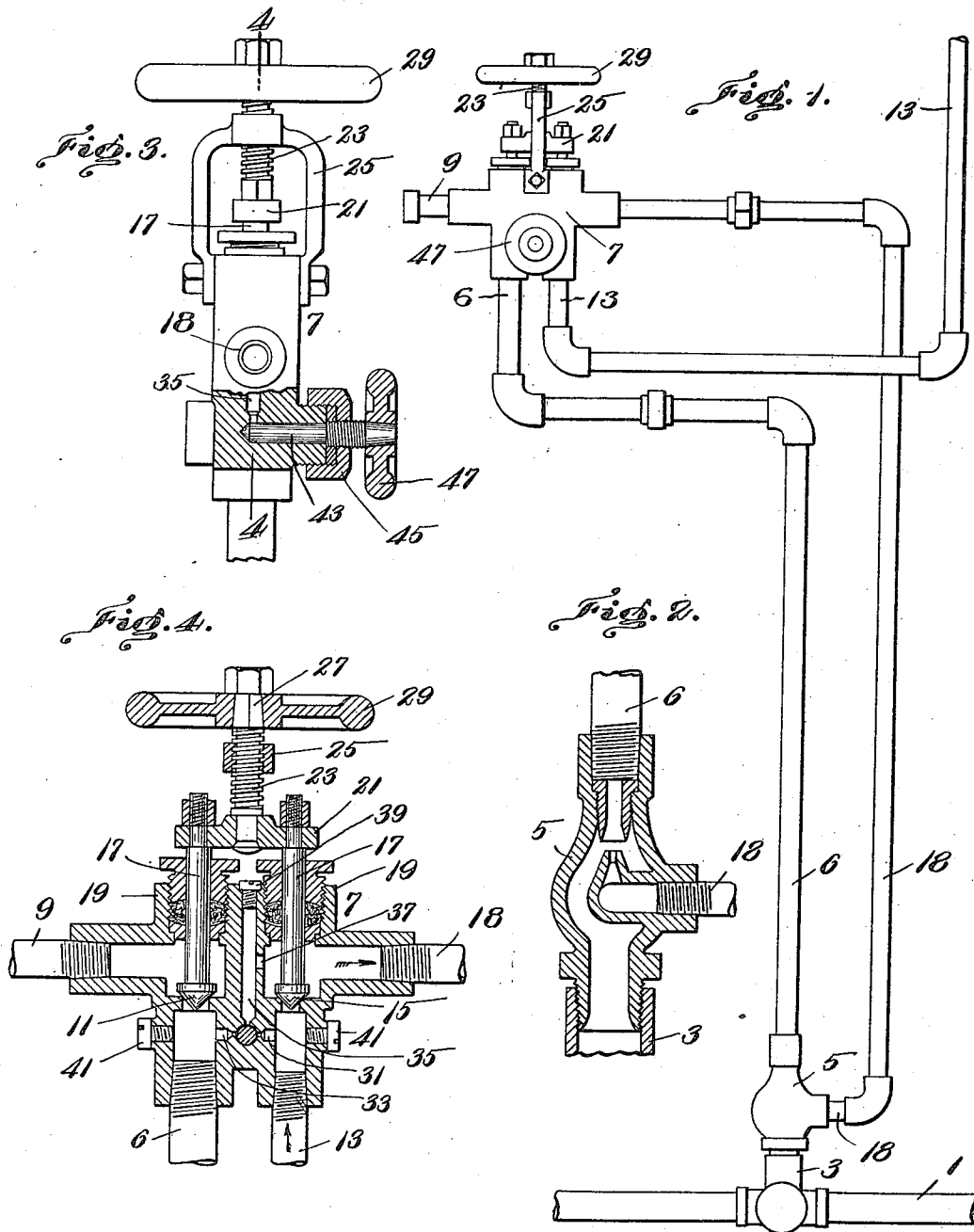


C. EIBYE.
 COAL SPRINKLER FOR LOCOMOTIVES.
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UNITED STATES PATENT OFFICE.

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COAL-SPRINKLER FOR LOCOMOTIVES.

1,232,516.

Specification of Letters Patent.

Patented July 10, 1917.

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To all whom it may concern:

Be it known that I, CARL EIBYE, a citizen of the United States, and a resident of East Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Coal-Sprinklers for Locomotives, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to an improved system for sprinkling coal in locomotive tenders and for other uses.

Heretofore it has been the practice to sprinkle the coal in the tender of a locomotive with hot water from the boiler. Recently laws have been passed which forbid this owing to frequent scaldings which have occurred. This makes it necessary to take the water directly from the tender and spray it on the coal. One of the principal objects of this invention is to provide an ejector system whereby the water may be conducted from the tender and be spread readily over the coal at a safe temperature.

The character of the invention may be best understood by reference to the following description of an illustrative embodiment thereof shown in the accompanying drawings, wherein:

Figure 1 is a side elevation of an illustrative system shown herein as embodying the invention;

Fig. 2 on an enlarged scale is a longitudinal section through an ejector in the system;

Fig. 3 on an enlarged scale is a view partly in side elevation and partly in section of a valve union in the system; and

Fig. 4 is a vertical section taken on line 4-4 of Fig. 3.

The illustrative system shown herein comprises a main pipe 1 leading from the water tank in the tender to the main ejector for forcing the water into the boiler of the locomotive. Tapped from this pipe is a short branch pipe 3 connected with an ejector 5 (Fig. 2) of usual construction connected in turn by a pipe 6 with a union 7 having a short pipe 9 for connection with a hose (not shown) for spraying the water over the coal. The union is provided with a valve 11 (Fig. 4) for controlling the delivery of the water.

To force the water from the main pipe 1 up through the water delivery pipes a steam

pipe 13 is provided leading from the boiler and connected to said union. To control the steam the union is provided with a valve 15 (Fig. 4). The union is connected by a pipe 18 with the ejector 5. To simultaneously control the opening of the steam and water valves they have stems 17 entered through packing boxes 19, 19, and fast to a bridge member 21 secured to a screw 23 projecting upward therefrom and threaded into a yoke 25 projecting up from and fast on said union and provided with a frusto-pyramidal portion 27 to receive a hand wheel 29. When this wheel is rotated it will lift the bridge member and with it the steam and water valves, thereby in one operation simultaneously opening the steam and water pipes. On the occurrence of this event steam will pass from the boiler through the pipe 13, the union 7 and pipe 18 to and through the ejector, where it will pick up water from the main supply pipe 1 and force the same up through the pipe 6 and the union and thence out through the hose to the coal.

The steam and water pipes connecting the ejector and union are necessarily exposed where in cold weather the water therein is likely to freeze. One of the objects of the invention aims to prevent this. To this end the union is provided with branch ducts 31 and 33 (Fig. 4) leading from the steam and water pipes to a common duct 35 having a lateral port 37 delivering to the steam pipe above its valve. The common duct may be closed by a screw cap 39 removable to facilitate cleaning thereof. Diametrically opposite the ducts leading from the steam and water pipes are similar screw caps 41, 41 removable to facilitate the cleaning thereof. To control the passage of steam through these ducts there is provided a needle valve 43 (Fig. 3) projecting transversely from the union and threaded into a packing nut 45 threaded to a boss projecting from said union. The valve may be controlled by a handle 47. When the needle valve is opened a small stream of steam will seep from the pipe 13 through the ducts into the water pipe 6 and steam pipe 18 which are connected to the ejector. This will raise the temperature of the water therein sufficiently to prevent any possibility of freezing with a very small expenditure of steam.

While the system is described herein for

sprinkling the coal in locomotive tenders it may be used for other purposes if desired.

Having described one illustrative embodiment of the invention without limiting the same thereto, what I claim as new and desire to secure by Letters Patent is:

1. A system comprising a water supply pipe adapted to lead from the tank of a locomotive tender, a delivery pipe, a steam supply pipe adapted to lead from the locomotive boiler, an ejector connected to said water supply pipe, a union separate from said ejector connected to said steam and delivery pipes, steam and water pipes connecting said union and ejector, and valve means for controlling the discharge through said union.

2. A system comprising a water supply pipe adapted to lead from the tank of a locomotive tender, a delivery pipe, a steam supply pipe adapted to lead from the locomotive boiler, an ejector connected to said water supply pipe, a union separate from said ejector connected to said steam and delivery pipes, steam and water pipes connecting said union and ejector, valves in said union, and means for simultaneously opening or closing the same.

3. A system comprising a water supply pipe, a delivery pipe, a steam supply pipe, an ejector connected to said water supply pipe, a union connected to said steam and delivery pipes, steam and water pipes connecting said union and ejector, valve means for controlling the discharge through said union, and means in said union for admitting a small supply of steam to said pipes connecting said union and ejector.

4. A system comprising a water supply pipe, and means for conducting water therefrom including steam and water pipes, an ejector, and valve means for controlling the supply of steam and water to the ejector, and having means permitting the admission of a sufficient amount of steam into the system to prevent freezing therein.

5. A system comprising a water supply pipe, a delivery pipe, an ejector, a union, steam and water pipes connecting said union with said ejector, valve means in said union for controlling the passage of steam and water therethrough, a by-pass in said union around the steam valve, and a valve for said by-pass permitting the admission of a sufficient amount of steam in said steam pipe to prevent freezing therein.

6. A system comprising a water supply

pipe, a delivery pipe, an ejector, a union, pipes connecting said ejector and union, valves in the latter for controlling the passage of water and steam through the union, ducts in said union connecting said steam and water pipes, and valve means for controlling the passage through said ducts.

7. A system comprising a water supply pipe, a delivery pipe, a steam supply pipe, an ejector, a union interposed in said steam and water delivery pipes, valve means for controlling the passage of steam and water through said union, and supplemental valve means in said union permitting the delivery of a small supply of steam into the system to prevent freezing thereof.

8. A system comprising a water supply pipe 1, an ejector 5, a union 7, a steam pipe 18 and a water pipe 6 connecting said ejector and union, valve means 15 in said union for controlling the delivery of steam from said union to said ejector, valve means 11 in said union for controlling the delivery of the water therefrom, and means including a valve 43 in said union for permitting steam to seep into said pipes 6 and 18 to prevent the freezing of water therein.

9. A valve fitting for a system of the class described comprising a body having passages for conducting steam to and from said body, a valve for controlling the flow of steam through said passages, passages for conducting water to and from said body, a valve for controlling the flow of water through said passages, and a duct in said body connecting said steam and water passages for permitting a seepage of steam from one to the other.

10. A valve fitting for a system of the class described comprising a body having passages for conducting steam to and from said body, a valve for controlling the flow of steam through said passages, passages for conducting water to and from said body, a valve for controlling the flow of water through said passages, and ducts in said body for admitting a seepage of steam from one to the other of said steam passages and to one of said water passages.

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

CARL EIBYE.

Witnesses:

HENRY T. WILLIAMS,
ROBERT H. KAMMLER.