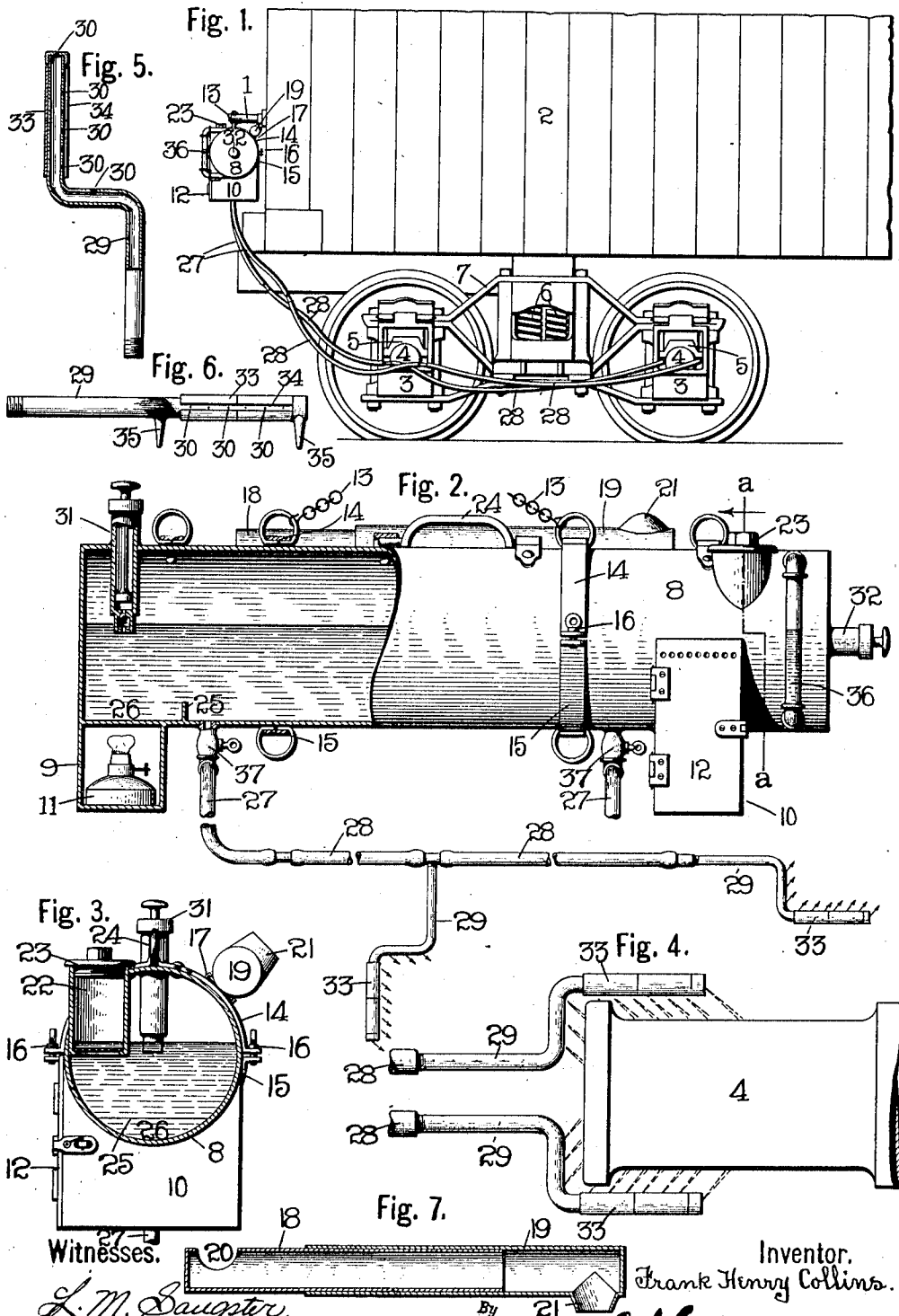


F. H. COLLINS.
 APPARATUS FOR COOLING CAR JOURNALS.
 APPLICATION FILED AUG. 25, 1908.

1,019,760.

Patented Mar. 12, 1912.



Witnesses.
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR COOLING CAR-JOURNALS.

1,019,760.

Specification of Letters Patent.

Patented Mar. 12, 1912.

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To all whom it may concern:

Be it known that I, FRANK HENRY COLLINS, a citizen of the United States, residing at Medina, in the county of Orleans and State of New York, have invented a certain new and useful Improved Apparatus for Cooling Car-Journals, of which the following is a specification.

This invention relates to an apparatus for cooling and lubricating railway car journals and the principal objects of the invention are to quickly, efficiently and uniformly cool the sides and outer ends of the heated journals and serve as an emergency apparatus for lubricating journals to prevent overheating.

The invention also relates to certain details of construction of the apparatus which will be hereinafter described and claimed reference being had to the accompanying drawings in which,—

Figure 1 is a side elevation of a portion of a freight car showing my improved car journal cooling apparatus attached thereto and in operative position. Fig. 2 is an enlarged detached side elevation of the improved car journal cooling apparatus, the tank being shown partially in section to disclose the interior thereof. Fig. 3 is a transverse section on line *a a*, Fig. 2. Fig. 4 is a fragmentary view of a car journal showing the manner of locating the spraying feeders so as to direct the spray against the journal. Fig. 5 is a detached sectional view of one of the spraying feeders. Fig. 6 is a detached side elevation of one of the spraying feeders showing the supporting legs. Fig. 7 is a detached central section of the filling tube used to catch the drip from the cars to fill the tank.

In referring to the drawings for the details of construction of the apparatus like numerals designate like parts.

This apparatus is adapted for use in cooling or lubricating the journals of various types of railway cars, such, for instance, as passenger coaches, Pullman cars and refrigerator and other freight cars.

The tank of the apparatus can be fastened to different parts of the car in order to locate the apparatus in the most desirable place. In Fig. 1 of the accompanying drawings, the tank of the apparatus is shown attached to one of the end grab bars 1, of a box freight car. In said Fig. 1, 2 represents the body of the car, 3 the car journal boxes,

4 the car journals, 5 the bearings, 6 the springs, and 7 the spring and journal box supports.

The preferred structure of this apparatus is illustrated in detail in Figs. 1 to 7 inclusive.

The tank 8 for containing the cooling liquid is preferably of cylindrical form and has depending portions 9 and 10, which are attached to the bottom of the tank and serve as supporting legs when the tank is resting on anything and are made hollow to form inclosing boxes for heating lamps 11. The lamps are utilized in cold weather to prevent freezing of the liquid in the tank, and one side of the portions 9 and 10, is in the form of a hinged door 12, which can be opened to remove or replace the lamp 11. The tank is preferably suspended from a suitable portion of a car by chains 13, which pass over or around the car portion and are fastened at their ends to rings which are attached to bands slidably encircling the tank. These bands are in two semi-circular members 14 and 15, the ends of which are bent and fastened together by screws 16 to secure the rings around the tank. The tank is filled with water or other suitable cooling liquid by means of a filler which normally is secured to the tank by fitting it into a slideway 17 on the tank body, as shown in Fig. 3. The filler consists of two telescopic tubes 18 and 19 which slidably fit one within the other to render the filler extensible in length as shown in Fig. 7. The outer ends of both of the tubes 18 and 19 are closed and the tube 18 is provided near its outer end at the top with an inlet opening 20, which can be placed under any desirable source of liquid supply, such, for instance, as the drip pipe of a passenger coach. The tube 19 is provided near its outer end with a short depending tapering tube or snout 21 which is fitted in the opening 22 in the tank when it is desired to fill the tank. The opening 22 is closed by a screw cap 23. A handle 24 is attached to the top of the tank for convenience in handling.

To prevent the water or other cooling liquid from being entirely removed from the heating lamp and thus obviate any tendency of breaking the shell of the tank in the vicinity of the lamp, a short vertical partition 25 is located in the tank to provide a shallow pocket 26 in the tank over the lamp.

The cooling liquid is conducted to the

journal through flexible pipes 27, one end of which is connected to the tank. Two or more branches 28, extend from each pipe 27 and carry at their ends spraying feeders 29, through which the liquid is sprayed on the journals. These spraying feeders are of a peculiar bent form so that they can be utilized to spray both the ends and sides of a car axle as shown in Fig. 4. Each of the spraying feeders consists of an outer longitudinally extending portion which is connected at its outer end to one of the branches 28 as before described, an intermediate transversely extending portion which is provided with a longitudinal row of spraying perforations and an inner longitudinally extending portion which is provided with a row of spraying perforations. The openings 30 in the feeders are very minute about three one-thousandths of an inch and are arranged in a longitudinal row in the tubular bodies of the feeders and extend obliquely through the side walls of said bodies so that a very fine spray is projected at a tangent against the surface of the journal which secures the greatest efficiency and uniformity in cooling. In practice the feeders are arranged in the journal box so that the perforated spraying portions extend in proximity to the outer ends and one side of the car axle and thus distribute the spray in a series of fine jets against the end and side of the axle thereby producing a uniform cooling and lubricating effect upon the journaled portion of the car axle. As the journal rotates it tends to throw off the liquid by centrifugal force; but this tendency is resisted, on the end surface of the journal, by the force of the spray which strikes said surface diagonally and forces its way toward the axis of the journal, thereby resisting the centrifugal force and causing a sheet of liquid to be maintained constantly and uniformly upon the said end surface. This spray is projected with great force by means of the air pumps attached to the tank. Two of these pumps are preferably employed, one, indicated by the numeral 31, being located in a vertical position near one end of the tank and the other 32, in a horizontal position in the opposite end of the tank. These air pumps are preferably of the ordinary and well known reciprocating type, as shown in section in Fig. 2.

A sleeve 33 is rotatably fitted over the outer longitudinal portion of each feeder and is provided with slots 34, and may be turned to either open or close the side openings in the longitudinal portion of the feeder and turned to vary the number of the spraying openings. The object of this construction is to enable the feeder to be ad-

justed to regulate and properly direct the jets of cooling liquid against the heated portions only of the journal. Another object is to economize in the use of the cooling liquid.

One or more extensions 35 project from the feeders and by embedding themselves in the waste in the journal box serve to hold the feeders in position.

A gage glass 36 is attached to the tank to determine the water level in the tank. Shut off valves 37 are located in the pipes leading from the tank to the feeders to enable the flow of water to be closed off.

This apparatus is adapted to be used to cool one or more of the heated journals of a car and can be provided with sufficient branches to extend to and cool four journals simultaneously and it may also be utilized in an emergency to lubricate journals while a train is traveling and thus prevent overheating of journals which is especially advantageous with cut or defective journals or bearings.

The main advantages of this apparatus resides in the quick and efficient cooling secured, in its simplicity and strength and the comparatively easy manner in which it can be manipulated.

In using this apparatus the waste is preferably banked against the ends of the journal box so as to retain the water that collects in the bottom of the journal box partially around the journal which necessarily greatly assists in the cooling of the journal as it is revolving in a water bath besides being sprayed with cooling spray.

With this improvement all parts of the journaled side and end of the car axle together with the journal are uniformly cooled owing to the utilization of a multiplicity of minute jets which play against both the side and end of the car axle.

I claim as my invention—

A car journal spraying nozzle comprising a perforated pipe having one portion axially parallel with the journal and another portion parallel with the end surface of said journal the perforations in the first said portion being diagonal and adapted to direct the spray toward the central and intermediate portion of the journal, the perforations in the second portion being diagonal and adapted to direct the liquid toward the axis of said journal for overcoming the centrifugal force and tending to form and maintain a sheet of water on the end surface of said journal while the same is rotating.

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