Aug. 19, 1958 H. JORDAN 2,847,683

CLOSURE OR STOPPER FOR DRAINAGE OPENINGS OF SINKS AND THE LIKE

Filed Jan. 24, 1955

FIG. 1.

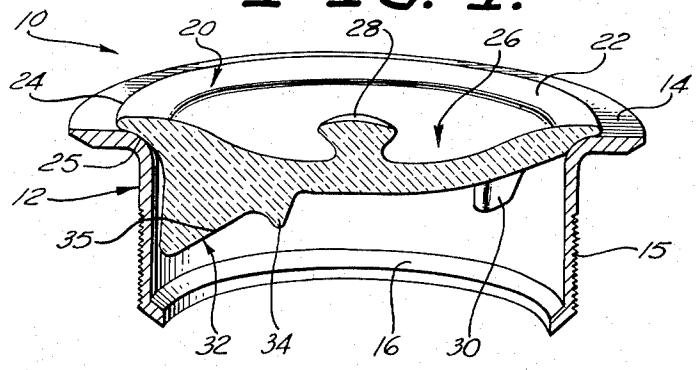


FIG. 2.

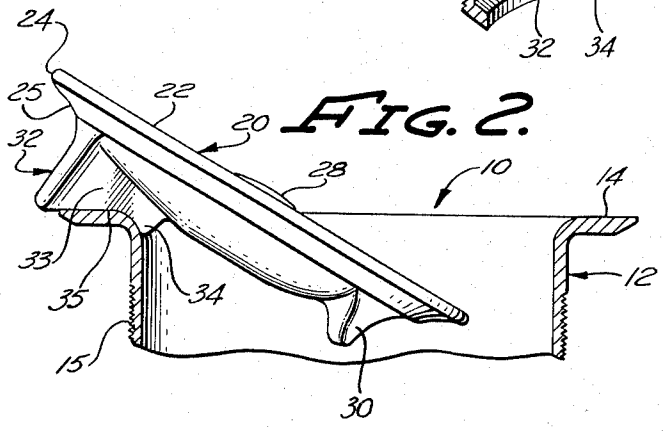


FIG. 3.

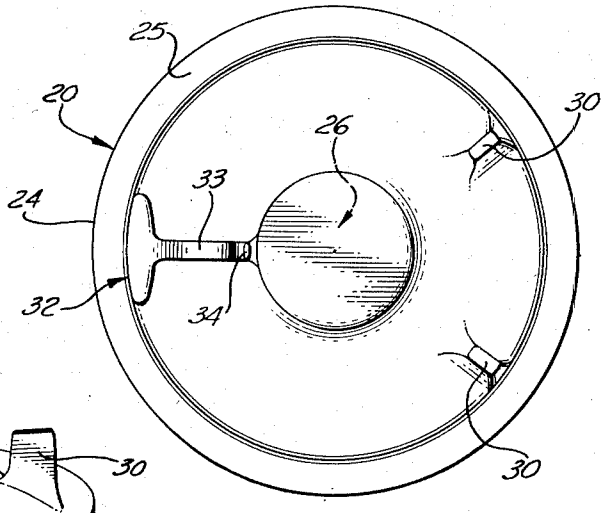
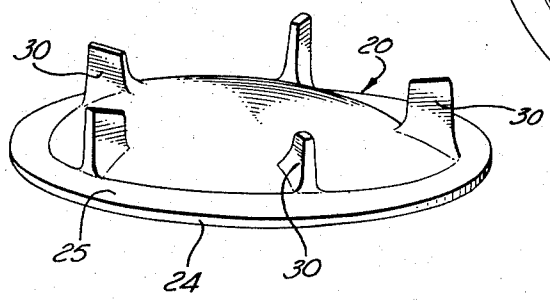


FIG. 4.



INVENTOR.
HANS JORDAN

BY HIS ATTORNEYS.
HARRIS, KIECH, FOSTER & HARRIS

United States Patent Office 2,847,683 Patented Aug. 19, 1958

2,847,683

CLOSURE OR STOPPER FOR DRAINAGE OPENINGS OF SINKS AND THE LIKE

Hans Jordan, Los Angeles, Calif., assignor to Given Machinery Company, Los Angeles, Calif., a partnership

Application January 24, 1955, Serial No. 483,614

3 Claims. (Cl. 4—295)

This invention relates to closure devices, and has been more especially developed for use with kitchen sinks and the like to serve as stoppers for large drainage outlets or sleeves characteristically employed in connection with the mounting of garbage grinders or kindred waste disposal devices.

Commonly, in connection with sink stoppers of the indicated nature, when it is desired to drain the sink, after washing dishes or the like, the stopper is required to be entirely removed from the drainage opening in order to clear the same and be certain that it will not be washed back into the opening by the escaping water. Also, it is usual to provide such sink stoppers with upstanding knobs which project up into the body of water in which dishes and other kitchen utensils are to be washed, as a result of which such knobs are frequently struck by articles being handled and the stoppers either knocked out of position or the articles broken if fragile.

It is therefore one object of this invention to provide a novel closure for large drain openings of kitchen sinks which may be merely moved into a tilted position in order to drain the sink of its watery contents, and which will be so equipped with retention means that such tilted position will be insured during the draining of the sink. It is an incidental object also to provide the stopper with means to prevent its shifting when in sink-stopping position.

Another object of the invention is so to construct a stopper of this character that, while handle means are provided, they are nevertheless disposed to avoid being struck by utensils being washed or otherwise manipulated within a sink.

Other objects of the invention and various features thereof will be made apparent to those skilled in the art upon reference to the accompanying drawing and the following specification which disclose certain embodiments.

In the drawing:

Fig. 1 is primarily an isometric perspective view, partially in vertical section, illustrating one embodiment of the present improvement in operation as a stopper closing an outlet sleeve of a kitchen sink;

Fig. 2 shows in edge elevation the closure of Fig. 1 in position to provide for drainage of water from a kitchen sink, the sleeve of Fig. 1, disposed in the outlet opening of the sink, being shown in vertical section;

Fig. 3 is a bottom plan view of the closure or stopper of Figs. 1 and 2; and

Fig. 4 is a bottom perspective view of a closure like that of Figs. 1, 2 and 3 provided with a greater number of downwardly extending positioning lugs than seen in the other figures.

As illustrated in Fig. 1, the present improvement is used as a part of a typical drainage assembly generally indicated at 10 which includes a drainage sleeve 12 adapted to be introduce through a conventional discharge outlet in the bottom of a sink and provided with an annular rim or flange 14 that is preferably borne in a corresponding seat on the sink bottom around the outlet. The lower portion of the sleeve 12 is typically threaded as indicated at 15 for the attachment of any appropriate type of suspended grinding device employed for the disposal of culinary waste. The lower end of the sleeve 12 is commonly provided with an inwardly directed, downwardly sloped, annular seat 16 which may receive, when required, other types of stoppers, or could receive a stopper of the illustrated type if small enough in diameter. It will be appreciated that drainage sleeves of the type represented by the present sleeve 12 are relatively great in diameter, as compared with small drainage sleeves commonly employed in wash basins and the like, such larger diameters being in the order of three inches, inside diameter.

The stopper 20 of the present improvement is typically circular, and as illustrated includes a top closure member 22 provided with an annular rim 24 preferably of a diameter greater than the internal diameter of the sleeve 12 and therefore adapted to rest upon a portion of the annular flange 14 of the sleeve 12. For the latter purpose, the under side of the rim member 24 is conveniently formed as an annular seat 25 to rest and fit upon the upper portion of the sleeve 12 where it integrally joins the flange 14. If the stopper 20 were of somewhat smaller diameter, the outer peripheral portion of the rim 24 could rest upon the flange seat 16 at the bottom of the sleeve 12, other portions being correspondingly smaller.

In addition to the configuration of the top closure member 22 and the seat-providing rim 24, such closure member 22 is depressed downwardly to form a concavity 26, from the center of which rises an integral rounded manipulating knob 28 which is largely or entirely housed within such concavity 26. The purpose of such housing of the knob 28 is to position the top thereof so low down with respect to the bottom of the sink on which the device is used that dishes or other utensils being washed or otherwise moved or handled within the sink will not strike such knob and dislodge the stopper 20 when in water-retaining position as seen in Fig. 1.

The stopper 20 may be formed of any appropriate material which may be a hard substance, or a somewhat resilient material of sufficient rigidity and toughness to maintain the forms illustrated, for example, tough, solid natural rubber or synthetic rubber or appropriate plastic materials of well known types such as solidified polyethylene and similar well known thermosetting plastics.

An important feature of the present invention resides in the provision of a plurality of depending positioning lugs preferably integrally formed with the under side of the stopper device. Thus, in the form of Figs. 1, 2 and 3, two such depending positioning lugs 30 are provided at one side of the under portion of the stopper on a spacing, for example, of 60°, these lugs being relatively small and shallow, while at the opposite side in a symmetrically arranged position a larger depending lug 32 preferably is employed, this lug depending somewhat farther than the lugs 30. As best seen in Fig. 3 a peripheral portion of the lug 32 is flared somewhat, for example to the extent of around 20° or 15° to 25°, whereby it may make an extended contact with the inner wall of the sleeve 12. Preferably, as shown, the outer portion of the lug 32 is desirably connected integrally with the under side of the top closure portion 22 by means of a connecting web 33 which slopes upwardly from the lowermost extremity of the lug 32 to its point of contact with the member 22, except for a shallow positioning finger or detent 34 disposed at the inward portion of the web 33 at a position spaced somewhat outwardly from the center of the closure in a radial direction. The detent 34 is employed to facilitate positioning of the stopper in the drainage location seen in Fig. 2

where the under edge of the web **33** is formed into a seat 35 (Fig. 1) generally shaped to fit upon the upper surface of the flange **14** of the sleeve **12**, the outer side of the detent **34** being shaped to complete such seat **35**. By employing the detent **34** the radially outward movement of the stopper when located in the position of Fig. 2 is limited to that shown, movement in the opposite direction being restricted by the contact of opposite edge portions of the rim **24** with the top of the sleeve **12** at its juncture with its flange **14**, which contact occurs at approximately diametrically opposite points with respect to the sleeve 12. Again, however, the stopper **20** may be still further tipped and moved over until the point of the detent **34** rests upon the top of the flange **14**. In the latter instance, a space or passage between the lower portion of the rim **24** and the opposing inner wall portion of the sleeve **12** as seen in Fig. 2 is increased, whereas the spaces at opposite sides of the web **33** between the corresponding under portion of the closure member **22** and the adjacent edge portions of the sleeve **12** are somewhat diminished. However, in either position the combined outlet spaces through the indicated space or passage adjacent the lowermost edge portion of the rim **24** and the spaces at the opposite sides of the web **33** are adequate for speedy drainage of water from the sink in which the device is used.

An optional positioning of the stopper **20** would be to rest the two lugs **30** upon the flange **14** and to allow the larger lug **32** to drop into the lower position. If desired, additional lugs **30** could be used, instead of the lug **32**, as indicated in Fig. 4. In either event, the various lugs **30** and **32** are positioned to engage the inner wall of the sleeve **12** and center the stopper. Or, if a smaller stopper is used to rest on the lower seat **16**, such lugs will clear the inner edge thereof.

I claim as my invention:

1. In combination: a drainage sleeve for a sink, which sleeve has an inner upstanding tubular wall and an upper outwardly extending annular flange to be borne on a sink bottom around a discharge outlet therethrough; and a freely movable and rotatable stopper resting on said sleeve flange and being relatively shallow with respect to said upstanding inner tubular wall of said sleeve, and including: a top closure member having an annular rim seating upon said sleeve flange and cutting off water drainage into said sleeve; and plural spaced lugs in annular series depending from the under side of said closure member within the rim thereof and engaging said inner tubular wall in any position of rotation of said stopper to prevent substantial shift of said stopper transversely while seated on said annular sleeve flange, one of said lugs resting upon said sleeve flange upon tilting of said stopper and provided with a seat fitting upon said flange and resisting relative lateral movement of the stopper within said sleeve when tilted for drainage of water into said sleeve, said closure member being sufficiently narrow with respect to said inner tubular wall that one side portion of said closure member drops into said sleeve when the stopper is tipped for water drainage through said sleeve.

2. A combination as in claim 1 wherein one of said lugs is longer than other lugs to provide a greater degree of inclination when the stopper is tipped than such other lugs.

3. A combination as in claim 1 wherein the central portion of the top of said closure is countersunk and a manipulation handle is disposed in such countersink within the top limits thereof and substantially flush with the top of said sleeve flange.

References Cited in the file of this patent

UNITED STATES PATENTS

1,104,315	Renner	July 21, 1914
1,947,915	Marschall	Feb. 20, 1934
2,464,018	Bloch	Mar. 8, 1949
2,476,630	Schindler	July 19, 1949
2,484,459	Osborn	Oct. 11, 1949
2,544,498	Hiertz	Mar. 6, 1951

FOREIGN PATENTS

553,919	Great Britain	June 10, 1943