Aug. 31, 1943. F. A. WARREN 2,328,315

SURFACE DRAIN

Filed July 15, 1941

FIG. 1.

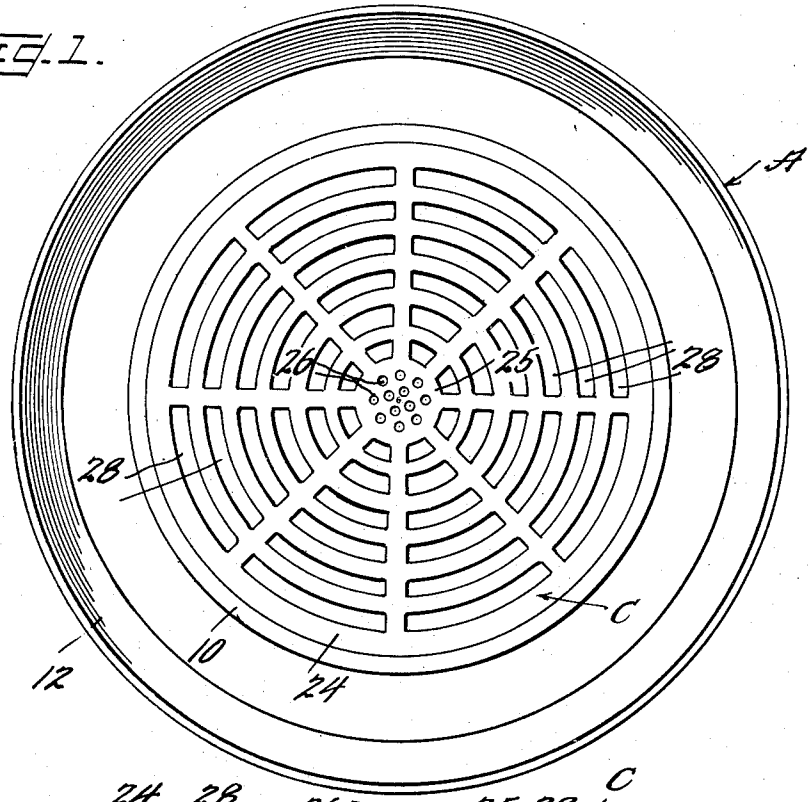
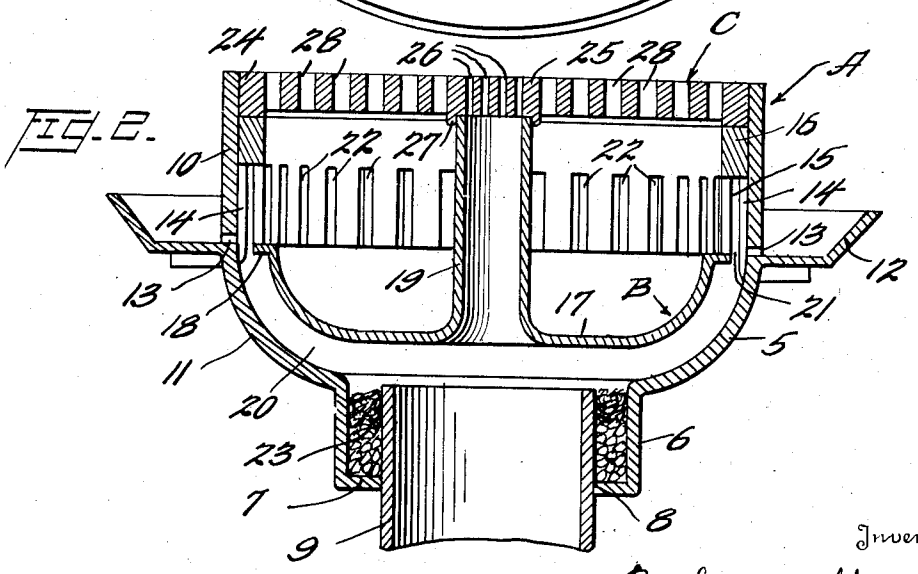


FIG. 2.



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SURFACE DRAIN

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2 Claims. (Cl. 182—31)

Generically this invention relates to a drain device but it is more particularly directed to a surface or floor drain having a removable sediment container and comprising a simplified structural arrangement.

One of the principal objects of this invention is the provision of a duo-drain comprising a grate, sediment container and body designed to maintain a constant fluid flow from a floor or other surface even when the container is full of liquid and solid matter and is completely clogged, without the overflow passing into or through the contents of the container.

Another important object of this invention is the provision of an auxiliary overflow means located at the center of the sediment container and providing an outlet for surface drainage directly through the device to the main drain when stoppage occurs in said sediment container.

A further important object of this invention is the provision of a drain fitting for floors and the like having a body portion, a debris and sediment container formed with an annular series of drainage openings, and a centrally disposed overflow tube extending through said container, a grate closure overlying said container having a series of circularly arranged slots and a centrally disposed plurality of smaller openings surrounded by a cylindrical flange adapted to fit over the upper end of said tube and forming a direct connection from the outer surface of the device to the main drain line to maintain the flow constant even when stoppage occurs in said sediment container, and without flowing into or through the contents of said container.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawing, in which like characters of reference indicate like parts throughout the several figures, of which:

Fig. 1 is a top plan view of my improved duo-drain.

Fig. 2 is a vertical section through Fig. 1.

The drainage devices of this character with which I am familiar have proven deficient in several regards, such as embodying a complex construction and a number of parts, costly to manufacture and install and when the sediment basket or container becomes filled with sediment and debris the flow from the floor or other surface continuing to pass into the filled container and through either the contents or overflowing over the edge or at a point adjacent the upper edge of the container, not only materially retarding the flow through the device but, in many instances, substantially preventing the flow of the surface water therethrough, and it was to overcome such deficiencies by providing my improved drain of simplified construction and having a sediment container constructed with a central tube extending therethrough and cooperating with a grate cover having a central strainer area overlying said tube, the openings in said area being of a size and so arranged as to permit a maximum of flow for direct discharge from the surface to the main drain when the container becomes full of sediment and debris without passing through the actual contents of the container, and whereby the flow is maintained substantially constant at all times, that I designed the device forming the subject matter of this invention.

In the illustrated embodiment characterizing this invention there is shown a surface drain assembly A comprising a substantially cup shaped body portion 5 formed with a cylindrical depending portion 6, the bottom 7 of which is formed with a centrally disposed main outlet opening 8 adapted to fit over or receive the upper end of a main drainage pipe section 9, as will directly more fully appear.

Substantially at the point of jointure of the vertical wall portion 10 and the curved lower portion 11 is an integral annular seepage pan 12 having communication with the interior of the body portion by an annular series of spaced openings 13. Pan 12 in addition to directing any seepage surrounding the upper end of the body 5 to the interior thereof for discharge through drain 9 also provides a means for anchoring the drain body in the concrete or other material in which said body is embedded. Integrally formed on the inner wall 10 is an annular series of container supporting lugs 14 located intermediate openings 13 and the upper end of the body 5.

Fitting within the body 5 is a substantially bowl-like sediment and debris container B and supported thereon with its upper surface, in the present instance, flush with the upper edge of said body is a grate closure member C and which constitutes the main inlet of said device, as will more fully appear as the description proceeds.

The sediment container B is formed with a perpendicular wall portion 15 terminating in an annular integral flange or thickened portion 16 of a dimension adapted to snugly fit within well 10 of said body portion and to seat on lugs 14 to suspendingly support said container. The bot-

tom portion 17 of the container is rounded to substantially conform to the configuration of the lower portion 11 of the body and is formed with a lateral flange 18, the outer edge of which is integrally connected to the lower end of the vertical wall 15. Said bottom portion 17 is centrally formed with an integral upstanding overflow tube 19, the upper end of which is flush with the upper edge of the container. Said container B is of a dimension to form a channel space 20 surrounding and underlying said container and terminating in a restricted portion 21 intermediate said container and body portion opposite the annular series of slots 22 formed in wall 15 and adapted to permit drainage of the container into said channel space for discharge into main drain 9. The main drain 9 is adapted to extend within portion 6 and be sealed therein by calking 23 to form a continuation of portion 11 surrounding the upper end of drain 9 and which effects a leakproof jointure of the drain and body portion.

The removable drain cover or grate C is formed with a rim portion 24 of a thickness corresponding to portion 16 on which it is adapted to seat with its upper edge flush with the upper edge of wall 10 and is formed with a central annular strainer portion 25 formed with a plurality of comparatively small strainer openings 26, the outer edge of said portion 25 being formed with a depending flange 27 adapted to fit over the upper end of overflow tube 19 when the grate is in operative position and form an interlocking brace connection therewith and effect a direct drainage path from the upper surface of said grate through said strainer portion and tube to the main outlet 9. Intermediate the rim portion 24 and strainer portion 25 said member C is formed with annular series of slots 28 constituting the main inlet area through which surface drainage of water or other liquids and solid matter flows into the container B.

While the operation of my improved drain is clear from the above description, it might be well to further state that the normal drainage flow from the surface to be drained surrounding and contiguous to said drain assembly when operatively mounted with said grate substantially flush with said surface, the normal drainage flow of liquid and solids is through the slot or grate openings 28 into said container B and the liquid and to a certain extent solid matter through openings 22 into the channel space 20 and to the main outlet or drain 9. However, when the container has been filled with sediment to the extent that the openings 22 are clogged the water or other liquid will rise and cut off drainage flow through openings 28, and when this occurs the drainage stream without interruption will overflow through strainer openings 26 into tube 29 for direct discharge into the main outlet drain 9, so that the drainage flow will continue substantially constant notwithstanding the filling of the container, the size and arrangement of the openings 26 being such as to permit a maximum flow therethrough without becoming easily clogged.

It is obvious that a handle or other gripping means may be connected to said container B so that to clean the device all that is necessary is to remove the grating C and lift out and empty the container.

From the above it will be apparent that I have provided a duo-drain device including a removable sediment container adapted to initially direct the water or other fluid flow including foreign matter such as sludge, sticks, sand, and other materials into said container, and when the latter is full and stoppage occurs then directing the flow through a centrally arranged strainer area and overflow tube directly to the main drain, without passing into or directly through the contents of the container, such device being especially adapted for use in all types of commercial and industrial buildings and elsewhere where it is desired to prevent clogging of the traps and waste line and to maintain the drainage flow substantially constant at all times, yet one simple in construction, comprising few parts, easily installable, manufacturable at a reasonable cost, and efficient for the purposes intended.

Although in practice it has been found that the form of the invention illustrated in the accompanying drawing and referred to in the above description as the preferred embodiment is the most efficient and practical; yet realizing the conditions concurrent with the adoption of the invention will necessarily vary, I desire to emphasize that various minor changes in details of construction, proportion and arrangement of parts, may be resorted to within the scope of the appended claims without departing from or sacrificing any of the principles of this invention.

Having thus described my invention, what I desire protected by Letters Patent is as set forth in the following claims:

1. A floor drain comprising a casting constituting a drain body adapted to embrace the upper end of a conventional drain pipe, said body having a depending cylindrical portion extending below the upper end of said drain pipe and forming a sealing space terminating flush with the bottom of said body and the upper end of said drain pipe, a sealing means in said space, an annular series of lugs formed interiorly of the drain body, a sediment container supported on said lugs with its upper end forming an annular seat and of a dimension to form a channel space intermediate its bottom and the bottom of said drain body, said container formed with a series of openings normally in communication with said channel, an overflow tube disposed centrally of said sediment container adapted to discharge into said channel at the inlet end of said drain pipe, and a grating overlying said sediment container and disposed on said seat.

2. A floor drain comprising a casting constituting a drain body adapted to embrace the upper end of a conventional drain pipe, said body having an uninterrupted interior wall surface at its upper end and terminating at its bottom in a depending cylindrical portion adapted to surround the upper end of said drain pipe and form a sealing connection therewith, a sediment container supported in said body formed with a series of outlets and of a configuration and dimension to form a channel space partially surrounding and intermediate the bottoms of the container and body normally in communication with said drain pipe and container outlets, a centrally disposed overflow tube extending through said container, a grating closure overlying said container and having a central strainer area, and an annular anchor and seepage pan member formed on said drain body substantially central of its height and having communication with said channel.

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