

May 5, 1970

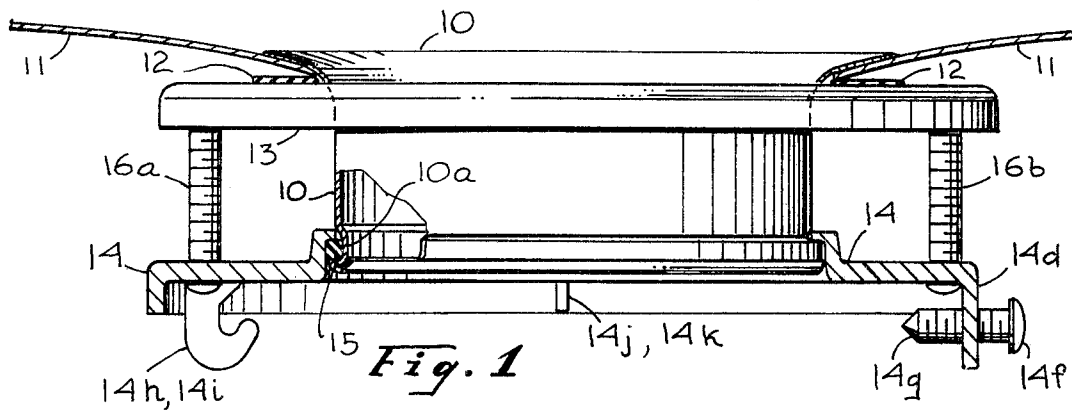
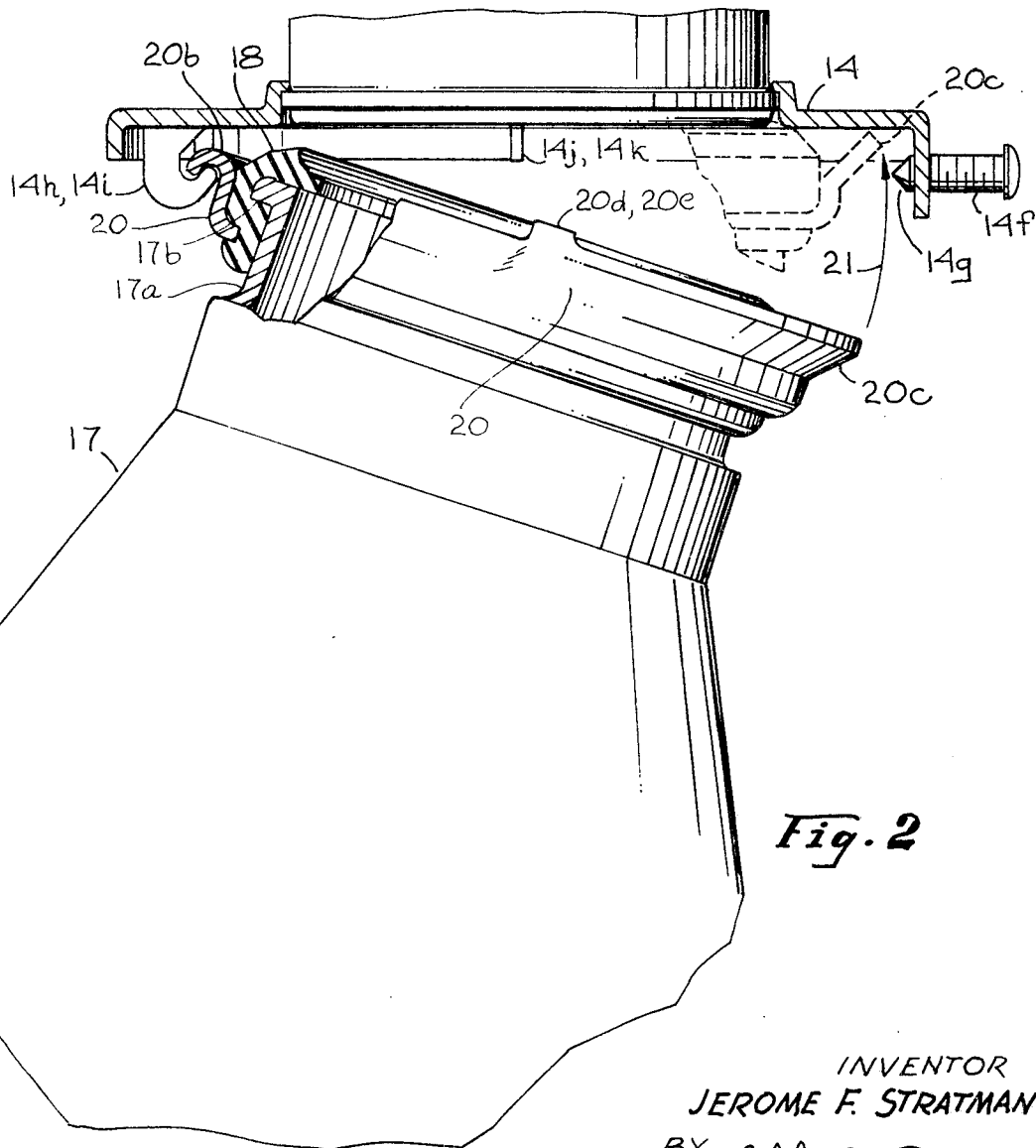
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3,510,070

GARBAGE DISPOSAL APPARATUS

Filed Dec. 6, 1965

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

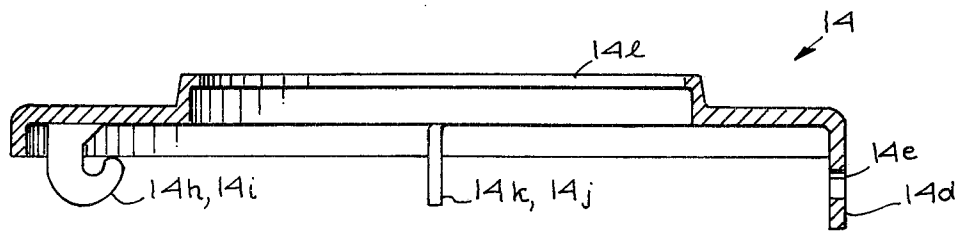


Fig. 3(a)

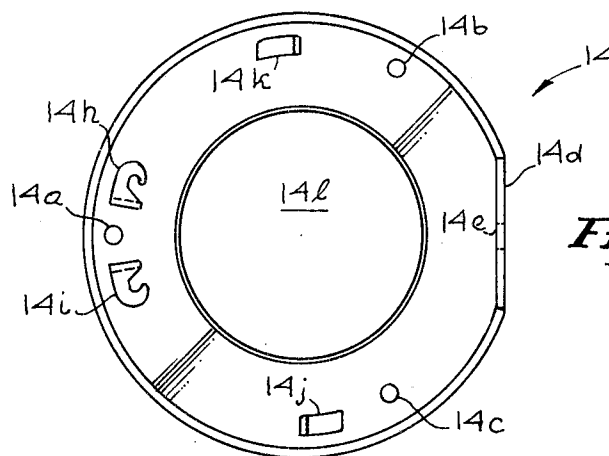


Fig. 3(b)

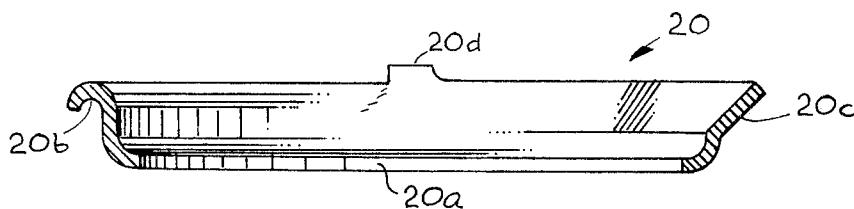


Fig. 4(a)

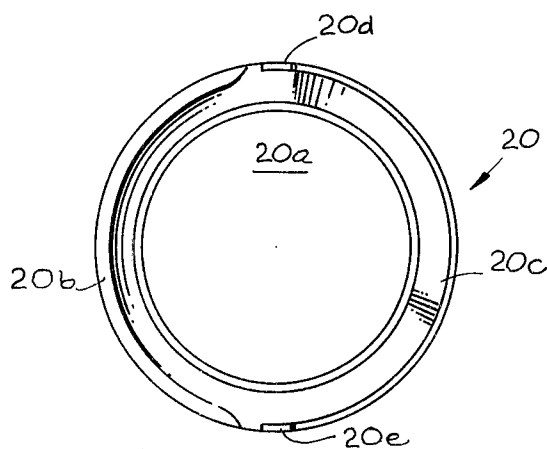


Fig. 4(b)

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GARBAGE DISPOSAL APPARATUS

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Int. Cl. B02c 18/42

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1 Claim

ABSTRACT OF THE DISCLOSURE

A sink mount for a disposer including a mounting ring on the sink flange assembly at the outlet and a support ring on the upper end of the disposer, with the two having cooperable hook elements which are engaged in the mounting of the disposer to support the latter at this location for upward swinging movement fully against the flange assembly. One of the hook elements has appreciable peripheral extent, so that the disposer can be rotatably adjusted, and the mounting ring carries an adjusting and holding screw which engages the support ring and forces the same upwardly against the flange assembly to secure the disposer in place.

The present invention relates to food waste disposer units in general and more particularly relates to a new mounting assembly for such units.

As is well known, when a food waste disposer is installed, the first step is that of fixedly mounting the sink flange in the sink opening. The disposer itself is then lifted into position beneath the sink and rigidly mounted to the sink flange structure. The trouble or difficulty lies in this latter step of mounting the disposer because the apparatus provided in the past for this purpose has been cumbersome, difficult to handle or work with, and time consuming in its use. All of this has not only added to the price of new units but also to the cost of servicing them. More specifically, the disposer itself is customarily positioned in a relatively inaccessible location, viz., within the cabinet below the sink. This makes the installation and removal of the disposer an awkward and difficult chore, especially if the disposer is a relatively heavy one. Accordingly, as a practical matter, in the past it often required the efforts of two workmen to properly install or remove a disposer from its location beneath the kitchen sink. This was especially true, for example, if the support system of the disposer involved an arrangement wherein it was necessary to manually hold the disposer in position while a plurality of separate connecting elements were screwed or snapped into supporting position.

It is, therefore, an object of the present invention to provide an improved means to support a food waste disposer from a sink.

It is another object of the present invention to provide a support means that allows a single workman to easily install or remove a food waste disposer.

It is a further object of this invention to provide a support means that affords quick installation or removal of a food waste disposer with respect to the sink.

It is an additional object of the present invention to provide support means for a food waste disposer that will help to support and align the disposer during the step of mounting it, and thereby greatly alleviate the mounting problem.

The present invention substantially overcomes the problems and difficulties previously encountered in connection with the mounting of disposer units and does so by providing a quick-connect hinge arrangement that not only helps to partially support the disposer but also permits the disposer to be swung rather than pushed or screwed into place, thereby expediting and facilitating its mounting. Furthermore, in accordance with the basic concept of the invention, while this new support means is designed to provide substantial alignment of the disposer, it is nevertheless adapted to conveniently permit a final alignment adjustment before the disposer is finally fixed in position. More particularly, according to a preferred embodiment of the invention, a mounting ring is included as a part of the sink flange assembly that has a set of hooks along its periphery and an opposing screw located at 180° from the hooks. The screw is so installed as to move in a horizontal direction when rotated. In addition, a support ring is installed on the disposer that is constructed with up to one-half of its periphery formed as a hook that will mate with the hooks on the mounting ring. However, the other half of the periphery of this support ring is formed on an angle.

To install the disposer, the hook section of the support ring is engaged with the hooks on the mounting ring to form a hinge. The unit is then swung up and the screw rotated forward to engage the angled portion of the support ring. The unit is now loosely installed and can be rotated to properly align and install the plumbing connection. When this is done, the screw is then driven inward still further, its action along the angle of the support ring forcing the ring upward to secure the unit firmly in place and to create a pressure between the bottom of the sink flange and the top of the rubber isolation, thereby sealing the connection against water leakage.

The novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages thereof, will be better understood from the following description considered in connection with the accompanying drawings in which an embodiment of the invention is illustrated by way of example. It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention.

FIG. 1 is a front view, partly in cross-section, of a sink flange assembly that illustrates a mounting ring element therein according to the present invention;

FIG. 2 is a front view of a disposer that illustrates a support ring thereon according to the present invention, the view showing the disposer immediately after the support ring has been hinged to the mounting ring;

FIG. 3 illustrates the apparatus of FIG. 2 once again, but with the disposer swung into its final position;

FIG. 4 is a view in perspective of a mounting ring according to the present invention; and

FIG. 5 is a view in perspective of a support ring according to the present invention.

For a detailed description of the invention, reference is now made to the drawings wherein like or similar parts are similarly designated throughout the several figures. In FIG. 1, a sink flange assembly is shown that includes one element of the invention, namely the mounting ring.

More particularly, as is shown therein, the sink flange assembly includes a sink flange 10 that is mounted in the customary sink opening, the portion of the sink surrounding the opening being designated 11. Mounted on the sink flange immediately beneath the sink is a sink flange washer or gasket 12 which separates the sink from an upper mounting flange 13 that is also mounted on the sink flange. Finally, mounted on sink flange 10 beneath upper mounting flange 13 and spaced from the mounting flange is a mounting ring 14 constructed in accordance with the present convention, the mounting ring being held or retained in its position on the sink flange in a well-known manner, namely, by means of a snap or retaining ring 15 mounted in a groove 10a in the sink flange. As is well-known, the mounting ring cannot slip off the sink flange because the diameter of the opening through the mounting ring is smaller than the outer diameter of the retaining ring which is held firmly in place both because of its spring-like quality and the shoulders of the groove. As may be seen from the figure, mounting ring 14 has several mounting screws, such as screws 16a and 16b, extending vertically through it to the underside of mounting flange 13. It will be recognized that by suitably turning these screws until their ends press firmly against the mounting flange, the entire sink flange structure is rigidized.

Looking to FIG. 1 as well as to FIGS. 3(a) and 3(b), mounting ring 14 is, generally speaking, annular shaped with a plurality of three threaded holes 14a, 14b and 14c through it in which the aforesaid screws are mounted, the holes preferably being equally spaced around the mounting ring. Although the periphery of mounting ring 14 can be made entirely circular, a small portion or length of it, as is clearly shown in FIG. 3(b), is preferably made flat with a lip or flange 14d projecting vertically downward therefrom. This lip or flange 14d has a threaded hole 14e through it in which another screw 14f is mounted, the screw 14f being in a horizontal position with its bottom end pointing toward the center of the ring. Although not essential, it is nevertheless preferable, for reasons that will appear below, that the bottom tip of screw 14f be tapered or angled as at 14g. On the other side of mounting ring 14, opposite lip or flange 14d, are a couple of hooks 14h and 14i that are integral with and project vertically downward from the ring, the hooks being oriented so that the mouths thereof face inwardly, that is to say, toward the center of the mounting ring. The shape of hooks 14h and 14i and their downward projection are clearly shown in the referred-to figures, the preferred orientation of these hooks being more clearly illustrated in FIG. 3(b) wherein, for illustrative purposes only, they have been rotated 90° into the plane of the mounting ring. Finally, for reasons that will also become clearer below, mounting ring 14 preferably includes a pair of teeth or flaps 14j and 14k that likewise are integral with the ring and extend downwardly from it. Flaps 14j and 14k are located in the area between hooks 14h, 14i and flange 14d, and preferably 180° apart from one another as is very clearly shown in FIG. 3(b) wherein, like the hooks, the flaps have been rotated 90° into the plane of the mounting ring so that their features might be clearly seen. The central opening of mounting ring 14 by means of which the ring can be slipped onto sink flange 10 is designated 14l.

The disposer itself is illustrated in FIG. 2, only the hopper portion thereof being shown for sake of convenience, the top of the hopper being presented in partial cross-section in order to more clearly show the remaining features of the invention. More specifically, the hopper is designated 17 and at its upper end it has a vertically extending neck 17a from which, near the mouth of the hopper, there horizontally extends a lip or flange 17b. Surrounding both lip 17b and a substantial portion of hopper neck 17a is a rubber isolator 18, the isolator being generally S-shaped because of the inner groove into which lip 17b fits and also because of another and op-

positely directed outer groove in its lower end. Finally, a support ring 20, constituting another element of the present invention, is mounted over isolator 18 the lower edge of the support ring fitting into the lower outer groove in the isolator so that, together with lip 17b which fits into the isolator's upper groove, the isolator is entrapped in its position on the hopper.

Support 20 is illustrated in FIGS. 4(a) and 4(b) as well as in FIG. 2 and is shown therein to have an annular, generally dish-shaped, type of configuration, the opening through the center of the support ring which permits it to be fitted over the isolator being designated 20a. The support ring is preferably constructed with one half its periphery, designated 20b, formed as a hook that will mate with hooks 14h and 14i of the mounting ring and with the other half of its periphery, designated 20c, formed on an angle, the angle of this peripheral portion of the ring preferably being about the same as the angled end 14g of mounting ring screw 14f. Finally, as may clearly be seen in FIGS. 4(a) and 4(b), support ring 20 includes a pair of tabs 20d and 20e located on opposite sides of the ring where peripheral sections 20b and 20c meet or come together, the tabs being such that they project vertically upward from the support ring.

Considering now the operation of the invention, to install the disposer, that is to say, to rigidly mount the disposer onto the sink flange assembly, the hook section of support ring 20, namely, section 20b, is first engaged with hooks 14h and 14i of mounting ring 14 in the manner shown in FIG. 2. When this is done, the disposer unit is then swung up in the direction of arrow 21 until it is in the position indicated by the broken outline of the support ring apparatus, at which time screw 14f is turned until its end 14g engages the support ring's angled portion 20c. The unit is now loosely installed and can be rotated somewhat to properly align and install the plumbing connection. Once the proper alignment is obtained and the plumbing connection made, the screw 14f is then driven further inward, its action along the angled section of support ring 20 forcing the support ring upward until the unit is secured firmly in place. This also creates a pressure between the bottom of sink flange 10 and the top of rubber isolator 18, thereby sealing the coupling or connection between the disposer and the sink flange assembly against water leakage. It should be mentioned at this time that after screw 14f is finally tightened, tabs 20d and 20e abut or press against the under side of mounting ring 14 and thereby help to ensure a stable coupling between the rings. The same is true as to flaps 14j and 14k which extend down on either side of support ring 20.

To remove the disposer, the opposite procedure is obviously followed, which involves the steps of removing the plumbing, disengaging screw 14f from angled section 20c, swinging the disposer downward using the linkage of hooked elements 14h, 14i and 20b as a hinge, and then disengaging hook section 20b from hooks 14h and 14i.

It is thus seen that by means of the present invention the procedure of connecting and/or disconnecting the disposer is easily and quickly accomplished.

Although a particular arrangement of the invention has been illustrated and described above by way of example, it is not intended that the invention be limited thereto. Accordingly, the invention should be considered to include any and all modifications, alterations or equivalent arrangements falling within the scope of the annexed claims.

Having thus described the invention, what is claimed is:

1. In combination with a food waste disposer for dependent attachment to a sink at the outlet thereof, a sink flange assembly adapted to be installed in and depend from the sink outlet, said assembly including at its lower end a mounting ring, a cooperable support ring at the

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upper end of the disposer, said mounting ring at one peripheral location being provided with radially extending upwardly and inwardly open first hook means, the support ring on the disposer having relatively reversed second hook means for engagement with the first hook means at such one location to support the disposer for swinging movement to bring the upper end of the same fully against the sink flange assembly, with at least one of the first and second hook means having appreciable peripheral extent for relative rotational adjustment of the disposer as thus supported by the mounting ring, and adjusting screw means acting between the mounting and support rings for forcing the latter upwardly against the flange assembly to secure the disposer firmly in place.

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U.S. Cl. X.R.

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