This invention relates to the waste disposal art and, more particularly, to a device adapted for the comminution and disposal of garbage or other waste materials and which is suitable for home or restaurant use where only relatively small volumes of such materials are normally passed through the device.

It is old in the art to provide a garbage disposal device having a frusto-conical hopper with the walls thereof slanting inwardly as they progress upwardly from the bottom, with a rotating cutter head in the bottom thereof adapted to cooperate with one or more cutters in the wall of the hopper to comminute and grind garbage therein in response to rotation of the cutter head.

It is a primary object of my invention to provide such a garbage disposal device having a cutter head and cutter elements of an improved design, so as to provide more efficient operation of the device.

Another object of my invention is to provide such a garbage disposal device having a novel construction for the free exhaust and removal of the comminuted garbage from the device, so as to reduce the tendency of such material to lodge in or clog the device.

A further object of my invention is to provide such a garbage disposal device having a stationary cutter in the side wall of the comminuting chamber and a rotating cutter adapted to be rotated in the chamber so as to cooperate with the stationary cutter to comminute garbage or waste material therebetween, the rotating cutter being mounted on a rotatable base and being separately rotatable relative thereto, so that it can rotate relative to the base into and out of cutting relation with the stationary cutter. This construction permits the rotary cutter to rotate on its own axis to pass solid material which cannot successfully be comminuted thereby, such as pieces of metal, glass, and other articles that may inadvertently find their way into the machine.

It is important in such construction that the rotary cutter be mounted for rotation on an axis that is substantially parallel to the plane of the stationary cutter and that the top of the rotary cutter be sloped downwardly from its leading edge, so that when it is in its open or retracted position non-comminutable objects, such as metal or glass, can slip readily over the top of the rotary cutter, and this is a further object of my invention.

Another object of the invention is to provide such a disposal device which is provided with a rotating, substantially circular table having its rim inside the wall of the comminuting chamber and above the lower end thereof, and having the outer rim conical in form, so as to centrifugally impel water and material on the table, when rotated, slightly upwardly and away from the clearance between the table and the wall of the comminuting chamber. This substantially prevents water and comminuted material from passing into such clearance during operation of the device, which is highly desirable and another object of the invention.

Another object of the invention is to provide a blocking member in the throat of the comminuting chamber which will permit the passage of garbage or waste material therethrough, but which will be moved by a human hand thrust into the throat, the blocking member being suitably connected to the power means of the device for deenergizing the same in response to such movement of the blocking member.

In conventional types of garbage disposal devices some of them are adapted to comminute waste material by shredding or grinding it. Some kinds of vegetable fibers are extremely difficult to shred or grind into small pieces, such as asparagus fibers, and none of the prior art machines of which I have knowledge are capable of consistently reducing such fibrous material to small pieces, with the result that in such machines such long vegetable fibers tend to catch on projections in the machines so as to clog them. Furthermore, such long strands of vegetable fibers, if passed through a garbage disposal machine, without clogging it, still tend to clog sewer lines, which is highly undesirable. It is therefore a further object of the present invention to first comminute the waste material and then apply a separate cutting action thereto so as to insure that substantially all long filaments of fibrous materials which pass through the first comminuting operation are subsequently cut into relatively short lengths so that they will not clog the machine and so that they may be disposed of readily. I prefer to accomplish this by first comminuting the material by the cooperation of a stationary cutter in the side wall of the comminuting chamber and a rotating cutter cooperating therewith, passing the comminuted material and any remaining filaments of fibrous material through a slot in the side wall into a substantially vertical discharge passage, and then chopping the material into relatively short lengths as it passes out of the discharge passage, the chopping preferably being accomplished by suitable rotating knives, thus providing a double
comminuting action. I also prefer to so form such knives and the chamber in which they rotate as to prevent any pumping action of such knives due to their rotation, thus avoiding lateral disturbance of the stream of waste material and water issuing from such discharge passage and preventing overload of the power means employed to rotate the rotating cutter, and this is another object of the invention.

Still another object of the invention is to provide such a disposal device including a comminuting chamber and a motor chamber, having a motor therein, with suitable heat insulation between the comminuting chamber and the motor chamber, and providing the motor chamber with a cooling medium during operation so as to cool the motor but at the same time preventing condensation thereon which might otherwise occur due to temperature drop in the comminuting chamber.

A further object of the invention is to provide such a disposal device having an outer housing and an inner housing therein, the inner housing providing a comminuting chamber therein, the inner housing being separate from the outer housing but insertable therein, so as to provide a modular construction which is easy to assemble. I prefer to provide a space between the upper end of the inner housing and the outer housing so as to permit overflow liquid to discharge therethrough outwardly into a space between the housings, and this is another object of the invention. Also, I prefer to provide an inner depending annular wall on the outer housing which extends downwardly into the upper end of the inner housing and is spaced therefrom so as to form an annular overflow port therebetween, the depending annular wall also functioning as a baffle to prevent waste material from passing readily through such port, and this is also an object of the invention.

Other objects and advantages will appear from the drawings and the following specification, which are for illustrative purposes only, and in which:

Fig. 1 is a vertical sectional view taken through my invention installed for service;
Fig. 2 is a cross-sectional view taken on the line 2-2 of Fig. 1;
Fig. 3 is a cross-sectional view taken on the line 3-3 of Fig. 1;
Fig. 4 is a wiring diagram of the electrical circuit of my invention;
Fig. 5 is an enlarged perspective view of one of the stationary side-wall cutters of my invention;
Fig. 6 is a fragmentary sectional view taken on the line 6-6 of Fig. 3; and
Fig. 7 is a fragmentary plan view of one of the movable cutters in open position.

Referring to the drawings, Fig. 1 shows a hopper unit 10 comprised of an outer section 11 and an inner section 12. The outer section 11 is provided at its upper end with an annular flange 13, by which the hopper unit 10 is supported by a mounting structure 14 beneath a conventional sink 15. As is usual, the sink 15 is provided with a depending annular flange 17 providing a drain opening 18 for the sink. The mounting structure 14 includes a sleeve member 19 adapted to fit into the drain opening 18 and having an annular flange 20 at the upper end thereof which seats on the sink 15, the lower end of the sleeve member being externally threaded to receive an annular plate 21. The plate 21 is spaced from the top of the flange 13 of the hopper unit 10 by an annular gasket ring 23, preferably formed of rubber or other resilient material, and the hopper unit is clamped relative to the plate 21 by means of vertical screws 24 passing through a lower annular plate 25 and the upper annular plate 21, the lower annular plate being spaced from the flange 13 by a lower gasket ring 26 also preferably formed of rubber or other resilient material. As will be understood, the mounting structure 14 provides means for resiliently mounting the hopper unit 10 beneath the sink 15 and permits the hopper unit 10 to be rotated through an arc of 360° relative to the mounting structure, which is a feature of the invention.

The outer section 11 of the hopper unit 10 is provided with a boss 28 having an inlet opening 29 therein which communicates with the interior of the upper section 11, the boss being internally threaded to receive the end of a water supply pipe 30 leading to a suitable source of water under pressure (not shown). Disposed in the line of the water supply pipe 30 is a conventional solenoid actuated valve 31, adapted to alternatively open or close communication between the source of water supply pipe 30 and the interior of the outer section 11. The outer section 11 is also provided with a depending tubular inner wall 32 which extends downwardly into the upper end 12a of the inner section 12 and is spaced therefrom to provide an annular overflow port 32a therebetween. As will be noted, the overflow port 32a is disposed a substantial distance below the inlet port 29, and this is an important feature of the invention, as it insures that the liquid level in the hopper unit 10 cannot rise to the level of the inlet port 29.

The inner section 12 of the hopper unit 10 is concentric with the outer section 11 and has a main inner wall 40, the lower portion of which diverges outwardly and downwardly to form a comminuting chamber 41, the main inner wall 40 being spaced from the outer section 14 to form a space 33 therebetween. The outer section 11, as best shown in Fig. 3, is provided with three circumferentially spaced recesses 43. Adjacent each of the recesses 43 the outer section 11 is provided at its bottom with an upstanding curved ear member 44 defining one wall of a vertical channel 45, the inner end of the ear member extending into close proximity or engagement with the outer wall of the comminuting chamber 41. The comminuting chamber 41 is provided on its outer wall with three extending ear elements 46, each of which extends into one of the vertical recesses 43 to define another wall of the corresponding channel 45, there being packing material 47, such as rubber or the like adapted to provide a resilient wall so as to form a seal around the outer end of the ear element projecting thereinto. The chamber 41 is also provided with a vertical discharge slot 48 adjacent each of the ear elements 46 and communicating between the interior of the comminuting chamber and one of the vertical channels 45. Although I show three of such discharge slots, it is to be understood that either more or less thereof may be employed as desired. Retained in each of the vertical channels 45 is a stationary cutter element 49, being removably retained therein by a suitable set screw 50 passing through the stationary cutter element and the ear element 46, and by which the cutter element is rigidly clamped to the ear element. The stationary cutter element 49 is provided with a
cutting face 52 having substantially parallel projecting teeth 53 which project through the slot 48 into the comminuting chamber 41. The leading edge 54 of each of the teeth 53 is quite sharp and forms an acute angle due to the fact that the trailing edge 55 of the teeth is substantially relieved so as to prevent the clogging of comminuted material behind the leading edge 54. The stationary cutter element 45 is also provided with a flat bottom 56, which forms a second cutting face to be described hereinafter.

Disposed below the hopper unit 10 is a lower housing 58, which is rigidly secured to the outer section 11 of the hopper unit by means of suitable screws 59. As shown in Fig. 1, the ear elements 46 of the inner section 12 rest on the top face 57 of the lower housing 58 to support the inner section, and the inner section is rigidly clamped in position by the cooperation of the outer section 11 and the lower housing. The lower housing 58 has an annular and substantially horizontal wall 60 which forms the bottom of an annular discharge chamber 61 which registers with the vertical channels 45, and has formed integrally therewith or connected thereto a discharge-pipe fitting 62 adapted to receive a suitable discharge fitting 63 which leads to a sewer or other waste material connection (not shown). As illustrated in Fig. 3, the discharge-pipe fitting 62 is spiral in form so as to permit comminuted material in the annular discharge chamber 61 to smoothly flow to the discharge fitting 63.

The lower housing 58 also has an outer tubular depending wall 65 to the lower end of which is suitably secured an electric motor 66, the wall having openings 67 therein so as to permit the discharge of air from the interior of the lower housing. The motor 66 is provided with a vertical drive shaft 68 extending upwardly therefrom and having on it a fan 69, the fan being adapted in response to rotation of the drive shaft 68 to draw air through the motor and discharge such air through the openings 67, to cool the motor windings.

To the upper end of the drive shaft 68 is rigidly fixed a rotatable table element 71, which includes a rotary cutting means of the invention. The rotatable table element 71 has an upwardly projecting boss 72 in the center thereof of which substantially obstructs the center of the table element and to which is rigidly fixed the rotatable drive shaft 68 by means of a screw 73. The top of the rotatable table element 71, outwardly from the boss 72, is slightly conical in form, providing a dished upper surface 74, the outer rim 75 of which extends into close proximity with the inner wall 40 of the inner section 12 of the hopper unit 10, being spaced slightly upwardly from the lower end thereof. The clearance between the outer rim 75 and the inner wall 40 is maintained as small as possible so as to prevent the passage of comminuted material therethrough during operation of the device, which is very undesirable in my invention. In the outer rim 75 are substantially vertical grooves 76 which, when the rotatable table element 71 is rotated, permit excess water in the inner section 12 of the hopper unit 10 to discharge readily from the chamber 41 into the discharge chamber 61.

Protecting from the outer rim 75 of the rotatable table element 71 are a plurality of cutter knives 78 which extend into the discharge chamber 61 beneath the channels 45 so as to provide only a slight clearance with the flat bottom 56 of each of the stationary cutter elements 45. As illustrated in Fig. 1, the cutter knives 78 are relatively thin and are disposed so that the knives will not create any appreciable centrifugal pumping effect in the annular discharge chamber 61 which might otherwise overload the motor 66. The cutter knives 78 cooperate with the flat bottom 56 of each of the stationary cutter elements 49 to form secondary cutting means of the invention.

Provided on the dished upper surface 74 of the rotatable table element 71 is a pair of movable cutters 80 and 81 which are rotatably mounted on the table element 71 by means of pins 82 and 83, respectively. Since the cutters 80 and 81 are identical, only the cutter 80 will be described. The pin 82 projects from the movable cutter 80 on one side of the longitudinal center line thereof so as to place the center of gravity of the cutter on one side of the axis of the pin, so that when the table element 71 is rotated by the drive shaft 68, centrifugal force acting on the movable cutter 80 will rotate it relative to the element 71 to the cutting position illustrated in Fig. 3, in which it engages a suitable stop pin 84. The movable cutter 80 is provided with an outer cutting face 85 which is adapted to cooperate with the cutting faces 52 of the stationary cutter elements 49 to comminute garbage or other waste material therebetween. The movable cutters 80 and 81 are disposed so that their cutting faces closely approach the leading edges 54 of the stationary cutter elements 49 when the movable cutters are in their cutting positions as illustrated in Figs. 1 and 3, with only a slight clearance therebetween. The stop pins 84 prevent the movable cutters 80 and 81 from rotating into actual engagement with the stationary cutter elements 45. By so retaining the movable cutters 80 and 81 in cutting position merely by centrifugal force exerted by the rotatable table element 71, it will be understood that the movable cutters may rotate back to retracted position, as illustrated in Fig. 7, in the event that a non-comminutable material, such as a metal object or glass, finds its way into the comminuting chamber 41, thus preventing damage to the cutting faces 52 and 85. It is also to be noted that the movable cutter 80 is provided with a generally sloping top contour 87 which slopes generally downwardly away from the outer cutting face 85 thereof. This is an important feature because when the movable cutter 80 is in its retracted position, illustrated in Fig. 7, non-comminutable materials, such as metal or glass, can readily pass over the movable cutter due to its sloping top contour 87, thus tending to prevent such foreign objects from wedging between the movable cutter and any one of the stationary cutters 48. As will be understood, the movable cutters are disposed on flats 88 formed in the upper dished surface 74 of the table element 71 so as to permit their rotation.

The vertical drive shaft 68 of the motor 66 is centered by radial bearings 89 retained in a reentrant wall 90 forming a continuation of the wall 60, the reentrant wall forming a sealed chamber 91 therein and an insulation chamber 92 therearound. The insulation chamber 92 is filled with any suitable heat insulation material 93 retained in place by a retainer plate 94. The insulation material 93 is designed to prevent condensation of moisture from the air stream produced by the fan 69 when rotated due to the
normally lower temperature in the chamber 41, which is undesirable.

Disposed in the sealing chamber 91 is a sealing unit 96 which constitutes a sealing means of the invention and is adapted to provide a fluid-tight seal between the lower housing 88 and the rotatable table element 71. The sealing unit 96 forms no part of the present invention, being separately disclosed and claimed, and any conventional shaft seal may be substituted therefor in the present invention.

The horizontal wall 66 and the reentrant wall 91 are provided with an integrally formed depending web 97 having a radial port 98 therethrough communicating with the bottom of the sealing chamber 91 for the purpose of discharging any leakage that may pass the sealing unit 96.

As illustrated in Figs. 1 and 2, disposed in the upper portion of the outer section 11 of the hopper unit 10 is a safety device 103 which constitutes a blocking means of the invention, adapted to deenergize the electric motor 66 when the safety device 103 is moved so as to protect against the possibility of a human hand being inserted into the hopper unit during rotation of the rotatable table element 71. The safety device 103 includes a rod 104 having a head 105 therewith, the rod being rigidly fixed to a transverse supporting rod 108 which is pivotally supported by radial sleeve bearings 107 formed integrally with the outer wall of the outer section 11. One end of the rod 106 projects out of its bearing 107 and has secured rigidly thereto a sleeve 108 provided with an extending arm 109 disposed perpendicular to the arms and rod. Also formed on or secured to the outer wall of the outer section 11 is a switch box 110 having a conventional electric switch 111 therein, the switch being provided with a push button 112 which is normally held in depressed position by the arm 109. The switch 111 is of a conventional type in which electrical contact is made when the push button 112 is depressed and such electrical contact is broken when the push button is released, as by a suitable spring (not shown). The arm 109 and the switch box 110 may be independently moved by a soft wire 113 passing through each. It will be apparent that downward movement of the rod 104 and head 105, due to attempted insertion of a hand into the hopper unit 10 or otherwise, rotates the supporting rod 108 and the arm 109, breaking the soft wire 113 and moving the arm out of engagement with the push button 112 to permit the latter to move outwardly to break the electrical circuit to be described hereinafter.

To again close the electrical circuit requires that the push button 112 be manually depressed and the arm 109 manually rotated back to its retaining position as shown. This manual resetting operation is not difficult, but tends to be aggravating to the operator and, consequently, acts to deter the operator from thrusting his hand into the hopper unit except where it is essential to do so.

The rod 104 and head 105 are sufficiently small that garbage may readily pass thereby into the hopper unit 10 without actuating the safety device 103.

The electric circuit shown in Fig. 4 illustrates one side of the electric motor 66 connected by a wire 115 through a main switch 116 to one wire 117 of the electric current main. The other side of the motor 66 is connected by a wire 118 to the switch 111, which in turn is connected to the other wire 119 of the current main. In parallel with the motor 66, but also controlled by the main switch 116, is a conventional solenoid 120 adapted to actuate the solenoid actuated valve 31. The solenoid 120 and the solenoid actuated valve 31 are of any conventional type in which the valve is maintained open by the solenoid so long as the solenoid is electrically energized so as to permit passage of fluid through the supply pipe 30. When the solenoid 120 is deenergized, suitable spring means (not shown) return the solenoid actuated valve 31 to closed position so as to shut off the flow of fluid through the supply pipe 30. No claim is made as to the detailed construction of the solenoid 120 or the solenoid actuated valve 31 or their connection, which is conventional in the art.

In operation, garbage or other waste material is placed in the hopper unit 10, through the sleeve member 19, until the chamber 41 of the hopper unit is substantially filled. The main switch 116, diagrammatically illustrated in Fig. 4, is then manually closed, which completes the electrical circuit through the electric motor 66 and energizes the same. At the same time the solenoid 120 is similarly energized to open the solenoid actuated valve 31 to permit a flow of water or other flushing fluid through the supply pipe 30 into the hopper unit 10 through the inlet opening 29. Energization of the electric motor 66 rotates the feed shaft 68 to similarly rotate the rotatable table element 71. When the rotatable table element 71 is stationary and not rotating, the movable cutters 80 and 81 may be in the retracted position illustrated by dotted lines 87 of Fig. 3. However, immediately upon rotation of the rotatable table element 71, centrifugal force operating on the movable cutters 80 and 81 rotates the same to their cutting positions illustrated in full lines in Fig. 3, in which positions they cooperate with the stationary cutter elements 49 to comminute the garbage or other waste material disposed in the chamber 41. As will be evident, the rotatable table element 71 preferably rotates clockwise as seen in Fig. 3, although it may be alternatively rotated in the opposite direction if desired without departing from the spirit and scope of the invention. As the waste material in the chamber 41 is rotated with the rotatable table element 71 by the movable cutters 80 and 81, and is thrown to the periphery of the rotatable table element by centrifugal force so that as it passes the stationary cutter elements 49 it is comminuted by the action of the movable cutters 80 and 81 acting therewith or by the stationary cutters alone, the smaller pieces thereof being moved outwardly through the vertical discharge slots 48 by centrifugal force and by the thrust of the movable cutters 80 and 81 and by the action of the water in the chamber 41, into the vertical channels 45, downwardly through which the garbage or waste material falls and is flushed by the flushing liquid. The rotation of the movable cutters 80 and 81 in the chamber 41 also provides a slight pumping action which is communicated through the slots 48 and vertical channels 45 to the discharge chamber 61, tending to expel comminuted material therefrom through the discharge pipe fitting 82 and the discharge fitting 83.

Waste material passing downwardly through the vertical discharge channels 45 is further cut into small pieces by the shearing action of the rotating cutter knives 78 carried by the rotatable table elements 71, as the knives pass by and in cutting relation with the flat bottom wall 66 of each of the stationary cutter elements 49. It will
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to be understood that the garbage or other waste material in the chamber 41 is first cut or shredded therein between the cutting faces 86 of the movable cutters 80 and 81 and the cutting faces 85 of the movable cutters 80 and 81 and the cutting faces 82 of the stationary cutters 45, and such material is subsequently further cut and mixed by the rotation of the cutter knives 79 as the material passes through the vertical channels 45 into the discharge chamber 61. This dual cutting feature is an important object of the invention, as it insures that any long shreds of garbage or fragments of fibrous material or other waste material which pass through the vertical discharge slots 48 are subsequently reduced to small pieces and short lengths by the action of the cutter knives 79, which insures that all of the comminuted material may be readily flushed out of the discharge chamber 61 and into the sewer or other disposal point. I have established by tests of my device that it comminutes and disposes of garbage or other waste materials much more effectively than do standard garbage disposal units now on the market. Even a very fine debris of fibrous material, such as asparagus and other fibrous vegetables, with which considerable difficulty has heretofore been experienced with standard types of machines. The boss 72 on the table element 71 obstructs the center of the table element and insures that bones or other large pieces of waste material cannot wedge between the movable cutters 80 and 81, or between either of the movable cutters and either of the stationary cutters 45, or between any of the cutters and the wall.

Although I have shown and described a preferred embodiment of my invention, it will be understood by those skilled in the art that many modifications can be made in the present construction without departing from the spirit of my invention, and, consequently, I do not intend to be limited by the specific embodiment illustrated and described herein, but desire to be afforded the full scope of the following claims.

I claim as my invention:
1. In a waste disposal device, the combination of: a hopper member; a rotatable head member mounted on a vertical axis in the lower portion of said hopper member; stationary cutting means in a side wall of said hopper member; a rotatable cutter element which is low relative to the height of the hopper member and is rotatable on a substantially vertical axis relative to said head member and carried thereby, said axis of said rotatable cutter element being spaced from said axis of said head member, said cutter element having its top surface sloped sharply downwardly from the swinging end of said cutter element toward its axis so that when said movable cutter element is rotated to retracted position in which said leading edge is faced away from said side wall waste material in said hopper member is deflected upward by said movable cutter element, said cutter axis being disposed approximately normal to the axis of rotation of said head member to the periphery thereof, the central portion of said head member sloping downward from its axis to the inner end of said cutter, and power means for rotating said head member.
2. In a waste disposal device, the combination of: a housing providing a comminuting chamber therein with an annular opening in the lower end thereof; a rotary member in the lower portion of said chamber substantially closing said opening so that comminuted material cannot pass between said member and the wall of said chamber during rotation of said member, the walls of said housing above said annular opening being provided with passages therethrough for the discharge of comminuted material from said chamber at a level above said opening; comminuting means in said chamber operable to comminute waste material in said chamber in response to rotation of said member; and means on said member for impelling waste material in said chamber away from said opening.
3. In a waste disposal device, the combination of: a hopper member; a rotatable head member rotatable in the lower portion of said hopper member on a substantially vertical axis and substantially closing the lower end of the hopper member; a stationary cutter element in said hopper member, said stationary cutter element having a pair of cutting edges; means defining a discharge chamber below said head member; means defining an opening in said hopper member between the interior of said hopper member and said discharge chamber adapted to permit the passage of waste material therethrough, one of said cutting edges upstanding along said opening, and the other of said cutting edges being angularly disposed below said upstanding edge; projecting outward from said upstanding edge, upstanding wall means outside said opening providing a vertically disposed channel to feed cut waste material from said opening to said other cutting edge; a first cutter element movably mounted on an upwardly extending axis spaced from said axis of said head member and said head member and so disposed with respect to said stationary cutter element that rotation of said head member brings said first cutter element into cutting relation to said upstanding one of said cutting edges of said stationary cutter element, a second cutter element fixed on said head member so as to be rotatable therewith, said second cutter element being independent of said first cutter element and disposed in said discharge chamber, said second cutter element being in cutting relation to said other of said cutting edges of said stationary cutter element; and power means for rotating said head member.
4. The combination defined in claim 3, in which said second cutter element projects radially from said head member.
5. The combination defined in claim 3 in which said second cutter element is formed integral with said head member and projects radially therefrom.
6. The combination defined in claim 3, in which said other cutting edge of said stationary cutter element is disposed in a plane normal to the axis of rotation of said head member, and in which said second cutter element projects radially from said head member and has a cutting face underlying said stationary cutter element and disposed in cutting relation to said other of said cutting edges of said stationary cutter element.
7. The combination as defined in claim 3, in which said other cutting edge of said stationary cutter element is disposed in a plane normal to said axis, said second cutter element projecting radially from said head member in parallel relation to and underlying said second cutting edge in cutting relation thereto so as to comminute waste material passing through said opening.
8. In a waste disposal device, the combination of: an outer housing member having a bottom
providing a receiving chamber and provided with discharge means leading from said chamber; an inner housing member concentric with said outer housing member and providing an annular space therebetween, said inner housing member defining a comminuting chamber and having a plurality of openings communicating between said comminuting chamber and said space; a plurality of substantially radial partition members in said annular space and extending between said housing members and defining vertical channels communicating with said openings; comminuting means in said comminuting chamber adapted to comminute waste material therein; and a fixed cutter mounted at one side of each of said plurality of openings and disposed in cooperative relationship with said comminuting means in said comminuting chamber, the comminuted waste material passing outwardly from said comminuting chamber through said openings into said channels and downward therethrough to said receiving chamber.  

9. A device as in claim 2, wherein said means on said rotary member to impel waste away from said annular opening comprises walls on said ro-
tary member disposed to direct waste material from said opening.  

10. A waste disposal device as in claim 1 wherein said rotate cutter element is centrifugally operated.  

HANS JORDAN.

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Certificate of Correction

June 8, 1948.

HANS JORDAN

It is hereby certified that errors appear in the printed specification of the above numbered patent requiring correction as follows: Column 2, line 11, for “invention” read invention; column 6, line 46, for the words “it ways” read its way; column 9, lines 4 and 5, strike out “and the cutting faces 86 of the movable cutters 80 and 81”; column 12, line 24, list of references cited, for “Goss et al.” read Goss et al.; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 7th day of September, A. D. 1948.

[ Seal ]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.