

July 13, 1954

L. C. DE CROES
DRAIN-CONTROLLING DEVICE
Filed Feb. 26, 1949

2,683,499

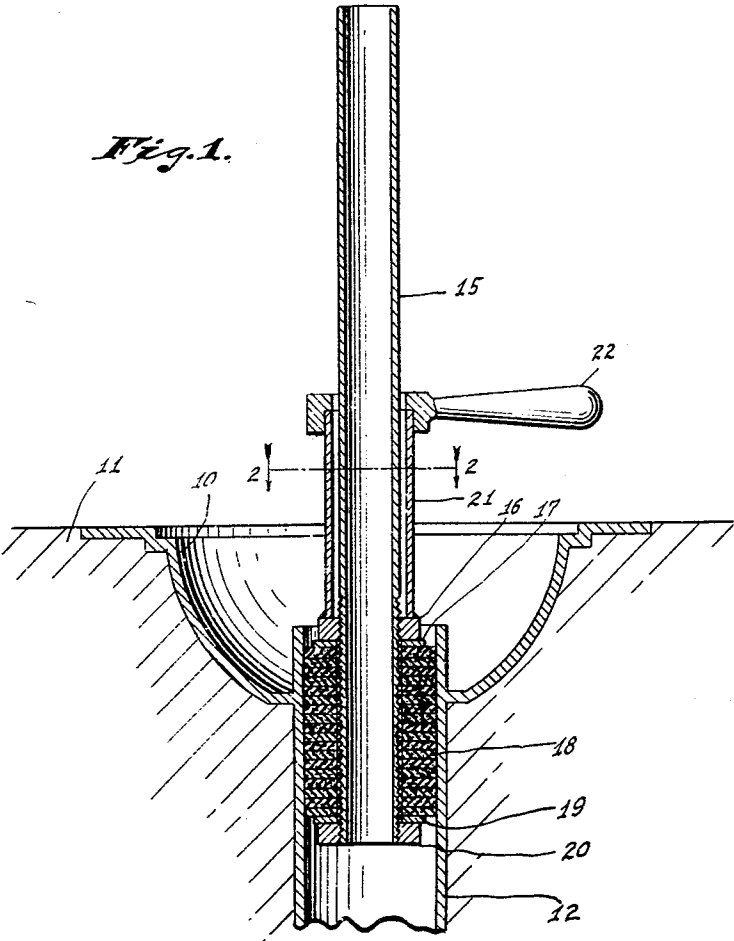


Fig. 2.

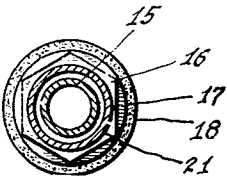
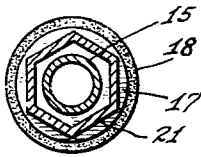


Fig. 3.



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UNITED STATES PATENT OFFICE

2,683,499

DRAIN-CONTROLLING DEVICE

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Application February 26, 1949, Serial No. 78,635

3 Claims. (Cl. 182—1)

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This invention relates to a device for controlling back-flow through a sewer drain.

In some locations, it frequently happens that sewer facilities are of insufficient capacity to meet peak requirements, and water will back up from the sewer through drains such as the basement drains of houses.

It is the object of my invention to provide a device which will control such back-flow and prevent access of the back-flowing liquid to the basement, and which will do so without imposing any back pressure tending to damage or cause leaks from the drain piping. A further object of my invention is to provide such a device which may be applied to and supported by the drain easily and without the necessity for any special tools.

In accordance with my invention, I provide an open extension which may be readily sealed to the drain opening and which extends upwardly therefrom a reasonable distance above any expected rise in sewage water level, so that the water backing up through the drain simply rises in such extension without escaping into the basement. For applying the extension to the drain and sealing it thereto I provide a hollow elastic plug adapted to fit within the drain opening and I provide means accessible from above the drain to compress such plug axially and cause it to expand radially into sealing engagement with the walls of the drain opening.

The accompanying drawing illustrates my invention: In such drawing, Fig. 1 is a vertical section through a device embodying my invention, shown in place in a drain opening; and Fig. 2 is a horizontal section on the line 2—2 of Fig. 1, and Fig. 3 is a section similar to Fig. 2 showing a modification.

The drain shown in the drawing comprises a catch basin 10 set in a floor 11 and having a drain pipe 12 extending downward from adjacent the bottom thereof. Such drain is typical of standard construction, and it is to be noted that the top of the drain pipe 12 is spaced below the top level of the floor 11.

To prevent the escape of back-flow water from such a drain, I place in the open drain pipe 12 a vertical pipe 15, of a length to extend above the normal expected level of any back flowing sewage water. The lower end of this pipe 15 is threaded over a considerable portion, and that threaded portion carries a top nut 16, a compression washer 17, a rubber plug 18, which may be made as a stack of rubber washers, a bottom compression washer 19, and a bottom nut 20. The nor-

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mal diameter of the plug 18 is adapted to slip easily into the drain pipe 12.

The top nut 16 carries an upwardly extending operating shank 21, of ample length to stand above the top level of the floor 11 where it is easily accessible above the catch basin 10. Preferably, I fix on the top of the shank 21 a laterally extending handle 22. A cooperating handle may be fixed on the pipe 15, but ordinarily this is not necessary. Alternatively, the shank 21 may be of hexagonal cross section to receive a wrench.

The drain 10—12 is ordinarily left open, and used in the normal manner. When, however, there is any evidence that water is backing up through the drain or is likely to do so, my device is inserted in the pipe 12. This is a very simple operation, and requires merely that the device be inserted with the rubber plug 18 in position within the pipe 12, and that the nut 16 be tightened down against the rubber plug a few turns to expand that plug 18 into engagement with the walls of the pipe 12. But little force is required in this tightening, and it can ordinarily be accomplished without any special tools. The operating shank 21 permits the tightening to be done above the floor level, without any necessity to reach down into the catch basin. The engagement of the plug with the pipe 12 need only be sufficient to support the device in position, for little pressure will be exerted tending to cause any leakage around the plug 18 or to expel the fitting from the pipe 12. As the water backs up, it simply rises in the pipe 15 to its natural level, without escaping into the basement, and so long as the top of the pipe 15 is above the liquid level the back flow will be confined to the pipe 15 and will not escape therefrom.

I claim as my invention:

1. A device for controlling back-flow through a drain, comprising an upstanding open pipe adapted to be received in the drain opening and to be supported thereby, the lower end of said pipe being threaded, a compression washer fixed on said pipe, a nut received on the threaded portion of said pipe, and elastic plug surrounding said pipe between said washer and nut and expandable by operation of the nut, and an operating shank extending upward from the nut to an accessible position above the drain opening.

2. A device as set forth in claim 1 with the addition of a handle carried by said operating shank at its accessible position.

3. A device for controlling back-flow through a drain opening, comprising an open pipe adapted to extend above the drain, an outwardly-extend-

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ing plug support on the pipe adjacent the lower end thereof and adapted to be received through the drain opening, a packing plug supported by said support in sealed relation about said pipe, a sleeve surrounding said pipe above said plug, operating means on said sleeve at a point spaced a substantial distance upward from its lower end, and cooperating mechanical means between said pipe and sleeve and operative upon manual movement of the sleeve to force said sleeve toward the plug on said support to stress said plug and deform it into sealing engagement with the wall of said drain.

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