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NONFREEZING WASTE OUTLET

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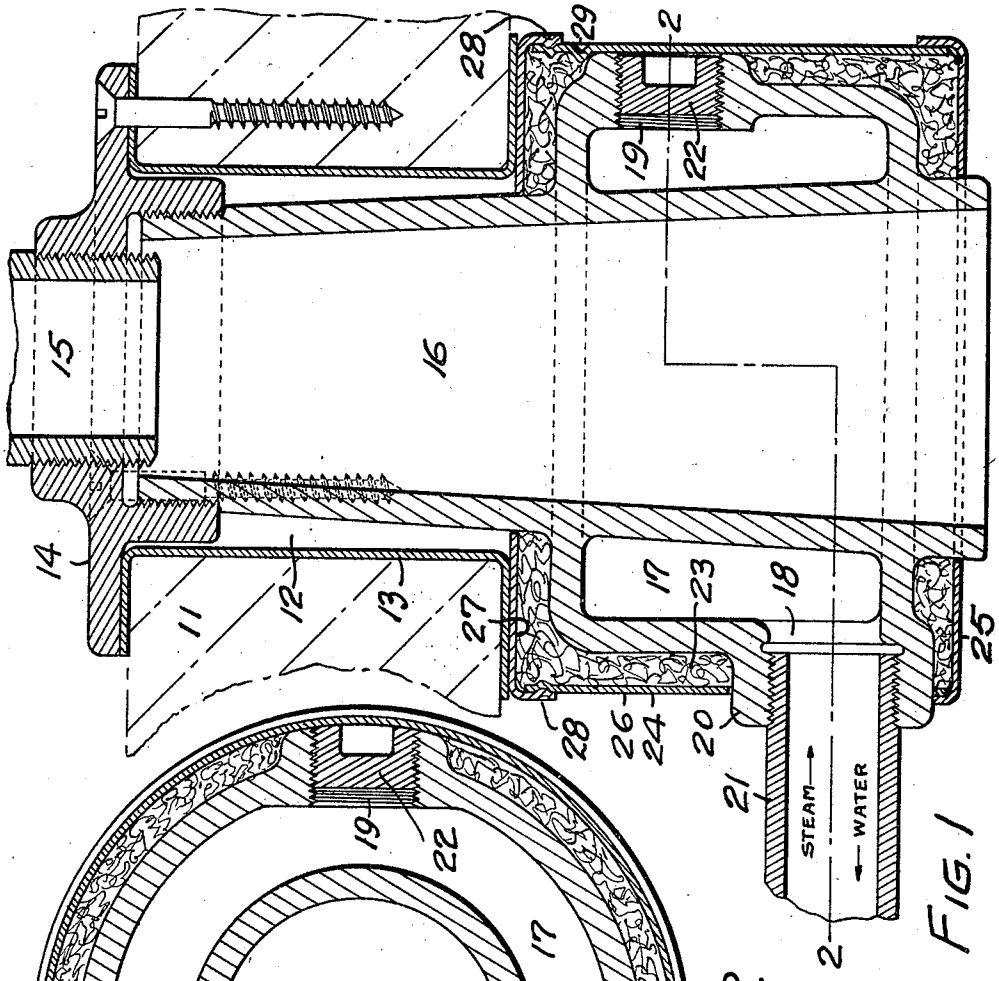


FIG. 1

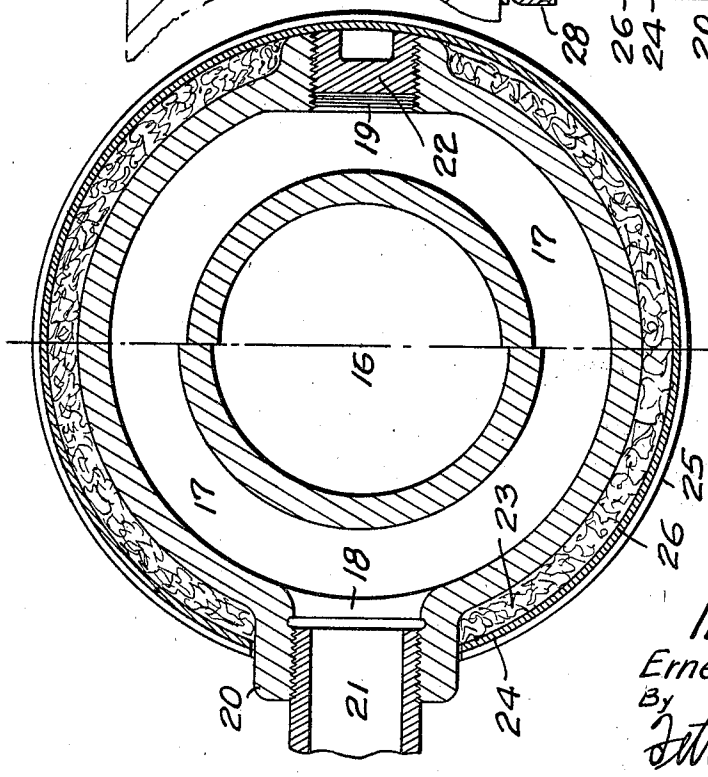


FIG. 2

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UNITED STATES PATENT OFFICE.

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NONFREEZING WASTE OUTLET.

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To all whom it may concern:

Be it known that I, ERNEST R. VIBERG, a subject of the King of Great Britain, and resident of the city of Montreal, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Nonfreezing Waste Outlets, of which the following is a full, clear, and exact description.

This invention relates to improvements in waste pipe outlets for passenger cars and the like, and the object of the invention is to provide an outlet which will not freeze up in cold weather but will remain open and in perfect working order under all conditions.

A further object is to provide an outlet which will not require special attention to prevent freezing of same.

A still further object is to provide an outlet which does not include unsightly or cumbersome projections within the car to which it is attached.

Another object is to provide an outlet which will not discharge steam or vapor to frost the outside of a car in cold weather.

At the present time the waste water from the wash-basin and drinking fountain of passenger cars discharges into the air through a pipe which terminates a short distance below the bottom of a car. The amount of water carried on a car is necessarily limited and it therefore happens that the discharge waste water is as a rule a mere trickle. In cold weather the projecting end of the waste pipe becomes chilled to the temperature of the outside air and the trickle of water freezes almost instantly on coming in contact with the cold lower portion of the pipe. This freezing occurs even in weather which is not particularly frosty owing to the rapid cooling of the water due to evaporation caused by movement of the train. In a very short time the accumulation of ice completely blocks the waste pipe. In order to overcome this a variety of thawing-out appliances have been provided which are more or less cumbersome and expensive to build or install. Certain of these appliances present unsightly projections within the car and certain of them result in a discharge of steam which condenses in the form of white frost on the bottom and sides of the car and injures the surface finish of the car. Such appliances are really intended to thaw out a frozen waste pipe and not to keep the pipe from freezing. Their operation therefore depends largely upon the memory of the trainmen who usually become advised that the waste pipe is frozen by an over-flow of water on the car floor.

According to this invention, a waste pipe outlet of simple and inexpensive construction is provided, which outlet is automatically heated all the time in cold weather so that it cannot become frozen up. This heating device is so connected as to be operative at all times when steam is in a car, so that reliance is not placed upon the memory of a trainman. There is no steam outlet from the heating appliance so that no steam escapes to condense upon and injure the car.

The device consists briefly of an outlet having a heating jacket around the lower part thereof which is connected with the heating system of the car in such a manner that steam is admitted automatically to the jacket and water of condensation runs away automatically. The jacket is in turn surrounded by an insulating cover to reduce the condensation to a minimum.

In the drawings which illustrate the invention;—

Fig. 1 is a vertical sectional view of the device.

Fig. 2 is a section on the line 2—2, Figure 1.

Referring more particularly to the drawings, 11 designates a floor of a car provided with an opening 12 for the passage of the waste pipe. This opening is lined with a metal bushing 13 which is flanged to extend beyond the opening on the upper and lower surfaces of the floor, so as to prevent any condensation on the outside of the waste pipe from wetting and eventually rotting the floor.

A floor flange 14 of ordinary type is secured to the floor and serves to connect the waste pipe proper 15 and the outlet 16, each of which is secured to the flange in any suitable manner.

The outlet 16 is of frusto-conical shape, as clearly shown in Figures 1 and 2, being secured at its upper or smaller end to the flange. The lower part of the outlet is surrounded by a jacket 17, preferably cast integral with the outlet as shown. This jacket extends from a short distance above the lower end to within a short distance of the lower surface of the floor 11. The jacket is provided with two openings designated 18 and 19, the former being provided at the

bottom of the jacket and surrounded by a boss 20 projecting some distance out from the jacket and adapted for attachment to a steam pipe 21. The second opening 19 is primarily to assist in supporting the core during manufacture of the device and having no particular use afterwards may be permanently closed by a plug 22. As will be clearly seen the bottom of the pipe 21 is on a level with the bottom of the jacket so that no water of condensation will lie in the jacket but will all drain away through the pipe 21.

In order to prevent condensation in the jacket as much as possible, the same is surrounded by a covering 23 of insulating material such as asbestos, magnesia or the like. This covering is preferably retained by a casing 24 in the form of a cylindrical box having its bottom 25 preferably permanently connected to its cylindrical wall 26. The cover or top of the casing 27 is removable and is preferably held in place by complementary indentations 28 on the cover and casing 26.

The assembly of the device is extremely simple. The cylindrical body 26 of the casing is sprung to slightly elliptical form and slipped over the boss 20 which then passes into the opening provided for it in the casing. The bottom 25 is then applied and the casing filled up with the heat insulating material 23. The cover 27 is then applied and pressed down so as to be held against accidental removal by the means 28. This completes the outlet per se. All that is necessary to attach same to a car is to provide an appropriate floor flange 14 to which the outlet may be secured. When the outlet is in position the cover 27 of its casing bears against the lower surface of the car and is by this means held against removal. The pipe 21 is then screwed into the boss 20 to connect the same with the steam heating system of the car, preferably with the train line steam pipe, the pipe being slightly pitched downwardly from the jacket to the steam line so as to drain into it.

Whenever steam is turned on in the car it flows through the pipe 21 and into the jacket, the inner wall of which is a part of the outlet, thus warming the outlet throughout its circumference. The vertical depth of the jacket in proportion to the entire depth of the outlet is sufficient so that heat will be conducted in the metal of the outlet to keep the whole length of the same warm and well above freezing point even in the coldest weather. Water which forms in the jacket by condensation of the steam escapes through the lower part of the pipe 21 in the well known manner. Whenever the weather is cold enough to supply steam for heating the car the steam will be automatically admitted to the jacket 17 as no valve is provided. The outlet is thus guarded against freezing through neglect or forgetfulness. There is no outlet through which steam can escape from the jacket to condense upon and injure the surface of the car. The devise is inexpensive to manufacture, simple to apply and is of such small size that it does not encumber a car. There is no unsightly or inconvenient part projecting into the car. There is no danger of the jacket freezing up when the car is not in use, since under modern railroad practice, cars are either heated in storage yards or else the heating system is completely emptied out. In such an emptying the jacket will be automatically drained. The casing is held in position both by the boss 20 and by the insulating material within it, but if desired an additional support 29 may be provided to suspend it from the jacket.

Having thus described my invention, what I claim is;—

1. A waste pipe outlet having a circumferentially disposed jacket at the lower part thereof, entirely enclosed except for a steam inlet at the lower part of said jacket.

2. A device according to claim 1, in which the steam inlet is positioned to serve also as a drainage outlet for water of condensation.

3. A waste pipe outlet comprising a frusto-conical, tubular outlet member, a circumferential jacket disposed externally of said outlet member, an insulating covering for the jacket and means carried by the jacket for holding the said covering in place.

4. A waste pipe outlet comprising an outlet member having a heating jacket at the lower portion thereof, a casing surrounding the jacket and insulating material within the casing.

5. A waste pipe outlet comprising an outlet member having an externally disposed integral heating jacket, said jacket having a single opening disposed to provide both a steam inlet and a drainage outlet.

6. A waste pipe outlet comprising an outlet pipe, a floor flange adapted for attachment at one side to said pipe and at the opposite side to a waste pipe, a heating jacket for said outlet pipe and an insulating covering therefor arranged to be retained in position by engagement with the floor of a car to which the outlet is attached.

7. The combination with a waste outlet provided with a heating jacket of a covering of insulating material applied to said jacket and an enclosing casing for said covering surrounding the jacket and having apertures in the end walls thereof to permit passage of the outlet therethrough.

8. A casing as recited in claim 7 made in separable sections to facilitate application and removal thereof.

9. The combination with a waste outlet having a heating jacket provided with an opening and a projecting nipple surround-

ing the opening, of a heat insulating covering for the jacket including a casing supported in position by projection of the nipple through an opening formed in the said casing.

10. The combination with a waste outlet having a heating jacket provided with an opening, of a supporting member carried by the outlet and a heat insulating covering for the jacket including a casing supported in position by projection of the supporting member through an opening formed in the said casing.

In witness whereof, I have hereunto set my hand.

ERNEST R. VIBERG.