This invention relates to a sink mount for waste disposal units. It is an object of the invention to provide a mounting means for the waste disposal unit of the type which is suspended below the drain opening of a sink to serve as a combination drain and comminuting chamber, particularly for household installations.

It is one of the objects of the designers of this type of mechanism to reduce the noise and vibration of the unit to a minimum. Still, it is necessary to maintain a good water seal between the parts and joints of sufficient strength that they will withstand the vibratory action which results from the inherent function. Regardless of how well balanced the unit may be before it is loaded there are times when food waste gets to moving eccentrically on the rotor to cause a vibration and noise. In previous installations this vibration and noise was carried to the sink bottom, which serves as a resonator to amplify the noise into the room in which the device is being operated. It is a further object of the present invention to reduce this transmission of vibration and noise to the sink panels.

Other objects and features of the invention relating to details of construction and operation will be apparent in the following description and claims.

Drawings accompany the disclosure, and the various views thereof may be briefly described as follows:

Figure 1, a vertical section through the assembly showing the relationship of the parts.

Figure 2, a perspective view of the unit assembled in the absence of the sink panel.

Figure 3, a sectional view of the combination damper and guard, a part of the assembly.

Referring to the drawings, in Figure 1 a comminutor chamber 10, the top portion of which is shown, is the suspending element of the device, which includes a comminutor ring, a rotor and an electric motor and housing. The housing 10 has a hneck ring 12 with an outwardly extending annular flange 14. The sink from which the device is to be suspended is shown at dotted lines at 20, and the actual suspending ring has an upper flange 22, a cylindrical throat portion 24, and a lower inwardly extending flange 26. A gusset 28 is provided in the lower outer surface of the cylindrical portion 24 to receive a lock ring 30. A washer 32 is usually interposed between the flange 22 and the margin of the sink opening of surrounding the throat portion 24 of the sink ring is a clamp ring 34. A fibrous gasket 36 is usually interposed between this ring and the bottom margin of the sink opening. The junction between the housing 10 and the suspension ring 34 is accomplished by two sandwich plates 40 and 50 and a combination damper and guard ring 60. The sandwich ring 50 has three integrally formed and circumferentially spaced lug portions 62 which are threaded to receive a headless screw 70 having at the lower end a screw driver slot 72. Plate 40 has similar lug portions 62 which are not threaded. On each of these screws 70 is a nut 74 and a washer 76 bearing against the bottom plate 40.

It will be seen that the upper plate 50 has an annular recess 80 around a central opening 81 which receives the outer portion of lock ring 30 and the top edge 82 of ring 60 bears against the inner margin of ring 50 and a portion of the lock ring 30. The inner margin of the central opening 84 of the plate 40 enters an annular recess 86 in the bottom outer edge of ring 60. On the inner surface of ring 60 an annular groove 90 is formed to receive the flange or lip 14 of the throat portion 12 of housing 10. Between the top of the flange 14 and the bottom flange 26 of ring 24 the ring 60 has inwardly extending fingers 92 terminating at a central opening 94 and spaced from each other by radial openings 96. The damper ring 60 is preferably formed of rubber or neoprene or its equivalent, it being from a tough, resilient material of flexible nature having a Durometer hardness around 45 to 60 so that it is a cushioning device.

In assembly, ring 24 is dropped in place, ring 34 moved up on it along with sandwich member 50, after which snap ring 30 is moved into groove 28. In this position screws 70 can be tightened to effect a seal with the margins of the hole in the sink 20. Since the remainder of the device is quite heavy, one of the lug projections 62A on plate 40 is opened, see Figure 2; and when a nut 74 is placed thereon, this lug 62A can be hooked onto that nut and the main weight of the bottom assembly supported while the other nuts are applied and tightened. Prior to this, the ring 40 is placed over neck 12 and the rubber collar 60 is snapped in place over lip flange 14.

 Tightening of nuts 74 forces a seal at the in-lip 26 on suspension ring 24 and also at the top of throat or neck 12. All of the load of the device is still carried by the collar 60 and there is no metal-to-metal contact between housing 10 and the sink suspension parts. Thus, noise and vibration are absorbed in the rubber and the device operates much more quietly than devices mounted according to conventional methods. In addition, the fingers 92 serve as a guard for the fingers and also as a splash guard being clamped securely between parts 14 and 26.

A drain stopper is also shown in collar 24 having a grommeted, open-center plate 100 and a stopper unit 102 having a stem 103 mounted for open and closed positions on a cross-spider 104 in plate 100. The grommet 106 is preferably of rubber or neoprene to cooperate with the top surface of lip 26.

A feature of the assembly is that until screws 70 and nuts 74 are finally tightened, the entire assembly can be swiveled to any desired position to allow registering of a drain spout or other attachment for the device.

It will be noted that the damper member 60 is made of rubber and is solidly clamped at two points on either side radially of the suspension point at flange 14. Between the neck portion 12 and the lip 26 the inside of the rubber directly above the flange 14 is clamped securely, and between the sandwich plates 40 and 50 the outside of the cylindrical portion of the member 60 is securely clamped. The suspension forces are, therefore, safely transferred through the rubber to the bottom plate 40 with a wide distribution of the shear forces. The ring 30 is confined in groove 28 after assembly by the presence of ring 50 which receives ring 30 in a groove 80.

1. A supporting assembly for a waste disposal unit of the type having a comminuting chamber and a driving motor supported thereon to be suspended below a drain opening of a sink, which comprises, a collar flanged...
over the upper margins of said sink opening and passing downwardly therethrough, a first plate coaxial of said collar and suspended thereon against downward movement and having an axial flange spaced from said collar extending downward, a second plate coaxial with said collar and suspended on said first plate below said collar with an axial flange extending upward, bolt means passing through said plates and threaded in said first plate to exert a clamping force between the flange of said collar and a sink, a nut means on said bolt means to move said second plate toward said first plate, and a resilient suspension ring for the upper end of said comminuting chamber having a substantially cylindrical portion clamped between the inner margins of said first and second plates and confined radially within said flanges, interengaging means on the top of said comminuting chamber and the interior of said suspension ring intermediate said plates to support said comminuting chamber in said ring.

2. A device as defined in claim 1 in which said suspension ring has radially inward extending portions passing between a lower radial surface on said collar and an upper radial surface on said comminuting chamber, said inward radial portions being axially clamped between said radial surfaces.

3. A supporting assembly for waste disposal units for suspending the comminuting chamber and drive motor on a drain collar positioned in a sink opening, which comprises, an annular outwardly extending shoulder on said drain collar adjacent the bottom thereof, an annular plate around said collar above and supported by said shoulder, a second annular plate below said first plate and below said collar, a resilient sound and vibration cushion between said plates and supported on said lower plate, means actuating on said plates to exert axial pressure on said cushion, said cushion having an annular opening grooved at the top to receive the thrust of a comminuting chamber and an outwardly extending annular flange therein, said comminuting chamber receiving its entire support from said resilient member.

4. A supporting assembly for waste disposal units for suspending the comminuting chamber and drive motor on a drain collar positioned in a sink opening, which comprises, an annular, outwardly extending shoulder on said drain collar adjacent the bottom thereof, an annular, inwardly extending flange at the bottom of said collar having a predetermined inner diameter, an annular plate around said collar above and supported by said shoulder, a second annular plate below said first plate and below said collar, a resilient sound and vibration cushion between said plates and supported on and in contact with said lower plate, means actuating on said plates to draw the two toward each other, said cushion having an annular opening grooved at the top to receive the thrust of a comminuting chamber and an outwardly extending annular flange therein, the thrust of said chamber and the inner diameter of the flange being about equal to that of the collar flange, said comminuting chamber receiving its entire support from said resilient member, and a series of splash guard fingers on said resilient member extending into the opening below said collar, the base of said fingers being clamped between said flanges in a horizontal direction.

A supporting assembly for waste disposal units for suspending the comminuting chamber and drive motor adjacent a sink opening, which comprises, a suspension collar supported on the sink, a pair of plates mounted on said collar coaxial therewith, a resilient intermediate member having a substantially cylindrical shape interposed between said plates in a manner that the external walls of said member are axially and radially confined between said plates, and means on the top of the comminuting chamber extending radially outwardly into said resilient member between said plates to support said comminuting chamber on said member completely out of contact with said plates, said resilient member having portions extending horizontally inward radially below said collar, said portions being axially clamped between a horizontal radial surface at the bottom of said collar and a horizontal radial surface at the top of said comminuting chamber.

References Cited in the file of this patent

UNITED STATES PATENTS

1,477,686 Coy Aug. 2, 1924
2,574,191 Platzer Nov. 6, 1951
2,670,143 Jordan Feb. 23, 1954
2,724,560 Tull Nov. 22, 1955
2,761,626 Gustavsson Sept. 4, 1956

FOREIGN PATENTS

506,225 Belgium Oct. 31, 1951