Nov. 18, 1952 A. MATHEIS 2,618,356

WATER DAM FOR FLOODING ROOFS OR THE LIKE

Filed Aug. 1, 1947 2 SHEETS—SHEET 1

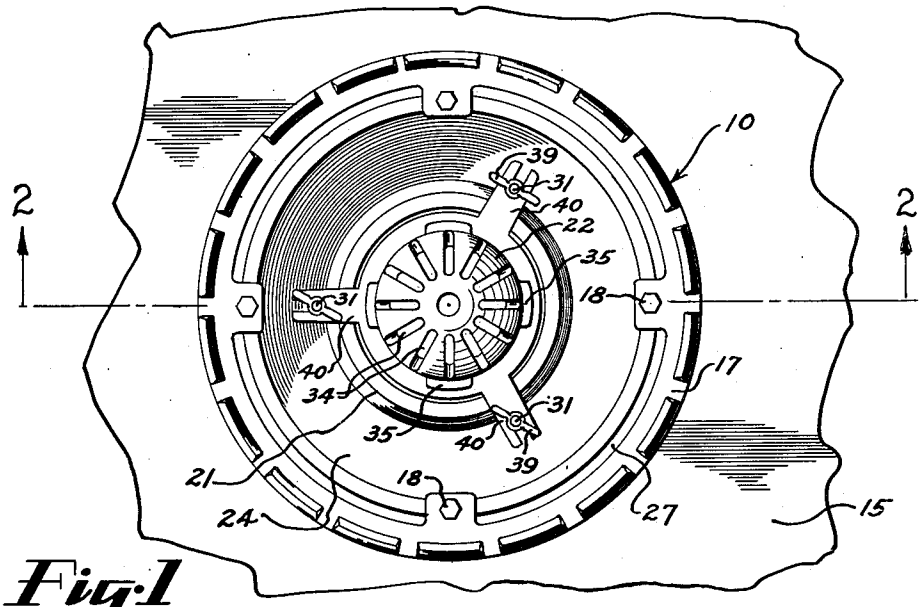


Fig. 1

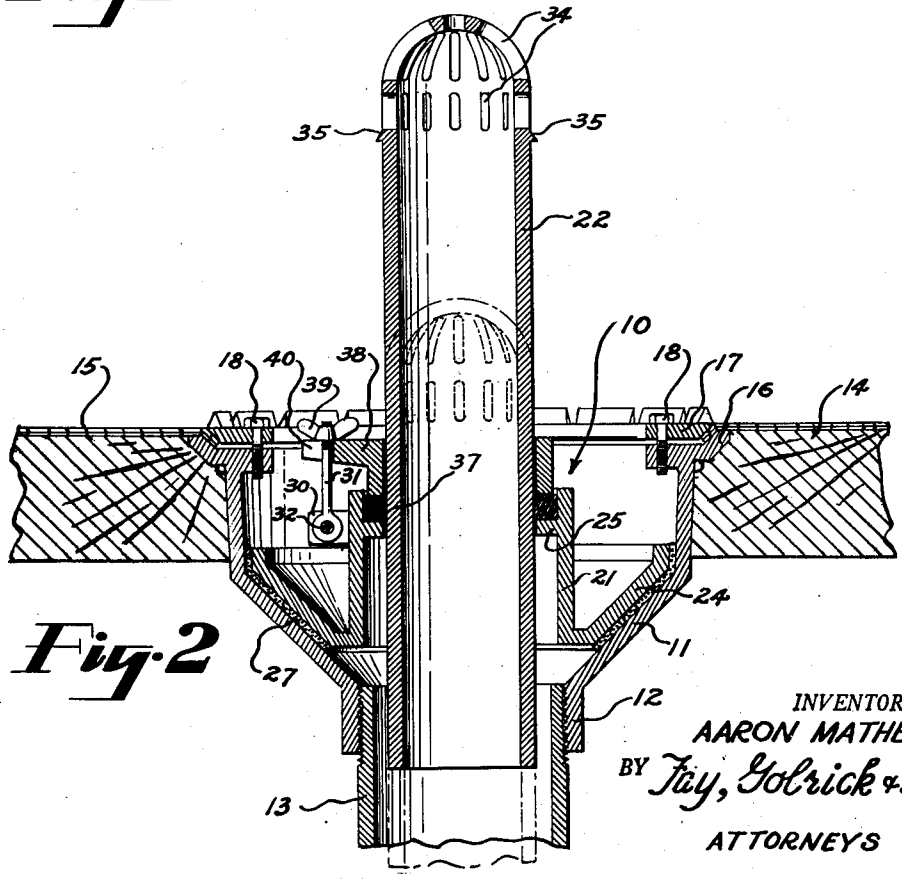


Fig. 2

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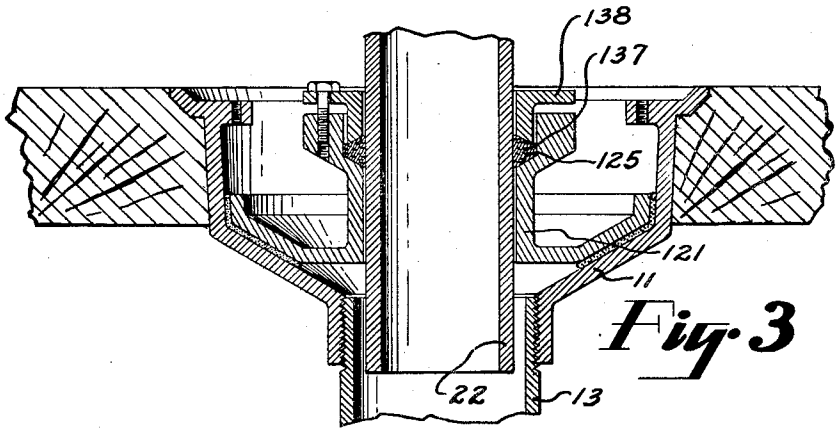


Fig. 3

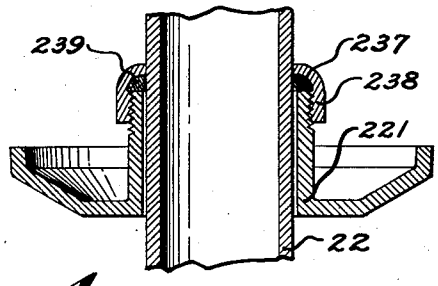


Fig. 4

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WATER DAM FOR FLOODING ROOFS OR THE LIKE

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2 Claims. (Cl. 182—31)

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The present invention relates to a device which may be associated with the drain for a roof, for example, which will prevent drainage of water from the roof until the water level has reached that desired.

An object of the invention is to provide a device of the character referred to which may be readily adjusted to vary the elevation at which drainage will occur or which may be manipulated to effect complete drainage, if desired.

It is also an object of the invention to provide a relatively simple device of the character set forth which will consist of but few easily formed parts and which will be leakproof between the adjustable parts thereof.

Other objects and advantages of the invention will be apparent from the following description of preferred forms of the invention, reference being made to the drawings wherein:

Fig. 1 is a plan view in elevation of one form of a water dam device mounted in a roof drain;

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

Fig. 3 is a view in section of another form of a water dam device embodying the invention, the section being similar to that of Fig. 2; and

Fig. 4 is a fragmentary view in section of still another form of a water dam device embodying the invention.

In some instances, it is desirable to flood or maintain a certain depth of water on the roof of a building. This is done by providing a water retaining wall around the edges of the roof and providing a drain fixture with its inlet at the maximum level desired for the water depth. The depth of water desired may vary from building to building or point to point on the roof of the same building, and it may likewise be desirable to vary the depth of the water or to completely drain the roof. It is the purpose of the present invention to provide a drain device which may be adjustable to regulate the depth at which the water will commence to drain from the roof, including provision for complete drainage.

Referring to Figs. 1 and 2 of the drawings, I have shown a flooding water dam or drain device indicated generally at 10 which is adapted to be mounted in a well known drain sump 11 in a roof to prevent drainage from the roof until the water level reaches that desired and which device may be adjusted to change the water level. Although I have shown the water dam device mounted in a sump type drain, it is to be understood that it could be mounted in other suitable types of drain fixtures, if desired. The sump 11

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comprises a bowl shaped upper part open at the bottom and having a neck 12 depending therefrom which may be suitably connected with a building drain pipe 13 which leads to a sewer, not shown. The sump 11 is set in the roof 14 of the building, which roof may include a sheeting 15, which is adapted to be tightly clamped to a peripheral flange 16 of the drain by a ring 17 clamped to the drain 11 by bolts 18 received in threaded lugs about the edges of the drain. The manner in which the drain is set in the roof and sealed therein does not form a part of the present invention.

The flooding water dam or drain consists of a base member indicated generally at 21 and a tubular dam member 22. The base member 21 is tubular in form and has a cup-like structure 24 formed about the base thereof, for catching sediment and the upper portion of member 21 is provided with an annular inwardly projecting radial flange 25 spaced slightly below the top edge thereof. The member 21 may be a casting of any suitable metal. The member 21 is set in the sump 11 with the passageway therethrough in registration with the drain pipe 13, and preferably the member 21 is retained in place by roof mastic 27 which is interposed between the under surface of the cup-like structure 24 and the sump 11 forming a water-tight seal between the member and the sump 11. The roof mastic 27 may be of a tar-like material and material of this character is well known in the art. Adjacent the top of the member 21 are three slotted lugs 30 between the prongs of each a drop bolt 31 is pivotally mounted by a pin 32. The purpose of the drop bolts will be apparent hereinafter.

The dam member 22 is in the form of a tube that is dome shaped at the top end and open at the bottom end. This member may also be formed of a casting of any suitable metal. The top portion, including the dome, is provided with a plurality of slot-like openings 34 which form a strainer through which water may pass. The lower end of the member 22 is open for discharging water into the drain pipe 13. The outside diameter of member 22 is such that it may be freely inserted into the tubular member 21 and the sides of the member 22 are adapted to be proximate the edges of the flange 25 when the member 22 is so inserted in the base member. A plurality of lugs 35 are formed on the outside of the member 22 immediately beneath the lower tier of openings 34, which lugs are adapted to form stops for limiting the movement of the member 22 into the member 21.

The member 22 may be adjustably positioned inside member 21 by an annular gasket 37 which is adapted to lay upon the flange 25 where it is confined between the walls of member 22 and the upper end portion of member 21. The gasket 37 is compressed and displaced inwardly against the walls of member 22 by a pressure ring 38 which is pressed downwardly by wing nuts 39 threaded on the drop bolts 31, the pressure ring being provided with slotted lugs 40 which receive the drop bolts and against which the wing nuts 39 press. Thus, the gasket 37 will frictionally engage the outside of member 22 to retain it in the position desired and at the same time a water-tight seal will be formed between the members 21 and 22 to prevent leakage therebetween.

It will be seen that the depth of the water on the roof 14 may be regulated by releasing the pressure on the gasket 37 and sliding the member 22 upwardly or downwardly, as desired until the lower tier of openings 34 is at the level at which it is desired to maintain the water level and then the pressure ring is clamped against the gasket. The stop lugs 35 on member 22 are located to engage the pressure ring when the lowermost openings 34 are on a level with the roof so that all of the water will drain from the roof when the member 22 is in its lowermost position.

Referring now to Fig. 3 of the drawings, I have shown another form of the invention in which the tubular dam member 22 extends through an annular shaped base member 121 which is similar in purpose to the base member 21 and which is provided with a central tubular portion through which the member 22 extends. The walls of member 22 are proximate to the walls of the tubular portion, and a flange 125 extends outwardly and at an acute angle to the sides of member 22. A gasket 137 which is similar to gasket 37 rests upon the flange 125 and it is pressed against the flange by a pressure ring 138 which is similar in most respects to ring 38 but the lower edge of which is disposed at an acute angle relative to the walls of the member 22. It will be noted that the lower edge surface is at such angle to cause a camming of the material of gasket 137 inwardly against member 22 when the ring is pressed toward flange 125. It will also be noted that the flange 125 is angularly disposed so that it tends to force the material of the gasket against member 22. Pressure is applied to ring 138 by bolts 131, only one of which is shown, which extend through openings in ring 138 and engage threads in member 121. In this form of the invention a more positive lateral pressure is exerted on the gasket 137 to insure a firm and water-tight connection between the proximate walls of member 22 and the element 121.

Referring to Fig. 4, I have shown still another form of the invention in which the member 22 extends through a central tubular portion of a base member 221 which is similar in function to base member 21. The walls of the member 22 are proximate to the walls of the tubular portion of member 221. The upper end of the tubular portion of the member 221 is threaded and the upper edge of the tubular portion extends at right angles to the walls of tube 22. An annular gasket 237 is disposed around the tube 22 and it abuts the upwardly facing surface of the upper edge of the tubular portion member 221. A cap member 238, which has a central opening through which the tube member 22 extends, is threaded

on the tubular portion of member 221 and this cap has a curved formation at 239 which engages the gasket 237 and urges the material of the gasket inwardly against the tubular member 22. In this form of the invention the drop bolts 31 and wing nuts 39 are eliminated.

Thus, by my invention I have provided a readily adjustable device for maintaining any desired water drainage level on a roof or the like. While providing ready adjustment of the dam element throughout a wide range, a completely water-tight and firm connection is maintained between the dam and its supporting part. Furthermore, the device may be applied to the usual type of roof drains so that the application of my device to existing roof drains is possible with but a minimum of parts and it may be substituted for a conventional type screen fixture.

Although I have described various forms of the invention, it is to be understood that other forms might be adopted, all falling within the scope of the claims which follow.

I claim:

1. A roof drain comprising a sump secured to said roof and having its lower end connected to a drain conduit, said sump comprising a pocket counter-sunk in said roof, a base member secured to said sump in said pocket, and having an upwardly extending tubular portion disposed entirely within said sump, a tubular dam member extending above said roof and telescoped into and adjustably supported by the base member, and packing means supported by said tubular member of the base member and acting on the external surface of the tubular dam member to form an external water-tight joint between the dam member and the base member near the top level of the base member, said base member having a lower flange supported by said sump for mounting the base member over and in sealed relation to said drain conduit with the tubular dam member in alignment with the conduit, said packing means comprising a compressible gasket acting between the outer surface of the tubular dam member and the tubular portion of the base member and a compressing ring acting on the gasket, said packing means being releasable by said compressing ring to permit the dam member to be lowered downwardly in the conduit and cause dammed water to escape through the dam member while being directed to the drain conduit.

2. A roof drain as claimed in claim 1, in which the sump is provided with a downwardly and inwardly inclined bottom, and in which the flange on the base member is correspondingly inclined so as to seat on the inclined bottom of the sump with the dam member in alignment with the drain conduit.

AARON MATHEIS.

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