

March 28, 1950

R. KUSKEY
BACKUP TRAP

2,502,158

Filed Sept. 27, 1946

3 Sheets-Sheet 1

Fig. 1.

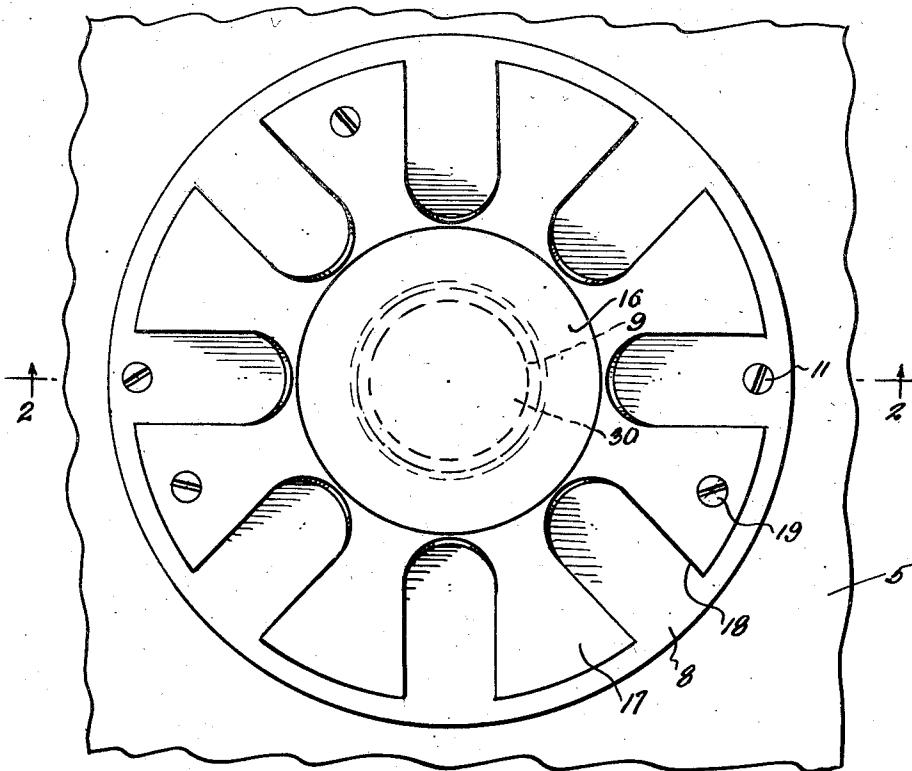
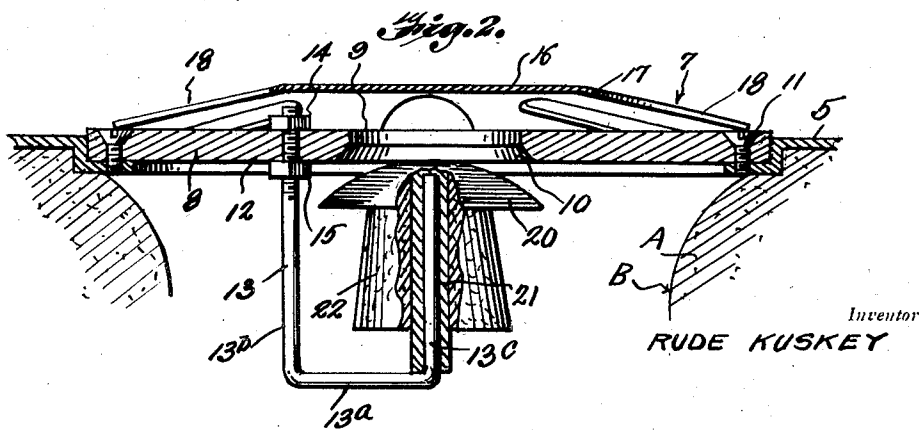


Fig. 2.



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Fig. 3.

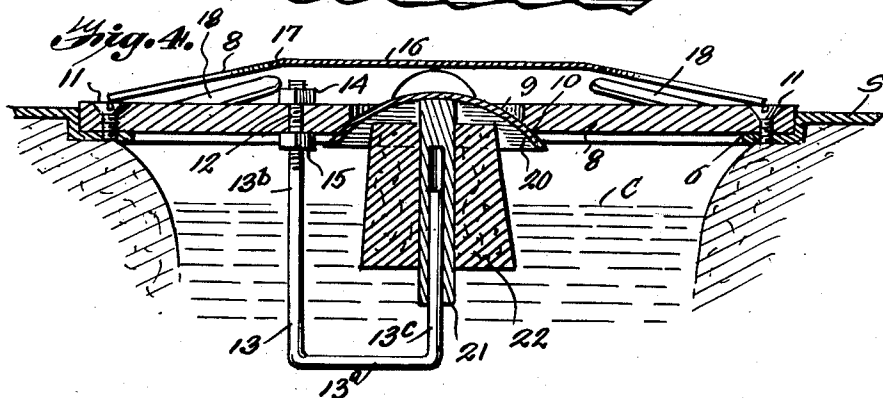
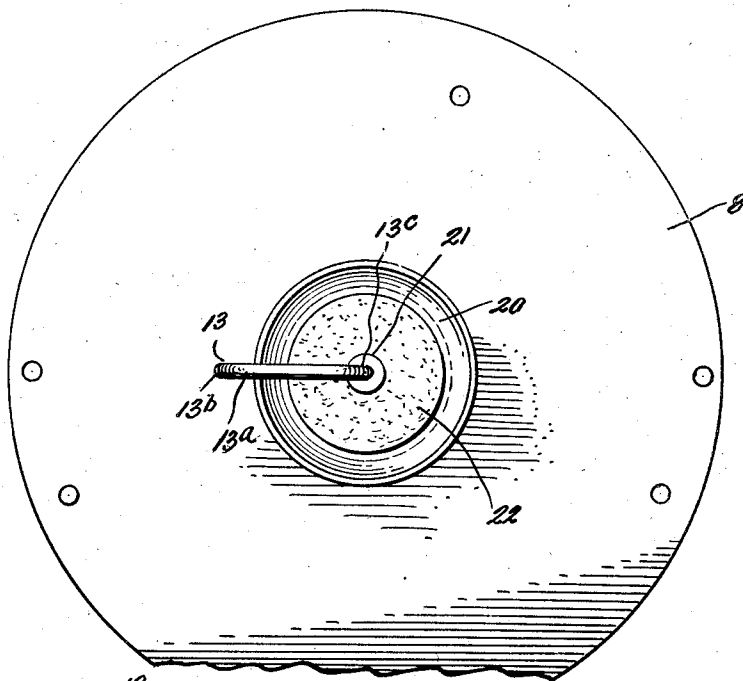
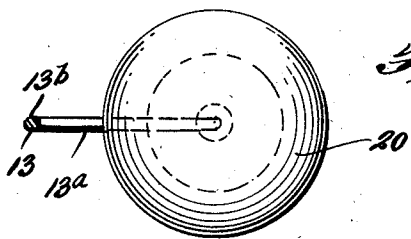


Fig. 5.



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Fig. 6.

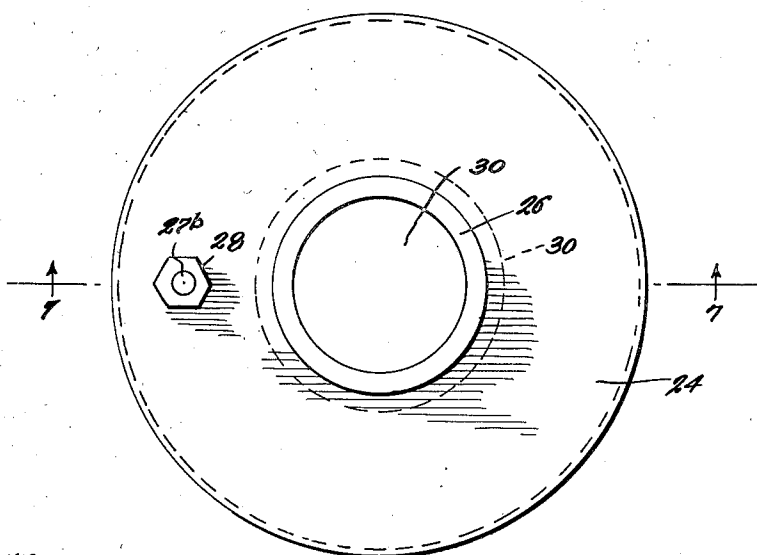
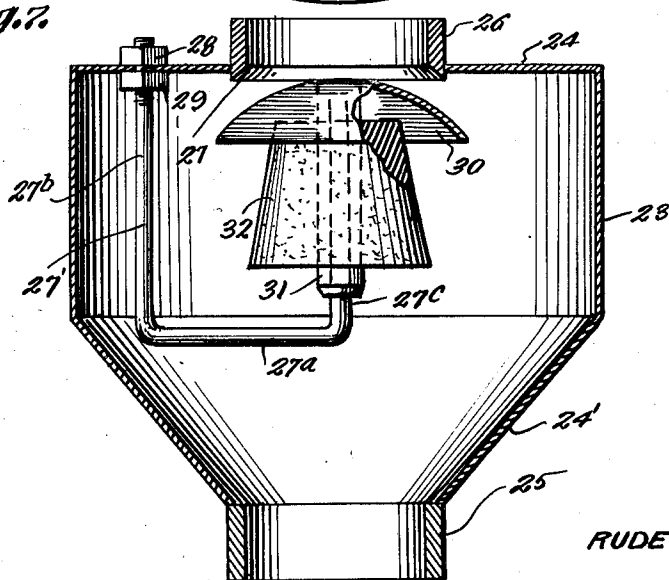


Fig. 7.



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UNITED STATES PATENT OFFICE

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BACKUP TRAP

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2 Claims. (Cl. 182—25)

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This invention relates to traps to prevent the backing up of sewer fluids, by way of the usual drains, into basements, laundry tubs and other areas or structures that rely upon drainage to the usual sewer systems of municipalities.

The principal object of the present invention is to provide a float type valvular trap for preventing return of sewer liquids above a drain port, the trap operating to close off the drain port when such liquids reach that point.

Another important object of the invention is to provide a back-up trap, which can be easily installed and which will also have a tendency to prevent clogging of the drain by excluding large pieces of foreign matter, this being due to the special construction of the trap.

A further object of the invention is to provide a trap which can be manufactured at low cost, and which due to its positive acting construction, will be substantially foolproof at all times.

These and various other objects and advantages of the invention will become apparent to the reader of the following description.

In the drawings:

Figure 1 is a fragmentary top plan view of the trap in place over a drain orifice.

Figure 2 is a vertical sectional view taken on line 2—2 of Figure 1.

Figure 3 is a fragmentary bottom plan view of the trap.

Figure 4 is a vertical sectional view through the trap, showing the valve in closed position.

Figure 5 is a top plan view of the valve element.

Figure 6 is a top plan view of a modified form of the invention, especially useful for laundry tubs.

Figure 7 is a vertical sectional view taken on line 7—7 of Figure 6.

Referring to the drawings, reference character A, for instance represents the floor of a basement, usually of concrete, this having a drain orifice B. The floor is generally formed to receive a frame plate 5, which has a downward off-set to define a shoulder 6 upon which the present invention, generally referred to by numeral 7 seats.

The present invention includes a disk 8, preferably of metal, having a central opening 9, the plate 8 at the lower portion of the opening 9 being beveled to provide a valve seat 10.

The peripheral portion of the disk 8 has counter sunk openings to receive several screws 11 which are driven downwardly into threaded openings of the frame plate shoulder 6.

Adjacent the opening 9, the disk 8 is formed with a vertical opening 12 for receiving the upper threaded portion of a U-shaped guide 13, this guide being made up of a bight portion 13a, a long leg 13b, which has the threaded portion at its upper end, and a shorter upstanding leg 13c. The U-shaped guide 13 is held in place by nuts

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14, 15 on the threaded portion of the leg 13b and these are driven against opposite sides of the disk 8 to hold the U-shaped guide 13 firmly in the depending position shown in Figure 2, with the upstanding leg 13c centralized under the opening 9.

A hood 16 of sheet metal or any other suitable material has a sloping edge portion 17 and its periphery rests upon the disk 8 adjacent its edge portion, as shown in Figure 2.

The sloping portion 17 of the hood 16 is formed with cut-outs 18 extending from the edge portion of the hood, nearly to the upper extreme of the slope 17, these cut-outs being radially arranged with respect to the center of the hood 16.

At desired intervals, the edge portion of the hood is formed with openings to receive screws 19 which are driven downwardly into corresponding threaded openings in the disk 8.

Due to the sloped portion 17 of the hood 16, the major portion of the hood is raised above the disk 8 and the cut-outs 18 allow for the passage of water through the drain opening 9.

The back-up valve consists of an inverted dish shaped element 20 having a tubular stem 21 depending from the central portion thereof and being slidable on the short leg 13c of the guide 13. On the tubular stem 21 is a substantially large cork or other buoyant body 22, which will float on liquid, to raise the valve element 20 to seated position against the seat 10 of the disk 8.

Figure 2 shows the valve element 20 in opened position, while Figure 4 shows the valve element in closed position, the stem 21 having been lifted on the leg 13c by the carrying action of the back-up water C.

It can now be seen, that the hood 16 will prevent any large particles of foreign matter or debris from reaching the drain opening 9 and perhaps clogging this opening so that the valve 20 will not operate upon the rise of back-up water C in the drain orifice B. When back-up water occurs in the drain B, the buoyant body 22 will rise with the level of the water and eventually cause the valve element 20 to engage the seat 10, thus preventing the back-up water from passing upwardly through the opening 9 and flooding the basement floor.

For use in drain pipes and particularly in connection with laundry tubs, a modified form of the invention is provided and this illustrated in Figures 6 and 7.

This is an enclosed form of the invention and consists of a cylindrical shell 23 having a top 24 and an inverted frusto-conical shaped bottom 24', merging with a coupling neck 25.

A burr or coupling neck 26 is disposed through a central opening in the top 24 and is thereto welded or otherwise secured, the lower end of the neck 26 being beveled to provide a seat 27, slightly depending into the shell 23.

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The valvular structure represented in Figure 7 is substantially the same as shown in Figures 2 and 4, the same consisting of a U-shaped guide 21' having a bight portion 21a, a long vertical leg 27b and a shorter vertical leg 27c, the upper portion of the leg 27b being disposed through an opening in the top 24 and having jamb nuts 28, 29 screwed in place against the opposite sides of the top 24, to hold the guide 21' firmly in place and center the short leg 27c with respect to the neck 26.

Numeral 30 denotes an inverted dish shaped valve element having a depending tubular element 31, corresponding to the tubular stem 21, shown in Figure 2, the tubular element 31 receiving the short leg 27c. The tubular member 31 is slidably mounted on the leg 27c and carries a substantially large buoyant body 32, which may be of cork.

The valve structure 30, 31, 32 operates in response to the back-up of sewer liquid, in the same manner as described relative to the form of the invention shown in Figures 2 and 4.

The shell 23 may be constructed of any desired metal, but it is preferable that the U-shaped guides 13, 21' be of brass. The valve elements 20, 30 can be of aluminum and if desired, the stem is pressed through the center of the cork so that it will frictionally remain in place. The cork will carry the valve element well above the water level at all times and will seat against its corresponding seat, well in advance of the water level reaching the corresponding seat.

While the foregoing description sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

1. A back-up stop for drains comprising a cover plate having an opening therein and a valve seat surrounding the lower edge of the opening, a U-shaped guide under said plate having one arm connected with the plate and its other arm disposed vertically under the opening centrally thereof, and a valve slidable vertically upon the last mentioned arm of said guide into and out of position to close the lower end of the opening, said valve consisting of a tubular stem fitting snugly about the said arm and slidable vertically

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along the same, a dome-shaped head mounted at its center upon the upper end of said stem and having flat sealing engagement with the valve seat when the valve is in a raised position, and a block of buoyant material fitting tightly about said stem and serving to float the valve upwardly along the said guide arm and dispose the head in close fitting engagement with the valve seat to tightly close the said opening.

2. A back-up stop for drains comprising a cover plate adapted to be mounted about a drain and formed with an opening having its lower edge surrounded by a valve seat, a U-shaped guide consisting of a rod bent to form a bight and arms rising from ends thereof, one arm having its upper end portion detachably mounted through the cover plate in spaced relation to said opening, the other arm being shorter than the first arm and disposed vertically under the center of the opening with its upper end terminating below the cover plate, and a valve carried by said shorter arm and consisting of a hemi-spherical concavo-convex head having its convexed surface presented upwardly, a tubular stem extending downwardly from the center of said head and slidably fitting upon the short arm of the guide, and a block of cork fitting tightly about the stem and serving as a float to move the valve upwardly along the guide arm from a normally lowered position and hold the head in close fitting engagement with the valve seat to tightly close the said opening.

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