Sept. 4, 1956 D. W. GUSTAVESON 2,761,626

AUXILIARY WASTE RECEIVER FOR WASTE DISPOSAL APPARATUS

Filed Jan. 2, 1953 2 Sheets-Sheet 1

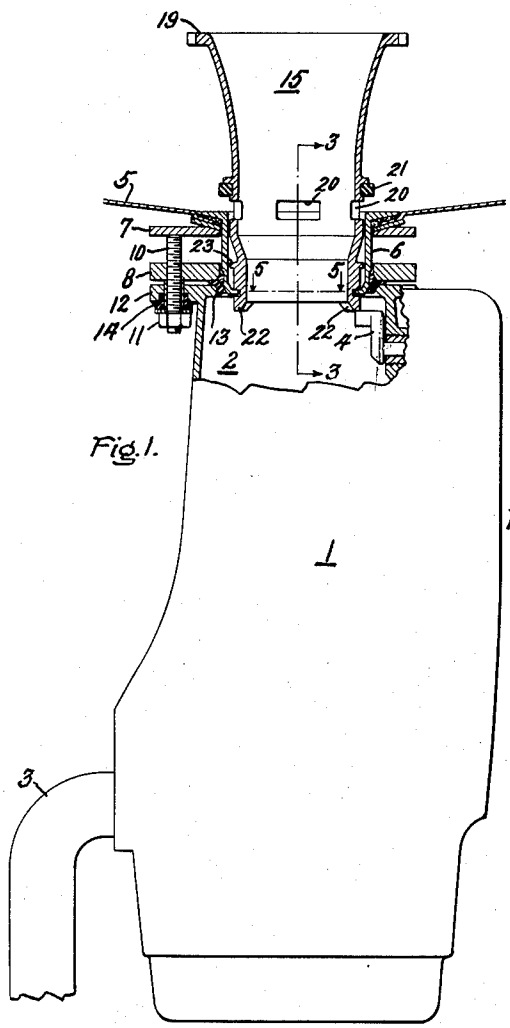


Fig. 1.

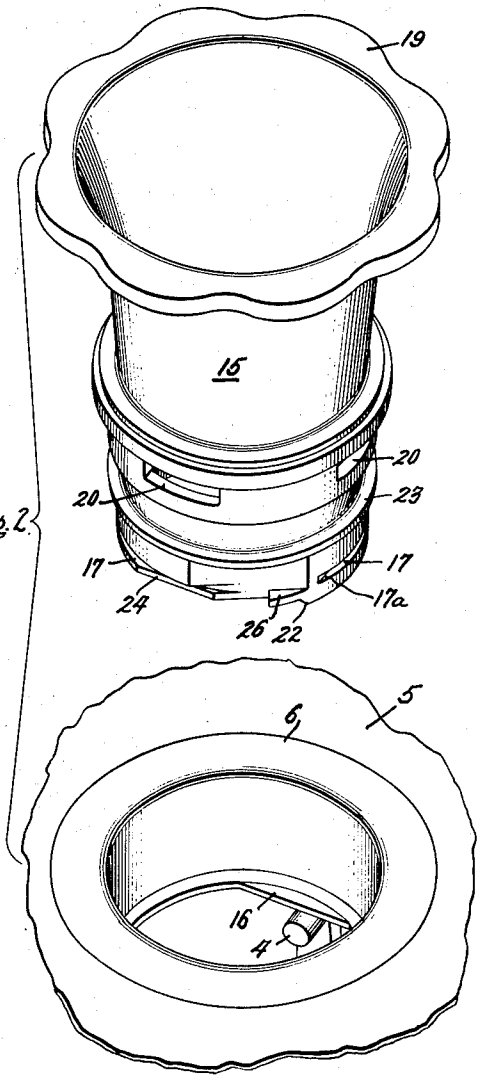


Fig. 2.

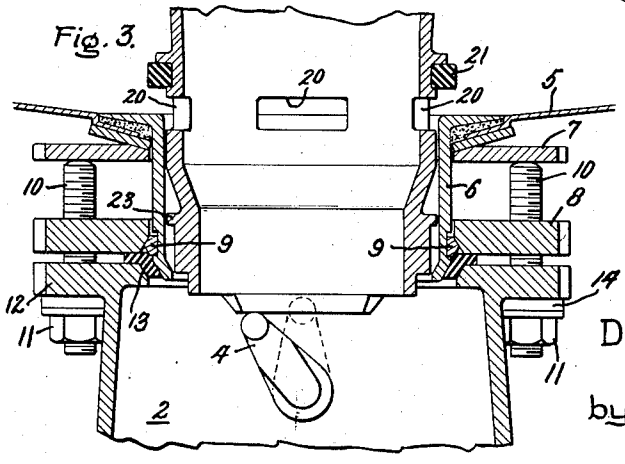


Fig. 3.

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Fig. 4.

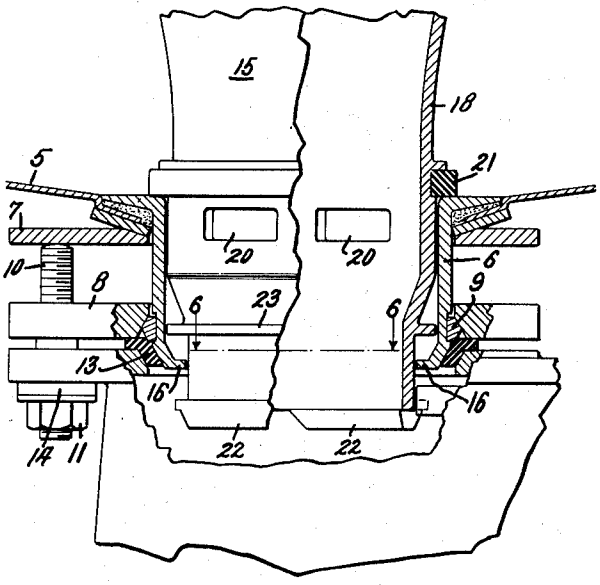


Fig. 5.

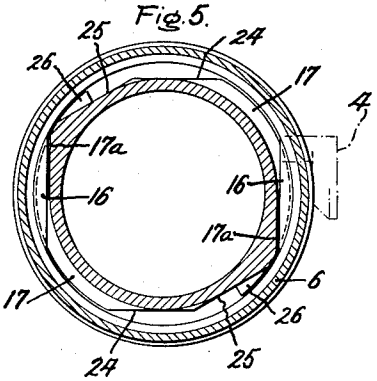


Fig. 6.

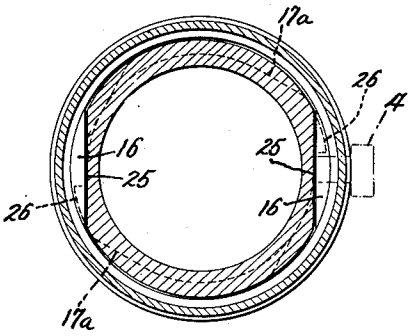


Fig. 7.

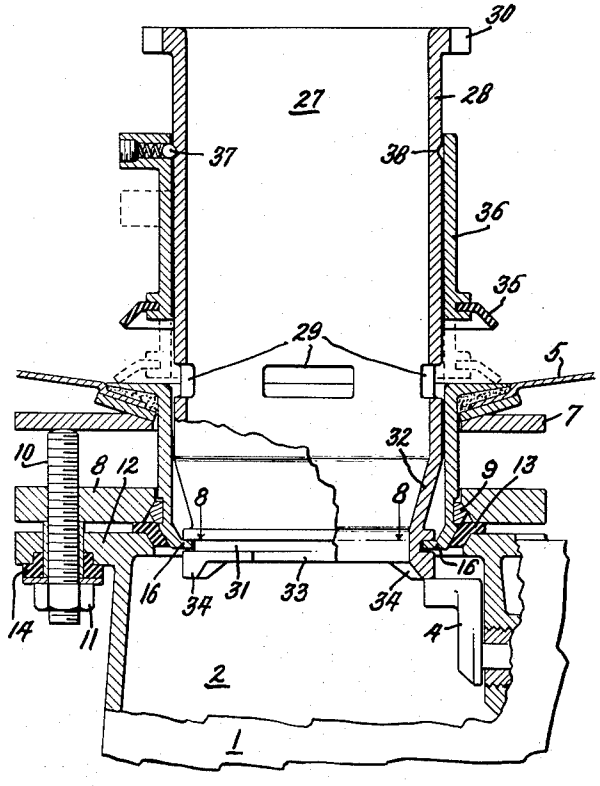
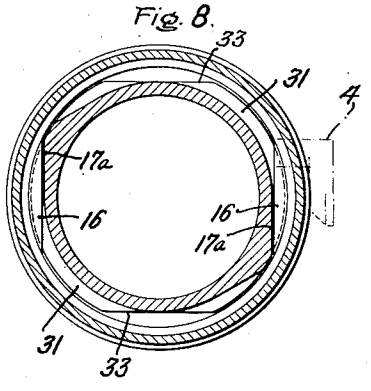


Fig. 8.



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2,761,626

AUXILIARY WASTE RECEIVER FOR WASTE DISPOSAL APPARATUS

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Application January 2, 1953, Serial No. 329,198

2 Claims. (Cl. 241—32.5)

The present invention relates to apparatus for the disposal of waste material and more particularly to apparatus for receiving a mixture of garbage and water and reducing or comminuting the solid particles to produce a flowable mixture suitable for discharge to a sewer system.

Waste disposal appliances of the type referred to are commonly connected to the drain opening of a kitchen sink or the like structure so as to provide a convenient opening for depositing garbage and other waste material in the appliance, and supplying the necessary water thereto. Such installations usually include a removable closure device for the drain opening and in many cases this device cooperates with a control element in the appliance to control its operation, the usual arrangement being that the closure device may be rotated to an appliance operating position in which it is locked in place (to prevent the hands of the operator from inadvertently contacting the comminution mechanism) but permits passage of water therethrough, a sealing position for use when the sink is to be filled with water, and a third position which permits normal drainage from the sink without operation of the appliance. While such installations generally perform their intended functions in a wholly satisfactory manner, they have certain disadvantages which may be overcome by the present invention. First, the sink must be drained before garbage or other material may be fed into the appliance, and second, continuous feeding of garbage while the appliance is operating is not possible.

A related difficulty which has been encountered in connection with the installation of waste disposal appliances results from the fact that such appliances are frequently installed in existing buildings, in many of which the sink drain line projects from a wall at a level too high to provide proper drainage. Specifically the drain line must be connected to the appliance near the bottom of its housing, and be so located that drainage by gravity is insured. To minimize this difficulty, it has been proposed to decrease the height of the appliance, which has the disadvantage of decreasing the size of the comminution chamber and thus the capacity of the appliance.

Accordingly, one object of this invention is to provide an auxiliary device which may be removably supported in a sink drain opening to increase the volumetric capacity of a waste disposal appliance connected thereto and to control the operation of the appliance.

Another object of the invention is to provide an auxiliary device adapted to be removably supported in a sink drain opening and arranged to selectively control a waste disposal appliance connected thereto, and also to seal said opening against drainage of water therefrom while at the same time providing an opening through which waste material may be introduced into said appliance.

Further objects and advantages of my invention will become apparent as the following description proceeds,

and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

Briefly stated, in accordance with one aspect of my invention, I provide an auxiliary waste receiver arranged to be removably seated in a sink drain opening and to cooperate with a waste disposal appliance connected thereto so as to form an upward extension of the chamber in which the waste material is comminuted. When mounted in the opening, the device is movable to a number of positions including one in which garbage and other refuse may be fed into the appliance while the sink is partially filled with water, and another in which apertures in the body of the device are exposed to permit the necessary water to flow into the appliance and a control element is automatically operated.

For a better understanding of my invention reference may be made to the accompanying drawing in which—

Fig. 1 is a side elevation view, partly in section, of a waste disposal appliance embodying my invention.

Fig. 2 is an enlarged perspective view of the auxiliary waste receiver of my invention and the sink drain opening flange with which it cooperates.

Fig. 3 is a sectional view taken along the line 3—3 in Fig. 1.

Fig. 4 is similar to Fig. 3 but shows the parts in a different position.

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 1.

Fig. 6 is a sectional view taken along the line 6—6 in Fig. 4.

Fig. 7 is a side elevation view, partly in section, of a modified form of my invention.

Fig. 8 is a sectional view taken along the line 8—8 in Fig. 7.

Referring now to the drawings, and more particularly Fig. 1 thereof, I have illustrated my invention as applied to a waste disposal unit 1, the details of which are disclosed in Patent No. 2,642,233 issued June 16, 1953 to James H. Powers. For the purpose of describing the present invention, it is sufficient to say that electric motor driven cutting and crushing elements (not shown) are housed in waste disposal unit 1 at the bottom of comminution chamber 2, and that drain pipe 3 is provided to carry the comminuted material and water from chamber 2 to a sewer system or the like. The waste disposal unit 1 further includes a control actuating element or lever 4 which operates a motor control switch (not shown) so as to control the energization of the unit. Referring to Fig. 3, the "on" position of lever 4 is shown in full lines while the "off" position is shown in dotted lines.

It is customary for the waste disposal unit 1 to be suitably secured to the drain opening in a sink 5 or other structure to which water is supplied. The unit is suitably secured to the drain opening as by a drain opening flange 6 cooperating with a clamping ring 7, support ring 8, and retaining ring segments 9. A series of clamping bolts 10 threaded through the support ring 8 and bearing against the underside of the clamping ring 7 exert pressure in the proper direction to clamp the sink flange to the sink opening and the unit 1 is suitably supported as by nuts 11 on these clamping bolts located underneath flanges or lugs 12 extending from the top of unit 1. Suitable resilient gaskets 13 (around the sink flange and inside of the top opening of unit 1) and 14 (between the nuts 11 and lugs 12) tightly seal the parts together and support them in a vibration dampening manner.

In one form of my invention illustrated in Figs. 1 to 6 inclusive, I provide an auxiliary waste receiver 15 arranged to be removably supported in drain opening flange 6 in place of a drain closure of the type disclosed in

Patent No. 2,185,037 granted December 26, 1939, to James H. Powers. A pair of oppositely disposed horizontal ledges **16** integral with the lower edge of flange **6** cooperate with a pair of oppositely disposed semicircumferential grooves **17** adjacent the lower end of receiver **15** to support it in the position shown in Fig. 1. The two halves of receiver **15** lying on either side of line **3—3** are identical (although not symmetrical), while the corresponding halves of flange **6** are both symmertrical and identical.

Auxiliary waste receiver **15** comprises a generally tubular member **18** having a frustoconical upper portion terminating in a scalloped flange **19** which serves as a convenient gripping surface. A plurality of rectangular apertures **20** are provided in the side wall of tubular member **18**, being located so as to be adjacent the bottom wall of sink **5** when the receiver is supported in the position shown in Fig. 1. Thus apertures **20** provide a drain path between sink **5** and comminution chamber **2** and drainage of water from sink **5** is permitted when receiver **15** is supported as shown in Fig. 1. Encircling tubular member **18** is a groove adjacent the upper edges of apertures **20** is an annular sealing member or washer **21**. Sealing member **21** is fixedly secured to tubular member **18** and is adapted to engage flange **6** when receiver **15** is moved to the position shown in Fig. 4.

Receiver **15** includes a pair of oppositely disposed cams **22** formed integrally with the lower end of tubular member **18** and arranged to operate lever **4** so as to control the operation of waste disposal unit **1**. Only one such cam is required to operate lever **4**, but in order to make the operation of receiver **15** as simple as possible and permit it to seat in either of two positions 180° apart, the two halves of receiver **15** lying on either side of line **3—3** in Fig. 1 are identical, as pointed out above.

Auxiliary waste receiver **15** may be supported in at least three positions with respect to flange **6** by supporting and locking means including grooves **17** formed in the lower portion of tubular member **18**. As best shown in Fig. 2 the surface of the portion of tubular member **18** below guide flange **23** is cylindrical except for a first pair of oppositely disposed flat surfaces **24** immediately below grooves **17**, and a second pair of oppositely disposed flat surfaces **25** immediately below guide flange **23**. It will be understood that as used in this specification the term oppositely disposed means that the parts referred to in this manner are spaced 180° apart with respect to the axis of tubular member **18**. Flat surfaces **25** are displaced 30° from flat surfaces **24** but both pairs of flat surfaces lie in planes equally distant from the axis of tubular member **18**. Thus the configuration of the lowermost end of receiver **15** is such that it can be inserted through the opening in the lower edge of flange **6** when surfaces **24** are properly aligned with ledges **16**. In order to insure that receiver **15** is inserted in drain opening **6** only when flat surfaces **24** are aligned with the flat edges of horizontal ledges **16**, stop members **26** are provided at the lower edges of flat surfaces **25**. However, stop members **26** lie immediately below grooves **17** and after receiver **15** has been inserted in flange **6** it may be rotated clockwise 30° at which position flat surfaces **25** are aligned with ledges **16** and receiver **15** will drop down to the position shown in Fig. 4.

The arrangement of grooves **17** also permits the rotation of receiver **15** in the opposite direction (counterclockwise) 90° from the initial position thus placing receiver **15** in the position shown in Fig. 1 and Fig. 5. It will be noted that diametrically opposite end portions of grooves **17** include flat portions **17*a*** which engage horizontal ledges **16** to prevent further rotation in a counterclockwise direction. In this position receiver **15** is both supported so as to expose apertures **20** and also locked by engagement of slots **17** and horizontal ledges

16 so as to prevent removal of receiver **15** until it is rotated clockwise 90° to its initial position.

Counterclockwise rotation of receiver **15** to the position shown in Fig. 1 also causes cam **22** to engage lever **4** and actuate it to the "on" position. However, lever **4** is not operated by cam **22** when receiver **15** is rotated 30° clockwise from the initial position and thus the comminution mechanism unit **1** is not energized when the receiver drops down to the position shown in Fig. 4.

Briefly reviewing the operation of the preferred form of my invention, auxiliary waste receiver **15** is inserted in flange **6** with flat surfaces **24** aligned with horizontal ledges **16** so as to permit ledges **16** to engage grooves **17**. Receiver **15** may then be rotated counterclockwise 90° to the position shown in Fig. 1 in which waste disposal unit **1** is energized or the receiver may be rotated clockwise 30° so as to align flat surfaces **25** with ledges **16** whereupon the receiver drops to the position shown in Fig. 4 in which sealing member **21** engages flange **6**. With receiver **15** in the position shown in Fig. 1 the water required for proper operation of unit **1** may flow through apertures **20** from sink **5** (being supplied thereto by the usual faucet for example). In this position waste material may be continuously deposited in receiver **15**.

When the receiver is rotated clockwise to the position shown in Fig. 4, lever **4** returns to its "off" position deenergizing unit **1** and flow of water through apertures **20** is prevented by sealing engagement between sealing member **21** and flange **6**. Thus sink **5** may be filled with water to any level below scalloped flange **19**; at the same time receiver **15** provides an upward extension of comminution chamber **2** and an opening thereto. This arrangement is particularly useful when the user wishes to clean and peel vegetables or the like and deposit the peelings directly into waste disposal unit **1**. Aside from this advantage it is apparent that the size of comminution chamber **2** and thus the capacity of the waste disposal unit may be effectively increased by mounting receiver **15** in this position. Upon the completion of waste disposal operations, receiver **15** may be replaced by a conventional closure device by rotating the receiver so as to realign flat surfaces **24** with ledges **16** and then withdrawing the receiver from flange **6**.

Another embodiment of my invention including a modified auxiliary waste receiver **27** is shown in Figs. 7 and 8, in which the arrangement of the sink, drain opening flange and waste disposal unit are similar to that previously described, the same numerals being used to identify like parts.

Referring to Figs. 7 and 8, auxiliary waste receiver **27** is removably supported in drain opening flange **6** and arranged to engage and operate control lever **4** as well as regulate the flow of water from sink **5** into the comminution chamber **2**. Receiver **27** comprises a generally tubular member **28** having rectangular apertures **29** therein and a scalloped flange **30** which provides a convenient gripping surface. Receiver **15** is supported in flange **6** by supporting and locking means including oppositely disposed semicircumferential grooves **31** formed in the lower portion of tubular member **28**. Below tapered section **32** the outer surface of the lower portion of tubular member **28** is cylindrical with the exception of the aforementioned grooves **31** and a pair of oppositely disposed flat surfaces **33**. The surface configuration of the lowermost end of receiver **27** thus corresponds to the shape of the opening defined by the inturned lower edge of flange **6**. By inserting receiver **15** into flange **6** with flat surfaces **33** aligned with horizontal ledges **16** the receiver may be rotated counterclockwise 90° to the locking position shown in Figs. 7 and 8. As in the embodiment described above, a pair of oppositely disposed cam elements **34** extend downwardly from the lower end of tubular member **28**, each being arranged so as to engage lever **4** and move it to the "on" position when re-

ceiver **15** is rotated to the position shown in the drawing.

To seal apertures **29** and prevent drainage of water from sink **5** into comminution chamber **2**, receiver **15** is provided with an annular sealing washer **35** carried by a tubular collar **36** having an inside diameter slightly larger than the outside diameter of tubular member **28**. Collar **36** is mounted for axial movement on tubular member **28** and may be supported in either the raised position shown in solid lines in Fig. 7 or a lower position in which washer **35** sealingly engages flange **6** as shown in broken lines. While collar **36** may slide freely on tubular member **28**, the fit is sufficiently close to substantially prevent passage of water therebetween when the sink is filled to a level above the upper end of the collar. To support collar **36** in the elevated position, a spring loaded spherical detent **37** projecting from the inner surface thereof cooperates with an annular groove **38** in the outer surface of tubular member **28**.

From the above description it is apparent that the operation of the modified form of my invention shown in Figs. 7 and 8 is substantially similar to the operation of the embodiment previously described except that collar **36** and the attached annular washer **35** must be independently lowered to a sealing position in which drainage from sink **5** to comminution chamber **2** is prevented. Thus, if it is desired to insert waste material into unit **1**, auxiliary waste receiver **27** is inserted in flange **6** with flat surfaces **33** aligned with ledges **16** and then rotated clockwise 30° to a locked position in which ledges **16** engage portions of the walls of grooves **31**. The device may then be filled with waste material substantially to the top of tubular member **28** and if required, sink **5** may be partially filled with water during this operation by lowering collar **36** so as to seal apertures **29**. To initiate comminution of the waste material receiver **27** is rotated counterclockwise 30° to its initial position and an additional 90° in the same direction to the position shown in Figs. 7 and 8 where cam **34** actuates control lever **4** to its "on" position. Since a constant flow of water into comminution chamber **2** is required for proper operation of waste disposal unit **1**, collar **36** must also be raised to its elevated position and water supplied to sink **5**. It will be observed that waste material may be continuously deposited in the open end of receiver **27** while the comminuting mechanism is operating and that the height of the receiver practically eliminates the danger of inadvertently reaching far enough into the comminution chamber to come in contact with the comminution mechanism.

While I have shown and described a specific embodiment of my invention, I do not desire my invention to be limited to the particular construction shown and described, and I intend by the appended claims to cover all modifications within the true spirit and scope of my invention.

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

1. A combined auxiliary waste receiver and control actuating device for use with a power operated waste disposal appliance which is adapted to be connected with the drain opening flange of a sink or the like for receiving water therefrom and which appliance has power control means including a control actuating element located adjacent said drain opening; said device comprising a generally tubular member adapted to be removably supported in said drain opening so as to extend upwardly from the bottom wall of said sink, said tubular member having generally circular unobstructed openings at the top and bottom thereof and an aperture in the side wall thereof located so as to be adjacent said bottom wall and permit drainage of water from said sink into said appliance, annular sealing means mounted for axial movement on said tubular member and movable into sealing engagement with said flange whereby said drainage through said aperture is prevented, cam means carried by said tubular member engageable with said control actuating element for operating said element, and locking means on said tubular member engageable with a portion of said flange, said tubular member being rotatable to a plurality of positions with respect to said flange including at least one position in which it is locked thereto and said control actuating element is operated by said cam means.

2. An auxiliary waste receiver for use with a waste disposal appliance which is adapted to be connected with the drain opening flange of a sink or the like for receiving water therefrom comprising a generally tubular member adapted to be removably supported in said drain opening so as to extend upwardly from the bottom wall of said sink, said tubular member having generally circular unobstructed openings at the top and bottom thereof and an aperture in the side wall thereof located so as to be adjacent said bottom wall and permit drainage of water from said sink into said appliance, annular sealing means mounted for axial movement on said tubular member and movable into sealing engagement with said flange whereby said drainage through said aperture is prevented, and locking means on said tubular member engageable with a portion of said flange.

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