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ANTIFREEZE DRAIN FITTING

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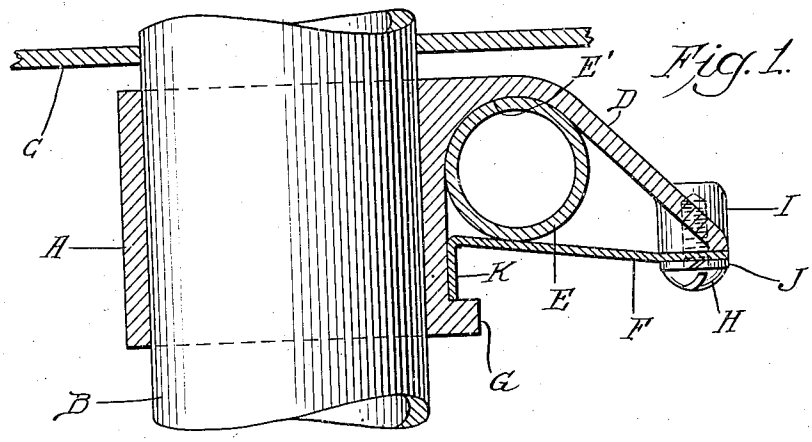


Fig. 1.

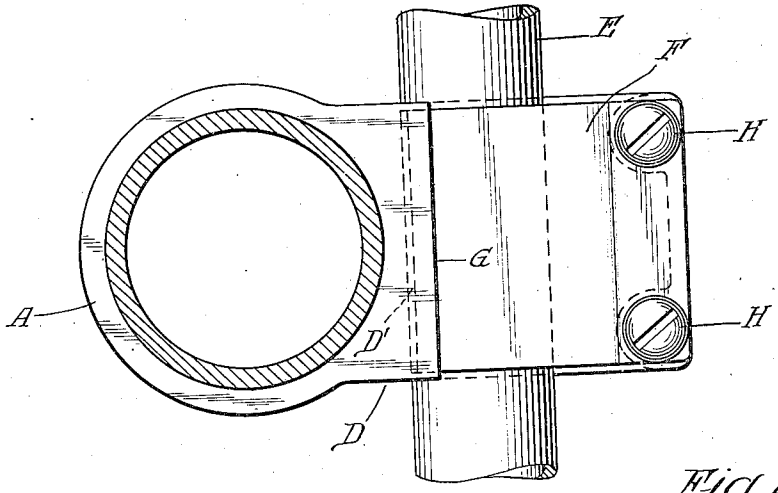


Fig. 2.

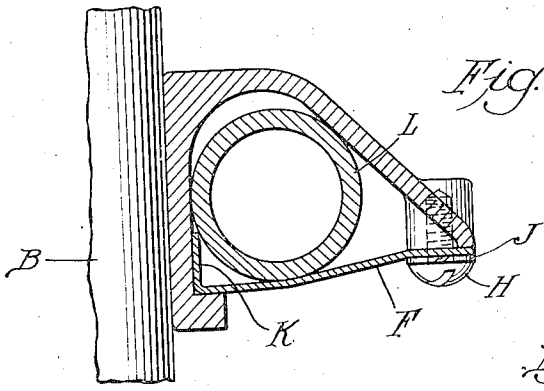


Fig. 3.

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ANTIFREEZE DRAIN FITTING

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2 Claims. (Cl. 138—32)

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This invention relates to certain new and useful improvements in anti-freeze drain fittings.

A principal object of the invention is to provide a heat conducting device of simplified construction adapted to be applied to the external surfaces of a steam pipe and a water drain pipe so that the heat from the steam pipe will be conducted through the device to the drain pipe and thereby heat the latter sufficiently to prevent the freezing of water therein during cold weather.

Another object of the invention is to provide a device of the above character which is particularly suitable for use on the water drain pipes of railway passenger cars and in other situations in which water drain pipes necessarily extend from an enclosed space into the outer atmosphere and are therefore particularly subject to freezing in cold weather.

The present invention includes structure to accommodate piping of different sizes so that it may be manufactured as a unitary device and applied in situations; for example, in railway car piping systems, in which steam or hot water pipes of different diameters are used. The present invention, therefore, includes as one of its principal objects the provision of a heat conducting fitting which may be applied to steam or hot water pipes of different external diameters and to provide direct contact with a water drain pipe so as to transmit heat from the steam or hot water pipe to the drain pipe by direct metallic conduction. In this connection, the invention further contemplates a heat transmitting device for transmitting heat from one pipe to the other, which, by the mere reversal of one of its elements, is made suitable for firmly clamping pipes of different sizes.

A preferred embodiment of the invention is illustrated in the accompanying drawing in connection with two specific installations. The installations shown, however, are intended merely as examples. Obviously, the improved fitting of the present invention may be formed to accommodate pipes and tubing having external diameters different from those shown in the drawing.

In the drawing:

Fig. 1 is a vertical section through a heat conducting fitting made in accordance with this invention and applied to effect direct conduction of heat from a heated conduit to a water drain conduit.

Fig. 2 is a bottom view in elevation of the fitting shown in Fig. 1.

Fig. 3 is a fragmentary view in section showing the application of the improved fitting to a heated conduit of larger diameter than shown in Fig. 1.

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The heat conducting fitting of the present invention comprises a hollow cylindrical sleeve A adapted to be slipped upon a drain pipe B.

The pipe B, it will be understood, leads from any source of waste water; for example, the wash basins, toilets, steam traps, or other drain fitting which may extend beneath the flooring C of a railway car or other structures which make it difficult to adequately protect the drain pipe from freezing temperatures during cold weather. At one side of the cylindrical sleeve A of the device, a flange D extends outwardly and downwardly from the upper edge of the sleeve to provide a hood for enclosing a steam or hot water conduit E. In the embodiment shown in Fig. 1, the contour of the under surface of the flange D is curved to fit a substantial portion of the upper surface of the conduit E and thereby provide a large heat conducting surface E' for direct contact with the conduit. The adjacent outer face D' of the sleeve extends the full width of the flange D so as to provide maximum area for the contact with the conduit E. The fitting is clamped to the conduit E by means of a removable resilient plate F. One end of this plate engages the upper surface of an outwardly extending rib G formed at the lower end of the cylindrical sleeve A and extends parallel to the inner face D' of the sleeve. The plate F is clamped at its other end to the outer edge of the flange D by means of a pair of screws H. The said screws are threaded into bosses I, which extend outwardly from opposite sides of the flange D. A lock washer J of the split spring type is imposed between the plate F and the head of the screws H so as to prevent a loosening of the plate F.

The end of the plate F which engages the inwardly extending rib G is preferably formed with an angularly disposed flange K. When the fitting is applied to a conduit of small diameter, for example, tubing of brass or other alloys, the plate F is positioned so that the angular flange K thereof will bear on the upper surface of the rib G. When the fitting is applied to conduits of larger diameter, for example, wrought iron pipe L as shown in Fig. 3, the plate F is reversed so that the body of the plate will seat on the upper surface of the rib G and the flange K of the plate will extend upwardly along the inner face of the sleeve A.

The opening through the fitting A is preferably such as to provide a close but slidable fit on the

drain pipe B so that the fitting can be readily inserted over the drain pipe and moved to any desired position thereon. The heated conduits E and K may be the steam feed line arranged outside of the car and leading from a main source of steam or hot water to radiators or other fittings within the interior of the car.

From the above disclosure, it will be seen that we have provided a simple but highly effective device for transmitting heat by metallic conduction from a heated conduit to the external surface of a drain pipe, which fitting can be readily and conveniently applied in various situations. The diameter and width of the cylindrical sleeve may be formed to suit drain pipes of different sizes to provide heat transmitting surfaces of suitable area for drain pipes of different sizes.

We claim:

1. In combination with a heated conduit and a water conduit, of means for conducting heat from the heated conduit to the water conduit to prevent freezing thereof comprising a metallic fitting formed with a sleeve portion to fit over and engage the outer surface of one of said conduits and provided with a flange extending outwardly from one end portion of the sleeve and engaging the other conduit, an integral rib at the other end of the sleeve, and means for clamping the said fitting to the conduit engaged by said flange comprising a plate seated at one end on said rib and releasably secured at its other end

to said flange; the end of the plate which seats on said rib being formed with an angularly disposed flange adapted in one position of the plate to seat on said rib and in an inverted position of the plate to extend upwardly from the plate and away from the rib to facilitate clamping said flange to a conduit of larger diameter.

2. An anti-freeze connection between a water drain conduit and a conduit containing heating medium, comprising a metallic element formed with a cylindrical sleeve adapted to fit over the outer surface of the drain conduit, an angular flange extending outwardly from the sleeve and cooperating therewith to embrace and engage a portion of the conduit for the heating medium, and means for clamping the device to the last mentioned conduit comprising a clamping plate of angular configuration reversibly secured to the said sleeve and said angular flange to accommodate conduits of different diameters.

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