June 20, 1939. C. F. SCHULTIS 2,163,453

WASTE FITTING

Filed Dec. 30, 1938

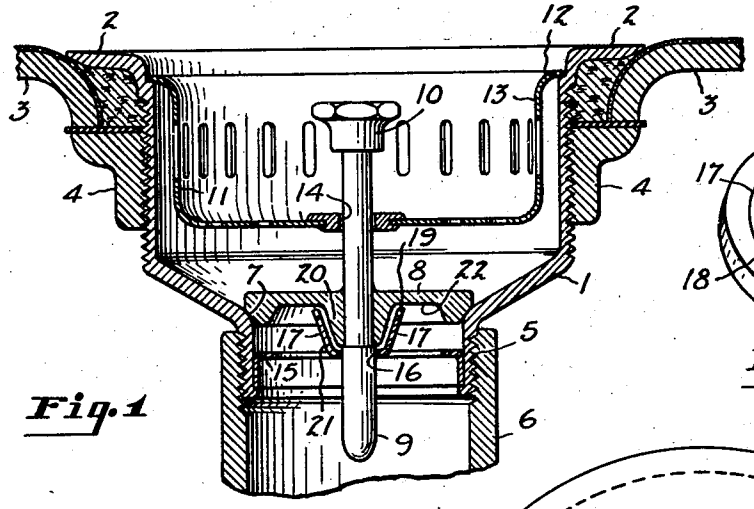


Fig. 1

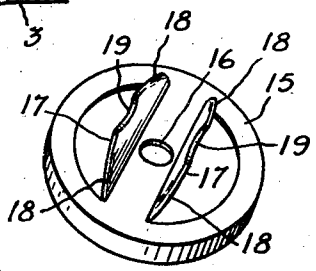


Fig. 5

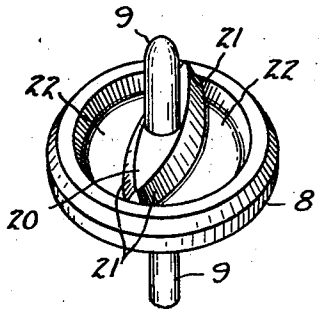


Fig. 4

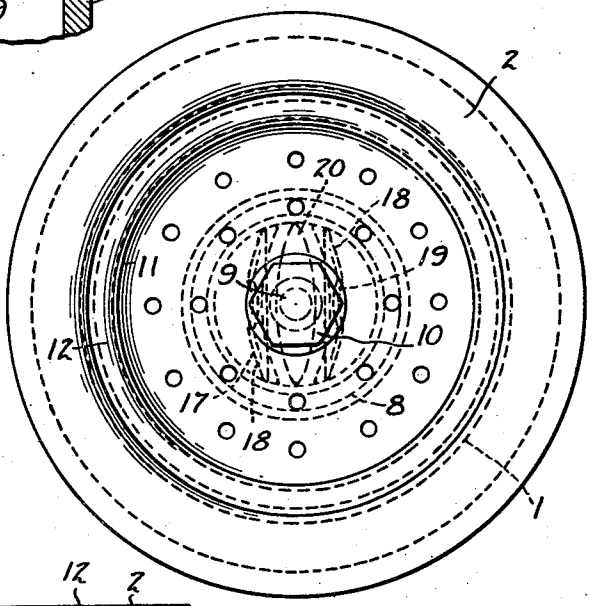


Fig. 3

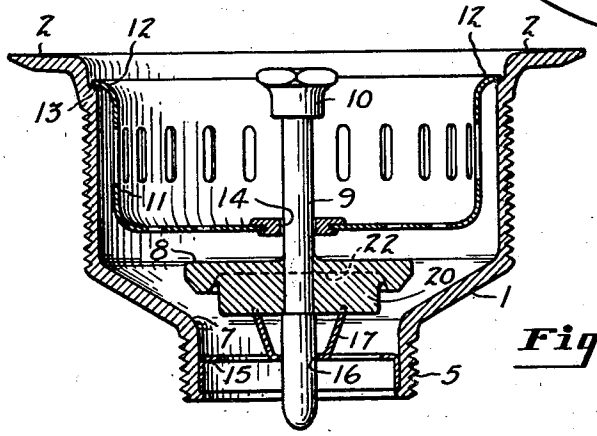


Fig. 2

INVENTOR
CHARLES F. SCHULTIS
BY Frank S Greene
ATTORNEY

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WASTE FITTING

Charles F. Schultis, Cleveland, Ohio, assignor to Globe Valve Corporation, Cleveland, Ohio, a corporation of Ohio

Application December 30, 1938, Serial No. 248,549

7 Claims. (Cl. 4—287)

This invention relates to waste fittings for connecting the drain outlets of a sink, washing tank, or the like, to a waste pipe, and more particularly to fittings of the type provided with a strainer and a plug or valve below the strainer for closing the outlet, together with means for retaining the valve in an open position to pedmit drainage.

The present invention has for an object to provide guiding means above and below the valve which constrains the valve to axial and rotative movements, together with valve-supporting means adapted to hold the valve in an elevated open position in one angular position of the valve and adapted to permit the valve to close when it is turned.

A further object is to provide a valve-supporting means including a cam by which the valve may be elevated to open position by a turning movement thereof.

With the above and other objects in view the invention may be said to comprise the device as illustrated in the accompanying drawing herein after described and particularly set forth in the appended claims, together with such variations and modifications thereof as will be apparent to those skilled in the art to whch the invention appertains.

Reference should be had to the accompanying drawing forming a part of this specification, in which:

Figure 1 is an axial vertical section showing the fitting secured in the outlet opening of a sink and the valve in closed position;

Fig. 2 is an axial section through the fitting showing the valve in open position;

Fig. 3 is a top plan view of the fitting;

Fig. 4 is a perspective view of the valve and valve stem;

Fig. 5 is a perspective view of the valve-supporting and guiding member.

Referring to the accompanying drawing, a tubular coupling member 1 is provided with an outwardly projecting peripheral flange 2 at its upper end. The coupling member is mounted in the drain opening of a sink or other receptacle and the flange 2 overlies the bottom wall 3 of the sink at the margin of the opening. The coupling member 1 is exteriorly threaded to receive a clamping nut 4 which cooperates with the flange to clamp the bottom wall of the sink at the margin of the drain opening. The coupling member 1 has a reduced lower end 5 which is threaded for attachment to a drain pipe 6. At the upper end of the reduced portion 5 the coupling member 1 is provided with an internal valve seat 7 which receives a plug or valve 8 which, when resting on the seat, cuts off the flow of water through the fitting. The valve 8 has a stem 9 which is secured to the valve axially thereof and which projects upwardly from the top face of the valve and downwardly from the bottom face thereof. The upper end of the valve stem 9 is provided with a suitable knob 10 which may be conveniently grasped to lift or turn the valve. In the upper portion of the coupling member 1 there is mounted a cup shaped strainer 11. The strainer 11 has an outwardly projecting peripheral flange 12 at its top which rests upon a shoulder 13 within the upper portion of the coupling member 1. The strainer 11 provides a guide above the valve 8 for the valve stem 9, having a central opening 14 in which the valve stem fits and in which the valve stem is slidable and rotatable.

In the reduced portion of the coupling member 1 below the valve seat there is mounted a supporting member 15 which is provided with a central opening 16 in which the downwardly projecting portion of the valve stem 9 has a sliding and rotating fit. The valve stem 9 is guided above the valve 8 by the strainer 11 and below the valve 8 by the supporting member 15 so that the valve 8 and stem 9 are constrained to axial and rotative movements. On the opposite sides of the central opening 16 the supporting member 15 carries upstanding valve-supporting members 17 which serve to support the valve in open position. The supporting members 15 is preferably in the form of a disk secured within the lower end portion 5 of coupling member 5 and the supporting members 17 are preferably in the form of flanges struck up from the body of the disk 15. The flanges 17 are preferably provided with oppositely inclined end edges 18, and may be substantially semicircular in form. At the tops thereof the flanges 17 are preferably provided with flattened or slightly recessed portions 19. The flanges 17 cooperate with an elongated cam member 20 attached to the valve and which may be formed integrally with the valve. The cam member 20 extends across the center of the underside of the valve, projects downwardly, and preferably tapers toward each end. The cam member 20 is preferably provided with downwardly tapering side faces 21 which are engageable with the inclined end edges 18 of the flanges 17 so that, when a turning movement is imparted to the valve, the ends of the projecting cam members 20 readily ride up the inclined ends 18 of the flanges 17 and thereby lift the valve off its seat. To per-

mit easy turning of the valve to open the same, the flanges 17 are preferably disposed at an inclination and diverge upwardly. The shallow recesses 19 in the tops of the flanges 17 receive end portions of the cam member 20 when the valve is turned through an angle of 90° from the closed position.

The bearings for the valve stem above and below the valve prevent tilting of the valve and stem so that engagement of the inclined side faces 21 of the cam member 20 with the inclined end edges 18 of the flanges 17 imparts an axial upward movement to the valve to raise it from its seat. After the valve has been turned through 90° the end portions of the cam member 20 drop into the recesses 19 and the valve is retained in open position. Only a small angular movement is required to move the end portions of the cam member 20 out of engagement with the recesses 19 and into engagement with the inclined end portions 18 of the flanges 17.

It will be readily apparent that the valve may be opened by turning it in either direction and that when the valve is supported in open position it may be closed by slight turning movement in either direction, the valve dropping to closed position by gravity as soon as the end portion of the cam member 20 engages with the inclined end portions 18 of the supporting flanges 17.

The bottom face of the valve 7 is preferably provided with recesses 22 on opposite sides of the cam member 20 which are adapted to receive the upper portions of the flanges 17 when the valve 8 is in closed position, reducing the clearance required between the valve seat and the supporting member 15 so that the member 15 may be mounted quite close to the valve seat 7.

The valve 8, stem 9 and strainer 11 are removable as a unit from the coupling member 1 when it is desired to clean the strainer and will readily drop into place when the lower end of the stem 9 is inserted into the central opening 16 of the supporting disk 15.

Although a single embodiment of the invention has been herein shown and described, it will be understood that modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What I claim is:

1. A waste fitting for connecting the drain outlet of a sink or the like to a waste pipe comprising a tubular coupling member having an upper end portion adapted to be secured in the drain outlet, a lower end portion adapted to be connected to the waste pipe and an interior valve seat, a valve engageable with said seat and provided with upwardly and downwardly extending axial stem portions, guiding means coacting with said upwardly and downwardly extending valve stem portions for constraining the valve to axial and rotative movements, the lower guiding means comprising a member mounted in said coupling member below the valve seat and having an opening in which the downwardly extending valve stem portion may slide and rotate, and projections on the under side of the valve on said guide member which have face portions spaced laterally of the valve stem adapted to be brought into engagement by an axial and turning movement of the valve to retain the valve in open position, and to be disengaged by a turning movement of the valve to permit the valve to engage its seat.

2. A waste fitting for connecting the drain outlet of a sink or the like to a waste pipe comprising a tubular coupling member having an upper end portion adapted to be secured in the drain outlet, a lower end portion adapted to be connected to the waste pipe and an interior valve seat, a valve engageable with said seat and provided with upwardly and downwardly extending axial stem portions, guiding means coacting with said upwardly and downwardly extending valve stem portions for constraining the valve to axial and rotative movements, the lower guiding means comprising a member mounted in said coupling member below the valve seat and having an opening in which the downwardly extending valve stem portion may slide and rotate, and cam members carried by said valve and guide member which coact to lift said valve from its seat upon a turning movement of the valve.

3. A waste fitting for connecting the drain outlet of a sink or the like to a waste pipe comprising a tubular coupling member having an upper end portion adapted to be secured in the drain outlet, a lower end portion adapted to be connected to the waste pipe and an interior valve seat, a valve engageable with said seat and provided with upwardly and downwardly extending axial stem portions, guide members mounted in the coupling member above and below said valve seat which are provided with bearing openings in which said upwardly and downwardly extending valve stem portions have a sliding and rotating fit, upwardly extending valve-supporting members carried by the lower guide member on opposite sides of its valve stem receiving opening, and an elongated projection on the under side of said valve which extends across the center thereof, said projection being of a width to be between said supporting members when the valve rests upon its seat and of a length greater than the distance between said supporting members whereby it rests upon the tops of said supporting members when said valve is lifted and turned.

4. A waste fitting for connecting the drain outlet of a sink or the like to a waste pipe comprising a tubular coupling member having an upper end portion adapted to be mounted in the drain outlet, a lower end portion adapted to be connected to the waste pipe and an interior valve seat above its lower end, a cup shaped strainer mounted in said coupling member above said valve seat, a guide member mounted in said coupling member below said valve seat, said strainer and guide member having openings providing guide bearings disposed axially of said valve seat, a valve having upwardly and downwardly extending stem portions which are slidable and rotatable in the bearing openings of the strainer and guide member, upwardly extending valve-supporting members carried by said guide member on opposite sides of the valve stem receiving opening, and an elongated projection on the under side of said valve which extends across the center thereof, said projection being of a width to enter the space between said supporting members when the valve rests upon said seat and of a length to engage the tops of said supporting members when said valve is lifted and turned.

5. A waste fitting for connecting the drain outlet of a sink or the like to a waste pipe comprising a tubular coupling member having an upper end portion adapted to be secured in the drain outlet, a lower end portion adapted to be connected to the waste pipe and an interior valve seat, a valve engageable with said seat and provided with upwardly and downwardly extending axial stem portions, guiding means coacting with said upwardly and downwardly extending valve

stem portions for constraining the valve to axial and rotative movements, the lower guiding means comprising a member mounted in said coupling member below the valve seat and having an opening in which the downwardly extending valve stem portion may slide and rotate, and projections on the under side of the valve and on said guide member which have face portions spaced laterally of the valve stem adapted to be brought into engagement by an axial and turning movement of the valve to retain the valve in open position, and to be disengaged by a turning movement of the valve to permit the valve to engage its seat, said supporting members have inclined cam faces at the ends thereof which are engaged by end portions of said projection upon a turning movement of the valve to lift the valve from its seat.

6. A waste fitting for connecting the drain outlet of a sink or the like to a waste pipe comprising a tubular coupling member having an upper end portion adapted to be mounted in the drain outlet, a lower end portion adapted to be connected to the waste pipe and an interior valve seat above its lower end, a cup shaped strainer mounted in said coupling member above said valve seat, a guide member mounted in said coupling member below said valve seat, said strainer and guide member having openings providing guide bearings disposed axially of said valve seat, a valve having upwardly and downwardly extending stem portions which are slidable and rotatable in the bearing openings of the strainer and guide member, said valve having recesses in the under side thereof on opposite sides of the valve stem, upwardly extending valve-supporting projections carried by said guide member on opposite sides of the stem-receiving opening which are adapted to enter the recesses of the valve in one angular position of the valve and permit the valve to engage its seat, said supporting projections being engageable with face portions of the valve between said recesses to support the valve in open position.

7. A waste fitting for connecting the drain outlet of a sink or the like to a waste pipe comprising a tubular coupling member having an upper end portion adapted to be mounted in the drain outlet, a disk mounted in said coupling member below said valve seat, said strainer and disk having openings providing guide bearings disposed axially of said valve seat, said disk having flanges struck up from the body thereof on opposite sides of its central opening, each of said flanges having inclined ends converging toward the top thereof, the two flanges being inclined and upwardly diverging, and an elongated projection on the under side of the valve which is of a width to enter the space between said flanges to permit the valve to seat and of a length to engage the inclined diverging ends of said flanges, whereby the projection is caused to ride up the inclined end portions of the flanges to the top thereof to open the valve upon a turning movement thereof.

CHARLES F. SCHULTIS.