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Gazzo

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[54] **METHOD AND MEANS FOR MAINTAINING A DRY BASEMENT**

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[52] **U.S. Cl.** **52/169**

[51] **Int. Cl.** **E02d 31/02**

[58] **Field of Search** 52/169, 742

[56] **References Cited**

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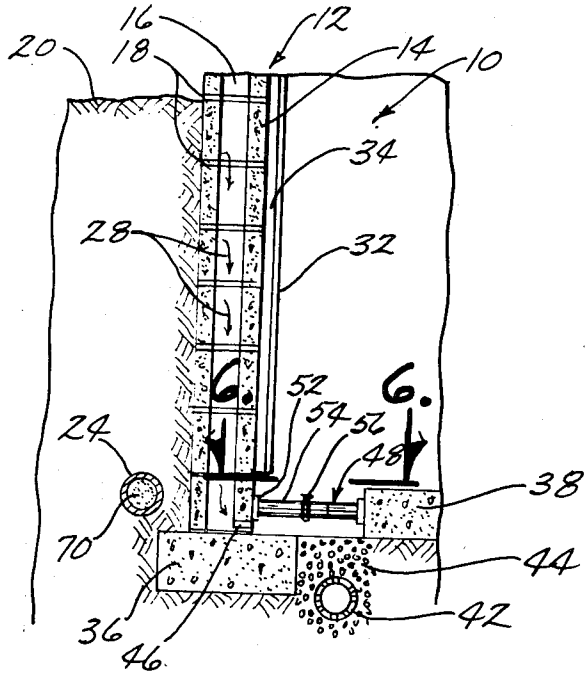
Primary Examiner—Alfred C. Perham

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[57] **ABSTRACT**

A tile trench is formed along the footing of the leaking exterior wall by removing a portion of the floor adjacent the wall. A tile is laid in the tile trench and drain openings are formed from the interior of the exterior wall inwardly to provide communication with the drain tile. Granular material is provided over the drain tile and extends to the wall openings to provide a passageway. A sheet of plastic is placed over the granular material and a plurality of braces are positioned against the wall and the adjacent floor edge. Concrete is then poured over the braces and on the plastic sheet. The plastic sheet is held in place by being secured temporarily to the paneling on the wall.

10 Claims, 7 Drawing Figures



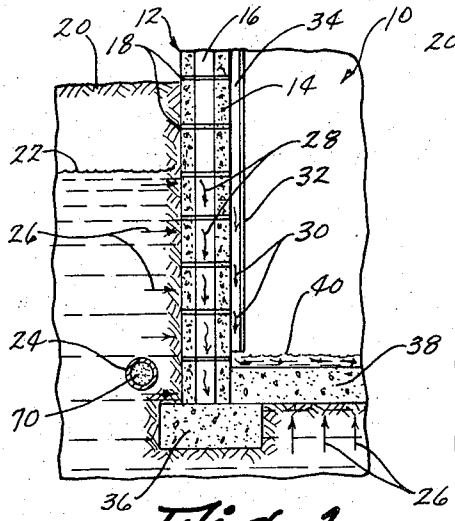


Fig. 1

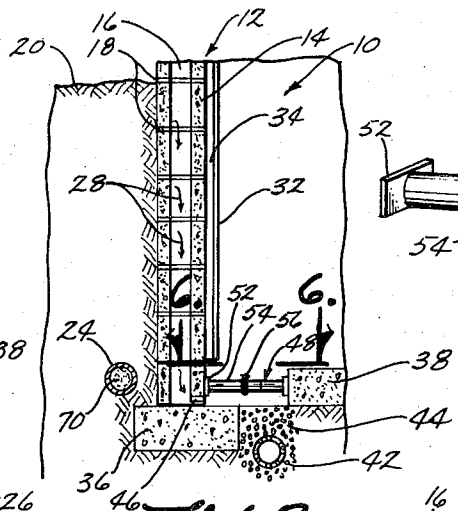


Fig. 2

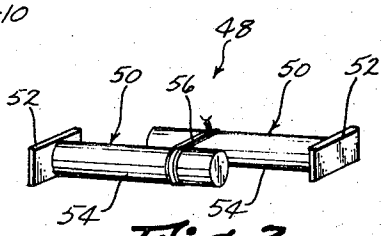


Fig. 3

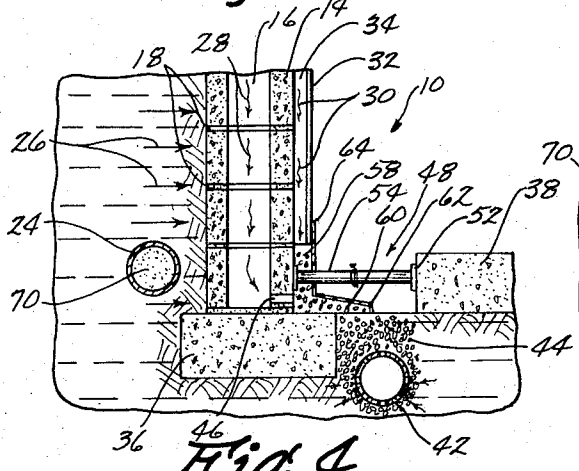


Fig. 4

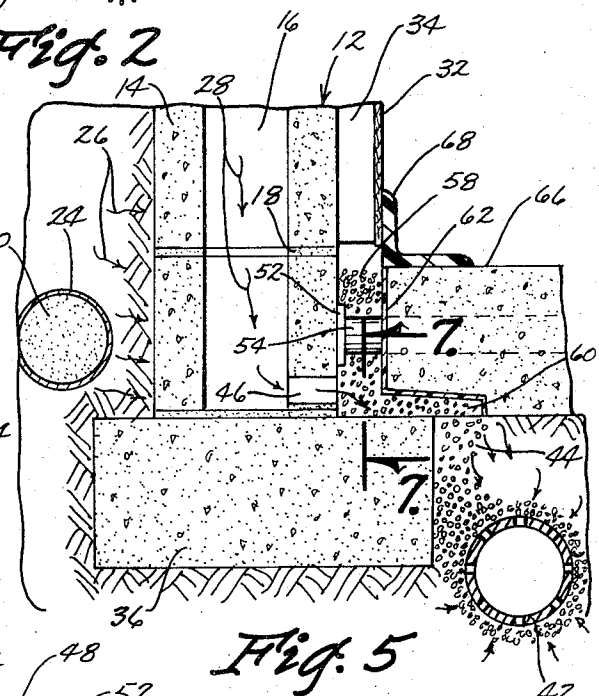


Fig. 5

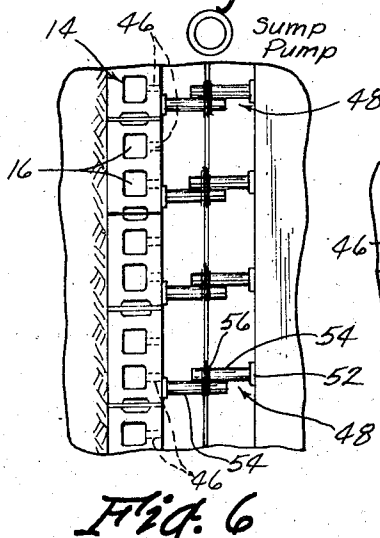


Fig. 6

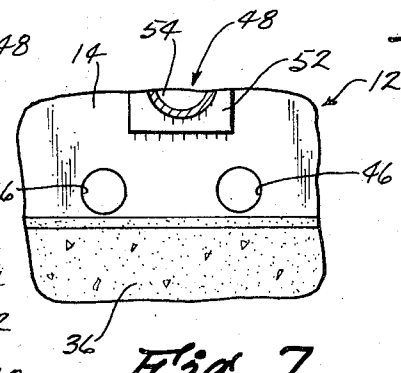


Fig. 7

METHOD AND MEANS FOR MAINTAINING A DRY BASEMENT

The problem of wet basements is caused by water entering from the outside unless it is a condensation build-up on the inside resulting from too much moisture in the interior air. The water coming in from the outside enters through cracks in the foundation walls or the water pressure is so great on the outside resulting from a high water table which produces hydrostatic pressure that water is forced through mortar joints, wall-to-floor joints and any other cracks or punctures in the concrete. The walls may in some cases be so porous that water will seep through.

The usual approach to water entering from the outside is to plug the holes either from the outside or the inside or both. Theorectically, this can be sucessful but ordinarily is not likely to be successful since it is very difficult to find all of the holes and once they are found then make a successful patch on the hole.

The repair of openings in the exterior wall from the outside is also very difficult for the reason that all the soil against the wall must be removed and this can be quite a problem if in the case of established homes shrubs, sidewalks and other landscaping are in place. The problem of repairing the inside face of the exterior wall is also complicated by the fact that many homes have expensive paneling on the walls and this must be removed in order to gain access to these leak openings.

The method of maintaining a dry basement of this invention involves encouraging the water to flow from within the interior of the outside wall. The water will collect at the bottom of the wall and thus openings are formed in the inside face of the outside wall and the water is then allowed to flow into a cavity formed between the concrete floor slab and the wall thence into a passageway connecting with a drain tile placed under the floor. The drain tile may be connected to a sump pump or any other suitable discharge station. Thus, first, the floor adjacent the outside wall is broken up and removed to expose a space below the level of the floor in which a trench is dug for a drain tile. Once the tile is placed in the trench holes are then formed in the inside face of the wall adjacent the footing to allow the accumulated water in the wall to drain off into the tile. Aggregate or the like is placed around the tile and is used to form a passageway connecting the drain holes with the tile. A sheet of plastic is then laid over the aggregate and is secured by tape or the like to the paneling, if any, on the inside face of the exterior wall. The aggregate will space the plastic from the wall to maintain the water passageway and will function as a form and separation sheet for keeping concrete from bonding to the aggregate. Concrete is then poured onto the plastic sheet to finish off the floor over the drain tile leaving a small space between the wall and the adjacent floor edge for the water to flow to the drain tile under the newly poured floor portion. This procedure, it is seen, eliminates any need to remove paneling from the interior walls to solve the water leakage problems.

Because of the space now formed between the concrete floor slab and the exterior wall there is a problem of the wall being pushed in by the outside forces. This is dealt with by the placement of a plurality of braces between the exterior wall and the existing concrete floor prior to the pouring of the floor portion over the drain tile. Once the concrete is poured over the drain tile onto the braces the braces are locked in place and the wall is stable again for resisting outside water and earth pressures.

This invention consists in the construction, arrangements and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in the claims, and illustrated in the accompanying drawings in which:

FIG. **1** is a fragmentary side elevation view of a basement exterior wall showing the water leaking into the wall and then into the interior of the base through the wall;

FIG. **2** is a view similar to FIG. **1** but showing concrete removed along the exterior wall and a drain tile placed under the level of the floor with braces in place holding the exterior wall against the outside pressures.

FIG. **3** is a perspective view of the brace;

FIG. **4** is a view also similar to FIGS. **1** and **2** showing granular material in position for forming a passageway between the wall and the drain tile;

FIG. **5** is an enlarged view similar to FIG. **4** showing the concrete poured over the drain tile completing the job;

FIG. **6** is a cross sectional view taken along line **6** — **6** in FIG. **2**; and

FIG. **7** is a cross sectional view taken along line **7** — **7** in FIG. **5.**

A conventional basement is seen in FIG. **1** and referred to generally by the reference numeral **10.** It includes an exterior wall **12** comprised of a plurality of blocks **14** having aligned vertically disposed center openings **16.** The blocks **14** are connected together by mortar joints **18.** The ground grade level **20** includes a water table **22** and a drain tile **24** running adjacent the wall **12.** The arrows **26** indicate the water pressure against the wall **12** while the arrows **28** refer to water that has found its way into the opening **16** in the blocks **14.** Some of the water passes through the inner wall face, as indicated by the reference numeral **30** and flows down the wall between the wall and paneling **32** on the inside wall surface. The paneling **32** is secured to the inner exterior wall surface by vertically disposed fir strips **34.**

The wall **12** is resting upon a footing **36** which also supports the concrete floor **38** abutting against the lower end of the wall **12.** As seen in FIG. **1,** the seepage through the wall is so great that water **40** is present on the concrete floor **38.**

In FIG. **2,** the first steps have been taken to correct the water leakage problem. A jack hammer has been used to remove the concrete floor adjacent the wall **12** in order to expose a ground area large enough for digging a trench in which a drain tile **42** is placed with gravel fill **44** on top of it. Next, drain holes **46,** as seen in FIG. **7,** are formed in the wall **12** to communicate with the opening **16** through the blocks **34.** The water **28** and **30** can now flow out through the openings **46** and reach the drain tile **42** by flowing across the footing.

The bottom of the wall will tend to be pushed inwardly by the outside forces **26** and thus braces **48** are provided along the length of the wall and extend from the wall to the adjacent edge of the floor **38.** The brace **48** includes a pair of members **50** each of which have

base plates **52** and elongaged cylindrical post-shaped elements **54.** A band or wire **56** is wrapped around the post-shaped elements **54** and tied to rigidly lock the members **50** together. The effective length of the base **48** can be varied as desired.

Next a porous passageway of granular material such as gravel is formed as seen in FIGS. **4** and **5.** The gravel **58** is piled against the bottom of the wall over the openings **46** to about equal the spacing of the paneling **32** from the inner wall surface. It is seen that the porous gravel granular material **58** extends outwardly at **60** over the footing **36** and over a portion of the drain tile **42** such that a clear passageway is provided for the water in the wall **12** to reach the drain tile **42.** A sheet of plastic **62** is then placed over the gravel **58** and **60** and secured by tape **64** to the paneling **32.** Next, concrete **66** is poured into the area from which the concrete floor portion was removed as seen in FIG. **2.** A bond between the concrete **66** and the gravel **58** and **60** is not made because of the protective plastic **62** and the gravel **58** and **60** tends to shape the poured concrete and space it from the wall **12** and footing **36.** Also the poured concrete **66** makes the brace **48** integral therewith and serves to further strengthen the support being given the wall to resist the outside pressures tending to push it inwardly.

The plastic **62** may be cut at the top surface of the poured concrete portion **66** and a moldboard **68** may be placed against the paneling **32** and the floor portion **66** to complete the job.

It is seen that the wet basement herein disclosed has been made dry without the removal of the paneling **32** and without digging up the ground outside the exterior wall **12.** Instead of fighting the problem of sealing the holes in the wall, additional holes have been placed at the very base of the wall and a passageway has been formed which connects with a new drain tile placed under the interior floor. Thus, water flowing into the openings in the blocks forming the wall and possibly through the inside surface of the blocks, moves by gravity to the footing and then through the passageway to the drain tile, as seen in FIG. **5.** The wall itself cannot move even though there is a substantial space between it and the newly formed floor because the braces **48** rigidly support the wall against inward movement due to the outside water pressure forces. It is noted that the outside drain tile **24,** if present, after a period of time may fill up with roots, debris and other impediments **70** to render it inoperative thus creating additional water pressures on the wall **12.**

I claim:

1. A basement drainage system comprising,

a basement wall formed from hollow blocks extending along a floor,

a drain ditch extending along said wall under said floor, and said wall blocks having drain openings for communication with said drain ditch,

said floor being spaced from said wall to provide a passageway between said floor and wall for communication between said drain openings and said drain ditch, said passageway being filled with granular material,

a plurality of spaced apart braces extend across said passageway in said granular material with the inner ends of said braces being embedded in said floor thereby counteracting outside pressures on said wall and maintaining said wall stationary.

2. The structure of claim **1** wherein said passageway extends under a portion of said floor.

3. The structure of claim **2** wherein said wall includes footings on which said wall is supported, and said footings extending under said floor with said passageway extending over a portion of said footings.

4. The structure of claim **1** wherein said brace is extendable.

5. The structure of claim **1** wherein said wall includes paneling on its inner side.

6. The structure of claim **5** wherein a sheet of plastic extends between said granular material and said adjacent floor.

7. The structure of claim **1** wherein said floor in which said inner end of said brace is embedded is a separate floor portion from the remainder of the floor and said floor portion has a width sufficient to cover and extend over said ditch.

8. A method of making basements dry including the steps of:

removing a portion of the floor adjacent the leaking wall and forming a drain ditch;

positioning a plurality of spaced apart braces in said ditch with their opposite ends engaging said wall and the adjacent exposed floor edge,

forming drain openings in said wall along its substantial length adjacent said floor for moisture in said wall to flow through in moving to said drain ditch; and

extending said floor over said drain ditch by pouring concrete over said drain ditch and on said braces to adjacent said wall leaving a passageway from said openings to said drain ditch.

9. The method of claim **8** wherein prior to the step of pouring said concrete over said drain ditch granular material is placed between said wall and said drain ditch for forming said passageway and a separation sheet is positioned over said granular material and against which said concrete is poured.

10. The method of claim **9** wherein said separation sheet is positioned to extend towards said wall and upwardly where it is secured to paneling on said wall.

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