Nov. 23, 1954

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2,695,072

BACKWATER VALVE

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2 Sheets-Sheet 1

Fig. 1

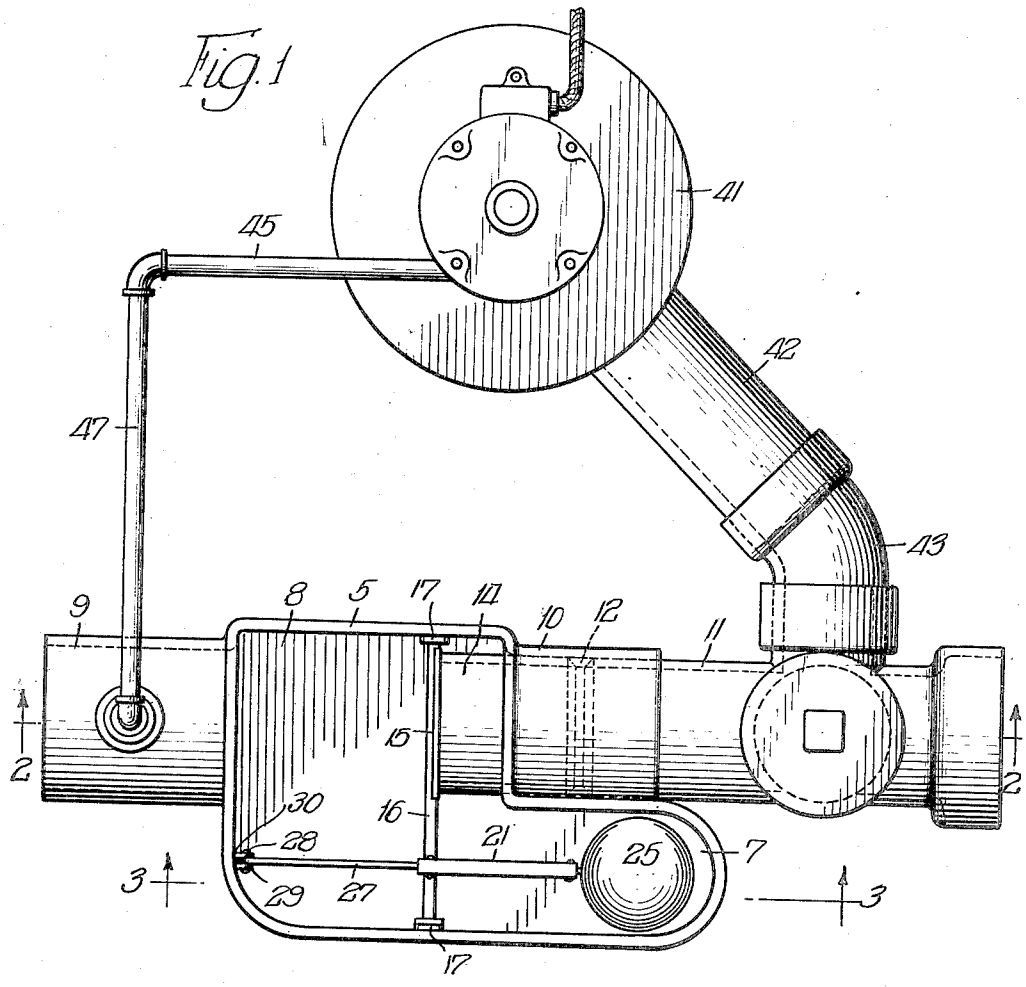
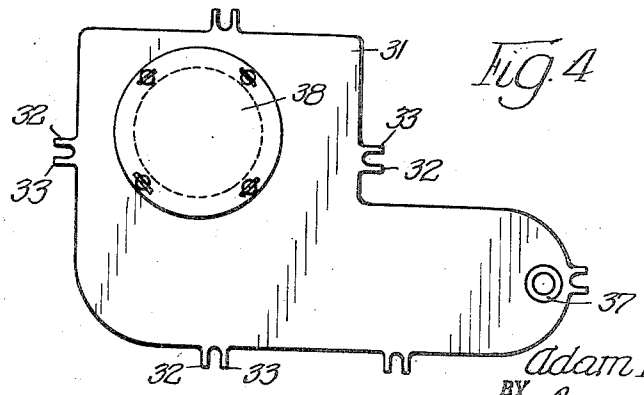


Fig. 4



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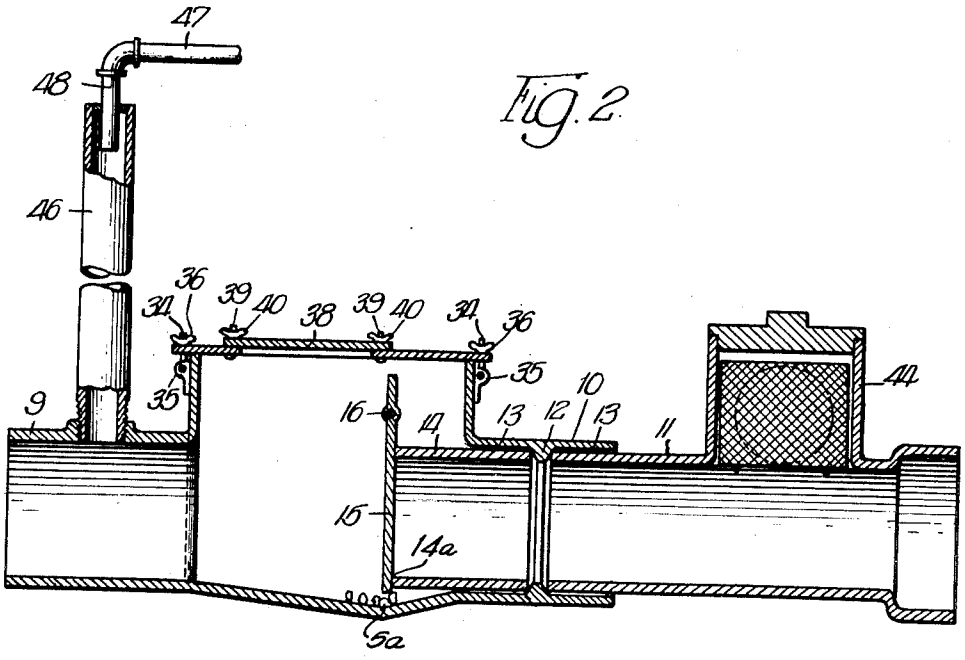


Fig. 2.

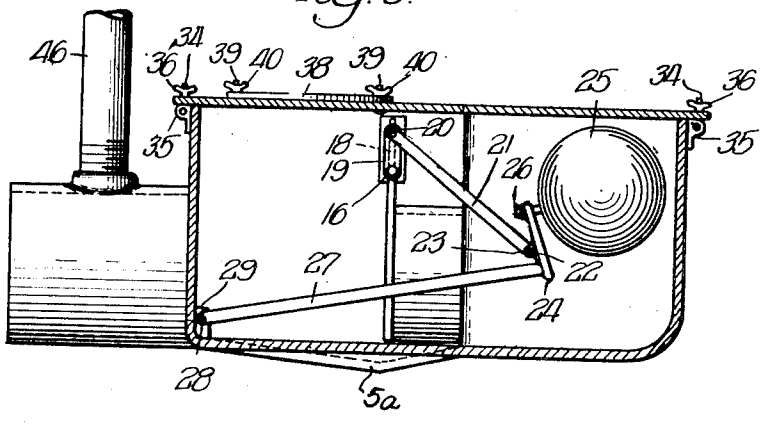


Fig. 3.

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BACKWATER VALVE

Adam Hauslein, Chicago, Ill.

Application October 23, 1951, Serial No. 252,601

1 Claim. (Cl. 182—1)

This invention relates to means for preventing the flooding of basements, cellars, and analogous low places having connection with a sewage system, when there is an abnormal rise of water or increase in the pressure from heavy rain, or a thaw in winter when the ground is covered with ice or snow.

Broadly, the invention comprises, essentially, a casing adapted to be located in the length of pipe connecting with the sewer, such casing having arranged therein a float controlled valve which automatically closes upon an abnormal rise of water to prevent back flow and a flooding of the premises.

Specifically, the invention is concerned with a device of the character described wherein the valve and float are normally positioned out of the path of fluid flow, whereby the rate of fluid flow through the casing will not be impeded.

A further feature of the invention resides in so positioning the valve and float that they are not only out of the path of fluid flow, but through rodding of the casing and its connecting pipes may be accomplished without the necessity of dismantling the valve and float to achieve that result.

A still further object of the invention resides in providing a device of the character described with a cover that may quickly and easily be removed to permit access to the casing.

Another object of the invention resides in the provision of means connected with a device of the character described and with a sump pump for by-passing the casing of the device.

Other objects and advantages of the invention will in part be obvious and in part will hereinafter appear, and they reside generally in the features of construction, combination of elements and arrangements of parts which will be exemplified in the construction to be described, and of which the scope of application will be indicated in the appended claim.

In the drawings, in which is shown the preferred illustrative embodiment of the invention:

Figure 1 is a top plan view of a device embodying the principles of the present invention;

Figure 2 is a vertical sectional view through the valve casing of Figure 1, taken, substantially along the plane of line 2—2 thereof;

Figure 3 is a view similar to Figure 2 and taken, substantially along the plane of line 3—3 of Figure 1; and

Figure 4 is a top plan view of the cover for the casing.

Referring now in detail to the drawings, the device of the present invention comprises a casing 5, preferably formed of cast metal, or other suitable or prefererd metal. The casing, as shown, is of generally L shape in plan, and of substantially inverted T shape in cross-section, and defines, in effect, a float chamber 7 and a valve chamber 8, disposed in side by side relationship, with the float chamber 7 of greater elongated form than chamber 8. The device of the present invention will, in general, be employed in basements, and the casing is, therefore, provided with an integral outlet pipe 9 communicating with valve chamber 8, and adapted for connection with the street sewer in any suitable or preferred manner. An integral inlet pipe 10 also communicates with valve chamber 8, and is adapted for connection to a short length of pipe 11, the purpose of which will hereinafter appear. Inlet pipe 10 is provided, substantially mid-way of its length, with an internal annular shoulder 12. One end of pipe 11 extends into pipe 10 and abuts one side of shoulder

12. A cementitious binder 13 secures the two pipes 10 and 11 together. The other end of pipe 11 is suitably secured to the basement sewer pipe. It will be noted that pipes 9 and 10 are let diametrically opposite sides of casing 5 so that a straight path for fluid flow may be had successively, through pipe 11, chamber 8 and pipe 9. This also facilitates through rodding of pipes 9 and 10 and chamber 8.

One end of a short length of pipe 14 also extends into pipe 10 and abuts the opposite side of shoulder 12. The cementitious material 13 likewise secures these two pipes together. The opposite end of pipe 14 extends into chamber 8 for a short distance, and its defining edge 14*a* forms a seat for a gate valve 15. Valve 15 is, of course, circular in form and is preferably formed of stainless steel or other suitable or preferred material to resist corrosion. Adjacent its upper end, valve 15 is fixed to a shaft 16 as by welding, adjacent one end thereof. This shaft is positioned transversely of chambers 7 and 8, and immediately above pipe 14, and in such proximity to the end of pipe 14 that the valve seat 14*a* will have line contact with valve 15 when the latter is in its closed position. Casing 5 is shown depressed at 5*a* below valve 15, so that sludge interference with valve 15 will not occur.

The opposite ends of shaft 16 are journaled in bearing blocks 17, suitably secured to the inner surface of the side walls of casing 5, the location of said blocks being such that the valve 15 will be positioned as hereinbefore described. Blocks 17 are preferably of a corrosion resistant material, and are substantially rectangular in form. They are positioned vertically on the walls of casing 5 with the shaft 16 journaled therein adjacent the lower end of the blocks. A vertical groove or bore 18 extends upwardly in the blocks from shaft 16, and is adapted for reception of a suitable water-resistant lubricant for the purpose of lubricating shaft 16.

Substantially centrally of float chamber 7, in a transverse direction shaft 16 has one end of a link 19 suitably secured thereto. The other end of link 19 is pivoted at 20 to one end of a second link 21. This second link 21 has its other end pivoted at 22 to an ear 23 fixed to a weighted float support rod 24. A ball float 25 is suitably secured at 26 to one end of rod 24, while the opposite end of rod 24 is fixed to one end of a lever arm 27. The opposite end of arm 27 is pivoted at 28 between a pair of ears 29—30, such ears being formed integral with one side wall of casing 5 and being located adjacent the bottom wall thereof. It will be noted that the pivot 22 is positioned on rod 24 closely adjacent arm 27, and the length of rod 24 is such that the float will not seat on the bottom of casing 5 when said float is in its lowered position.

From the foregoing, and as shown, it will be apparent that, normally, the float will be in a lowered position in casing 5, with the point of rod 24 seating on the bottom of said casing. Valve 15 will, at that time assume a substantially horizontal position in casing 5 permitting free flow of fluid, successively, through pipes 11—14, chamber 8 and pipe 9. With the advent of flood water entering casing 5, however, the float will begin to rise thereby swinging arm 27 upwardly about its pivot 28. Upward movement of arm 27 will also cause upward movement of link 21 resulting in rotation of link 19 and shaft 16, thereby swinging valve 15 downwardly to a vertical position to its seat on pipe 14. On lowering of the flood waters, the reverse operation of the float mechanism and valve will be effective.

Casing 5 is provided with a cover 31, which is provided with a plurality of pairs of ears 32—33 spaced about its marginal edge and projecting outwardly therefrom. In the instant case, these pairs of ears are shown to be six in number. Each pair of ears 32 and 33 receive therebetween a bolt 34, threaded at its upper end, and pivoted at its lower end in a boss 35 secured to casing wall 5. Wing nuts 36 threading on bolts 34 into contact with cover 31, secured the latter to casing 5. Cover 31 may readily be removed when access to the entire mechanism before described is desired. When it is merely desired to flush out casing 5, that may be done by inserting a hose into a washout opening 37 formed in cover 31 and located approximately

adjacent float **25**. Opening **37** may be suitably tapped and closed by a threaded plug (not shown). When access is desired to chamber **8**, for the purpose of cleaning sludge from around valve **15**, rodding and cleaning out auxiliary cover **38** may readily be removed from cover **31** for that purpose. Cover **38**, it will be noted is secured to cover **31** by bolts **39**, suitably secured to the latter, and wing nuts **40** threading onto bolts **39** into contact with cover **38**.

If desired, a sump pump **41** may be employed to draw water from the house end of the sewer and to discharge it into the sewer beyond valve **15**. Such pump may be connected by suction pipe **42** and elbow **43** to the outlet **44** of pipe **11**. Discharge pipe **45**, connected to the discharge outlet of the pump, is connected with a stand pipe **46** through the medium of pipes **47—48**, the latter pipe discharging into the stand pipe **46**. The stand pipe, as shown, is threaded into the outlet pipe **9**. Water may thus be pumped from pipe **11** into pipe **9** to by-pass valve **15**.

While a preferred embodiment of my invention has been illustrated and described by way of example, it will be obvious that changes may be made therein within the spirit and scope of the invention and, therefore, the invention is not to be limited to the precise form herein described, except insofar as it may be so limited by the appended claim.

I claim:

A back water valve comprising a casing of generally L-shape in plan and of substantially inverted T-shape in cross-section defining a float chamber and a valve chamber disposed in side by side relationship with the float chamber of greater elongated form than the valve chamber; said casing having an inlet and an outlet, the inlet extending in a horizontal direction into the casing and terminating in an open pipe end defining a valve seat positioned in said valve chamber, a rock shaft extending transversely of the casing immediately above said valve seat and journaled on the side walls of said casing, a valve depending directly from said rock shaft and rockable thereby to engage and disengage said valve seat, a lever pivoted at one end to said casing adjacent the outlet end thereof and forwardly of said valve, a float support rod having one end fixed to the opposite end of said lever a float on the opposite end of said float rod, a link fixed to said rock shaft, and a second link pivoted at its opposite ends to said float rod and said link, whereby movement of said float will transmit opening and closing movement to said valve.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,205,199	Healy	Nov. 21, 1916
1,732,319	Wagner	Oct. 22, 1929
2,203,688	Little	June 11, 1940
2,421,066	Howe	May 27, 1947

FOREIGN PATENTS

Number	Country	Date
21,646	Great Britain	Sept. 17, 1910
682,295	France	1930