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G. D. GEBHART

2,772,836

FOOD-WASTE REDUCTION DEVICES

Filed March 8, 1952

2 Sheets-Sheet 1

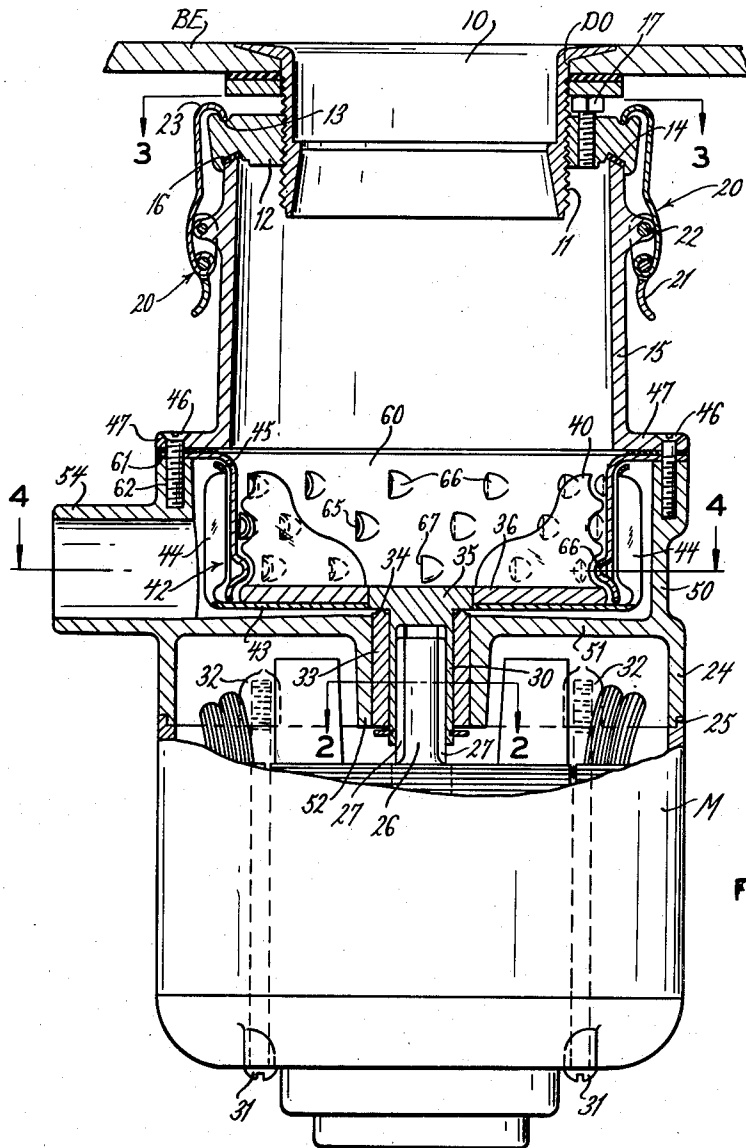


FIG. 1.

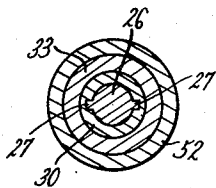


FIG. 2.

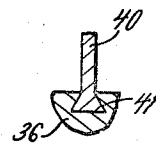


FIG. 7.

INVENTOR.
GEORGE D. GEBHART
BY *Terry Cohen*
ATTORNEYS

Dec. 4, 1956

G. D. GEBHART

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2 Sheets-Sheet 2

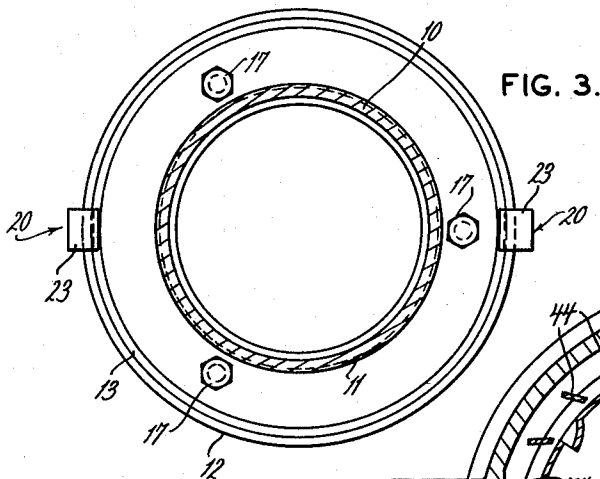


FIG. 3.

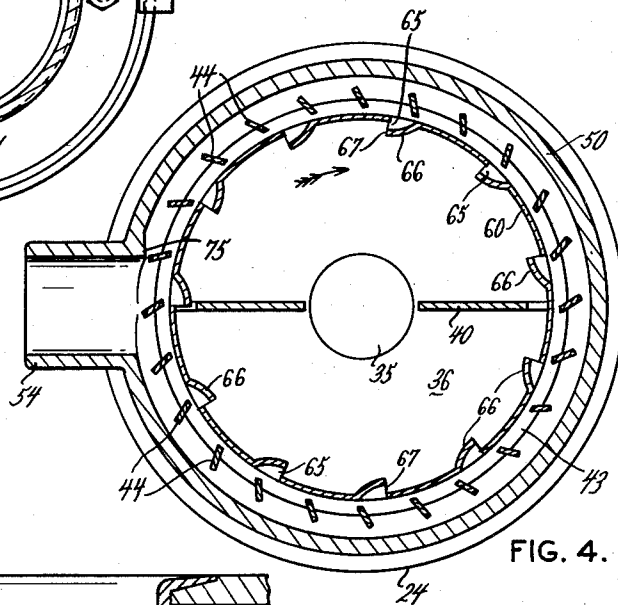


FIG. 4.

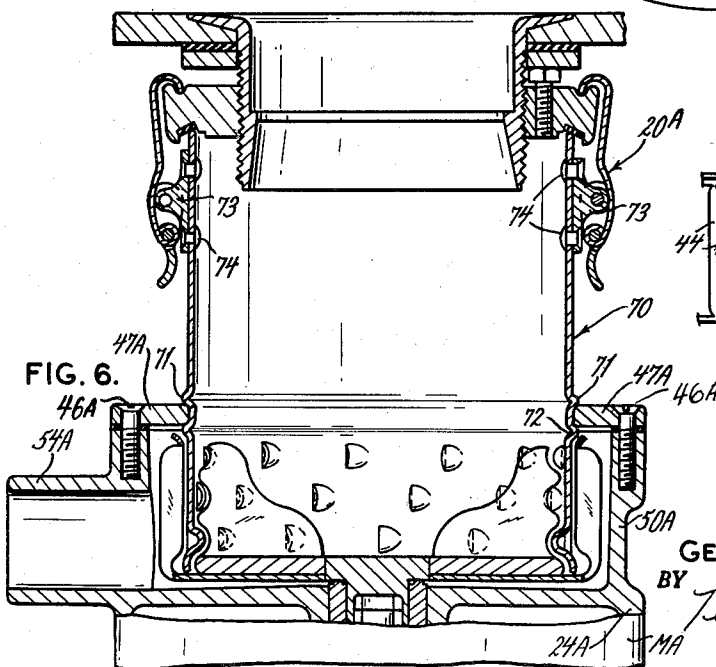


FIG. 6.

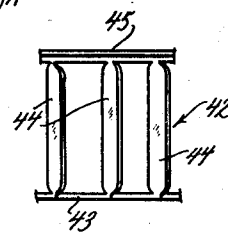


FIG. 5.

INVENTOR.
GEORGE D. GEBHART

BY

Terry Cohn

ATTORNEYS

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FOOD-WASTE REDUCTION DEVICES

George D. Gebhart, Webster Groves, Mo.

Application March 8, 1952, Serial No. 275,481

8 Claims. (Cl. 241—46)

This invention relates to improvements in food waste reduction devices, and more particularly to improved garbage comminution means of a type adapted to reduce the size of waste food particles in a water slurry, as for disposal thereof by drainage.

There are prevalently used many types of wet-garbage disposing machines both for domestic and commercial installations, and in other fields many older types of apparatus having been long known for the wet reduction of solid particles. However, most or all of such devices when utilized for the reduction of liquid-entrained food waste particles, are subject to numerous operational difficulties and shortcomings, among which may be noted the tendency thereof to become jammed or clogged, and their lack of dependability to effect a positive reduction in size of all types of food refuse to a degree that it will safely pass down the average drain. Other recognized shortcomings include a high first cost of such apparatus, a high expense of replacement of wearing parts, excessive power requirements and inordinately high installation expense, due largely to the inherent nature of existing equipment, its great weight, and the restricted space within which installations must usually be made. The present invention accordingly has as its major object, an improved design overcoming each of the aforesaid disadvantages, and providing a low-cost, light-weight, quickly installed garbage reducing unit which may be produced and sold considerably below present costs, and the wearing parts of which may be readily replaced at low cost, and the working parts of which are characterized by a lesser than prevalent power requirement.

Yet another highly important object of the present invention is realized in a food-refuse reduction apparatus which is so designed as positively to impel the reduced particles when in a slurry, through and beyond the zone of reduction thereof, and into a drain or other disposal conduit.

An additional object of high value, realized in the present invention, consists in an assembly for the purpose noted so designed that while it may carry an electric motor as an operating part of the unit, such motor is readily separable from and as readily attachable to the bowl and reduction elements of the unit while the latter are in place. Such improvement in overall design further enables production, storage and shipment of the motor entirely separate from the reduction elements of the unit, without necessitating assembly thereof at any time prior to completion of an operative installation.

A still further object of the invention is realized in a food-waste reducer of wet type which may function through two successive stages of reduction, coupled with a positive propulsion of the liquid-entrained waste particles into a reducing zone, followed by a further positive propulsion away from such zone and into a waste conduit.

An additional and highly valuable objective of the present arrangement is realized in an improved quick-acting support for a dependently mounted unit of the general class referred to, and of such nature that the unit may be

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temporarily but inoperatively supported in place while enabling a full angular adjustment thereof, prior to final liquid-tight assembly with a sink or the like, and further such that the unit may be attached to and removed from a sink or the like by simple quick acting clamp means without the requirement of any special tools or skill therefor, all in a manner greatly to facilitate service attention to the unit and renewal of wearing parts thereof.

A highly important purpose realized objectively by the present improvements, is the use of low-cost light-weight readily replaceable stationary shearing parts, coating normally with rotary shearing elements, which parts may be quickly installed by any one with only moderate skill.

The foregoing and numerous other objectives and advantages will more clearly appear from the following detailed description of a certain preferred embodiment and a minor modification thereof, particularly when considered in connection with the accompanying drawing, in which:

Fig. 1 is in part a vertical side elevational view, the major portion of which is a section on a vertical median plane, of an assembly of the device when dependently supported from a receptacle thereabove, such as a sink;

Fig. 2 is a fragmentary horizontal sectional view taken on line 2—2 of Fig. 1, and showing certain features of a quick-detachable driving connection between the motor and the reducing elements of the assembly;

Fig. 3 is a horizontal view, with certain elements in section, as taken along line 3—3 of Fig. 1;

Fig. 4 is a horizontal sectional view through the reduction or shredding zone of the device, showing the operative relation of the fixed and movable reduction elements, this view being particularly located by line 4—4 of Fig. 1;

Fig. 5 is a fragmentary side elevational view of a portion of a combined centrifugal impeller and shredder element located exteriorly of the shredding zone of the device;

Fig. 6 is a vertical sectional view along a median vertical plane of a minor modification of the structure shown by Fig. 1, and

Fig. 7 is a fragmentary sectional view showing a suggested manner of mounting the vanes and shearing elements of a rotor impeller operating internally of the reduction region of the bowl.

Referring now by characters of reference to the drawings, and first to those features of the improvements which make for greater ease of mounting and installation, as well as of improved assembly features of the whole device, there is shown by Fig. 1 a fragmentary portion of the base element BE of a sink or the like, provided with a drain opening DO into which is fitted a special tail piece generally indicated at 10. This latter is provided with external threads 11, these being threadedly engaged by a relatively heavy supporting ring 12. The ring 12 is provided just inwardly of the periphery of its upper face, with an annular channel 13 of a U-shaped section, constituting, as will appear, a clamp seat, and with a somewhat similar channel 14 along its lower face and consisting of an annular seat for an upper bevelled edge of the body portion 15 of the bowl. A suitable ring gasket 16 may be interposed along channel 14 to enhance the sealing effect between the upper margin of member 15 and the ring 12.

There are provided for finally positioning the ring 12 against rotation, once the ring is suitably adjusted along the threaded tail piece 10, a plurality of jack screws 17 engaging tapped apertures therefor in the ring 12, there being preferably a pair or more of the clamp screws 17. Primary support of the reduction unit is derived through coaction with the supporting ring 12, of a plurality, shown as two, of quick acting supporting clamps each generally indicated at 20. Since clamps of this general type, usually known in and available to the trade as draw-bolt

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clamps are per se well known, no extended description thereof is necessary, other than briefly to refer to an operating finger piece or handle thereof indicated at 21 pivoted at 22 to the member 15 or alternately to a mounting base, the member 21 being likewise pivoted to a hook end lever arm 23, the upper or hook end of which depthwise engages the channel 13.

It will be apparent that the body 15, which is or may be of cylindrical form, serves directly to support the reduction elements, both movable and fixed, and hence constitutes a housing or casing portion of the reduction device.

Attached in depending relation to and located below the body of the device, is a vertical shaft motor M, including the usual rotor and windings. The frame or housing of motor M is, in assembly, operatively connected to a depending skirt portion 24 through a step joint 25. The upper end of motor shaft 26 is, as best appears from Fig. 2, of splined formation, the splines of which are indicated at 27 and which slidably interfit, in positive driving relation, internal spline seats or formations of a hollow driving extension 30, the interfitted relation of parts 26 and 30 being such that the motor may be coupled by an easy vertical sliding movement. Combined motor frame screws and supporting bolts are indicated at 31, extending through the lower end bell of the housing of motor M thence into tapped bosses 32 carried within and formed as a part of the depending structure 24 of the housing of the reduction device.

It will be noted that the hollow drive extension 30 constitutes a journal element for the rotary reducing and impelling elements later more fully described. The element 30 is preferably of metal, and is supported in journalled relation within a special, preferably non-metallic journal sleeve 33, usually formed of a hard grade of carbon, or of a self-lubricating material, or certain of the wearing plastic products.

It will have been noted that the upper annular face of member 33 is characterized by an annular ridge 34 against which bears in thrust journalling relation while serving also as a liquid seal, a circular head 35 of the member 30, the member 35 being securely attached to a horizontal plate 36 by which, as will appear, the rotor and impeller elements of the device are carried.

With reference now to the shearing and displacement elements of the rotor assembly, there are employed integrally with or separably attached in radial relation to the base plate 36 of the rotor, a plurality of vertical vane and shear elements 40, two of which are shown. According to preference the vane elements 40 may be cushioned as through a rubber or rubber-like material so as to exhibit a certain flexibility under extreme stress, as when the shearing margins of these elements encounter extremely hard objects. If desired for ease of replacement, the lower margins of the blades or vanes 36 may bear a mortise relation as indicated at 41 (Fig. 7), to the base plate 36 of the rotor. Thus if and when any need arises for replacement of the elements 40, same may be done, when the rotor assembly is removed from the housing, by edgewise radial insertion of replacement blades or vanes into the mortise seats therefor. If desired for greater economy, the elements 30, 35, 36 and the vanes 40 may be formed as a unit of formed sheet or of cast metal.

It is a distinct preference to utilize as later described, certain instruck or lanced portions in the stationary shearing portion of the assembly. So as to keep all parts of the outermost shearing edges of the vanes 40 in relatively close overriding relation to such instruck portions, the edges of the shredder vanes 40 may be formed to exhibit a somewhat undulant margin as shown, or other conforming curvilinear shearing edge. As will later be noted in discussion of operation of the device, the blades or vanes 40 serve dual distinct purposes, viz., as shearing and shredding elements in coaction with stationary shear-

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ing edges later described, and at the same time providing a positive centrifugal displacement effect in moving the slurry (being the mixture of food waste particles and water), more or less directly and radially into the shredding zone.

A second shredding and shearing effect, which for convenience may be referred to as a second stage of reduction, is provided by a bladed or vaned centrifugal wheel operating in close external adjacency to the stationary parts of the reduction structure. This centrifugal wheel is indicated generally at 42. Some detail thereof appears in Fig. 5, and comprises a normally horizontal back plate 43 extended upwardly, peripherally and about at right angles to which are a plurality of pitched vanes 44, (Figs. 1, 4 and 5). The uppermost ends of the several blades or vanes 44 of the wheel 42 are by preference tied together as by a continuous ring structure 45 so as to maintain the pitch and spacing of the several blades 44. The inner edges of the blades 44 are generally vertical and rectilinear, and in operation exhibit a second shearing action, as will appear. To further this action, the inner edges of the vanes 44 may if desired, be slightly beveled.

From the description thus far given of the rotary displacement and shredding elements, it will be seen that the rotor proper is comprised of the relatively heavy base plate 36 together with the radial vanes and shear elements 40, the centrifugal displacement and shearing wheel 42 which is fixedly attached as by welding or otherwise to the plate 36, together with the hollow drive extension 30 earlier described.

It will have appeared from the foregoing description of the rotary assembly that the zone of actual reduction and positive displacement of the slurry, is defined in part by the rotor, but in further part by a stationary bowl-forming structure carrying the stationary shearing elements. In Fig. 1 the bowl may be said to consist of the cylindrical housing member 15 consisting of a cast or otherwise formed cylindrical structure. The member 15 is attached as by screws 46 extending through suitable apertures in a flange 47, the latter supported by a generally cylindrical skirt structure 50 which may be part of a cast body including the depending skirt 24, earlier described, and those elements forming the upper end bell of the motor, including a horizontal partition 51 and a central depending tubular extension 52. Into the latter is seated and fixedly supported the fixed journal member 33 earlier described, the latter serving as a bearing for the drive extension 30. A drain conduit connection shown as extension 54 is provided, the latter if desired, being externally or otherwise threaded or shouldered.

The fixed reduction structure departs markedly from usual practice in garbage disposal devices, consisting primarily of a tubular sheet-metal element which is generally indicated at 60 in Fig. 1. The upper margin of the element 60 is peripherally flanged, the flange 61 projecting outwardly and horizontally to register with the outermost portion of member 50, which latter is recessed and tapped as at 62 to receive the screws 46. Thus member 60 is firmly supported by the flange 47 and the upper marginal portion of member 50, and may be readily assembled and removed through manipulation of the screws 46.

The bottom of the tubular element 60 is necessarily open in the general arrangement shown, as is also the upper end of the stationary shearing structure. It is a great preference to construct the part 60 of a sheet metal stock of suitable gauge, rather than of a heavier alloy casting as is more usual for such purposes. Thus at a very moderate cost for material, and in many cases only a minor labor cost, the member 60 may be replaced for renewal of its cutting edges or in fact for any reason, as frequently as desired.

The cylindrical wall of the member 60 is provided

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with a plurality of horizontal circular rows of lanced or instructed, and hence ported portions, each such portion providing an outlet immediately adjacent the first cutting zone, for the reduced, shredded or otherwise comminuted food particles. As will best appear from Fig. 4 in comparison with Fig. 1, each of the lanced-apertured cutting regions includes a port 65 just inwardly of which is a passage of a generally tangential trend, considered relative to the curved periphery of the member 60. This passage is defined by the instructed, somewhat convex wall portions indicated at 66, the innermost edge of each of which is arcuate as will best appear from Fig. 1, and indicated at 67. The edges 67 as will now appear, serve as stationary shearing edges in coaction with the undulate periphery of the vanes 40, it being noted that as indicated by the arrow in Fig. 4, the direction of movement of the rotor assembly is such as to bring the material to be reduced directly against the several edges 67, and further in a manner so that immediately upon severance of the solids, same are positively impelled tangentially outwardly through the passages defined by the individually lanced structures 66. An arrangement of three horizontal rows of the formations 65-66 is shown, in which, for better shredding action, the several formations in the rows are in vertically staggered relation. A very important advantage exists in so arranging the formations 65-66, that not more than one thereof is traversed at a given time by the margins of the blades 40. Such an arrangement minimizes peak power requirements as well as any clogging or jamming tendencies.

Referring now to the structure which distinguishes the minor modification of Fig. 6, all elements of the modified form which are or may be identical with the corresponding parts heretofore described in reference to Fig. 1, are given the corresponding reference characters to each of which is added the suffix letter A. The manner of support of the structure of Fig. 6, the steps of assembly and connection, and the reducing operation, are or may be all identical with those features of Fig. 1. The rotary structure, the casting about the lower part of the bowl and the upper portions of the motor may be considered identical in Figs. 1 and 6. A marked distinction is, however noted in the bowl structure of Fig. 6, in that the latter generally indicated at 70, consists of a much longer tubular sheet metal member. The lower portion of member 70 embodies the stationary shear elements and defines the reduction zone identically with the corresponding parts of Fig. 1. In the modification, the structure 70 is provided with spaced annular ridges 71 and 72 between and held by which is a plate 47A of annular form and of such internal diameter as snugly to embrace the adjacent peripherally grooved region of the member 70. The supporting attachment of the ring 47A is identical with the mode of assembly of flange 47 of Fig. 1. Since the member 70 is of tubular sheet material throughout, the drawbolt clamps 20A are provided each with its own base 73 attached as by rivets 74 to the upper periphery of the tubular element.

The structure thus far described offers important advantages in installation, since most if not all domestic garbage reduction devices are desirably mounted in dependent relation to the drain opening of a kitchen sink. Particularly in enclosed sink arrangements, little working room is available, and installation must be done at arms length from beneath the unit or otherwise under disadvantageous conditions. Earlier and prevalent devices of this order present extreme difficulty due to great weight, and the necessity that they be completely assembled prior to work on the sink and drain connections.

The subject assembly goes far toward obviating installation difficulties of the type noted, due to the facilities now to be described. The motor M may, through screws 31 if earlier assembled, be removed from the rest of the unit. Thereupon the very light weight portions above the motor are quite easily handled. With the tail piece 10 installed in the sink, the ring 12 is threaded

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upwardly to estimated height, the jack screws 17 being retracted. The upper hook ends 23 of the clamps 20 are next inserted into the channel 13 with the clamp linkage in extended relation. It will be noted that the unit, minus motor M, may, for preparation of drain connection and the like, be rotated about a vertical axis, since by preference the channel 13 is fully annular, thus facilitating the location of the drain connection 54 both as to height and to alignment with the drain conduit. During this preliminary installation period the weight of the unit is carried entirely by the tail piece and ring 12, the clamps 20 relieving the workman entirely of the weight. When ready to complete the connection between the drain conduit and connection 54, the drawbolts through actuation of the handles 21 are pulled up tightly, the drain connection completed, the jack screws 17 having earlier been rotated into clamping relation with the ring thereabove, thus positively sealing in place the tail piece assembly and support ring. There now remains only the attachment of the motor M through screws 31, so that the motor may be entirely separately handled. The facilities described, particularly the provision for complete detachment and reassembly of the motor and the possibility of easy adjustment of the unit about a vertical axis through the drawbolt clamps 20, serve materially to reduce the present high cost of installation of garbage reducing devices of dependent, sink-mounted type.

Although the operation of the shredding and displacement portions of the unit are thought to have become fully apparent from the earlier description of parts, it may be noted for completeness that with refuse introduced to the bowl together with a good volume of water through the drain outlet DO and the tail piece, energization of motor M will result in a relatively high speed rotation of the vanes 40. The presence of a plenary volume of liquid with the particles of food waste will, under centrifugal action, cause the solid particles to be brought outwardly into the reduction zone due to the positive displacement effect of the vanes. The centrifugal action will cause the solids to "pile up" near the outer edges of the vanes, whereupon same will coact with the stationary cutting edges 67 on the dimpled or lanced portions 66, with a rapid and effective shredding of the solids in the slurry. A moderate pressure is built up in these cutting zones, under which the now partly reduced particles are driven outwardly through the tangential passages, and are extended outwardly of the ports 65. Immediately upon being thus forced through the ports, the solids entrained in the slurry are subjected to a further reducing or shredding action by reason of the shearing effect between the inner edges of the blades 44 and the margins of the metal bounding the ports 65. This second stage of shredding is immediately followed by displacement of the now further comminuted waste, outwardly of the wheel 42 under the positive centrifugal action of the blades 44. The latter will virtually sweep the interior of the chamber within member 50, forcibly delivering the solids and liquid as a slurry through the drain connection 54, thence to the final drain conduit.

It has been found advantageous to provide a vertical rib or projection 75 just beyond the port of discharge into the fitting 54. This element has a minimal clearance with the outer edges of vanes 44, and acts appreciably to clear the vanes as same are rotated. This provision materially reduces load on the motor under many conditions since it acts to clear the vanes each revolution thereof.

The low cost and ease of replacement of the stationary shearing portions of the assembly are of great importance in maintenance of its operating efficiency, although such replacement is by no means frequently required in ordinary domestic usage. It is a preference to provide an easily accessible threaded connection between the drain 54 and the drain conduit. Upon breaking this connection, the structure of Fig. 1 may be readily

dropped merely by release of the drawbolt clamps 20. Removal of screws 46 will enable the member 60 to be lifted out, with ready substitution of a replacement shredding element in this zone. After insertion of the new lanced tubular unit 60 with replacement of the screws 46, followed by reapplication of the motor if previously removed, clamping the drawbolts 20 and reestablishing the drain connection, the unit will again operate for many months' time at full initial efficiency.

In the modified form of Fig. 6, release of the clamps 20A and removal of screws 46A, will permit removal of member 70 and replacement thereof. The tubular housing structure of this type will be provided with clamps 20A and ring 47A attached thereto at the time of production.

In the case of the use of replaceable-type vane elements 40 interiorly of the reduction zone, the vanes may be readily replaced upon exposing the impeller, by endwise withdrawing the vanes 40 as is permitted by the mortise connections 41, followed by insertion of new vanes by edgewise radial application. Due to the ease of assembly and disassembly of the unit and, when desired, the removal thereof from the sink, such replacement of wearing parts can ordinarily be done at a cost of a few dollars by any one possessed of only moderate skill, without the requirement of high priced labor therefor.

It will now have appeared that the arrangements described will serve fully to realize the several objectives hereinabove enumerated, as well as other advantages implied and stated. Although the invention has been described by particularized reference to a selected embodiment and a minor modification thereof, the detail of description should be understood as illustrative, rather than in any limiting sense, numerous variants being possible within the scope of the claims hereunto appended.

I claim as my invention:

1. In a shredder device for food refuse, a rotary shredder element mounted for operation about a vertical axis, a housing for and coacting with the shredder element, the housing being of a vertically elongate proportion, and adapted to be mounted below the drain opening of a sink or the like, a motor supported by the housing, a drive connection of slidably interfitting type, between the motor and the shredder element, a plurality of quick-acting clamps adapted to support the device from a sink or the like above the shredder element, a support rotatably threadedly connectible to a sink tail piece or the like, said support being provided with clamp engageable seats, the clamps being arranged to engage said clamp seats for temporary support of the device incident to completion of connections thereto, clamp screws threadedly engageable with the said support, said clamp screws being vertically adjustable relative to said support, means located about said tail piece above the support, said clamp screws being adapted to abut said means to secure said support against rotation, said support being provided with a lower annular channel, said channel being adapted to receive the upper periphery of said housing in sealing relation upon closing of said quick-acting clamps, and connections through which the motor is supported and detachably connectible to the housing independently of the connection of the housing to the tail piece or the like of the associated sink.

2. In a garbage shredder of vertical shaft, sink-supported type, an assembly including, for engagement with the sink or the like above and supplying the shredder, a supporting ring externally and threadedly engaging a tail piece of the associated sink, a clamp-screw means vertically adjustable with respect to the ring for selectively securing same against rotation with respect to the adjacent tail piece, the supporting ring being provided with an upper annular channel, a vertically elongate chambered housing, a pair of connectors of quick-acting draw-bolt type, carried by the upper peripheral portion

of the housing, each said connector including an interturned hook element, the hook elements detachably engaging the upper annular channel in the supporting ring, said supporting ring being provided with a lower annular channel, said lower annular channel being adapted to receive in sealing relation the upper periphery of said housing, a rotary shredder operable about a vertical axis within the housing, a drain fitting extended laterally of the lower portion of the housing, the supporting ring and screw means realizing vertical alignment of said drain fitting, a motor below the housing, a spline type drive connection between the motor and the rotor, and supporting screws engaging the motor and the housing and so arranged that the motor may be assembled to and removed from the housing without disturbing the supporting connection of the housing to the sink, as provided by said drawbolt connectors.

3. In a shredder assembly for the reduction of food refuse or the like, a substantially cylindrical stationary shear structure comprised of a tubular body of sheet metal, and provided in a shredding region thereof, with a plurality of ported shearing formations, the metal in each such formation being instructed to provide an inwardly extended, stationary shear edge, a rotor within said shredding region and provided with an angularly spaced series of arms, the arms of the rotor operating in an arcuate path in close wiping relation to the inner surface of the ported shearing structure thereabout, said arms being characterized by recesses traversing, and coacting in shearing and wiping relation with the said stationary edges, the ported shearing formations being arranged in separate and distinct rows, the formations of each row being staggered with respect to the formations of adjacent rows so that the arm will operatively engage only one formation at a time, power means for driving the rotor, and connections for supply to, and drainage from the shear structure.

4. In a garbage shredder of wet-reduction type, a fixed, tubular outer shearing element, a rotary inner shredding element, the outer element consisting of a tubular section of sheet metal provided with a plurality of instructed lanced portions each providing a stationary shear edge appreciably inwardly of the normal inner periphery of the tubular sheet metal element, the latter being provided with a discharge port in the immediate region of each such lanced portion, the rotary inner element serving as a combined centrifugal and shearing impeller characterized by spaced impeller vanes each having an outermost margin formed to constitute a movable shear structure, the shearing edges of said vanes being characterized by marginal recesses operable adjacent to and in wiping and shearing relation with the said fixed shear edges, the edge between said marginal recesses being adapted to override closely and to wipe the remaining portion of the tubular shearing element intermediate said lanced portions, power driving means for said impeller, and means providing inlet and outlet connections to and from the fixed shearing element for conducting liquid and solids.

5. In a garbage shredder for engagement with a sink, an assembly including a vertically chambered housing, a rotary shredder operable about a vertical axis within the housing, a drain fitting extended laterally of the lower portion of the housing, a motor below the housing, a housing extension projected below said housing, a journal sleeve disposed in said extension, said sleeve including an annular ridge that projects into said housing, the rotary shredder including a driving extension received internally of said sleeve, said driving extension being provided with a flat head portion that rotatably seats on said annular ridge, and a flat plate secured to said head portion, the head portion and plate constituting a flat bottom for said rotary shredder, and a drive connection of slidably interfitting type between the motor and the driving extension, whereby sealing relation between the head portion and the annular ridge will remain effective,

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and the sink will remain serviceable through said drain, upon slidable detachment of said motor.

6. The combination and arrangement of elements as recited by claim 5, but further characterized in that the driving connection between the motor and driving extension include a shaft connected to said motor, a splined formation internally of said driving extension, and a conforming splined formation on the shaft of said motor, the cooperating splined formations being arranged such that the shaft of the motor is precluded from extension into said housing.

7. In a garbage shredder for engagement with a sink, an assembly including a chambered housing, a rotary shredder operable about a vertical axis within the housing, a drain fitting extending laterally of said housing, a motor below the housing, a tubular housing extension projecting below said housing, a journal sleeve disposed in said extension, the rotary shredder including a driving extension received internally of said sleeve, and including a plate portion carried by said driving extension, said plate portion constituting a bottom for said rotary shredder, said rotary shredder having a portion that seats on the rim of said sleeve to provide an effective seal between the rotary shredder and sleeve, the driving extension having a socket open only at the lower end, and a drive connection of slidably interfitting type between the motor and the socket of said driving extension, whereby sealing relation between the rotary shredder and the sleeve will remain effective, and the sink will remain serviceable through said drain, upon slidable detachment of said motor.

8. In a garbage shredder device for engagement with a sink, an assembly including a chambered housing, a rotary shredder operable about a vertical axis within the

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housing, a motor connected to said housing, a housing wall below said rotary shredder, said housing wall including a tubular extension projecting below said housing, the rotary shredder including a driving extension received internally of said tubular extension, the driving extension and hence the rotary shredder being rotatably mounted in said tubular extension, a bearing element located around said driving extension, said driving extension being provided with a plate portion that is rotatively seated on said bearing element to provide an effective seal between the shredder and housing wall, and a drive connection of slidably interfitting type between the motor and the driving extension so as to maintain the seal and the rotative mounting between the drive extension and said tubular extension upon slidable detachment of said motor.

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