W. A. JONES & W. A. MINEHAN.

LOCOMOTIVE ATTACHMENT.

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975,870.

Patented Nov. 15, 1910.

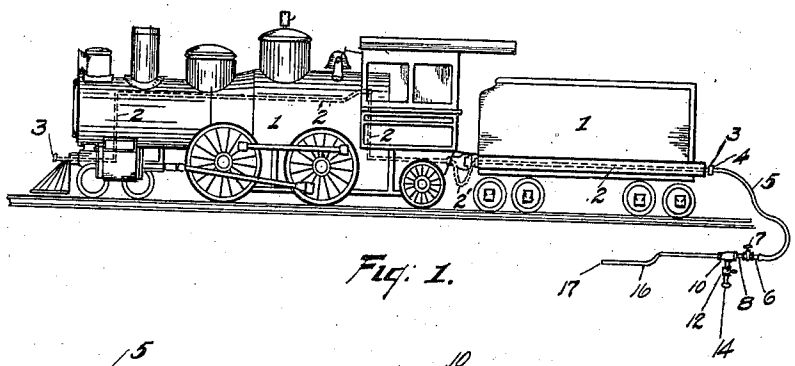


Fig. 1.

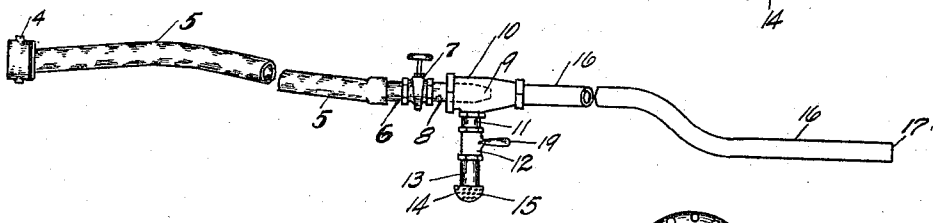


Fig. 2.

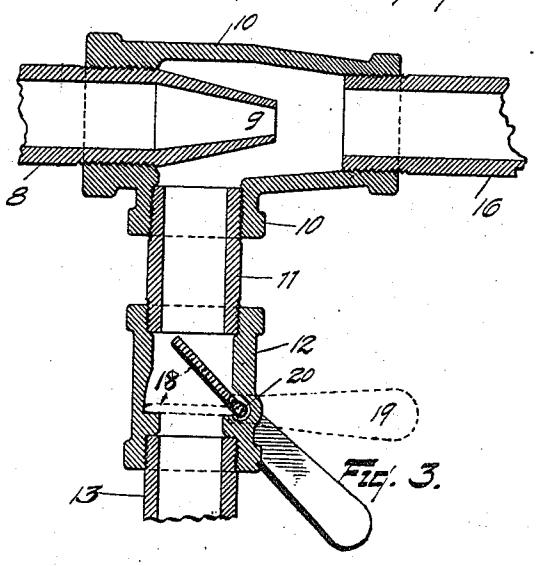


Fig. 3.

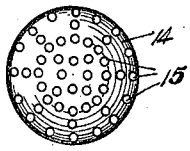


Fig. 5.

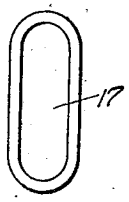


Fig. 4.

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LOCOMOTIVE ATTACHMENT.

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To all whom it may concern:

Be it known that we, WILLIAM A. JONES and WILLIAM A. MINEHAN, citizens of the United States, residing at Sharon, in the county of Mercer and State of Pennsylvania, have invented certain new and useful Improvements in Locomotive Attachments, of which the following is a specification.

Our invention is directed to an attachment for railway locomotives which is intended to be used in melting the snow and ice from frozen switches, and to furthermore carry away the water resulting from the melting of the ice and snow so that it may not refreeze in the switches.

One of the objects of our invention is to provide such an attachment which may be connected at either the front or rear of the locomotive, or at any other suitable points to pipes leading from the locomotive boiler, so that the attachment may be used with equal facility whether the engine is proceeding forward or backing toward the frozen switch.

A still further object is the combination with this attachment of an automatic valve, operative in a certain position of the attachment to allow the water lying between the ties and switch bases to be sucked in through a coarse strainer, while in other positions of the attachment, the valve automatically renders the suction end of our device inoperative.

Still further objects and purposes of our invention will appear from an inspection of the drawing and specification and the claims appended thereto, in which are shown and described the combination of elements, arrangements of parts, and novel structural details properly comprised within the scope of the same.

In the drawing wherein is shown one of the possible embodiments of our invention, Figure 1 is a view of the standard type railway locomotive, showing the piping leading from that portion of the boiler in which the live steam is piped to the rear of the tender and to the front of the engine, our attachment being shown coupled to the piping at the rear of the tender. Fig. 2 is a vertical side view of our attachment, the hose coupling and piping being broken to permit the inclusion of the attachment on the scale shown. Fig. 3 is an enlarged detailed view of the inner steam nozzle, suction chamber and automatic valve positioned between the suction chamber and the water intake. Fig. 4 is an end view of the iron pipe end of our attachment. Fig. 5 is an enlarged view of the water intake.

Referring now to the several figures in which like reference characters designate like parts, (1) represents a standard locomotive and tender.

(2) represents steam piping from the rear of the boiler, terminating just above the cow-catcher and at the rear of the tender, a flexible hose connection (2′) connecting the piping of the engine and tender. This piping at the rear of the tender and forward part of the locomotive is provided with a suitable coupling member (3) in which the steam hose coupling (4) is adapted to fit. Suitable valves, positioned in the engine but not shown, may be used for turning the steam into either the rear or forward piping.

Our attachment properly comprises a suitable length of heavy hose (5) at one end of which is the coupler member (4) and at the other end the metallic pipe (6) connected to the hand valve (7), and extending from the other side of this valve (7) is the metallic nozzle member (8) which terminates in the form of a truncated cone (9). At the base of the cone the nozzle is threaded and upon this portion is screwed a correspondingly threaded member (10) which is a peculiarly shaped nipple of the T type and which will hereafter be referred to as the suction chamber. Threaded at the opposite end of the nipple and in line with the nozzle (8), is a metallic pipe (16) of suitable length bent intermediate its length and then extended parallel to the inner end. The outer end of this pipe is flattened to form an elliptical opening (17) as better shown in Fig. 4.

The nipple (10) is provided with a third internally threaded opening at right angles to the line of the two first described openings, and connecting this opening and a valve seat (12) is a small pipe (11). Extending from the other side of the valve seat (12) is a second pipe (13) at the outer end of which is suitably attached an intake member (14) in the form of a hemi-sphere having a number of perforations (15) therein. The valve seat (12) is provided with a valve (18) having a rotatable bearing at (20) in the valve seat. Connected to the valve (18) by lateral extensions is an exteriorly positioned weight (19).

From the drawing, it will be noted that

the nozzle (8), as it fits in the suction chamber (10), has its forward end (9) extending beyond the third or right angled opening in the suction chamber (10). The passage of steam through the nozzle (8), suction chamber (10), and pipe 16 will tend to create a vacuum about the outer face of the cone portion (9) in that air from the rear of the suction chamber will be taken up and impelled forward by the steam expanding upon leaving the reduced portion (9) and passing into the pipe (16). The only opening in the suction chamber at the rear of the reduced portion (9) of the nozzle (8) comes from the pipe (11) and the other members connected thereto.

When the attachment is in the position shown in Figs. 2 and 3, the weight (19) will open the valve (18) and allow the passage of air or water through the intake (14) up to the suction chamber (10) where it will mix and pass out with the steam through pipe (16). When the attachment is turned so the intake portion 14 is above the horizontal pipe 16, the weight (19) automatically closes the valve (18) and permits the passage of steam through the attachment without the intermixture of any air or water from the intake portion.

The operation of our device is as follows: Upon the approach of the locomotive to any switch which is frozen, it has always hitherto been necessary to build a fire about the switch or pour hot water upon it from buckets. With our appliance, attachment will be made to either end of the locomotive, the valve (7) be closed, and the steam let into that end of the piping at which the attachment is made. By using portions 11, 12, and 13 as a hand hold, the attachment is held with the end (17) against the frozen parts of the switch, the valve (18) being closed by the weight (19) or by the operator holding the weight in the position shown in Fig. 2. The valve (7) is then opened and steam is allowed to issue against the frozen parts, thus rapidly melting away any snow or ice which may be collected thereon. Any water which may collect between the ties or in the base of the switch can then be removed by setting the intake member (14) in the water, in which position the valve (18) will be opened, and the steam continuing through the suction chamber, the water will be rapidly drawn up and out through pipe (16) where it can be discharged in some convenient place.

Having thus described our invention, what we claim as new is:

1. In a locomotive attachment, the combination of a flexible hose having a detachable coupler at one end, a hand valve at the other end, a suction chamber, a nozzle connecting the said valve and the suction chamber and terminating within the latter, a metallic pipe leading from the other end of the suction chamber, and an intake member leading into the suction chamber at right angles to the line of the nozzle and pipe and at the rear of the mouth of the nozzle, substantially as shown and described.

2. In a locomotive attachment, the combination of a flexible hose, a member at one end of said hose for connecting it to the piping leading from the locomotive boiler, a hand valve at the other end of said hose, a suction chamber, a nozzle connecting the said valve and suction chamber and terminating in the suction chamber, a pipe leading from the suction chamber in line with the nozzle, an intake member leading into the suction chamber at right angles to the line of the nozzle and pipe and rearwardly of the end of the nozzle, an automatic valve positioned in such intake member, substantially as shown and described.

3. In a locomotive attachment, the combination of a flexible hose, a member at one end of said hose for connecting it to the piping leading from the locomotive boiler, a hand valve at the other end of said hose, a suction chamber, a nozzle connecting the said valve and suction chamber and terminating in the suction chamber, a pipe leading from the suction chamber in line with the nozzle, an intake member leading into the suction chamber at right angles to the line of the nozzle and pipe and rearwardly of the end of the nozzle having perforations at the other end of the intake member, and an automatic valve located between the suction chamber and the perforated end of the intake member, substantially as shown and described.

4. In an apparatus of the class described, the combination of a railway locomotive and means for directing live steam against a frozen switch, said means comprising metallic piping, with a holding member thereon, connected to the locomotive boiler by a flexible member, as and for the purposes set forth.

5. In an apparatus of the class described, the combination of a railway locomotive, piping leading from the locomotive boiler, and terminating at a plurality of points on the engine and tender, and means adapted to be coupled to said piping for directing live steam against a frozen railway switch, as and for the purposes set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM A. JONES.
WILLIAM A. MINEHAN.

Witnesses:
EUGENE E. ANDERSON,
FRED A. SERVICE.