Jan. 24, 1956 J. M. VALENTINE 2,731,649

STOPPER FOR GARBAGE DISPOSAL UNIT

Filed Nov. 15, 1952

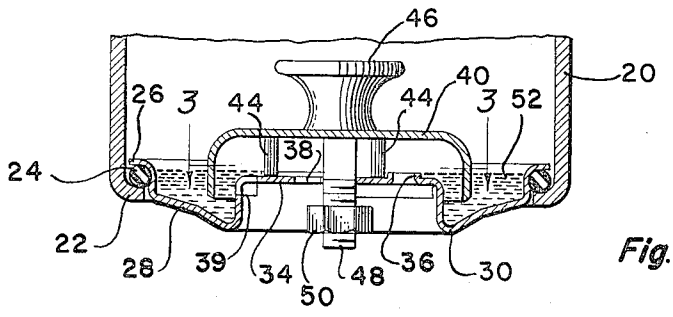


Fig. 1

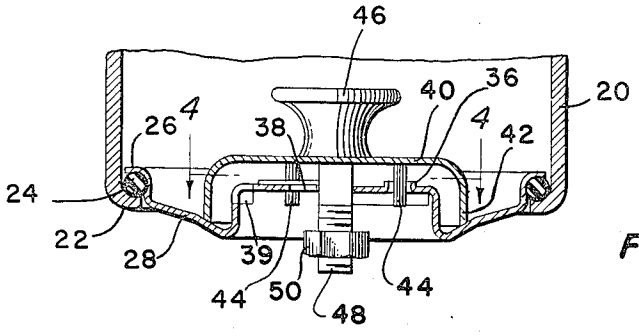
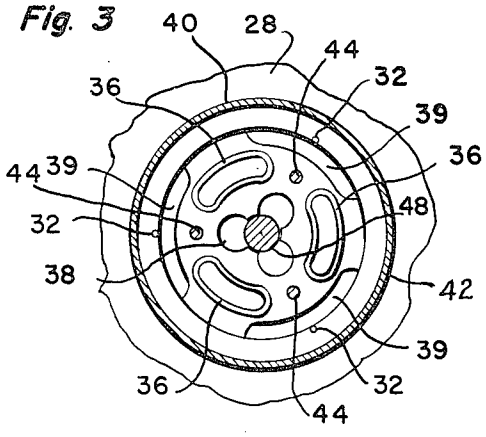


Fig. 2

Fig. 3



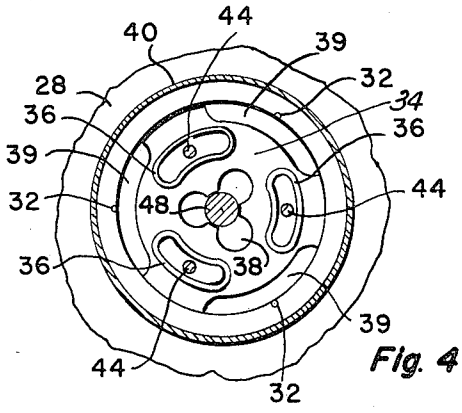


Fig. 4

INVENTOR.
James M. Valentine

BY
Willits Hardman and Fehr
Attorneys

United States Patent Office 2,731,649 Patented Jan. 24, 1956

2,731,649

STOPPER FOR GARBAGE DISPOSAL UNIT

James M. Valentine, Vandalia, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Application November 15, 1952, Serial No. 320,641

2 Claims. (Cl. 4—286)

This invention relates to a domestic appliance and more particularly to a water seal closure device for the connection between the sink and the garbage disposer.

Garbage disposers are ordinarily connected to the drain of a sink. The drain outlet connects directly to the entrance of the garbage disposer.

After the waste material is dropped through the drain into the garbage disposer it would be desirable to completely cover the drain so as to prevent objectionable noise resulting from the reduction of rigid material such as bone from being transmitted directly into the room. It is also desirable to prevent particles from being possibly thrown upwardly during the grinding action. However, to properly operate such a disposer it is necessary to provide a continuous flow of water into the disposer. Therefore a simple plug is not satisfactory.

It is an object of my invention to provide a closure which fits into the bottom of the sink and into the mouth or entrance of the garbage disposer and which is designed in such a manner that water may flow and yet the audio path can be kept closed.

It is another object of my invention to provide such a closure member in which the water will form a water seal to close the audio path.

It is a further object of my invention to provide such a closure which can be readily removed to insert food wastes into the garbage disposer and can also be completely closed to act as a drain plug to seal the drain opening.

These objects are attained in the form of the invention disclosed by providing a circular outwardly flanged member provided with a seal of rubber-like material beneath the flange which rests upon an inwardly turned flange in the drain opening. This outwardly flanged member is provided with a circular trough having several small drain holes in its lowermost portions. A cap member having downwardly turned flanges may rest in sealing engagement with the trough to seal the drain of the sink. Inside of the trough the outwardly flanged member is provided with a central aperture and three symmetrically spaced outer apertures. The cap member is provided with three symmetrically spaced pins which project through these three apertures when the cap member is in sealing position. The cap member is provided with a knob by which it may be raised and rotated so that three pins rest upon the supporting means located between the three apertures. When so supported the cap is lifted out of sealing engagement but its rim extends considerably below both sides of the trough. As a consequence when there is any flow of water into the drain, the trough will form a water seal in cooperation with the rim of the cap member.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred form of the invention is clearly shown.

In the drawing:

Figure 1 is a vertical sectional view partly diagrammatic disclosing a closure for a drain shown in the water sealing position;

Figure 2 is a similar sectional view with the closure shown in full sealing position;

Figure 3 is a sectional view taken along the line 3—3 of Figure 1; and

Figure 4 is a sectional view taken along the line 4—4 of Figure 2.

Referring now to the drawing there is shown a drain outlet **20** for a sink adapted to connect with the mouth of a garbage disposer unit. This drain outlet **20** is provided with an inwardly turned flange **22**. Resting upon this flange **22** is a seal ring **24** of some suitable soft rubber-like material. Resting upon this seal ring **24** is the outwardly turned flange **26** of a closure member **28**. This closure member **28** is provided with a circular trough **30** having three symmetrically positioned drain holes **32** in the extreme bottom portion of the trough. These drain holes **32** are quite small and merely serve to drain the trough **30** when the flow of water is shut off. Within the perimeter of the trough **30** the member **28** is provided with a centrally raised portion **34** having three symmetrically positioned arc-shaped apertures **36** having upturned flanges. This central portion **34** also has a centrally located aperture **38** substantially in the shape of a three leaf clover and three larger symmetrically positioned apertures **39**.

Above the closure member **28** is a cap member **40** having a downwardly turned rim **42** which extends into sealing engagement with the closure member **28** upon an outer portion of the trough **30** as shown in Figure 2. The cap member is provided with three symmetrically located supporting pins **44** located on a radius which places them on the same radius as the apertures **36** in the closure member **28**. When the cap member **40** is rotated to the position shown in Figures 2 and 4 the pins **44** will extend through the apertures **36** so that the cap member **40** will be supported by its rim as shown in Figure 2 to completely seal the opening in the support **20**. When it is desired to place food wastes into the garbage disposer which is located directly below the support **20**, the knob **46** on the cap member **40** is lifted. The knob **46** may be in the form of a head of a bolt **48** which extends through the centrally located clover leaf aperture in the closure member **28**. The bottom of this bolt **48** is provided with a nut **50**.

When the knob **48** is lifted the nut **50** will engage the bottom of the closure member **28** so that the closure member **28** may be removed from the drain opening **20** to insert food wastes through the opening into the garbage disposer. After this the closure **28** may be replaced and the knob **46** used to turn the cap member **40** so that pins **44** will rest upon the supporting webs located between the arc-shaped apertures **36** of the closure member **28**. The water is then turned on to provide a sufficient flow to carry ground food wastes out of the garbage disposer. This flow of water will be sufficient to fill the trough **30** and cause the water to continuously overflow through the arc-shaped apertures **36** and the central aperture **38** into the mouth of the garbage disposer. The drain apertures **32** are so small that their draining capacity is easily exceeded by a very small flow of water so that the trough **30** remains filled as long as any water is supplied. The water in the trough **30** will provide a water seal in cooperation with the downturned rim **42** of the cap member as illustrated in Figure 1. The water line is designated by the reference character **52**.

In this way the water in the trough **30** will seal the path of water flow and prevent the free flow of noise from the garbage disposer into the room. As I have described, the closure **28** may be readily removed for insertion of food wastes. The opening may also be com-

pletely sealed as shown in Figure 2 by rotation of the cap member 40.

While the form of embodiment of the invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted as may come within the scope of the claims which follow.

What is claimed is as follows:

1. A closure for an opening including a structure having an edge shaped to rest upon the edge of the opening, said structure being provided with a circular trough and a raised central portion within and surrounded by said trough, the portion of the structure between the trough and the first edge being substantially impervious, said structure being provided with a plurality of symmetrically positioned upwardly flanged openings within said central portion, a cover for said openings having a continuous rim extending into said trough, said cover being provided with a plurality of projections extending into said openings when said rim is in said central portion of said trough, said structure having supporting means located sufficiently high between said openings for supporting said projections and said cover sufficiently high to raise its rim above the bottom but below the top of the trough.

2. A closure for an opening including a structure having an edge shaped to rest upon the edge of the opening, said structure being provided with a circular trough and a raised central portion within and surrounded by said trough, the portion of the structure between the trough and the first edge being substantially impervious, said structure being provided with a plurality of symmetrically positioned upwardly flanged openings within said central portion, a cover for said openings having a continuous rim extending into said trough, said cover being provided with a plurality of projections extending into said openings when said rim is in said central portion of said trough, said structure having supporting means located sufficiently high between said openings for supporting said projections and said cover sufficiently high to raise its rim above the bottom but below the top of the trough, said cover being provided with a knob and a lost motion connection with said structure for removing said structure from said opening, said connection having a greater lost motion distance than the lift provided by said projections.

References Cited in the file of this patent

UNITED STATES PATENTS

214,983	Atwater	May 6, 1879
368,793	Tilton	Aug. 23, 1887
981,347	Worns	Jan. 10, 1911
1,071,627	Reenstierna	Aug. 26, 1913
1,320,883	Martinez	Nov. 4, 1919
2,620,093	Rose	Dec. 2, 1952