

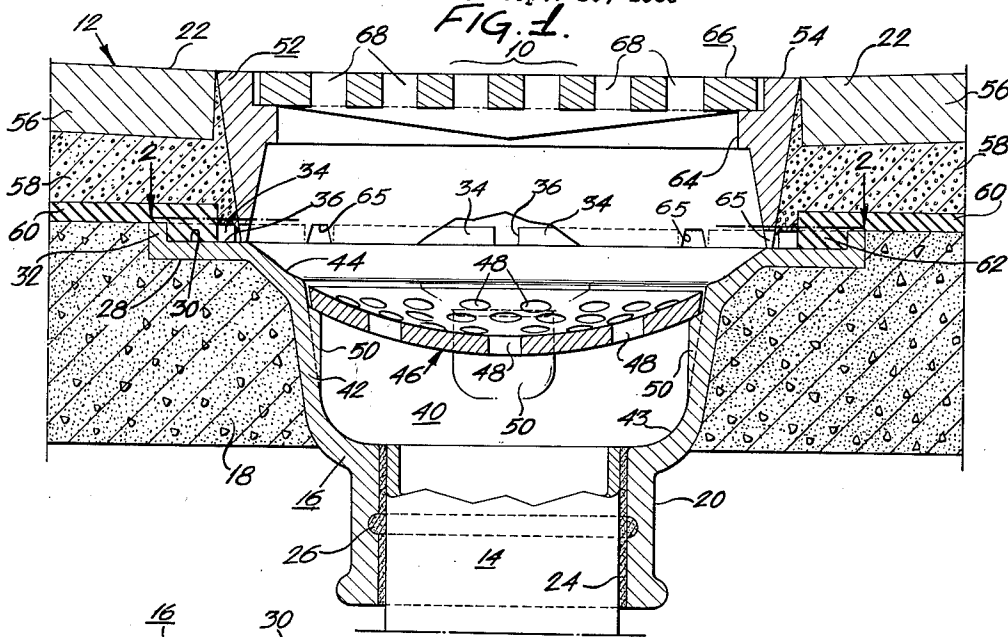
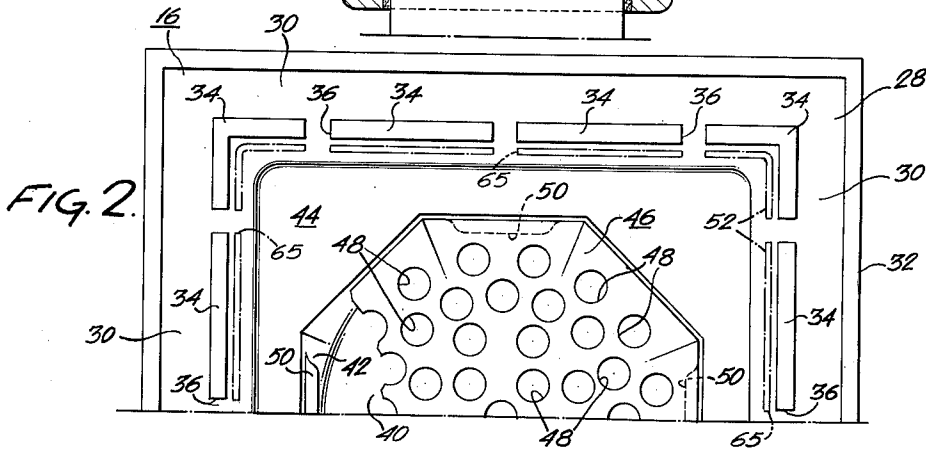
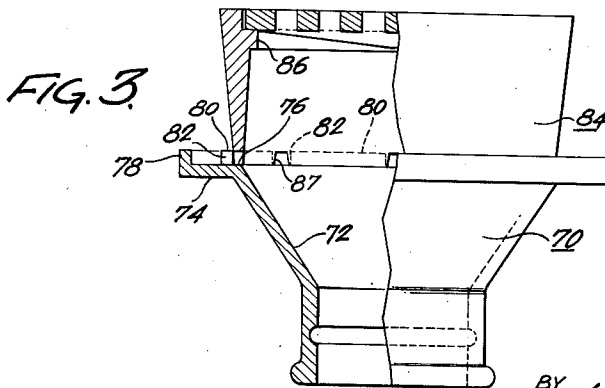
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FLOOR DRAINS

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FLOOR DRAINS

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The present invention relates to improvements in drainage inlets for use in floor or surface drainage systems and more particularly to improvements in floor drains adapted to be positioned in a floor in communication with an outlet pipe which is of relatively simple design and adapted to solve various drainage problems.

Heretofore one of the objectionable features in floor drain installations was the accumulation of fluid and other refuse in the drain inlet. This was objectionable for the reason that the accumulations lessened the efficiency of the drain and additionally created noxious odors. The present invention overcomes the difficulties of prior drain inlets by providing a drain wherein the continuous flow of fluid and other material to the outlet pipe is assured.

The drain in its broadest aspect comprises a lower pot having continuous upwardly diverging side walls and a removable strainer whose upper surface is flush with the finished surface of the floor. The bottom of the pot has a socket that is adjustable vertically with respect to the outlet pipe so that the drain may be positioned to be flush with the surface of the floor. A retainer portion is supported on the pot which in turn supports the strainer. The walls of the retainer and the pot diverge outwardly toward their junction and are substantially aligned so that there is no area in which fluid and other refuse material can accumulate.

With the foregoing in mind, the principal object of the present invention is to provide a floor drain adapted to be positioned in a floor and which communicates with an outlet pipe having wall portions that diverge upwardly and outwardly from the outlet pipe so that fluids and other particles passing there through cannot accumulate at any point in the drain inlet.

Another object of the present invention is to provide a drain which is of simplified and rugged construction and which may be easily and economically manufactured.

These and other objects of the present invention and various features and details of the construction and operation thereof are hereinafter more fully set forth with reference to the accompanying drawings, in which:

FIGURE 1 is a sectional view taken along a longitudinal axis passing through the center of the drain inlet showing it installed in a floor;

FIGURE 2 is a sectional view taken along line 2-2 of FIGURE 1; and

FIGURE 3 is a side view partially in section of another embodiment of drain inlet constructed in accordance with the present invention.

Referring more specifically to the drawings and particularly to FIGURE 1 thereof, reference numeral 10 designates generally the drainage inlet of the present invention positioned in a floor 12 with the upper portion flush with the finished surface of the floor and the lower portion positioned in communication with a drainage pipe 14. The drainage inlet comprises a pot 16 supported in a layer 18 of the floor which may be of a cement construction. Frequently the pipe 14 is slightly out of the vertical and also varies in height relative to the finished surface of the floor. Accordingly, in order to insure that a substantially flush surface exists between the drainage inlet 10 and the finished surface 22 of the floor, the pot has a socket portion 20 depending from the lower end thereof which fits loosely over the drainage

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pipe 14 so that it may be adjusted with respect thereto.

When the drainage inlet 10 has been adjusted, means is provided for securing the drainage inlet 10 to the upper portion of the drainage pipe 14. As shown in FIGURE 1, this means comprises caulking 24 which is inserted between the inside of the socket 20 and the outside of the pipe 14. An annular groove 26 formed on the interior of the socket 20 serves to hold the caulking in place. The loose fit between the pipe 14 and the socket 20 and the use of the caulking 24 enables any irregularity of the height of the pipe 14 or any variation from perpendicularity of the pipe to be compensated for when securing the pot 16 to the pipe 14.

The pot 16 has a flange portion 28 formed integrally with the top edge thereof and extending outwardly therefrom. The outer periphery of the flange 28, as shown in FIGURE 2, is of a generally rectangular shape but may be round, octagonal, hexagonal, etc. The flange portion 28 preferably lies in the cement flooring 18 and has an upstanding outer lip 32 which preferably terminates at its upper edge on a level with the top of the flooring 18 and an upstanding inner lip 34 provided with a plurality of passage ways 36. The outer and inner lips define a groove 30.

The basin portion 40 of the pot 16 is defined, as shown in FIGURE 1, by side walls 42 that converge downwardly and inwardly toward the socket portion 20 of the pot 16 and terminate in a gradually sloping bottom portion 43 which merges into the socket portion 20 of the pot. The lip 44 at the top of the wall 42 of the pot diverges upwardly and outwardly to a greater degree than the walls of the pot. Adjacent the upper lip 44 an inner strainer 46 is supported in the pot. The inner strainer 46 is dished downwardly toward its center portion and has a plurality of openings therein. In the present instance, the openings comprise a series of circular apertures 48. The inner strainer 46 is removably mounted in the pot on a plurality of support lugs 50 formed integrally with and projecting from the side wall 42 of the pot 16. The lugs 50 provide an interrupted supporting surface for the strainer 46 so that drainage that passes between the strainer and the wall 42 of the pot is free to flow directly to the drainage pipe 14.

A box or retainer 52 is mounted on the flange portion 28 of the pot 16 and has its upper surface 54 flush with the finished surface 22 of the floor. As shown in FIGURE 1, the finished surface 22 of the floor is of brick construction 56 secured together by cement, but may be of any other desired construction such as concrete or tile. The finished surface slopes inwardly toward the drainage inlet and is supported on a strata of cement 58 preferably with a large sand component and a layer of water proofing material 60 which is laid over the flooring material 18 and extends over the top of the flange portion 28 and into groove 30 behind the lip 32 as shown at 62 in FIGURE 1. The water proofing 60 terminates at the outer peripheral surface of the inner lip 34. This layer may be one or more layers of asphalt paper or may be of any other suitable composition. The lips 32 and 34 cooperate with the water proofing layer 60 to preclude leakage about the drain. Accordingly, drainage that seeps through the flooring adjacent the retainer 52 passes through the strata 58 and then passes through the passage ways 36 and openings 65 to the basin of the pot.

The box or retainer 52 is formed with an annular shoulder 64 about its inner periphery to support an upper or outer strainer 66 having a plurality of openings 68 therein. The box or retainer 52 rests on the flange portion 28 of the pot so that the inner peripheral edge of the shoulder 64 overlies the lip 44. A plurality of passage ways or openings 65 are provided in the lower edge of the retainer 52 which communicate with passageways 36 so that

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seepage passing through strata 58 adjacent the retainer 52 may flow to the basin of the pot. Accordingly drainage passing through the upper strainer 66 engages the upwardly diverging lip 44 of the pot 16. Any drainage accumulating in the space between the upper strainer 66 and the retainer 52 can be readily detected and removed by removing the strainer 66.

Another embodiment of drainage inlet constructed in accordance with the present invention is illustrated in FIGURE 3. This inlet is especially suitable for use in packing house plants. The inner strainer is not used so that larger particles that pass through the outer strainer are free to pass into the drainage system. A pot 70 is provided which is similar in construction to the pot 16 illustrated in FIGURE 1 except that the side walls 72 of the pot 70 diverge upwardly and outwardly continuously to form a frusto-conical channel similar to a funnel. A flange 74 is provided which extends outwardly from the upper lip 76 of the pot 70 having an upstanding outer lip 78 extending upwardly therefrom and an upstanding inner lip 80 which is provided with a plurality of passageways 82 similar to the passageways 36 shown in flange 28 of FIGURE 2. A retainer 84 is mounted on the flange portion of the pot adjacent the lip 76 so that the inner peripheral edge of shoulder 86 overlies the point at which the retainer 84 is supported on the lip 76 of the pot 70. Openings 87 which communicate with passageways 84 are provided in the retainer 84.

From the foregoing, it is readily apparent that the present invention provides a novel improvement in drainage inlets which is of simplified construction and which may be manufactured easily and economically. Accumulation of fluids and refuse in the inlet is precluded in systems employing the drainage inlet of the present invention.

Each of the embodiments illustrated is characterized by a pot having upwardly diverging side walls which merge at the bottom portions thereof into a socket which fits over a drain pipe, and a retainer mounted on the pot having an upper inner peripheral wall that overlies the upper inner peripheral edge of the pot so that fluids pass through the strainer mounted on the retainer directly into the basin of the pot without collecting on any ledges or the like.

While particular embodiments of the present invention have been illustrated and described herein, it is not intended to limit the invention to such a disclosure, but changes and modifications may be incorporated and em-

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bodied therein within the scope of the following claims.

I claim:

1. A drain inlet in a floor adapted to be positioned over a drainage pipe adapted to collect seepage from the intermediate portions of the floor and convey said seepage into the drainage system, comprising a pot having continuously upwardly diverging side walls, an upwardly diverging lip extending outwardly from the top edge of the side walls, a flange extending outwardly from the upper edge of said lip, said pot being positioned in the floor beneath the intermediate portion of the floor, a socket depending from the pot and adapted to fit over and be secured to said drainage pipe, a first removable strainer downwardly dished toward its center portion, means for mounting said first strainer adjacent the upper edge of said pot below said lip, a retainer mounted on said pot having an upper inner peripheral wall overlying said lip portion and having a plurality of openings in the lower edge thereof to permit seepage to pass through said openings into the pot, said first strainer and lip forming a generally spherical surface underlying said retainer, and a second removable strainer mounted on the retainer with its upper edge substantially flush with the finished surface of the floor.

2. A drain inlet in a floor adapted to be positioned over a drainage pipe comprising a pot having continuously upwardly diverging side walls, an upwardly diverging lip extending outwardly from the top edge of the side walls, a socket depending from the pot and adapted to fit over and be secured to said drainage pipe, said side walls merging at the bottom thereof with said socket, a first removable strainer, means mounting said first strainer in the pot comprising at least three lugs spaced apart on the wall of the pot adjacent the upper inner edge thereof and underlying said first strainer, said first strainer being smaller in area than said pot to provide a clearance space between said strainer and said pot when the strainer is seated on said lugs, a retainer mounted on said pot having an upper inner peripheral wall overlying said lip and a second removable strainer mounted on the retainer with its upper edge substantially flush with the finished surface of the floor.

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