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TRACK SANDER

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6 Claims. (Cl. 291-16)

My invention relates to track sanders and more particularly to valves for operating the sander.

Sanding systems generally employed on all railroads and many street railways include a sand trap which receives air or other fluid under pressure for discharging the sand therefrom on to the track. To prevent the sand from becoming clogged in the trap a momentary blast of air commonly referred to as "cleaning air" is generally delivered to the sand trap at the beginning and close of the sanding operation.

The principal object of the invention is to provide a simple and reliable valve under the manual control of the operator for supplying air to the sand trap for causing sand to discharge therefrom and for also supplying a cleaning blast of air to the sand trap at the beginning and at the end of the sanding operation.

A primary feature of the invention consists in providing the sander valve with a main valve member for controlling the flow of sanding air to the sand trap and in associating therewith an auxiliary valve member which automatically functions during the intervals the main valve member moves to open and closed positions to permit cleaning air to pass to the sand trap.

Another feature of the invention consists in providing the sander valve with a rotatable member for simultaneously moving the main and auxiliary valves in opposite directions.

Other and more specific features of the invention, residing in advantageous forms, combinations and relations of parts, will hereinafter appear and be pointed out in the claims.

In the drawing, illustrating a preferred embodiment of the invention,

Figure 1 is a diagrammatic view showing the connections between the sander valve and the sand trap and air reservoir.

Figure 2 is a vertical sectional view of the sander valve.

Referring more particularly to the drawing, 1 indicates the body of the sander valve which has two laterally spaced chambers 2 and 3 respectively. Chamber 2, which may be designated as the main chamber to distinguish it from the chamber 3 which may be designated as the auxiliary chamber, is provided in its upper portion with an outlet port 4 to which is connected a pipe 5 for supplying sanding air to a sand trap 6 which may be of any desired or preferred construction. The main and auxiliary chambers of the valve body are connected by a passageway 7 and the upper portion of the auxiliary chamber 3 is formed with an outlet port 8 which is connected

to a pipe 9 for supplying cleaning air to the sand trap.

Intermediate the two chambers the valve body may be advantageously provided in its lower portion with an inlet port 10 which is connected by a pipe 11 to a reservoir or other suitable source 12 of compressed air or other fluid pressure. The inlet port communicates with the lower end of the main chamber 2 by a passageway 13.

Mounted in the main chamber 2 and operatively interposed between the inlet 13 and the outlet port 4 for sanding air is a main reciprocating valve 14. This valve is preferably a so-called "wing" valve and is provided with a conical portion 15 for cooperating with a conical valve seat 16 formed in the chamber 2 below the outlet port 4 and the adjacent end of the passageway 7. Interposed between the lower end of the valve and a removable plug 17 which closes the lower end of chamber 2 is a coil spring 18 which together with the fluid pressure in the lower portion of the chamber normally serves to maintain the valve in closed position.

Extending upwardly from the conical portion 15 of the valve is a stem 19 which projects through an opening in the top wall of the valve body. The upper end of the stem 19 is arranged so as to cooperate with means hereafter described whereby the stem may be moved downwardly to move the valve from closed to open position.

A valve 20, similar to valve 14, is reciprocally mounted within chamber 3. This valve has a conical portion 21 for cooperating with a correspondingly shaped valve seat 22 formed in chamber 3 intermediate the outlet port 8 and the adjacent end of the transverse passageway 7. A spring 23 is interposed between the lower end of valve 20 and a removable plug 24 which closes the lower end of the auxiliary chamber 3. Extending upwardly from the conical portion 21 of the valve is a stem 25 which projects through an opening in the top wall of the valve body.

Pivotaly mounted on the valve body is an operating member 26 having a handle portion 27 and a pair of oppositely projecting arms 28 and 29 respectively. The outer ends of these arms are adapted to cooperate with the upper ends of the valve stems 19 and 25 for actuating the respective valves and the arrangement of the arms is such that when the operating member 26 assumes a position enabling one of the valves to close the other valve will be held in an open position. Thus when one valve is closed the other valve will be open. As valve 14 is urged to closed position by the combined action of spring 18 and of the fluid

pressure, as heretofore explained, and valve 20 is only subjected to the force of spring 23, valve 14 normally occupies closed position while valve 20 normally occupies open position, being held in that position against action of its spring by the operating member 26. Thus the fluid pressure from the reservoir is normally prevented from passing through both of the outlet ports 4 and 8 to the sand trap with which it is connected.

When the operator starts to move the handle of the operating member to the left, as viewed in Figure 2, valve 14 is forced from its seat 16 thus allowing the reservoir pressure to flow through the sanding outlet port 4 and through passageway 7 into chamber 3. As valve 20 must move a substantial distance before it assumes fully closed position the fluid pressure which flows into chamber 3 through the passageway 7 flows out of the cleaning port 8 during the interval the valve is moving from open to closed position. As soon as valve 20 closes, however, the cleaning air will be cut off but the sanding air will continue to flow through outlet port 4.

When the operating member 26 is moved back to its normally inoperative position valve 20 is immediately moved from its seat and fluid pressure will again pass through the cleaning port 8 until the valve 14 is fully closed, at which time fluid pressure is cut off from both outlet ports. It is thus to be seen that a cleaning blast is automatically delivered to the sand trap at the beginning and at the close of the sanding operation.

Various modifications in structural details of the particular embodiment of the invention herein illustrated and described may be made without departing from the spirit and scope of the invention as defined in the appended claims.

What I claim is:

1. A track sander valve for controlling the operation of a fluid pressure operated sand trap of the character adapted to receive a blast of fluid pressure for cleaning the trap, said valve comprising a valve body having an inlet port adapted to be connected to a source of fluid pressure and having two outlet ports respectively adapted to be connected to the sand trap, valve means normally disposed in closed position preventing the flow of fluid pressure from the inlet port to both of said outlet ports, additional valve means normally disposed in open position for controlling the flow of fluid pressure to one of said outlet ports, spring means normally urging both of said valve means toward closed position, means for moving said normally closed valve means to open position and for simultaneously permitting the normally open valve means to assume closed position whereby fluid pressure is permitted to flow through both of said outlet ports during the interval said normally open valve moves from open to closed position.

2. A track sander valve for controlling the operation of a fluid pressure operated sand trap of the character adapted to receive a blast of fluid pressure for cleaning the trap, said valve comprising a valve body having an inlet port adapted to be connected to a source of fluid pressure and having two outlet ports respectively adapted to be connected to the sand trap, valve means normally disposed in closed position preventing the flow of fluid pressure to both of said outlet ports, additional valve means normally disposed in open position for controlling the flow of fluid pressure to only one of said ports, a plurality of spring means respectively adapted to normally urge said valve means toward closed position, means for

normally holding said additional valve means in open position, and operating means for moving said normally closed valve means to open position and for simultaneously actuating said holding means to permit the normally open valve means to move to closed position whereby fluid under pressure may flow through both of said outlet ports during the interval said normally open valve moves from open to closed position.

3. A track sander valve for controlling the operation of a fluid pressure operated sand trap of the character adapted to receive a blast of fluid pressure for cleaning the trap, said valve comprising a valve body having an inlet port adapted to be connected to a source of fluid pressure and having two laterally spaced chambers respectively having outlet ports adapted to be connected to the sand trap, normally open valve means operatively interposed between said outlet ports, normally closed valve means operatively interposed between the inlet port and both of said outlet ports, and means for simultaneously moving both of said valve means in opposite directions to cause the normally open valve means to assume closed position as the normally closed valve means assumes open position whereby during movement of said valve means both of said outlet ports are in open communication with said inlet port.

4. A track sander valve for controlling the operation of a fluid pressure operated sand trap of the character adapted to receive a blast of fluid pressure for cleaning the trap at the beginning and at the end of the sanding operation, said valve comprising a valve body having an inlet port adapted to be connected to a source of fluid pressure and having two outlet ports respectively adapted to be connected to the sand trap, normally open valve means operatively interposed between said outlet ports, normally closed valve means operatively interposed between the inlet port and both of said outlet ports, and means including a member rotatably mounted on said valve body for simultaneously moving said valve means in opposite directions whereby when one valve moves to closed position the other valve moves to open position and both outlet ports are in open communication with the inlet port during the interval the valve means are moving from one position to the other.

5. A track sander valve for use with a sand trap adapted to receive air for sanding and a blast of air for cleaning at the beginning and at the close of each sanding operation, said valve comprising a valve body having an inlet port adapted to receive air under pressure and having an outlet port for the sanding air and an outlet port for the cleaning air, said sanding and cleaning ports being serially arranged with the sanding port located between the cleaning port and the inlet port, normally open valve means operatively interposed between the sanding and cleaning ports, normally closed valve means operatively interposed between the inlet port and the sanding air port, and means cooperable with said valve means for simultaneously moving them in opposite directions to close the open valve means as the closed valve means is being opened whereby both of said valve means are open during the intervals they are being moved to and from their normal positions.

6. A track sander valve for use with a sand trap adapted to receive air for sanding and a blast of air for cleaning at the beginning and at the close of each sanding operation, said valve comprising a valve body having an inlet port

adapted to receive air under pressure, a pair of laterally spaced chambers in the valve body, one of said chambers having an outlet port for the sanding air and the other of said chambers having an outlet port for cleaning air, a valve in each of said chambers, the valve in the chamber having the sanding port being normally closed and the valve in the chamber having the cleaning port being normally open, spring means normally urging each of said valve means toward

5 closed position, and means rotatably mounted upon said valve casing for simultaneously cooperating with said valve means to cause the closed valve to open as the open valve closes whereby air will flow through both the sanding and the cleaning ports during the intervals said valves are being moved to and from their normal positions.

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