with the interior of said sander-valve, a valve-disk having a supply port and mounted to rotate within said casing, a connection between said valve-disk and the said engineer's handle, and suitable pipes extending from the said sander-valve to the locomotive sand pipes, and constructed to discharge a blast of air into said sand pipes immediately preceding each application of sand to the rails.

6. The improved locomotive sanding mechanism, comprising a sander-valve having an engineer's handle, a reservoir pipe connected with the interior of said sander-valve, a valve disk having a supply port and mounted to rotate within said casing, a connection between said valve-disk and the said engineer's handle, and suitable pipes extending from the said sander-valve to the locomotive sand pipes, and constructed to discharge a blast of air into said sand pipes immediately preceding and after each application of sand to the rails.

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

ARTHUR BEASLEY.

Witnesses:
E. L. WALLACE,
JOHN C. HIGDON.