

May 1, 1962

C. J. BLAHNIK

3,032,062

PORTABLE SEWER FLOOD CONTROL

Filed Jan. 25, 1961

2 Sheets-Sheet 1

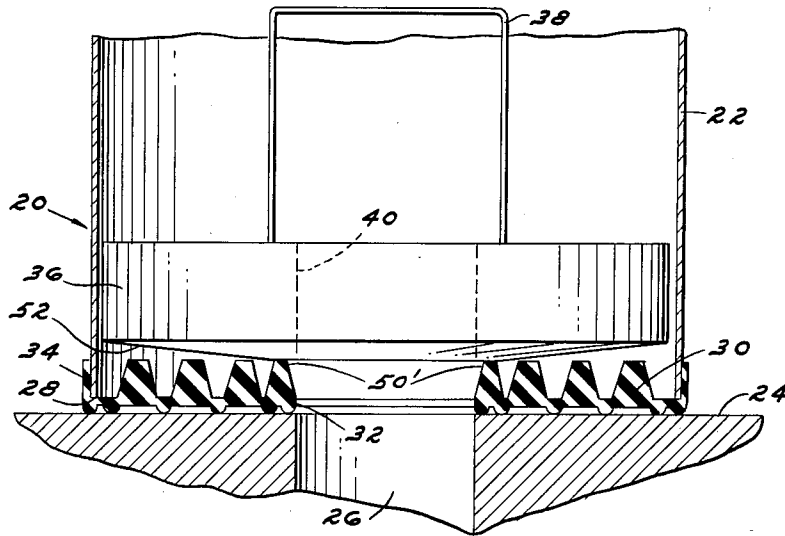


FIG. 1

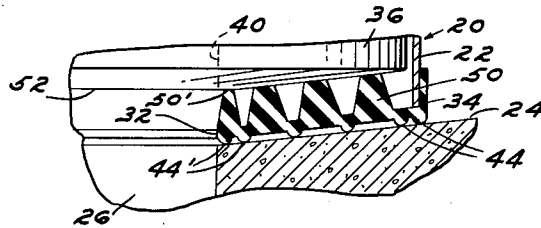
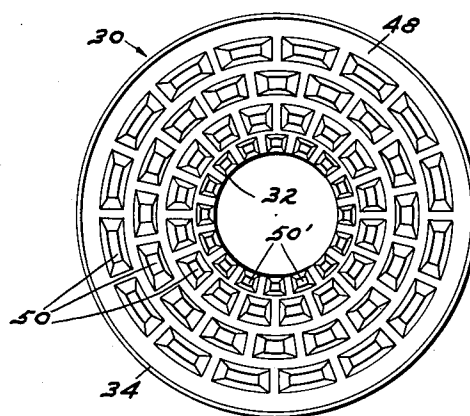
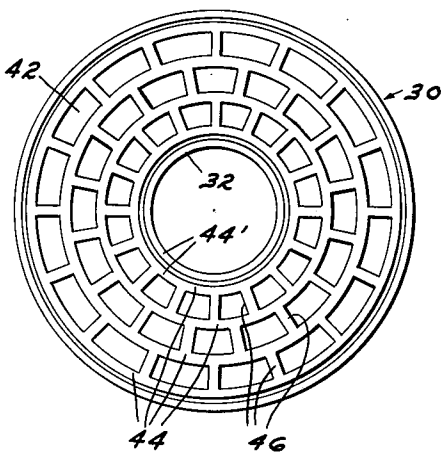


FIG. 3

FIG. 2

FIG. 4



INVENTOR.

CARL J. BLAHNIK

BY

Burton & Parker

ATTORNEYS

May 1, 1962

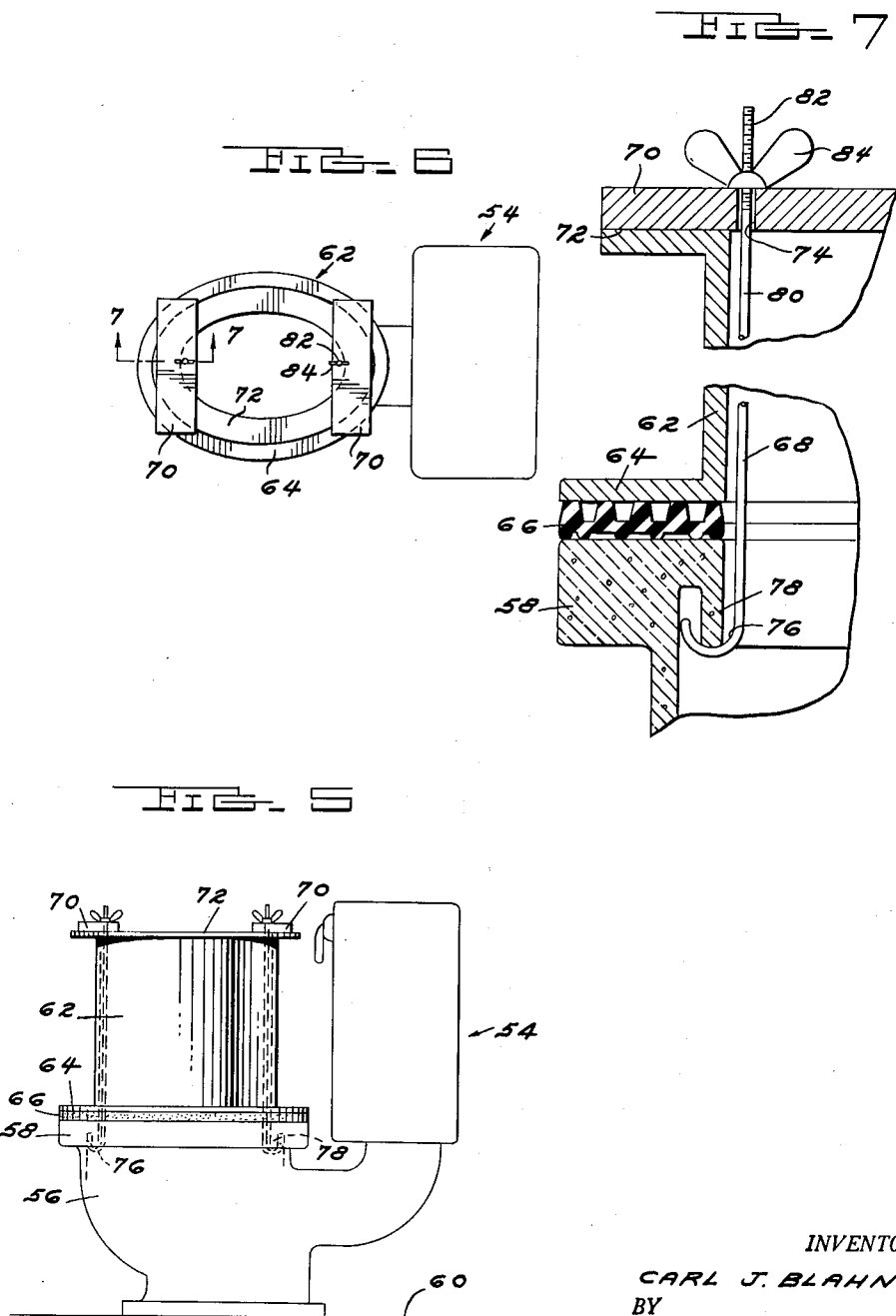
C. J. BLAHNIK

3,032,062

PORTABLE SEWER FLOOD CONTROL

Filed Jan. 25, 1961

2 Sheets-Sheet 2



INVENTOR.

CARL J. BLAHNIK
BY

Burton & Parker
ATTORNEYS

3,032,062

PORTABLE SEWER FLOOD CONTROL

Carl J. Blahnik, 24830 Godin Ave., Center Line, Mich.

Filed Jan. 25, 1961, Ser. No. 84,861

2 Claims. (Cl. 137-593)

This invention relates to flood control apparatus, and in particular to a portable flood control apparatus for preventing basement flooding due to sewage backing up through a sewer, which device can be removably positioned with its lower end in register with the drain opening, permitting the water from the sewer to rise within the device until it reaches a level corresponding to the level of water in the main sewer outside the basement.

One class of device designed to prevent sewer water from backing up through a basement drain incorporates a valve or plug member positioned within the drain pipe beneath the basement floor level. The installation of most of these devices requires extensive modification of the drain to accommodate the valve or plug, and consequently a large expenditure on the part of the building owner. Furthermore, these devices contain moving parts which are subject to wear and/or the possibility that they may not function properly at a crucial time.

Another class of flood control device in general use incorporates an electrically driven pump or the like which pumps the water entering the basement back outside the building. Although these devices function satisfactorily under most conditions, each is limited by the capacity of the mechanism to dispose of the water. If the water is backing up through the sewer into the basement at a rate in excess of the capacity of the device to pump it out, some flooding will obviously result. In addition, these electrically operated devices are only as reliable as the source of electricity. If the electric supply fails, the device is of no use whatsoever.

The instant invention presents a device superior to those mentioned above in a number of ways. The device is completely portable, and may be easily positioned for use in event of flooding conditions, then stored away conveniently when the danger has passed. Further, it contains no moving parts subject to wear or malfunction, and does not require for its operation any connection to a source of power supply.

An object of the present invention is the provision of a completely portable sewer flood control apparatus which may be removably positioned over a sewer opening, allowing backup water from the sewer to rise within the device until the water reaches a level therein corresponding to the level of water in the main sewer outside the building, and preventing any backup water from escaping from the drain and flooding over the surrounding basement floor.

A further object is the provision of such a device which contains no moving parts subject to wear or malfunction, and which functions independently of any external power supply.

Other objects, advantages and meritorious features will more fully appear from the following specification, claims and attached drawings wherein:

FIG. 1 is a longitudinal cross sectional view showing the apparatus of the invention positioned in register with a sewer drain in a basement floor;

FIG. 2 is a fragmentary cross sectional view similar to FIG. 1, showing the flood control apparatus positioned on a sloping basement floor;

FIG. 3 is a bottom view of the sealing mat for preventing water from a drain from seeping radially outwardly of the flood control apparatus;

FIG. 4 is a top view of the mat shown in FIG. 3;

FIG. 5 is a side view of a water closet showing an

embodiment of the invention positioned in register with the bowl of the closet;

FIG. 6 is a plan view of the apparatus shown in FIG. 5; and

FIG. 7 is a partial cross sectional view taken along line 7-7 of FIG. 6.

Referring now to the drawings, it can be seen that the portable sewer flood control device 20 consists of a sleeve-like member 22 positioned on the basement floor 24 in register with a drain 26 which is connected to a sewer (not shown). Mounted on the lower peripheral edge 28 of sleeve 22 is a flexible, resilient sealing mat 30, having an aperture 32 therethrough corresponding in size to the drain 26 and in registry therewith. An upwardly extending flange 34 on mat 30 encircles the lower edge 28 of sleeve 22 and is sealingly engaged with the sleeve to prevent water from escaping between the mat and the sleeve. A weight 36, receivable within sleeve 22 is inserted therein and rests upon the mat 30. The weight 36 may be provided with a handle such as shown at 38 for easy insertion and removal from the sleeve 22, and is also provided with an aperture 40 in fluid communication with drain 26.

With the device 20 positioned on floor 24 as in FIG. 1, sealing mat 30 rests against the floor 24 and is held in sealing engagement therewith by the weight 36. As water from the sewer flows upwardly through drain 26, it is free to overflow the drain and rise within the sleeve 22, through the apertures 32 and 40 respectively, in mat 30 and weight 36. Weight 36 must be heavy enough to counter any buoyant effect from the water rising within the sleeve and still hold mat 30 in sealing contact with floor 24.

Sealing mat 30 may be made of any flexible, resilient material, but is preferably made of fairly soft, pliable rubber. The lower side 42 of mat 30 (most clearly shown in FIG. 3), engages the basement floor 24 and exhibits a plurality of continuous, concentric, ring-like projections 44, and also radially extending strips 46. These projections 44 and 46 are integral with the mat 30 and are preferably of semi-circular cross section, with the curved surfaces engaging the basement floor 24.

The upper side 48 of mat 30 (shown most clearly in FIG. 4), upon which the weight 36 rests, exhibits a plurality of rows of resilient blocks 50, extending upwardly therefrom in spaced-apart relation. Each of the blocks 50 is so positioned on mat 30 as to lie between the projections 44 and 46 on the lower side 42 of the mat 30.

It should be noted that the configuration of the projections 44 and 46, and the blocks 50 shown in FIGS. 3 and 4 may be modified to other forms not shown, but which will function satisfactorily also. For instance, projections 44 and 46 might well be arranged on the bottom of mat 30 in criss-cross fashion.

To use the apparatus 20, the sleeve 22 is placed upright on the basement floor 24 with the aperture 32 of the sealing mat 30 in fluid conducting communication with drain 26. Thereafter the weight 36 is lowered within the sleeve 22 until it rests against the blocks 50 of mat 30. The downward force exerted by weight 36 against blocks 50 presses the projections 44 and 46 tightly against the floor 24, achieving a fluid-tight seal therebetween.

Referring to FIGS. 1 and 2, it will be noted that the bottom surface 52 of weight 36 is sloped or tapered. Thus whether the basement floor 24 is substantially flat as in FIG. 1, or slopes downwardly toward the drain 26 as in FIG. 2, the weight 36 will always rest on the innermost row of blocks 50', and exert sufficient force thereon to sealingly engage those projections 44' which are immediately adjacent the drain 26 with the floor 24.

Most basement floors are pitched toward the floor drain so that water on the floor will flow toward the drain. Were the surface of the weight 36 to have a bottom surface 52 which was flat, it is conceivable that the weight would not contact the row of blocks 50' and sewage backing up through the drain 26 would seep along the floor 24 and escape radially outwardly of the lower end 28 of the sleeve 22.

In FIGS. 5, 6 and 7 a device embodying the invention is shown adapted to be used in conjunction with a basement water closet 54. If the water in the main sewer outside the building rises to a height above the height of the water closet bowl 56, sewage backing up through the sewer will overflow the upper rim 58 of the bowl 56 and flood the basement floor 60. To prevent such overflow a sleeve-like member 62 is provided, which is placed upon the bowl 56, with its lower flanged end 64 in contact with the upper rim 58 of bowl 56. A sealing ring 66 is interposed between the flange 64 and the rim 58 to provide a fluid-tight seal between the sleeve 62 and the bowl 56. The ring 66 may be sealingly secured to the lower side of flange 64, or may be a separate member, as shown in FIG. 7. The former is preferable, as it makes assembly of the apparatus on the bowl 56 easier.

The sealing ring 66 may be made of rubber or any other material having a resiliency which will assure a fluid tight seal between the sleeve 62 and the bowl 56, and which will be impervious to water. Sealing ring 66 may also be constructed with a configuration similar to that shown in FIGS. 3 and 4 and described in detail hereinabove, or may be a ring having smooth faces which engage flange 64 and rim 58.

It will be appreciated that means are necessary to hold sleeve 62 in position and to press ring 66 into fluid tight engagement with the rim 58. One simple and satisfactory way to accomplish this is the provision of a pair of substantially J-shaped members 68, which extend along the inner surface of sleeve 62. Plate-like members 70 are placed across the upper edge 72 of sleeve 62, and have clearance holes 74 therethrough for insertion of the J-shaped members 68. The bight 76 of the J is positioned so as to grasp and embrace the inwardly projecting edge 78 of rim 58. The leg 80 of the J provided with a threaded length 82 at its upper end, is inserted through hole 74 in plate 70, and is threadedly engaged with a nut or the like 84. This is most clearly shown in FIG. 7. As nut 84 is tightened against plate 70, sleeve 62 and sealing ring 66 are urged downwardly against rim 58, assuring a fluid tight seal between the sleeve 62 and the bowl 56. Sewage backing up through

water closet 54 will thereby rise in sleeve 62, preventing flooding of basement floor 60.

What is claimed is:

1. A portable sewer flood control apparatus for preventing basement flooding due to back flow of sewage through a floor drain opening, comprising; a fluid impervious sleeve-like member open at both ends and of greater cross-sectional area than said drain opening; a flexible, resilient sealing member extending across one open end of said sleeve and having an upstanding flange closely encircling the peripheral edge of said sleeve; means for securing the flange of said member to said sleeve in fluid-tight relationship; said sealing member having a central aperture opening therethrough congruent with said drain opening, with the outwardly facing surface of said sealing member exhibiting a plurality of integral projections thereon arranged in a series of concentric spaced-apart circles about said central aperture; said sleeve adapted to be removably placed over said drain opening on the floor with the aperture in said sealing member in register with the drain opening; and weight means adapted to be removably placed within said sleeve when the same is positioned over said drain, and resting upon said sealing member to bias the projections on the sealing member into fluid-tight engagement with a portion of said floor immediately adjacent said drain opening.

2. In a portable sewer flood control apparatus for use with a drain opening in a basement floor, a sealing member comprising: a flexible, resilient, circular disk of diameter larger than said drain opening and having a central aperture therethrough congruent with said drain opening, said disk adapted to be positioned on said floor with the central aperture in register with said drain opening; an upstanding flange formed integrally with said disk and extending completely around the periphery thereof; and a plurality of integral projections on the side of the disk opposite said upstanding flange, said projections being arranged in a series of concentric, spaced-apart circles on the disk, and adapted to be urged into fluid-tight engagement with that portion of the floor immediately adjacent said drain opening upon the application of pressure against the side of the disk opposite said projections.

References Cited in the file of this patent

UNITED STATES PATENTS

1,773,640	Prasivka	Aug. 19, 1930
2,009,568	Walker	July 30, 1935
2,327,602	Kesteloot	Aug. 24, 1943
2,427,258	Cavalieri	Sept. 9, 1947
2,478,876	Modlin	Aug. 16, 1949
2,894,263	Kunkel et al.	July 14, 1959