March 26, 1963 J. W. YARTZ 3,082,964

SINK CONNECTION SUPPORT FOR WASTE DISPOSAL APPARATUS

Filed Oct. 3, 1960 3 Sheets-Sheet 1

FIG. 1

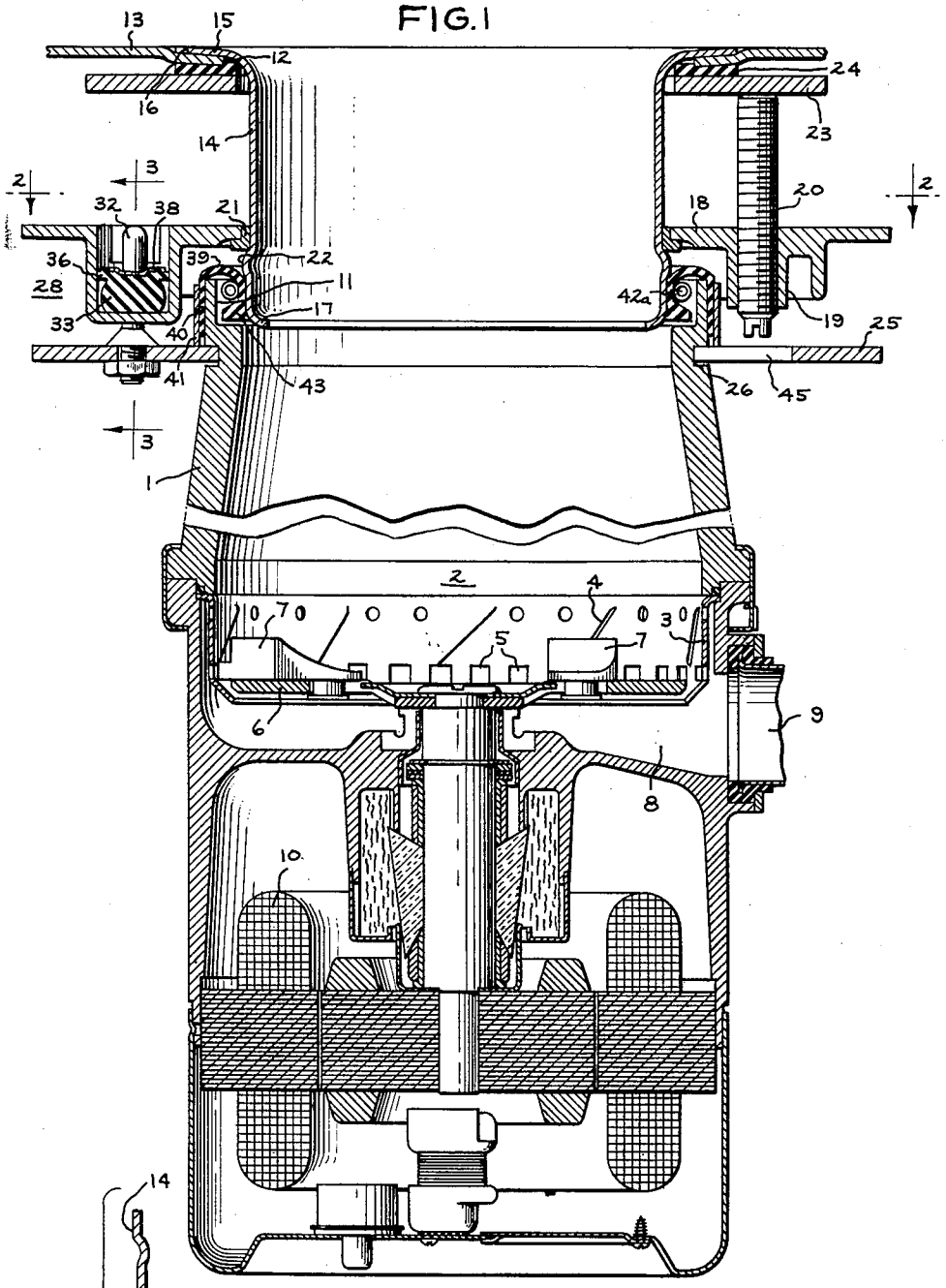
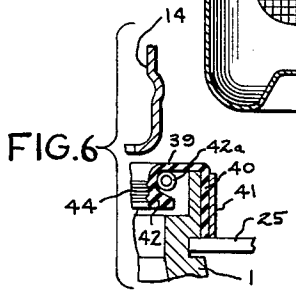


FIG. 6



INVENTOR
JOHNNY W. YARTZ
BY Merriam & Beggs
HIS ATTORNEY

March 26, 1963 J. W. YARTZ 3,082,964

SINK CONNECTION SUPPORT FOR WASTE DISPOSAL APPARATUS

Filed Oct. 3, 1960 3 Sheets-Sheet 2

FIG.2

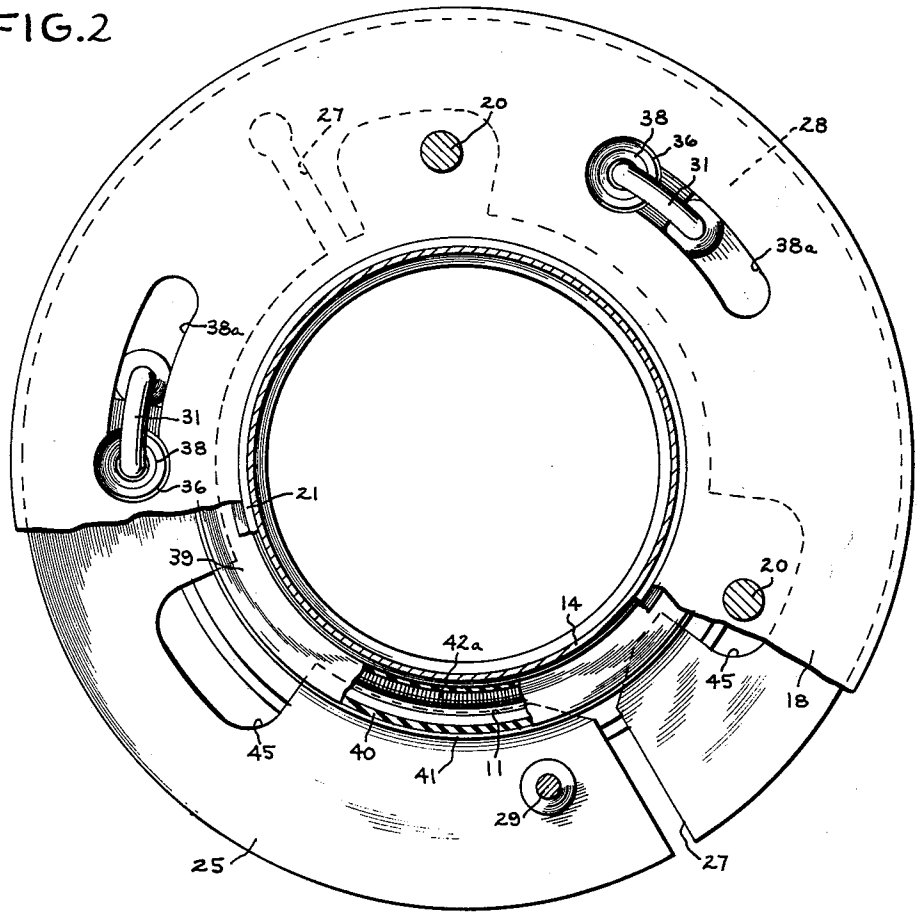


FIG.3

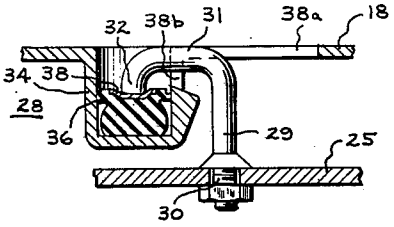
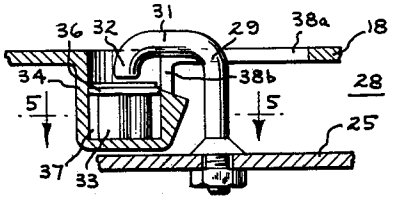


FIG.4



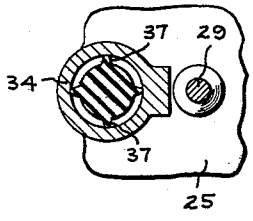


FIG.5

INVENTOR
JOHNNY W. YARTZ

BY

HIS ATTORNEY

March 26, 1963 J. W. YARTZ 3,082,964

SINK CONNECTION SUPPORT FOR WASTE DISPOSAL APPARATUS

Filed Oct. 3, 1960 3 Sheets-Sheet 3

FIG. 7

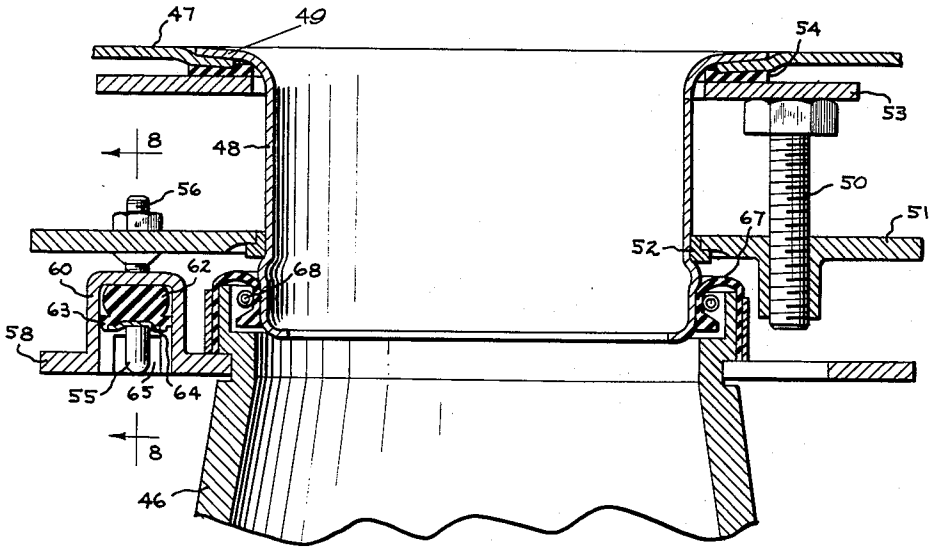
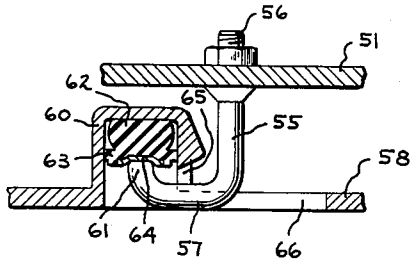


FIG. 8



INVENTOR.
JOHNNY W. YARTZ

BY Thurston & Briggs

HIS ATTORNEY

United States Patent Office 3,082,964 Patented Mar. 26, 1963

3,082,964

SINK CONNECTION SUPPORT FOR WASTE DISPOSAL APPARATUS

Johnny W. Yartz, Anchorage, Ky., assignor to General Electric Company, a corporation of New York

Filed Oct. 3, 1960, Ser. No. 60,051
9 Claims. (Cl. 241—100.5)

This invention relates to apparatus for the disposal of waste material wherein garbage and other kitchen wastes are comminuted in the presence of water by power driven comminuting means to a flowable mixture and the resultant mixture flushed to the waste disposal system of the house; and is especially applicable to such disposal apparatus which is connected with the drain opening of a kitchen sink which opening serves as an ingress opening for the admission of the waste material and water to the grinding apparatus.

This invention contemplates the provision in apparatus of this kind of improved means for attaching the apparatus to and supporting it from the sink in proper relation with the sink drain opening and incorporating means for isolating from the sink and hence from the kitchen the vibration incident to the operation of the apparatus and thereby reduce materially the noise usually associated with waste disposal apparatus. This invention further contemplates the provision of such means which includes in its construction features which provide for the quick assembly and disassembly of the comminuting apparatus with respect to the sink.

Briefly stated, in accordance with one aspect of this invention, I provide a food waste disposer having a comminuting housing which has an upper inlet opening which is intended to register with the sink drain opening and afford an ingress opening for the waste material and water introduced through the sink opening. I also provide a supporting sleeve for the housing and its associated comminuting apparatus arranged to be mounted in the drain opening in supporting relation with the sink. The comminuting housing with its associated power operated grinding means is supported from the sleeve, so that the upper end of the housing is in concentric relation outside of the sleeve, by a series of attaching means circumferentially spaced about the meeting end portions of the housing and sleeve. The attaching means provides for support of the housing from the sleeve; vibration isolation of the housing from the sink; and provides for ready assembly and disassembly of the housing with respect to the sink. In one form of this invention, each attachment means includes an inverted hook-shaped member attached rigidly to the upper end of the housing and having its hooked end seated on and supported by a yielding member formed of an elastomeric material supported on the lower end of the sink sleeve. In another form the hook members and yielding members may be reversed, that is, the hook members may be attached in an upright position to the sink sleeve, while the resilient members are fixed to the housing so as to engage the hook ends to support the housing. In either case, the elastomeric members provide for shifting movement of the hook ends which engage them so as to permit the housing to have universal movement to a limited extent while isolating the housing from the sleeve and sink to reduce the transmission of vibrations and noises from the housing to the sink.

Preferably the upper end of the housing will be spaced from the sleeve and a resilient sealing ring attached to the housing will be interposed to close this space and thereby effect a radial liquid seal between the resiliently mounted housing and the stationary sleeve.

The connection means of this invention will permit quick assembly of the disposal housing with the sleeve merely by elevating the housing into telescopic relation with the lower end of the sleeve and to a point where the hook ends and their seats are separated in the vertical direction, turning the housing slightly to align the hook ends with the seats, and finally allowing the housing to fall into its operating position in which it is to be supported from the sleeve by the hook ends which are then in engagement with their seats. The sealing ring will be attached to the disposal housing so that when the housing is elevated for attachment with the sleeve, the ring will be moved automatically into sealing relation with the sleeve.

For a more complete understanding of this invention, reference should be had to the accompanying drawings in which:

FIG. 1 is a fragmentary vertical sectional view of food waste disposal apparatus embodying one form of this invention;

FIG. 2 is a horizontal sectional view taken through the line 2—2 of FIG. 1 and looking in the direction of the arrows;

FIG. 3 is a vertical sectional view taken through the line 3—3 of FIG. 1 and looking in the direction of the arrows;

FIG. 4 is a vertical sectional view similar to FIG. 3 but showing certain parts in different relative positions than in FIG. 3;

FIG. 5 is a sectional view taken through the line 5—5 of FIG. 4 and looking in the direction of the arrows;

FIG. 6 is a fragmentary sectional view of certain parts shown in one relative position which they occupy while in the act of assembling the disposal housing with the sink sleeve;

FIG. 7 is a fragmentary vertical sectional view of waste disposal apparatus embodying another form of this invention; and

FIG. 8 is a vertical sectional view taken through the line 8—8 of FIG. 7.

Referring to FIGS. 1 through 6 inclusive of the drawings, this invention has been shown in one form as applied to food waste disposal apparatus having a generally cylindrical tubular casing or housing 1 enclosing a grinding or shredding chamber 2 at the bottom of which the comminuting or shredding of waste material takes place. Any suitable shredding means may be used at the bottom of the housing 1 to effect the comminuting operation, for example the shredding means may be used which is described and claimed in the United States Patent to H. J. Macemon No. 2,828,083, dated March 25, 1958, and assigned to the General Electric Company, the assignee of this application. Briefly, the grinding means comprises a stationary shredding ring 3 which is provided with cutting surfaces 4 and with a plurality of apertures 5. Coacting with the shredding ring 3 is a material impelling flywheel 6 which is provided with impellers 7 arranged when the flywheel is rotated to impel the waste material against the shredding ring 3 to comminute the material into a fine mass. It will be understood that during this operation water will be caused to flow down through the housing 1, and that eventually the water and the comminuted material constituting a flowable mass will be impelled outwardly through the apertures 5 into a drain chamber 8 which drains into a drain line 9 which in turn is connected with the sewer system of the house. The flywheel 6 is driven by a suitable electric motor 10.

The upper end 11 of the housing 1 constitutes an opening through which the waste material and the water is supplied to the housing 1 from the drain opening 12 provided in the household sink, the bottom wall of the basin of which is designated by the numeral 13.

The means arranged in accordance with this invention

for supporting the disposal unit from the wall 13 to vibration insulate the unit from the sink and hence from the house in which the sink is installed, comprises a cylindrical tubular sleeve 14 which is arranged to be inserted down through the sink opening 12 and at its upper end is provided with an outwardly extending circular flange 15 adapted to overlie the annular marginal edge 16 of the drain opening 12, as shown in FIG. 1. Preferably and as shown the marginal area 16 will be slightly depressed from the bottom wall 13. The lower end of the sleeve 14 is provided with an inturned flange 17 which will support a suitable sink stopper (not shown), for example as shown and described in the United States patent to F. W. Moore No. 2,787,423 dated April 2, 1957, and assigned to the General Electric Company, the assignee of this application.

The sleeve 14 not only functions to conduct the waste material and water to the housing 1 but it also constitutes the sole supporting means for the housing 1. For the purpose of supporting the disposal unit the sleeve 14 itself is rigidly secured to the bottom wall 13 of the sink. This is accomplished by a metal mounting ring 18 which encircles the depending sleeve 14 and is provided with a series of spaced integral bosses 19 depending from the ring 18 and bolts 20 threaded into the bosses; preferably the bosses 19 and associated bolts 20 will be spaced at uniform intervals around the circumference of the ring 18 (three being provided in the form of the invention illustrated spaced 120° apart). The ring 18 with the bolts 20 is supported from the sleeve 14 by means of a snap ring 21 which is supported on an outwardly facing circular bead 22 formed in the sleeve. The bolts 20 function to clamp the flange 15 to the annular wall 16 of the sink by means of a clamping ring 23 encircling the sleeve, it being understood that when the bolts 20 are screwed upwardly they will sandwich the annular wall 16 between the flange 15 on the sleeve and the ring 23; preferably a ring gasket 24 encircling the sleeve will be inserted between the bottom of the sink and the clamping ring 23.

The mounting ring 18 not only functions to rigidly secure the sleeve 14 to the sink, but it also constitutes the means for attaching the disposal unit to the sleeve 14. For this purpose a metal support ring 25 is positioned to encircle the upper end portion of the tubular housing 1. It is, as shown, mounted in a circular recess 26 provided for it in the upper end portion of housing 1, the support ring preferably being provided with a slit 27 (FIG. 2) so that the ring may be sprung into the recess.

The assembly of housing 1 and its associated comminuting mechanism, and the support ring 25 is arranged to be secured to the mounting ring 18, and for this purpose I have provided a series of connection means 28 (three in the embodiment illustrated) spaced about the adjacent end portions of the housing 1 and the sleeve 14; as illustrated in FIG. 2 three connection means 28 are provided spaced 120° apart.

Each connection means or set comprises an inverted distorted U-shaped or inverted hook-shaped member 29 (FIGS. 3 and 4) having the lower end of its long leg rigidly secured to the support plate 25 as by screw fastening means 30. The nexus 31 of the U or hook member 29 extends circumferentially in the direction of the ring 25, and this portion terminates in the downwardly extending short leg 32 of the hook.

The short legs 32 of the hook members are supported by means of the mounting ring 18 attached to the sleeve 14, and for this purpose the attachment means 28 further comprise a yielding cylindrical support 33 for each hook end 32. Each support 33 is mounted in a cup 34 supported by and depending from the ring 18; preferably the cups 34 will be formed of and depressed from the material of which the ring 18 is made.

Each support 33 is formed to be yielding to some extent and for this purpose it is made of an elastomeric material. Each support 33 is provided at its upper end with a flange 36, and also is provided on its exterior wall with four integral, flexible spacing ribs 37 extending vertically on the outer walls from top to bottom and which function yieldingly to space the cylindrical body 33 from the side walls of its cup 34; the cylindrical support 33 is mounted with its vertical axis substantially parallel with the vertical cups of the housing 1 and sleeve 14.

Secured to the flange 36 of each elastomeric body 33 as by bonding or cementing or gluing is a metallic depressed seat 38 shaped to receive and locate the lower end of the associated hook leg 32, thereby functioning with its companion supports 33 to support the housing and its associated mechanism.

As shown, the mounting plate 18 is provided with three elongated slots 38*a* positioned circumferentially of the plate to receive the upper parts of the hook members 29, and the walls of the cups 34 are provided with recesses 38*b* for receiving the hooks, as more clearly shown in FIG. 3.

I provide between the lower end of the sleeve 14 and the upper end of the housing 1 a radial fluid and vibration seal. For this purpose I provide a flexible sealing ring 39 in the radial space between the sleeve and the housing as shown in FIGS. 1 and 2, and as shown in FIG. 1 the ring 39 is generally in the form of a U in transverse cross section. The outer leg 40 of the U ring 39 is fitted around the outer surface of the upper end of the housing 1 and it is rigidly secured to this end by a clamping ring 41. The nexus of the U extends inwardly toward the sleeve 14 and terminates in an inner leg 42 which is pressed with a force-fit into a liquid-tight engagement with the sleeve 14 by the resiliency and undersize of the ring with respect to the size of the sleeve; this action may be reinforced by a garter spring 42*a*. Preferably and as shown the lower end of the leg 42 will be reinforced by a thickened circular rib 43. And preferably and as shown in FIG. 6 the inner surface of the leg 42 will be provided with a series of spaced circular sealing ribs or rings 44 to insure a liquid tight seal with the sleeve 14.

In view of the foregoing construction, it will be understood that the three elastomeric supports 33 and the sealing ring 39 arranged in parallel relation constitute vibration insulating means between the housing 1 and the sleeve 14 and sink. The members 33 yield downwardly to some extent with the weight of the disposal housing 1 and associated apparatus as shown in FIG. 3 thereby yieldingly to support the comminuting means. While an elastomeric material in a technical sense may be construed to be a non-yielding spring, it will be observed that the volume of each cup 34 is sufficiently large to permit the body 33 to deflect to allow in turn the seat 38 and hook end in it to deflect downwardly and the seat to tilt. Thus each support 33 mounts its rigid hook seat 38 so that it may tilt in any plane, and thus take a position in any plane to which it is forced by its associated hook 29. The three elastomeric supports 33 permit the housing 1 and associated mechanisms to tilt in any plane, and thus to vibrate in any plane, and this may be done without in any way affecting the liquid seal effected by the ring 39 which yieldingly maintains the seal while the housing 1 moves relative to the sleeve 14. Therefore, the support means 33 and sealing ring 39 isolate the vibration of the housing 1 and associated mechanism from the sleeve 14 and the sink 13 and hence from the house in which the sink in installed. Since the vibration is isolated the noise incident to vibration effect is eliminated. Thus, it will be understood that when the machine operates the elastomeric supports 33 permit limited movement of the housing 1 and associated parts with respect to the fixed sleeve 14 in any plane due to random vibration of the machine, and that this movement may take place without interference by the sealing ring 39.

It will be observed that the sealing ring 39 functions

solely as a radial seal and vibration insulation member, and that it does not take any of the load of the machine supported from the sleeve 14.

It will be understood that in assembling the apparatus in the field, the sleeve 14 will be inserted through the sink opening 12 into its operative position; the gasket 24 and the clamping ring 23 will be elevated over the sleeve to their positions under the sink; and then the supporting ring 18 will be placed about the sleeve 14, and the snap ring 21 positioned over the bead 22. After all of this the sleeve 14 will be clamped to the sink by threading the bolts 20 upwardly.

It will be understood that the ring 25 and the sealing ring 39 will have been assembled with the housing 1 at the factory.

In the field, the housing 1 with the attached support ring 25 and sealing ring 39 placed in position on the upper end of the housing will then be assembled with the mounting ring 18 by placing the housing in a vertical position under the sleeve 14 and elevating it so that the hook members 29 are received in the elongated openings 38*a* provided in the ring 18. After the assembly has been moved upwardly so that hook ends 32 are above the level of the seats 38, the housing assembly is turned slightly to bring the lower ends of hook legs 32 into registry with their seats 38 and then the assembly is allowed to fall so that these ends are received in interlocking relationship with their seats. The reverse operation will disassemble the housing from the sleeve 14.

It will be understood that when the housing 1 is elevated as the first step in the assembly of the housing with the sleeve 14 that it will carry the sealing ring assembly 39 up with it, as shown in FIG. 6. And that as the housing 1 is moved up the sealing ring automatically will be moved into sealing relation about and over the sleeve 14 as shown in FIG. 1. When the housing is removed, the sealing ring of course will be removed with it. Thus the comminuting apparatus is sealed and unsealed by the acts of assemblying the housing 1 with the sleeve 14 and disassembling it therefrom. The ring while it fits the sleeve sufficiently tight to effect a liquid-tight seal during operation of the commintuing apparatus, will slip with respect to the sleeve 14 when the housing 1 is turned for assembly and disassembly.

The ring 25 will be provided with enlarged notches 45 to insure clearance of the ring 25 with the screws 20 while the housing 1 is being assembled with the sleeve 14.

The form of the invention shown in FIGS. 7 and 8 is like that shown in FIGS. 1 through 6 except that the supporting the hook-shaped members and their coacting resilient cylindrical members are reversed so that the hook members become the supporting parts attached to the sink supported sleeve and their coacting elastomeric members are attached to the comminuting housing. As shown in FIGS. 7 and 8, this modification is provided with a food waste comminuting housing 46 which corresponds to housing 1 and which like housing 1 houses the comminuting means and the comminuting means operating motor, all of which elements may be identically the same as shown in FIG. 1. Housing 46 is supported by sink bottom 47 by means of sleeve 48 of the same construction as is sleeve 14 of FIG. 1; it is provided with a flange 49 resting on the sink bottom and it is clamped to the sink by means of bolts 50 threaded in a mounting ring 51 encircling sleeve 48 and abutting against a snap-ring 52 supported on the sleeve 48. The bolts bear against a clamping ring 53 to clamp the sleeve 48 to the sink; as in FIG. 1 a ring gasket 54 is interposed between the ring 53 and the sink bottom.

In this form of the invention the housing 46 and its associated comminuting mechanism is supported by three upright rod-like hook members 55 rigidly attached as by screw fastening means 56 to the ring plate 51. The hook members are spaced substantially 120° apart and as shown, have their nexus 57 lying generally circumferentially of the ring 51. The mounting means for housing 46 also includes a support ring 58 encircling the upper end of the housing and attached to it as is ring 25 attached to housing 1. Formed in the ring are three inverted cup-shaped parts 60 complementary to the hook ends 61 of members 55 and into which these hook ends protrude. Inserted in each cup is an elastomeric cylinder 62 having a flange 63 at its lower end. Each member 62 has its upper end cemented or glued or otherwise bonded to the end wall of its associated cup section 60. There will be cemented to the lower end of each member 62 a rigid metallic seat 64 having a central seat depression for the reception of the free end of the hook member 55, as shown. The cup member is provided with a slot 65 in one side wall and the ring 58 is provided with an elongated circumferentially extending slot 66 for the reception of the hook member.

A radial seal 67 of identically the same construction as the radial seal 39 of FIGS. 1 through 6 is provided, this seal also being reinforced by a garter spring 68.

The comminuting housing 46 is assembled with the sleeve 48 as in the first form of the invention. Thus, it is brought into alignment with the sleeve 48, elevated to a position at which the elastomeric members 62 are elevated above the ends of the hook ends 61 and then it is turned sufficiently to bring these members into alignment and finally allowed to fall so that the elastomeric members 62 rest upon the hook ends thereby to support the housing 46. When assembled the flexible member 67 as in the first form of the invention is automatically brought into sealing relation with the sleeve 48.

While I have shown and described specific embodiments of my invention, I do not desire my invention to be limited to the particular constructions shown, 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. Waste disposal apparatus for use in connection with a sink having a drain opening comprising a housing enclosing a comminuting chamber having an inlet opening for water and waste material at the top thereof, a cylindrical sleeve adapted to be disposed in said drain opening, means for rigidly fastening said sleeve to said sink so that said sleeve depends downwardly from said opening, a series of connection means between said housing and said sleeve to connect the upper end of said housing for universal movement with the lower end of said sleeve, said connection means being spaced apart circumferentially around the adjacent end portions of said housing and sleeve, and each connection means comprising an elastomeric member supported by means on one of said sleeve and housing, a hook-shaped member on the other of said sleeve and housing with the end of said hook in engagement with said elastomeric member and free of any other support means, and said elastomeric members providing for universal movement of said housing with respect to the sleeve to a limited degree, and means for quickly connecting and disconnecting each hook-shaped member in unison from its related elastomeric member, said last-mentioned means comprising enlarged openings in the support means for the elastomeric members so that the hook-shaped members may be inserted through the openings by raising the housing, the housing being adapted to be turned so that the ends of the hook-shaped members move into vertical alignment with the elastomeric members, the lowering of the housing serving to support the total weight of the apparatus on the elastomeric members, the reverse movement of the housing serving to disconnect the hook-shaped members from the elastomeric members.

2. Waste disposal apparatus for use in connection with a sink having a drain opening comprising a housing enclosing a comminuting chamber having an inlet opening for water and waste material at the top thereof, a cylin-

drical sleeve adapted to be disposed in said drain opening, means for rigidly fastening said sleeve to said sink so that said sleeve depends downwardly from said opening, a series of connection means between said housing and said sleeve to connect the upper end of said housing for universal movement with the lower end of said sleeve, said connection means being spaced apart circumferentially around the adjacent end portions of said housing and said sleeve and each connection means comprising an elastomeric member, means supporting said elastomeric member from said sleeve, a hook-shaped member rigidly attached to the upper end portion of said housing so that the end of the hook is aligned with the upper end of said elastomeric member and is free of the means supporting the elastomeric member to reduce the transmission of vibrations from the housing to the sink, and a relatively rigid seat between the upper end of said elastomeric member and the end of said hook to receive said end and center it with respect to said elastomeric member, said elastomeric member yieldably supporting said seat for movement with respect to it for a limited degree in all planes, said connection means providing for the quick assembly of said sleeve and housing by elevating the housing and turning it to bring the ends of said hooks into registry with their seats and then dropping said housing to bring said hooks and seats into engagement, the reverse movement of the housing serving to disconnect the hook-shaped members from the elastomeric members.

3. The waste disposal apparatus specified in claim 1 wherein the upper end of said housing is loosely mounted outside of and in spaced concentric relation with the lower end of said sleeve, and a radially yielding sealing ring attached to the upper end of said housing and having an internal size smaller than the size of the sleeve for yieldably engaging said sleeve with a force-fit in tension to effect a liquid-tight seal during the universal movement between the stationary sleeve and the resiliently mounted housing.

4. The waste disposal apparatus specified in claim 2 wherein three of said connection means are provided spaced substantially 120° apart, and the elastomeric member of each connection means is of upstanding cylindrical form with its longtiudinal axis substantially parallel to the central axis of said sleeve.

5. The waste disposal apparatus specified in claim 2 wherein the upper end of said housing is loosely mounted outside of and in spaced concentric relation with the lower end of said sleeve, and a radially yielding sealing ring is provided substantially in the form of an inverted U in transverse cross-section having one leg attached in liquid sealing relation with said housing and its other leg spaced inwardly therefrom so that when said housing is elevated for connection with said sleeve said other leg is placed in tension by a force-fit that yieldably engages the outside of said sleeve to effect a liquid-tight joint during the universal movement between said resiliently mounted housing and the stationary sleeve.

6. Waste disposal apparatus for use in connection with a sink having a drain opening comprising a housing enclosing a comminuting chamber having an inlet opening for water and waste material at the top thereof, a cylindrical sleeve adapted to be disposed in said drain opening, means for supporting said sleeve from said sink so that said sleeve depends downwardly from said opening, and support means for attaching said housing to said sleeve with its inlet opening end in telescopic substantially concentric relation with said sleeve including a series of inverted hook-shaped rods circumferentially spaced generally around and attached to said housing, a complementary series of support members for said hook-shaped rods circumferentially spaced generally around and attached to said sleeve, each support member comprising a cylindrical elastomeric body, a seat for receiving the end of the associated hook-shaped member mounted on said body, and said mounting means also including a cup-shaped holder on said sleeve for receiving and into which each support member is placed with its seat uppermost, and means for centering each support member within its cup-shaped holder, the hook-shaped rods being isolated by the elastomeric member from the sleeve and the cup-shaped holders of the elastomeric members in order to reduce the transmission of vibrations from the housing to the sink.

7. Waste disposal apparatus for use in connection with a sink having a drain opening comprising a tubular housing enclosing a comminuting chamber having an inlet opening for water and waste material at the top thereof, a cylindrical sleeve adapted to be disposed in said drain opening including an outwardly projecting supporting flange on the upper end thereof adjacent to overlie the marginal edge of said drain opening with the sleeve depending downwardly from the sink basin, the lower end of said sleeve being adapted to be received within the upper end of said housing in substantially concentric spaced relation with it, a pair of support and mounting rings encircling said housing and sleeve respectively, said rings being in vertically spaced relation and attached respectively to said housing and sleeve, attaching means connecting said rings to support said housing from said sleeve in an assembly which provides for relative movement between them in any plane to a limited extent, said attaching means including a plurality of spaced vertical hook-shaped rod-like supports rigidly attached to and projecting upwardly from said support ring with their nexus extending generally circumferentially along said support ring and extended through circumferentially elongated spaced openings provided for them in said mounting ring, the lower end portions of the upper hooked ends of said rod-like supports being received in supporting members provided for them in said mounting ring, said mounting ring having a series of depressed cups into which said supporting members are received, each of said supporting members having a resilient cylindrical body mounted vertically in its associated cup and provided with a series of circumferentially spaced outwardly extending flexible centering ribs which extend substantially coextensive with the length of said body, and each cylindrical body also having a relatively rigid depressed seat secured to its upper end and receiving the end of the hook of the associated hook-shaped rod, the hook-shaped rods being isolated from said mounting ring by the resilient body, said housing being assembled with said sleeve by elevating it so that said rods freely pass through said elongated apertures in said mounting ring, by turning said housing to bring said ends of said hooks into alignment with their respective seats and then allowing said housing to drop to engage said hook ends in said seats, and a resilient sealing ring member attached to the upper end of said housing yieldably to engage the lower end of said sleeve by a force-fit in tension when said housing is assembled with it so as to effect a sealing connection between them.

8. The waste disposal apparatus specified in claim 7 wherein the resilient sealing ring has an inverted U-shape in transverse cross-section with one leg attached to the upper end of said housing and the other leg positioned inwardly from said housing and in engagement with the sleeve by a force-fit in tension so that as said housing is elevated for assembly with said sleeve said other leg yieldably engages said sleeve to effect a liquid tight seal between said housing and sleeve.

9. Waste disposal apparatus for use in connection with a sink having a drain opening comprising a housing enclosing a comminuting chamber having an inlet opening for water and waste material at the top thereof, a cylindrical sleeve adapted to be disposed in said drain opening, means for rigidly fastening said sleeve to said sink so that said sleeve depends downwardly from said opening, a series of connection means between said housing and said sleeve to connect the upper end of said housing

for universal movement with the lower end of said sleeve, said connection means spaced apart circumferentially around the adjacent end portions of said housing and sleeve, and each connection means comprising a elastomeric member attached to said housing so as to face downwardly, and an upright hook-shaped rod attached to said sleeve and positioned so that its hook end engages the lower end of its said elastomeric member to effect a supporting action on said housing, said connection means providing for the quick assembly of said sleeve and housing by elevating the housing and turning it to bring the ends of said hooks into registry with their seats and then dropping said housing to bring said hooks and seats into engagement, the reverse movement of the housing serving to disconnect the hook-shaped members from

the elastomeric members, the combined supporting effects of said connection means supporting the total weight of said housing through said elastomeric members so that the hook-shaped rods are isolated from the housing by the elastomeric members.

References Cited in the file of this patent

UNITED STATES PATENTS

1,225,478	Murray	May 8, 1917
2,819,028	Brezosky	Jan. 7, 1958
2,946,525	Thierer	July 26, 1960
3,013,736	Pontis	Dec. 19, 1961

FOREIGN PATENTS

14,826	Great Britain	June 30, 1906