May 31, 1949. W. E. WHITE 2,471,708

FLOOR PROTECTOR

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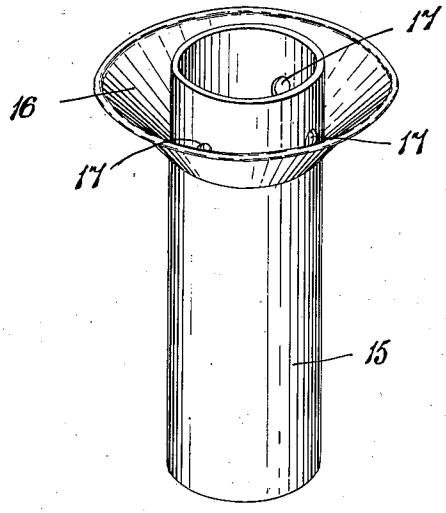


Fig. 3.

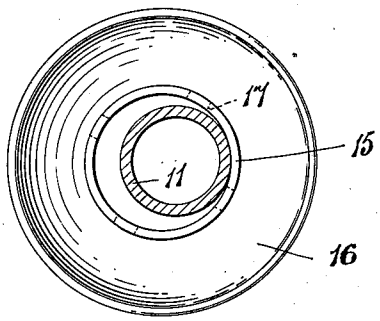


Fig. 2.

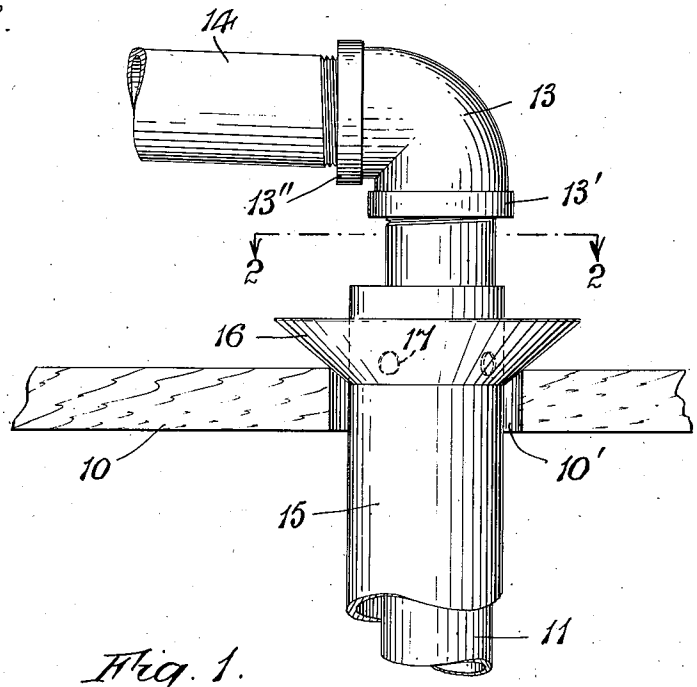


Fig. 1.

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FLOOR PROTECTOR

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6 Claims. (Cl. 285—30)

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This invention relates to means for the protection of floors from the condensation forming on water pipes passing therethrough. It has been commonly observed that while the drain pipes, such as of sinks, pass through the floor therebeneath, the condensation forming on the outside of the drain pipe frequently collects on and about the opening of the floor therebeneath, not only creating an unsightly appearance but damaging the floor and is particularly destructive to linoleum and other floor coverings. The metal or rubber drainage pipe from an ice box, for instance, has often been the cause of the destruction of a ply-wood floor to such an extent that a portion of the floor has had to be replaced.

It is, therefore, the object of the present invention to provide a simple, cheap and easily applied device which will prevent the destructive effects of such condensation and permit it to flow freely down the pipe and through the floor without actually coming into contact with the floor or its covering.

Obviously a hole considerably larger than the drain pipe may be provided in the floor for clearance to prevent direct access of moisture to the floor, but this does not necessarily ensure that the pipe will not come into contact with the edges of the said opening. Furthermore, such an opening in itself would be unsightly and undesirable. Still further, it happens often that, where an elbow or joint is provided in the pipe above the floor, a certain amount of dripping may take place from the elbow at some little distance from the wall of the vertical pipe itself and this dripping of moisture onto the floor, of course, is equally objectionable. The present invention takes care of that condition also.

More particularly, the said invention aims to provide a spaced sleeve around the vertical pipe passing through the floor whereby an air space between the sleeve and the pipe itself will serve to prevent moisture from collecting on the outside of the sleeve itself due to the fact that this air space prevents the sleeve actually attaining the same low temperature as the pipe; and I propose to provide this sleeve with a drip collar or funnel serving the purpose of collecting any moisture which may find its way to the outside of the upper portion of the sleeve, whereby such dripping will be conveyed through suitable drainage openings to the interior of the sleeve so that it may travel down the water pipe itself and not come in contact with the floor. This drip collar also is intended to serve the purpose of closing the excess opening in the floor about the sleeve itself so that the opening does not, of necessity, have to be closely dimensioned to fit the collar.

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Still further objects or advantages additional or subsidiary to the aforesaid objects, or resulting from the construction or operation of the invention as it may be carried into effect, will become apparent as the said invention is hereinafter further disclosed.

In carrying the said invention into effect, I may provide the novel construction and arrangement of parts hereinafter described, by way of example, having reference to the accompanying drawing, wherein:

Figure 1 shows a section of flooring through which the vertical water or drain pipe passes, said pipe having applied thereto a protective device embodying the said invention;

Figure 2 is a cross section taken on a plane indicated by the line 2—2 in Figure 1 showing the protective device in plan; and

Figure 3 is a perspective view of the said protective device removed.

Similar characters of reference indicate similar parts in the several figures of the drawing. 10 indicates a floor having an opening 10' through which a drain or water pipe 11 passes in the usual manner, the said opening being of substantially greater diameter than the said pipe 11. The pipe 11 is shown as being provided at its upper end with an elbow 13, such as is common practice, which is in turn connected with the pipe 14 set in a somewhat slanting manner for the purpose of ensuring that condensation which may form thereon flows directly to the elbow 13 and does not simply drip from the horizontal pipe at various points along its length. Obviously, the condensation forming on the pipe 14 and on the elbow 13 may drip from the flange 13' of the said elbow in addition to forming and passing down the outside of the vertical pipe 11.

To prevent any of this dripping or flow of condensation reaching the floor itself, instead of passing directly down the outside of the pipe 11 to the basement or other point of suitable disposal, I provide the protective device shown which comprises a tube 15 of an internal diameter materially greater than the external diameter of the pipe 11 and adapted to be positioned around the said pipe 11 as clearly shown in Figures 1 and 2. The pipe 11 in these figures is shown as being eccentrically disposed to the tube 15 merely because, in actual practice, such a position is liable to be assumed and the result must be accounted for, inasmuch as should the tube 11 touch the tube 15 in the manner illustrated then that con-

densation which collects on the pipe 11 at the point of such contact would naturally flow over the upper edge and down the outer surface of the tube 15.

Any moisture or condensation which does so gain access to the upper outer surface of the said tube 15, as in the manner stated, is caught by a funnel or conical flange 16 mounted upon the said tube 15 preferably some distance below the upper end thereof.

I prefer to make this funnel of such a height that the rim of the funnel when in position will be materially below the upper end of the tube 15, so that if an arrangement of piping at an angle such as that shown, or a bent pipe, be inserted through the tube 15 the horizontal or approximately horizontal part of the pipe cannot come into contact with the upper edge of the funnel 16.

That portion of the tube which is located within the funnel 16 is provided with a plurality of ports 17 through which any water collecting inside the said funnel may pass to the interior of the said tube 15 and thus flow down the encircled pipe 11 as is desirable. It will be quite clear that any drip from the flange 13' (or from the flange 13'') of the said elbow will also be caught by the funnel 16 of the tube 15 and directed into the interior of the tube 15.

As the tube 15 has usually no contact with the pipe 11 (or at most only a line contact therewith should the pipe 11 be so eccentric thereto as to actually touch the wall of the tube 15), the air space between the pipe 11 and the tube 15 prevents a temperature condition arising in the tube 15 which would result in "sweating" or condensation about the outside of the tube 15, or on the outer surface of the funnel 16; so that it will be clear that the floor through which the tube 11 passes is completely protected against the ravages of such condensation. Further, the funnel 16 not only positions and supports the tube 15 within the hole provided therefor in the floor but also acts as a floor plate concealing the said hole 10' which may be considerably larger than the tube 15 as shown in Figure 1.

The simplicity of the device and its ease of application are immediately apparent and its efficiency in protecting the floor is very high. The device, of course, is intended to be made in various sizes to suit different sizes of water or drain pipes; and as these are quite well standardized, this presents no difficulty from a manufacturing standpoint as the tube 15 and the funnel 16 can quite readily be manufactured from standard fabricated parts already to be found on the market.

This invention may be developed within the scope of the following claims without departing from the essential features of the said invention, and it is desired that the specification and drawing be read as being merely illustrative of a practical embodiment of the same and not in a strictly limiting sense.

What I claim is:

1. As a means for protecting a floor from condensation from a pipe passing through an opening therein, a tube of larger bore than the outside diameter of the pipe adapted to be placed in spaced relation around said pipe and through the floor opening, and a funnel-shaped flange on the upper end portion of and draining into said tube.

2. As a means for protecting a floor from condensation from a pipe passing through an opening therein, a tube of larger bore than the outside diameter of the pipe adapted to be placed in spaced relation around said pipe and through the floor opening, and a funnel-shaped flange on and somewhat below the upper end of said tube, said tube being ported to provide drainage from within said flange to the interior of said tube.

3. As a means for protecting a floor from condensation from a pipe passing through an opening therein, a tube of larger bore than the outside diameter of the pipe adapted to be placed in spaced relation around said pipe and through the floor opening, and a funnel-shaped flange on and somewhat below the upper end of said tube, said tube being ported to provide drainage from within said flange to the interior of said tube, the upper end of said tube rising materially above the upper outer margin of said flange.

4. As a means for protecting a floor from condensation from a pipe passing through an opening therein, a funnel-shaped floor plate adapted to seat in such opening, and a tube of larger bore than the outside diameter of the pipe supported in said floor plate and adapted to be held thereby in spaced relation around said pipe, said floor plate being afforded drainage to the interior of said tube.

5. As a means for protecting a floor from condensation from a pipe passing through an opening therein, a funnel-shaped floor plate adapted to seat in such opening, and a tube of larger bore than the outside diameter of the pipe supported in said floor plate and adapted to be held thereby in spaced relation around said pipe, said tube projecting upwardly at the point of its connection with said funnel and being ported to provide drainage from said funnel to the interior of said tube.

6. As a means for protecting a floor from condensation from a pipe passing through an opening therein, a funnel-shaped floor plate adapted to seat in such opening, and a tube of larger bore than the outside diameter of the pipe supported in said floor plate and adapted to be held thereby in spaced relation around said pipe, the upper end of said tube extending materially above the level of the periphery of said funnel, said tube being ported to afford drainage from said funnel to the interior of said tube.

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