March 28, 1967 B. A. BINDER 3,311,129

SELF-LEVELING DRAIN INLET

Filed Oct. 12, 1964

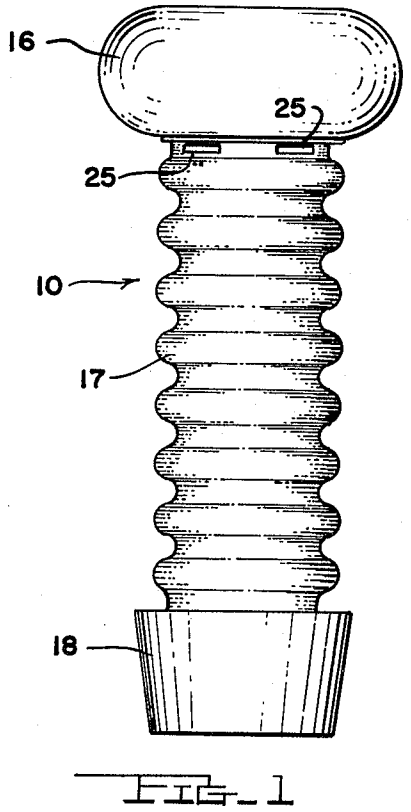


FIG. 1

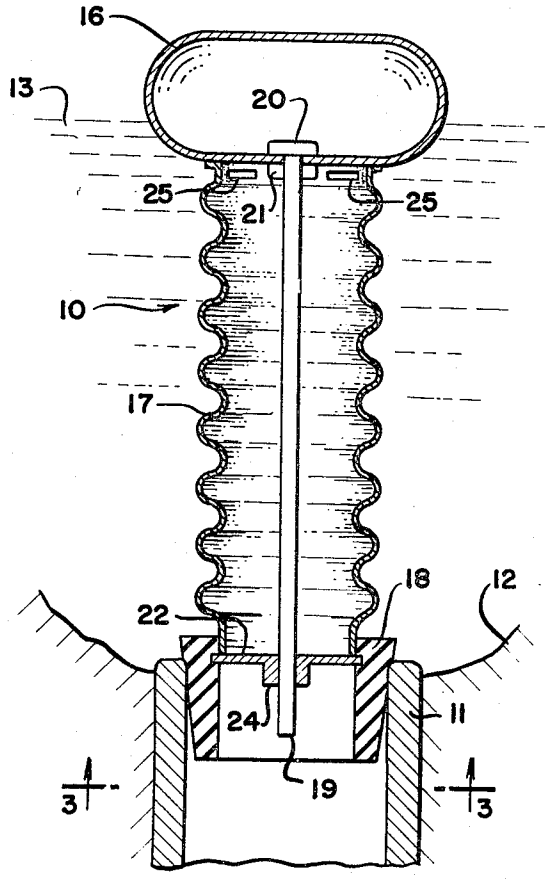


FIG. 2

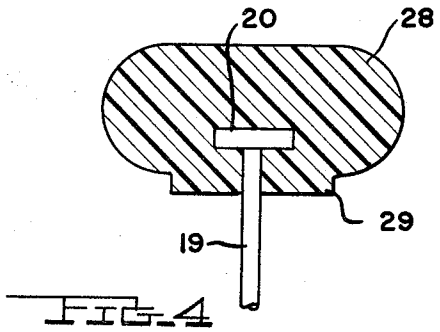


FIG. 4

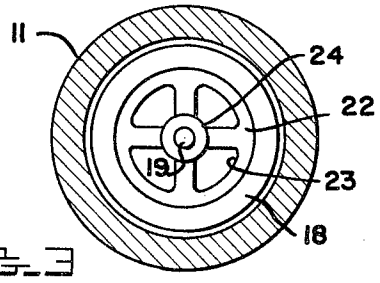


FIG. 3

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SELF-LEVELING DRAIN INLET

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This invention relates to a self-leveling drain inlet.

In the construction of dwelling houses and similar types of buildings, it is conventional to install a basement sewer drain outlet after the basement excavation is dug, but prior to completion of the basement structure and floor. Thus, in cases of rain or seepage of ground water into the excavation, water accumulates and is permitted to drain out through the sewer drainpipe into the main sewer line. Since this water carries silt, sand, and other foreign bodies, it tends to clog the drainpipe and even the street sewerline thus requiring considerable expense and labor to clean out these pipes.

Many municipalities require builders to either pay in advance for cleaning or to clean out such sewer lines after construction in order to remove any accumulated silt, sand, and the like. Attempts to prevent the flow of silt, sand and the like into the sewer drainpipe, along with rain and groundwater, have been made in the past, such as by using filters and filtering devices. But these have been unsuccessful for various reasons.

Accordingly, it is an object of this invention to provide a self-leveling drain inlet, to be temporarily used in a house sewer drainpipe during the construction of the house, which functions to pass ground and rain water from the basement excavation into the sewer line, but blocks off the flow of sand, silt, and other foreign bodies into the sewer line.

A further object of this invention is to provide a self-adjusting drain inlet in the form of a vertically expandable and collapsible tube having a float means on its upper end, for adjusting to the depth of the water in the excavation, and a collar, for connecting to the upper end of the sewer drainpipe within the basement excavation area, and having drain openings at its upper end, so as to receive water from near the surface of the water, thereby permitting silt, sand and foreign materials to settle to the floor of the excavation rather than flow into the drainpipe.

These and other objects and advantages will become apparent upon reading the following description, of which the attached drawings form a part.

In these drawings:

FIG. 1 is an elevational view of the self-adjusting drain inlet.

FIG. 2 is a cross-sectional view of the drain inlet positioned in a basement drainpipe.

FIG. 3 is an end view of the lower end of the drain inlet taken in the direction of arrows 3—3 of FIG. 2.

FIG. 4 is a cross-sectional view of a modified form of float.

The drain inlet **10** is adapted for temporary use with a conventional basement drainpipe **11** which is installed within a basement excavation with its upper end normally at about the same level as the ground level **12** within the lower part of the excavation. In cases of rain or ground water seepage, water accumulates above the drainpipe as shown schematically by the dotted lines **13**.

The drain inlet includes a float **16** which may be in the form of a hollow, flattened, metal ball designed to float high upon the surface of the water. Beneath the float is a vertically arranged, accordian pleated tube which is vertically expandable and collapsible and which is preferably formed of a thin, plastic material. The upper end of the tube is secured, such as by adhesives or the like, to the lower surface of the float **16**, and the lower end of

the tube is similarly secured to a tubular collar **18** which preferably is formed of a rubber or rubber-like plastic having a tapered outer surface for snugly fitting into and being frictionally retained within the upper end of the basement drainpipe **11**.

Arranged within the tube, along its central axis, is an elongated, metal guide rod **19** having its head **20** arranged within the float **16** and secured thereto by means of a nut **21** or the like. The lower end of the guide rod is guided for up and down vertical movement, within a journal **24** formed in a lower guideplate **22** having openings **23**, which plate is secured within the collar **18**.

In operation, the collar **18** of the drain inlet is forced into the drainpipe so that it is frictionally held in position. The drain inlet is left in that position during the construction of the house.

When rain or ground water accumulate in the excavation, the float rises with the water level and the tube extends vertically to stretch the distance between the float and the collar. Substantially clean water, near the surface of the liquid, enters the tube through openings **25**, formed in the upper end of the tube, and passes down through the tube and collar and into the drainpipe. Meanwhile, silt, sand and other foreign bodies carried by the water settles down to the surface or ground level **12** so that the tube acts as a barrier to prevent this foreign material from entering the drainpipe.

As the water level lowers, the float likewise moves downwardly toward the collar and the tube collapses accordingly, being guided by the rod **19** which not only functions to maintain the parts in alignment, but also, by its added weight, pulls the float downwardly and collapses the tube despite any accumulation of sand or silt upon the outer surfaces of the tube which might otherwise hinder such collapsing.

FIG. 4 illustrates a modified float **28** formed of a molded plastic material, such as expanded polystyrene. The head **20** of the rod **19** is imbedded in the float body, which also is formed with a narrowed neck portion **29** to receive the upper end of the tube **19**.

The drain inlet herein may also be useful in other places where a similar drain problem exists, such as in a bath of some sort wherein settling of foreign material from the bath liquid is desirable. Accordingly, it is desired that the foregoing description be read as being illustrative of an operative embodiment of this invention and not in a strictly limiting sense.

I now claim:

A temporary, self-leveling drain inlet for passing liquid, but substantially blocking the flow of solid foreign materials carried by the liquid, into an established, vertically elongated, drainpipe opening, comprising:

a vertically arranged, resilient, accordian-pleated, axially collapsible and expandable tube having a drain opening formed at its upper end for receiving liquid;

a float secured to and covering the upper open end of the tube;

a plug-shaped, tubular collar secured to the lower end of the tube, the collar being formed of a resilient material and being dimensioned for being snugly fitted into and frictionally held within the upper open end of a drainpipe;

a long relatively heavy guide rod fitted within and centrally aligned with the axis of the tube, with the upper end of the rod secured to the float;

a journal bearing centrally secured within the collar, and said rod being slidably received within and guided by said journal bearing for extending downwardly into said drainpipe with passages formed around the bearing, through the collar for passing liquid thereto into the drainpipe;

wherein the float will float at the liquid surface, above

the drainpipe, with the tube self-adjusting its length to extend between the float and the collar, so that liquid near the liquid surface only will flow into the tube and downwardly through the collar into the drainpipe and wherein the rod exerts, due to gravity, a downward pull upon the float to thereby collapse the tube downwardly, as the liquid level lowers and thus, overcomes the resistance against collapsing due to accumulations of solid materials upon the tube.

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