

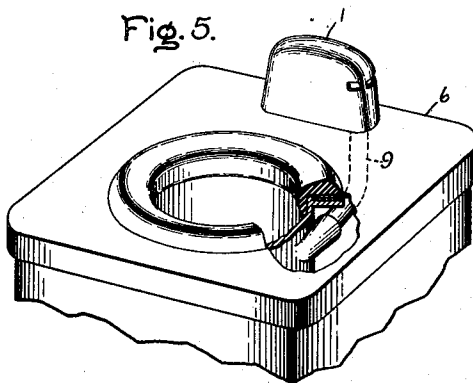
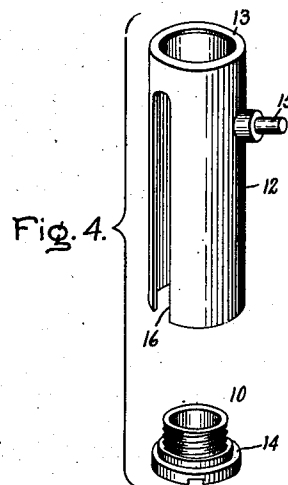
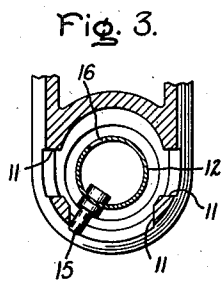
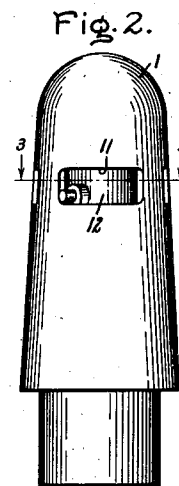
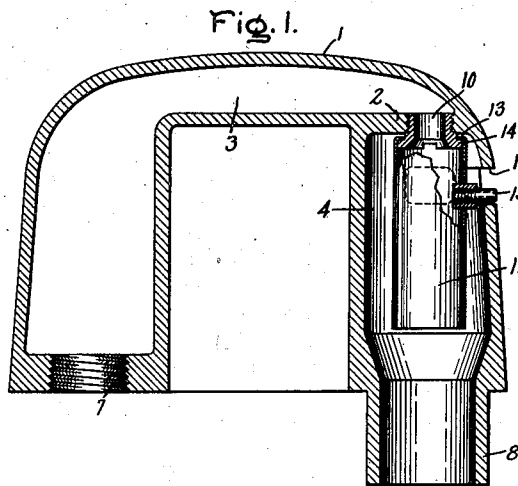
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J. H. POWERS

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VACUUM BREAKER

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VACUUM BREAKER

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5 Claims. (Cl. 137-111)

The present invention relates to vacuum breakers for plumbing systems.

The principal use of vacuum breakers is in the water supply line for a device in the plumbing system having a spill-over level above the connection to the water supply. In such an arrangement, if the device should become filled to overflowing due to stoppage in its drain, there would be some chance of drawing contaminated water back into the water supply line if the water pressure should change from pressure to suction. The interposition of a vacuum breaker between the supply line and the device prevents the flow of contaminated water from the device to the water supply line.

The object of my invention is to provide an improved construction in vacuum breakers, and for a consideration of what I believe novel and my invention, attention is directed to the following description and the claims appended thereto.

In the accompanying drawing, Fig. 1 is a sectional front elevation of a vacuum breaker embodying my invention; Fig. 2 is an end view of the vacuum breaker; Fig. 3 is a sectional view taken on line 3-3 of Fig. 2; Fig. 4 is an exploded view of the splash shield and the Venturi nozzle or conduit; and Fig. 5 is a fragmentary perspective view of the vacuum breaker mounted on the cabinet of a garbage disposal device.

Referring to the drawing, the vacuum breaker comprises a casing 1 divided by a partition 2 into an inlet chamber 3 and an outlet chamber 4. In Fig. 5 the casing is shown mounted on the top of the cabinet for a garbage disposal device 6 the lower end of which is connected in a manner not shown to the drain pipes of the plumbing system. The intake chamber 3 is provided with a threaded opening 7 for connection with the water supply pipe. The outlet chamber 4 is provided with a sleeve 8 for connection with a pipe 9 discharging into the garbage disposal device. The vacuum breaker is accordingly interposed between the water supply pipe and the garbage disposal device. Threaded into the partition wall 2 is a relatively restricted Venturi nozzle or conduit 10 which serves as the sole passage connecting the inlet and outlet chambers 3 and 4. Spaced below the lower end of the Venturi conduit 10 are vent or overflow openings 11 in the side walls of the outlet chamber. The overflow openings are of sufficient area to easily take care of all of the water which can be discharged through the Venturi conduit without causing the water level in the outlet chamber to rise to the upper edge of the openings. Since

the openings 11 are spaced below the lower end of the Venturi conduit 10, the water level in the outlet chamber 4 cannot rise to the lower end of the Venturi conduit. If the drain connection 5 to the garbage disposal device should become blocked while water was being supplied under positive pressure through the inlet chamber 3, the water level in the outlet chamber 4 accordingly can never rise up to the lower end of the Venturi tube. If the lower end of the Venturi conduit projected below the water level in the outlet chamber under these conditions, it would be possible for contaminated water from the outlet chamber to be drawn back into the water supply lines if the pressure in the water supply line should suddenly change from pressure to suction. This is prevented in the present construction by the fact that the lower end of the Venturi conduit is always spaced above the water level in the outlet chamber. To prevent splashing of water out through the openings 11, a cylindrical splash guard 12 is rotatably mounted on the lower end of the Venturi conduit 10 by means of an inwardly extending flange 13 on the upper end of the splash guard which rests on a flange 14 on the Venturi conduit. The splash guard 12 is spaced on all sides from the side walls of the outlet chamber, and the lower end of the splash guard depends a substantial distance below the openings 11. The splash guard is rotatable by means of an arm 15 which projects through one of the openings 11 so as to be accessible from the outside. When the splash guard is in the position illustrated, a vertical slot or opening 16 in the splash guard is out of line with any of the openings 11. By turning the splash guard in a counterclockwise direction, as viewed in Fig. 3, the slot 16 may be brought into line with one of the openings 11 to permit visual inspection of the interior of the splash guard. The upper end of the slot 16 is above the openings 11 and is accordingly above the maximum water level in the outlet chamber 4. When the outlet chamber 4 is filled to its maximum level there is accordingly a break between the lower end of the Venturi conduit 10 and the water level in the outlet chamber 4 which prevents the sucking of water from the outlet chamber back into the water supply line. If the slot 16 did not extend above the maximum water level of the outlet chamber 4, reverse flow from the outlet chamber to the supply line would be possible. From one aspect the slot 16 can be considered as a vent opening or passage from the splash guard 12 to the outlet chamber 4, which vent is above

the maximum water level in the outlet chamber.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A vacuum breaker for connection in the supply line of a plumbing system, comprising a casing having walls defining an inlet chamber and an outlet chamber below the inlet chamber, a restricted conduit connecting said chambers, an overflow in the walls of the outlet chamber having an area greater than that required to carry all of the discharge from said conduit whereby the maximum liquid level in said outlet chamber is below the top of the overflow, said liquid level being spaced below the lower end of said conduit, a tubular shield mounted in the outlet chamber on said conduit and depending within the outlet chamber below said overflow opening for preventing splashing through said overflow opening, said shield being spaced from the walls of the outlet chamber, and a vent opening in said shield above said liquid level.

2. A vacuum breaker for connection in the supply line of a plumbing system, comprising a casing having walls defining an inlet chamber and an outlet chamber below the inlet chamber, a restricted conduit connecting said chambers, an overflow opening in the walls of the outlet chamber below the lower end of said conduit, a tubular shield rotatably mounted in the outlet chamber on said conduit and depending within the outlet chamber below said overflow opening to prevent splashing through said overflow opening, said shield being spaced from the walls of the outlet chamber, provisions for rotating the shield accessible from the outside of the outlet chamber, and a vent opening in said shield above the overflow opening in said outlet chamber, the vent opening in the shield being positioned so as to be visible for inspection through the overflow opening in the outlet chamber upon rotation of the shield.

3. A vacuum breaker for connection in the supply line of a plumbing system, comprising a casing having walls defining an inlet chamber

and an outlet chamber below the inlet chamber, a restricted conduit connecting said chambers, an overflow opening in the walls of the outlet chamber below the lower end of said conduit, a rotatably mounted tubular shield within the outlet chamber depending from said conduit below said overflow opening to prevent splashing through said overflow opening, said shield being spaced from the walls of the outlet chamber, a slot in said shield having its upper end above said overflow opening, said slot being positioned so as to be visible for inspection through said overflow opening upon rotation of the shield.

4. A vacuum breaker for connection in the supply line of a plumbing system, comprising a casing having walls defining an inlet chamber and an outlet chamber below the inlet chamber, a restricted conduit connecting said chambers, an overflow in the walls of the outlet chamber having an area greater than that required to carry all of the discharge from said conduit whereby the maximum liquid level in said outlet chamber is below the top of the overflow, said liquid level being spaced below the end of said conduit, a shield depending within said outlet chamber below said overflow opening for guiding the stream discharged from said conduit to below said overflow opening and preventing splashing through said overflow opening, and a vent passage through said shield above said liquid level.

5. A vacuum breaker for connection in the supply line of a plumbing system, comprising a casing having walls defining an inlet chamber and an outlet chamber below the inlet chamber, a partition separating said chambers, a restricted conduit through said partition having its lower end in said outlet chamber, and an overflow in the walls of the outlet chamber having an area greater than that required to carry all of the discharge from said conduit whereby the maximum liquid level in said outlet chamber is below the top of the overflow, said liquid level being spaced below the lower end of said conduit.

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