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GARBAGE DISPOSAL APPARATUS

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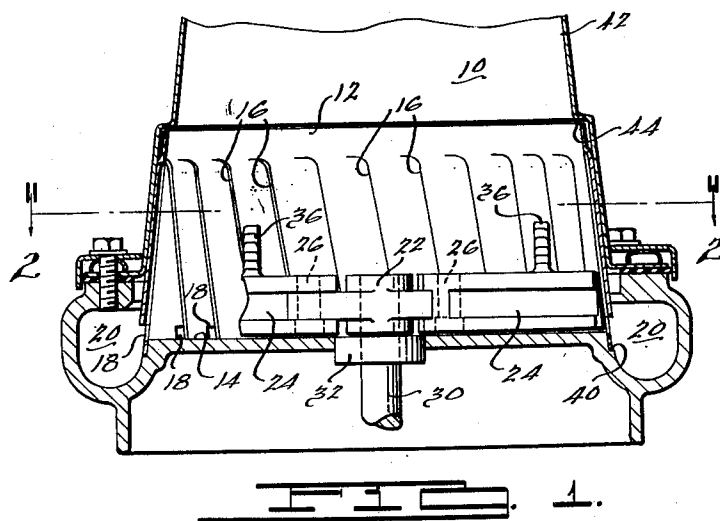
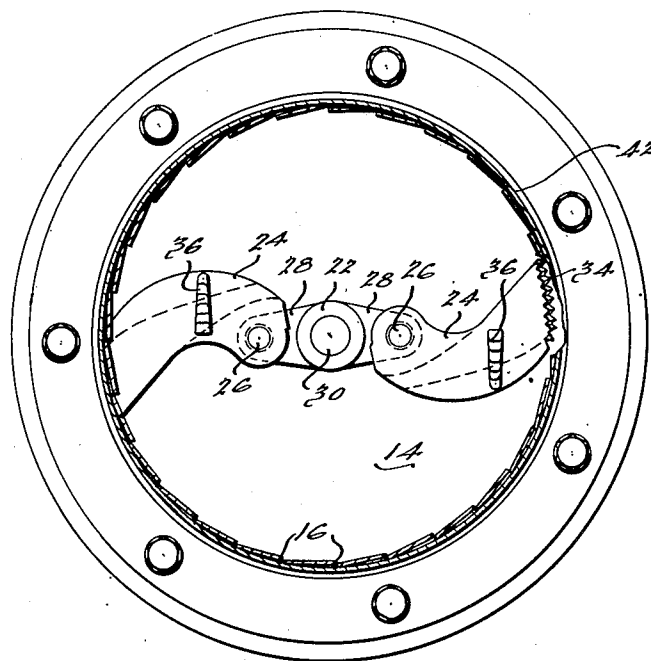


FIG. 2.

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GARBAGE DISPOSAL APPARATUS

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2 Claims. (Cl. 241—257)

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This invention relates to garbage disposal apparatus and has particular reference to certain new and useful improvements therein whereby the reducing of the food to be disposed of is more efficiently accomplished.

The construction herein disclosed and claimed is an improvement upon that disclosed in the application of Kemper M. Hammell, Serial No. 524,836, filed March 1, 1944, for "Garbage Disposal Apparatus," and to which application reference may be had for a more complete disclosure of a garbage grinder adapted for domestic use and the controls therefor. The invention herein disclosed and claimed has particular reference to the construction and arrangement of the reducing means whereby a more efficient reduction of the garbage to be disposed of is effected.

Principal objects of the invention, therefore, are to provide:

A new and improved garbage disposal apparatus;

A garbage disposal apparatus embodying new and more efficient reducing means;

A garbage disposal apparatus wherein the reducing means are constructed and arranged so that centrifugal force is utilized to hold water and food particles in the shredding ring zone near the bottom of the chamber and the outlet therefrom whereby a gain in speed of operation and discharge pressure is obtained.

Other and further objects of the invention will be apparent from the following description and claims and will be understood by reference to the accompanying drawing, of which there is one sheet, which, by way of illustration, shows a preferred embodiment and the principles thereof and what I now consider to be the best mode in which I have contemplated applying those principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

Fig. 1 is a fragmentary vertical sectional view of an apparatus embodying the invention; and

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1, with parts thereof broken away.

The apparatus in general comprises an upright chamber 10 adapted for receiving garbage to be reduced, a frusto conical shredder ring 12 extending upwardly from the periphery of the bottom wall 14 of the chamber and defining the side wall of the chamber at the bottom thereof,

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the larger end of the shredding ring being arranged at the bottom of the chamber. The chamber may be connected to the drain outlet of the sink for receiving garbage and water therefrom.

The ring 12 is provided with a series of axially extending cutting teeth 16 and with a series of axially and circumferentially extending radial openings 18, the openings 18 being arranged alternately with respect to the teeth 16. As a matter of fact, one side of each of the openings 18 is defined by a part of a cutting edge 15. Such openings 18 form a radial discharge outlet for reduced material. The largest dimension of each of the openings 18 is a controlling factor in the size to which the material must be reduced before it is discharged through the openings 18. An annular trough 20 surrounds the lower end of the chamber 10 and is in communication with the openings 18 so as to receive material discharged therethrough and to conduct such material to a spout leading to a sewage or drainage system.

Power driven rotary means are arranged in the bottom of the chamber 10 for impelling material therein against the teeth 16 and through the openings 18, such power driven rotary means comprising a rotary hub 22 and a plurality of radially extending hammers 24. Each hammer is pivotally connected at 26 to an arm 28 of the hub and is adapted to swing in a plane normal to the axis of rotation of the hub 22. The hub 22 is connected to a shaft 30 which extends upwardly through the bottom wall of the chamber 10. The shaft 30 may be driven by an electric motor and may comprise an extension of the shaft of such motor. A running seal 32 is arranged to form a seal between the shaft 30 and the bottom wall of the chamber 10.

The hammers 24 are positioned on or in closely spaced relation with the bottom wall of the chamber and are adapted to sweep material on the bottom wall against the teeth 16 during operation of the power driven rotary means. The speed of operation may be 1750 R. P. M. The hammers 24 are constructed and arranged so that during operation of the power driven means the outer ends of the hammers will be positioned close to the cutting teeth 16. The outer ends of the hammers are also tapered downwardly and outwardly so as to correspond with the conical section of the shredder ring 12.

In addition, the outer ends of the hammers may be provided with serrations or vertically extending teeth 34 which help to prevent ma-

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terial slipping past the ends of the hammers. The pivotal mounting of the hammers 24 permits them to yield in the event that their path is obstructed. The hammers are of a substantial height and extend upwardly above the openings 18 and may be provided with agitators 36. The teeth 16 extend from the bottom wall of the chamber 14 to above the top of the hammers while the openings 18 are in the plane of the hammers or impellers 24.

I have found that a taper of six degrees for the shredder ring is satisfactory. The teeth 16 face the leading or forward edges of the impellers 24 as the same are rotated. The teeth are arranged at an angle of the order of eleven degrees relative to the vertical axis of the chamber 10 so that the teeth slope downwardly and in the direction of rotation of the impellers 24. The construction and arrangement of the shredder ring teeth 16 and the hammers 24 are such that material in the chamber is forced downwardly into the path of the hammers during the rotation of the power driven means. In the extended positions of the impellers as illustrated in Fig. 2, the shredder ring teeth 16 overhang the outer ends of the hammers 24.

The bottom wall of the chamber may be provided by a casting which defines a part of the trough 20 and which is provided with an annular seat 40 upon which the shredder ring 12 seats. A shell 42 seated on such casting and secured thereto defines at least part of the chamber 10 and is provided with an annular shoulder 44 which bears against the upper edge of the shredder ring 12 for holding the same in the position illustrated.

With the shredding ring illustrated which tapers downwardly and outwardly, centrifugal force tends to hold water and material to be reduced in the shredding ring zone, that is, in the plane of the hammers, near the bottom of the chamber where such material may be impelled by the hammers against the cutting teeth and also through the openings 18. With this arrangement efficient reduction of the material to be reduced is obtained, and in addition the discharge pressure of the reduced material is increased which helps to force the material through the trough 20 into the drainage system. Of course it is understood that water should be supplied to the chamber 10 during the operation of the reducing means so as to aid in carrying the reduced material through the openings 18 and through the trough 20.

While I have illustrated and described a preferred embodiment of my invention, it is understood that this is capable of modification and I therefore do not wish to be limited to the precise details set forth but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. Garbage disposal apparatus comprising an

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upright chamber for receiving garbage, a shredder ring seated upon and extending upwardly from the periphery of the bottom wall of said chamber and defining the side wall of said chamber at the bottom thereof, said ring having an internal saw tooth surface of annular form defining a plurality of axially extending cutting teeth disposed around said chamber with a series of axially extending radial openings disposed around the bottom of said chamber, said openings having portions of said teeth following and forming one side of said openings, said openings forming a restricted discharge outlet for reduced material, power driven rotary means in the bottom of said chamber for impelling material against said teeth and through said openings, said power driven rotary means comprising a rotary hub and a plurality of radially extending hammers, each hammer being pivotally connected to said hub and adapted to swing in a plane normal to the axis of rotation of said hub, said hammers being positioned immediately above the bottom wall of said chamber so as to sweep material on said bottom wall against said teeth during operation of said power driven rotary means, said hammers being of a substantial height but of less height than said shredder ring and the outer ends of said hammers being provided with vertically extending teeth arranged in parallel relation to said shredder ring, at least one of said hammers having an upwardly projecting agitator positioned adjacent the swinging end thereof, said shredder ring teeth extending from the bottom of said chamber to above the top of said hammers and said agitator, and said openings terminating at opposite extremities within the plane of said hammers and substantially below the top thereof, the construction and arrangement of said shredder ring teeth and hammers being such that material rotated by said hammers in said chamber is forced downwardly along said teeth and into said openings during operation of said power driven rotary means.

2. Apparatus according to claim 1 wherein upper portions of said shredder ring teeth overhang the outer ends of said hammers and are disposed radially inwardly relative to said openings.

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