May 15, 1956 A. B. HULTGREN 2,745,510

DRAIN TRAPS

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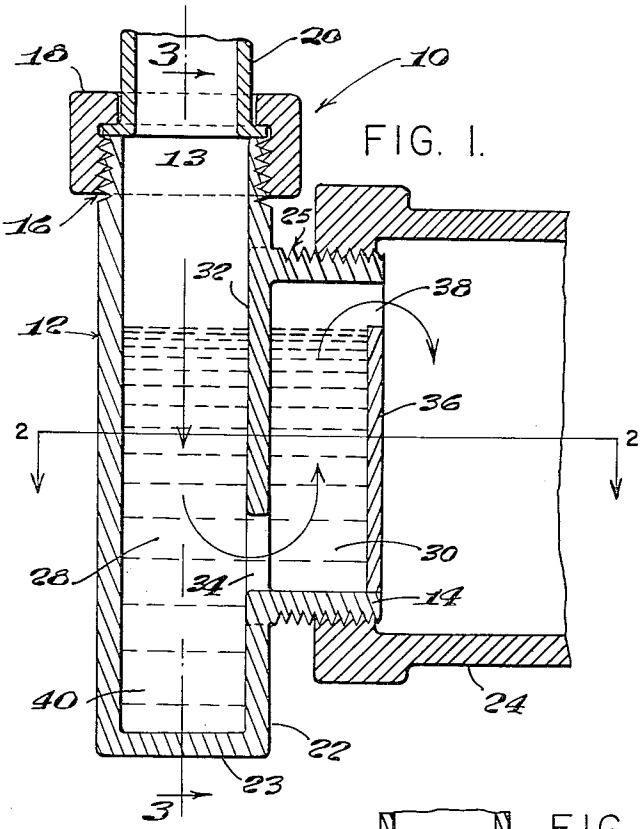


FIG. 1.

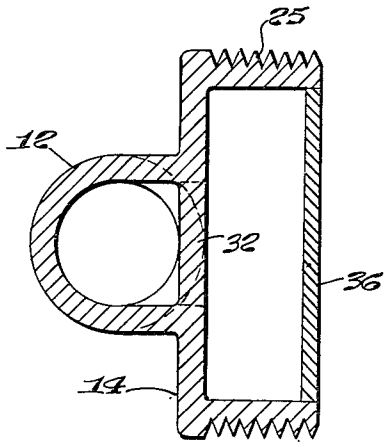


FIG. 2.

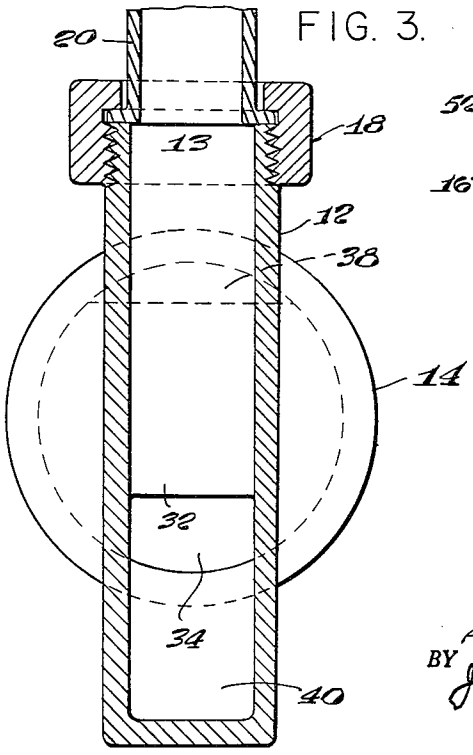


FIG. 3.

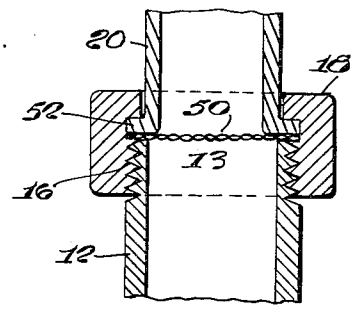


FIG. 4.

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DRAIN TRAPS

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3 Claims. (Cl. 182—23)

This invention relates to drain traps.

The invention has for an object to provide a novel and improved drain trap particularly adapted for connection to an existing drain pipe having an access opening whereby a drain for an auxiliary waste inlet may be conveniently installed in an existing drainage system in a simple and economical manner.

With this general object in view and such others as may hereinafter appear the invention consists in the novel drain trap hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the present invention:

Fig. 1 is a vertical section showing the present drain trap operatively connected in the access or clean-out opening of a conventional drain pipe.

Fig. 2 is a section taken on line 2—2 of Fig. 1;

Fig. 3 is a section taken on the line 3—3 of Fig. 1; and

Fig. 4 is a sectional detail view showing a modified form of the present invention.

In general the present invention consists in a novel and improved drain trap particularly adapted to be connected to the internally threaded access or clean-out opening in an existing draintage system within a building to provide a drain trap for a basin, sink or other similar fixture to efficiently prevent sewerage gases from flowing upwardly through the system to the connected fixtures. As illustrated in Figs. 1–3, the present drain trap is preferably cast from brass or other suitable metal to provide a vertically extended portion substantially tubular in shape and closed at one end and having an integral hollow cylindrical shaped portion extended laterally therefrom substantially midway between its ends. The interior of the trap is divided into two chambers having a communicating passage in the lower portion of the front wall of the cylindrical portion of the trap connecting said chambers together, and an outlet passage is provided in the top portion of the rear wall of the laterally extended cylindrical portion to permit waste water to pass into the first chamber through the communicating passage to the second chamber and through the passage in the rear wall of said laterally extended portion. Provision is also made in the present trap for easily detachably connecting it into an existing drainage system to thereby eliminate the need for making excessive alterations in said system or for installing a new drainage system when a new additional fixture is to be installed in a building. Provision is made in a modified form of the present invention for preventing foreign matter from flowing from the fixture into the trap which may clog the same and destroy its operating efficiency.

Referring now to the drawing illustrating the present invention and to Figs. 1–3 in particular, 10 represents the present drain trap comprising a vertically extended substantially tubular portion 12 open at one end 13 and a hollow cylindrically shaped extended portion 14 formed integrally therewith. The open end 13 of

vertically extended tubular portion 12 is provided with an externally threaded neck 16 adapted to cooperate with a coupling 18 secured upon the end of a pipe 20 which may be connected in the usual manner to a fixture, such as a sink, basin or closet, not shown, to permit the same to be drained.

As shown in Fig. 1, hollow cylindrical extended portion 14 is formed integrally with and is extended laterally from one wall 22 of vertically extended tubular portion 12 substantially midway between its open end 13 and closed end 23. In practice hollow cylindrical portion 14 is preferably cast of a size adapted to be secured to the standard size drain pipe 24 and is provided with external threads 25 for detachably securing said portion to the usual threaded access opening in an existing drain pipe.

In accordance with the present invention the interior of drain trap 10 is provided with inlet and outlet chambers 28, 30. Inlet chamber 28 comprises the body of vertically extended tubular portion 12 separated from cylindrical portion 14 by the partial front wall 32 of said portion 14 defining with the outer wall of cylindrical portion 14 a lower communicating passage 34 between tubular portion 12 and cylindrical portion 14. Outlet chamber 30 is defined by partial front wall 32 and a partial rear wall 36 defining with the outer wall of cylindrical portion 14 an outlet passage 38 communicating with drain pipe 24. As illustrated in Fig. 1, the closed end 23 of vertically extended tubular portion 12 is disposed below communicating passage 34 forming a pocket 40 in which sediment may be lodged, the sediment collecting in the pocket 40 at the bottom of chamber 28 being prevented from passing through the opening 34 into chamber 30.

From the description thus far it may be readily observed that the present drain trap consists in a vertically extended substantially tubular portion closed at one end and a hollow cylindrical integral extended portion provided with a partial outer wall. The interior of the drain trap is provided with two chambers having a partial front wall separating the same and providing a communicating passage between said chambers; and a partial rear wall defining the outer wall of one chamber and providing an outlet passage for communication with a drain pipe. A quantity of fluid, preferably an amount which will fill the trap to the level defined by the partial rear wall of the hollow cylindrical extended portion, is retained therein to provide a water seal to prevent sewer gases from escaping upwardly to the basin or sink to which the trap is connected in the usual manner.

In practice the open threaded neck 16 is detachably secured to a fixture drain pipe 20 by coupling 18 of the usual type in use in the plumbing trade, and the threaded hollow cylindrical extended portion 14 of the trap is detachably secured within an access opening in an existing drain pipe 24 in the drainage system by screwing portion 14 thereinto, as shown. In operation when, for example, a basin is filled with water and the water permitted to drain therefrom through pipe 20 it passes into chamber 28, the body of the drain trap, through opening 34 and into chamber 30, filling the same, as shown. When chambers 28, 30 are filled to capacity the water will be forced to flow through opening 38 and into the drain pipe 24 to be thereafter carried to the sewer, as indicated by the arrows in Fig. 1. It will be apparent that when the basin has been emptied of its contents the water will continue to flow from opening 38 into drain pipe 24 until the water level in the trap 10 is lowered to a position below the opening 38 as defined by partial rear wall 36. Thus, chambers 28, 30 will remain substantially filled with water, as shown in Fig. 1,

providing a water seal which serves to prevent sewer gases from backing up through the system from the sewer to the basin, sink or other fixture in said line.

Referring now to Fig. 4 in particular for a description of a modified form of the present invention, **50** represents a relatively fine wire mesh screen which is positioned across the open end **13** of the vertically extended tubular portion **12**, as shown, and maintained in such position by the end **52** of pipe **20**. It may be easily seen that when coupling **18** is screwed down tightly upon threaded neck **16** of the tubular portion **12** the perimeter of screen **50** will be compressed between the end **13** of the tubular portion **12** and the end of pipe **20** and is held in such position as long as the coupling remains in its tightened position. The screen serves to prevent foreign matter which may be contained within and carried by the fluid from the fixture from clogging the trap and may be easily removed periodically and cleaned by merely loosening coupling **18** and sliding the screen from its position on the open end **13** of the trap.

In accordance with the present invention the present novel drain trap is preferably cast such that threaded neck **16** is of a size which may be connected to the standard pipe sections utilized in the plumbing trade in connecting basins, sinks and the like to suitable drainage systems. The threaded portion **25** of hollow cylindrical extended portion **14** is cast to be of a size which will permit it to be screwed into or otherwise fastened into an access opening in a standard size pipe **24**, either in an existing system or a new drain pipe, thereby connecting the fixture into the drainage system and to a sewer.

From the foregoing description it may easily be observed that the present novel and improved drain trap may be easily and economically manufactured to provide a compact highly efficient drain trap providing an efficient water seal which will substantially eliminate the passage of disagreeable and harmful sewer gases upwardly through the system to the fixtures and thence into the kitchen, bathroom or other rooms in which such fixtures may be installed.

Having thus described the invention, what is claimed is:

1. A drain trap adapted to be connected to a drain pipe having an internally threaded access opening, said drain trap comprising a horizontally extended hollow and externally threaded cylindrical portion adapted to be received in said threaded access opening, said hollow cylindrical portion comprising an outlet chamber having a partial rear wall defining with the outer wall of said cylindrical portion an upper outlet passage communicating with the drain pipe, a partial front wall defining with said outer wall a lower communicating passage, a vertically extended and substantially tubular portion formed integrally with and extended diametrically across the front wall of said cylindrical portion, said tubular portion comprising an inlet chamber closed at its lower end and communicating through said lower passage with said outlet chamber, the upper end of said tubular portion being open and having a threaded portion adapted for connection to an inlet pipe.

2. A drain pipe as defined in claim 1 wherein the lower closed end of said tubular portion is extended a substantial distance beyond the perimeter of said cylindrical portion to form a sediment trap.

3. The combination with a drain pipe having an internally threaded access opening of a drain trap comprising a horizontal externally threaded cylindrical hollow portion adapted to be received in said access opening, said hollow portion comprising an outlet chamber having a front wall and a rear wall, said walls extending across the ends of said cylindrical portion, an elongated tubular portion formed integrally with and extended diametrically across the front wall of said hollow portion, the adjacent wall of the tubular portion being coextensive with the front wall of the hollow cylindrical portion, said tubular portion forming with said hollow portion a receptacle having a communicating passage in the lower part of said front wall and having a discharge passage in the upper part of said rear wall communicating with said drain pipe, the lower end of said tubular portion being closed and the upper end being open and adapted for connection to a screened inlet pipe.

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