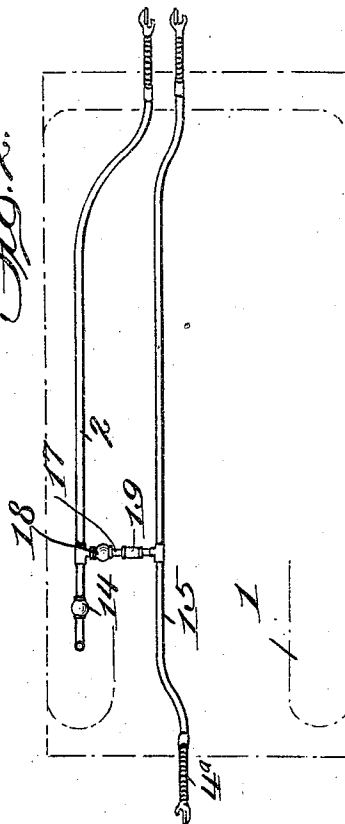


955,743.

Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

WALTER P. ANDREWS, OF JEFFERSON, TEXAS.

APPARATUS FOR COOLING JOURNAL-BOXES ON RAILWAY-TRAINS.

955,743.

Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed November 1, 1909. Serial No. 525,781.

To all whom it may concern:

Be it known that I, WALTER P. ANDREWS, a citizen of the United States, residing at Jefferson, in the county of Marion and State of Texas, have invented new and useful Improvements in Apparatus for Cooling Journal-Boxes on Railway-Trains, of which the following is a specification.

My present invention relates to improvements in apparatus adapted for use on railways for the purpose of preventing or relieving overheating of journal boxes, and it has for its object primarily to provide a simple, inexpensive and efficient apparatus of this character whereby water may be introduced with facility to any one or more journal boxes upon a train to prevent or relieve overheating thereof, each car having a distributing system which is to be connected to the other cars of the train and also to the locomotive tender whereby the distributing systems for the several cars may be quickly filled from the tender tank either for the purpose of storing water in tanks of such systems in readiness for use when necessary, or such water may be conducted directly from the tender tank to the heated journal box or boxes.

A further object of the invention is to provide an apparatus of this character wherein steam may be admitted to the water as it flows from the tender tank into the distributing systems of the cars, thereby preventing freezing of water in cold weather before reaching the heated parts.

To these and other ends, the invention consists in certain improvements, and combinations and arrangements of parts, all as will be hereinafter more fully described, the novel features being pointed out particularly in the claims at the end of the specification.

In the accompanying drawing: Figure 1 is a perspective view of a journal box cooling apparatus constructed in accordance with the present invention; and Fig. 2 is a diagrammatic view of the under side of a tender tank showing steam and water pipes with a connection between them whereby steam may be admitted to the water for the purpose of heating it as it flows from the tender.

Similar parts are designated by the same reference characters in the several views.

In the accompanying drawing, I have shown so much of a journal box cooling apparatus as is applied to one car of a train

and indicating its connection with the tender tank. It will be understood that each car of the train may be equipped with an individual water distributing system, all of the systems, however, in the train being adapted to be connected to one another and to the tender tank. It will also be understood that the drawing shows one specific embodiment of the invention, as an example.

In the present instance, 1 designates the tank of a locomotive tender. A water supply pipe 2 leads from the tender tank and is adapted to be connected to a main water supply pipe 3 upon the first car of the train by means of a flexible hose 4 which may be of the well known detachable type. The main water supply pipe 3 forms a part of the distributing system for each car, it being connected at points adjacent to the car trucks to transverse supply pipes 5 which lead toward the opposite sides of the car. Valves 6 are preferably provided for the pipes 5 at opposite sides of the main pipe 3 whereby water from the main pipe 3 may flow toward either side of the car according to the location of the journal box which is to receive the water to prevent its overheating. The two car trucks are indicated conventionally by their journal boxes 7, and a set of branch pipes 8 lead from each transverse pipe 5 to the respective boxes, flexible hose 9 being preferably used to form the connection whereby the trucks may oscillate, turn and vibrate without disturbing their relation to the water distributing pipes upon the car. Valves 10 are preferably provided for the several branch pipes 8 whereby the valve for the overheated box may be opened to admit water thereto while the remaining valves for the journal boxes which are in proper working condition may remain closed to prevent the admission of water to such boxes.

To enable each car to carry a sufficient supply of water to cool its respective journal boxes, a pair of storage tanks 11 may be provided, two of these tanks being shown in the present instance which are located toward opposite ends of the car, and the bottom of each tank is connected to the distributing system by a valve controlled pipe 12. In order to enable water from either one of these tanks to flow into a journal box upon either truck of the car, a pair of longitudinal pipes 13 may be provided which extend lengthwise at each side of the car

and connect the ends of the transverse pipes 5. The pipe 2 beneath the tender is provided with a valve 14 whereby the flow of water from the tender tank to the distributing
5 pipes upon the car may be controlled.

To prevent freezing of the water before it reaches the overheated journal box, I provide means for admitting steam from the steam heating pipe to the water after it
10 leaves the tender tank. In the present instance, 15 designates that portion of the train heating pipe which extends beneath the tender, it being connected at its forward end to the usual steam supply pipe 16 upon
15 the engine by the hose 4^a, and a branch pipe 17 connects the train heating pipe to the water supply pipe 2 for the distributing system. This connecting pipe 17 is provided with a hand valve 18 whereby steam may be
20 admitted to the water supply pipe when desirable or necessary, and a check valve 19 is used to prevent any water from the pipe 2 entering the train heating pipe, although the check valve will permit steam to flow
25 from the pipe 15 into the pipe 2 and upon entering the latter pipe, the steam gives up its heat to the water whereby the temperature of the water is raised sufficiently to prevent its freezing while flowing through the
30 distributing pipes on its way to the overheated journal box. By adjusting the valve 18, the amount of steam in proportion to the amount of water flowing through the pipe 2 may be regulated whereby the temperature of the water may be adjusted according to the atmospheric temperature and
35 to the distance of the overheated journal box from the tender.

In operation, the main distributing pipes
40 3 of the cars in the train are coupled together and the pipe 3 of the foremost car is coupled by the hose 4 to the water supply pipe 2 of the tender. If desirable, the storage tanks 11 may be charged with water ready for use
45 when needed, from the tender by opening the valves of the pipes 12 which lead to these tanks and also the valve 14 beneath the tender, the water in the tender then flowing by gravity through the pipes 2 and 3 and
50 the transverse pipes 5, the appropriate valves 6 in the latter pipes being also opened during the charging of the storage tanks. The apparatus, however, may be employed either with or without the aid of the storage
55 tanks, the valve 10 of the branch pipe which leads to the overheated journal box being first opened and the valve 6 of the transverse pipe 5 being also opened. By opening the valve 14, the water may flow directly from
60 the tender tank into the overheated journal

box. In cold weather, the valve 18 is also opened to an extent that will admit a sufficient amount of steam from the steam heating pipe into the water pipe whereby the temperature of the water as it flows into
65 the distributing pipes is sufficiently high to prevent its freezing before reaching the overheated journal box.

I claim as my invention:

1. A journal box cooling apparatus for
70 railway trains comprising a main water supply pipe adapted to be carried by a car, branch pipes leading from said main water supply pipe to the respective journal boxes, valves whereby water may be admitted from
75 said main pipe through the appropriate branch pipe to a heated journal box, and auxiliary storage tanks on the car having valved connections with the main water supply pipe on the car, in combination with a
80 tender tank, a water supply pipe leading therefrom, and a coupling between said supply pipe of the tender tank and the main supply pipe of the car.

2. In a journal box cooling apparatus, the
85 combination of a set of branch distributing pipes for a car embodying means whereby water may be conducted to any one or more of the journal boxes thereof, a main supply pipe for the distributing pipes, storage tanks
90 having valve controlled connections with the distributing pipes whereby such tanks may either receive water from or discharge water into said distributing pipes, a locomotive tender tank, and a valve controlled water
95 supply pipe leading from the tender tank and having means for connecting it to the main supply pipe of the car.

3. In a journal box cooler for railway
100 trains, the combination of a set of distributing pipes for conducting water to the journal boxes of a car, a locomotive tender tank, a water supply pipe leading from the tender tank and communicating with the distributing pipes of the car, a train heating pipe,
105 a branch pipe for conducting steam from the train heating pipe to the water supply pipe leading from the tender, a regulating valve for controlling the flow of steam into said water supply pipe, and a check valve
110 for preventing the flow of water from the supply pipe into the train heating pipe.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WALTER P. ANDREWS.

Witnesses:

CHAS. W. RAY,
J. H. BENEFIELD.