March 25, 1958

H. J. MACEMON
PIVOTAL MOUNTING OF HAMMER IN
WASTE DISPOSAL APPARATUS
Filed Oct. 15, 1956

2,828,086

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2 Sheets-Sheet 1

FIG. 1

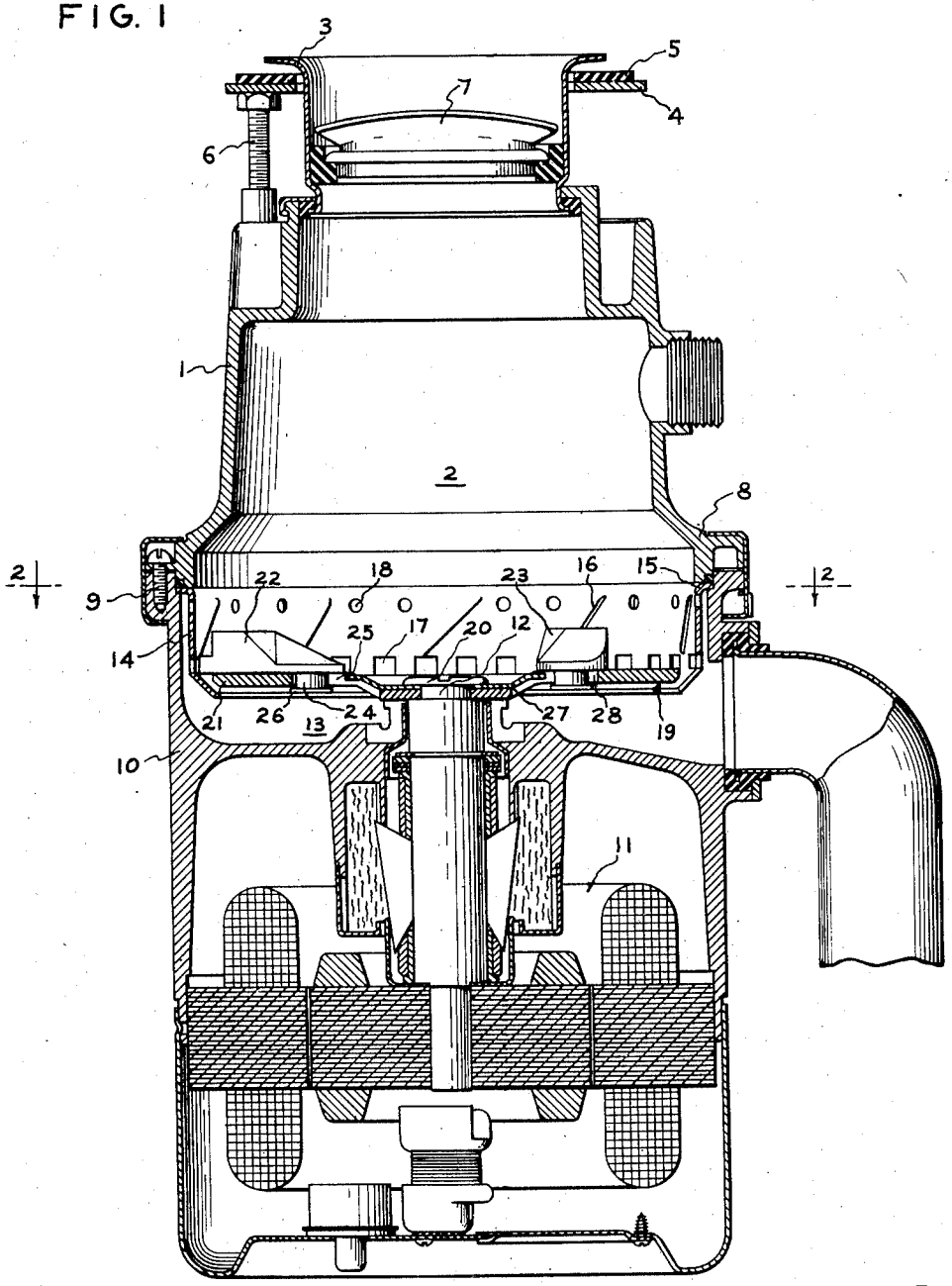

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FIG. 2

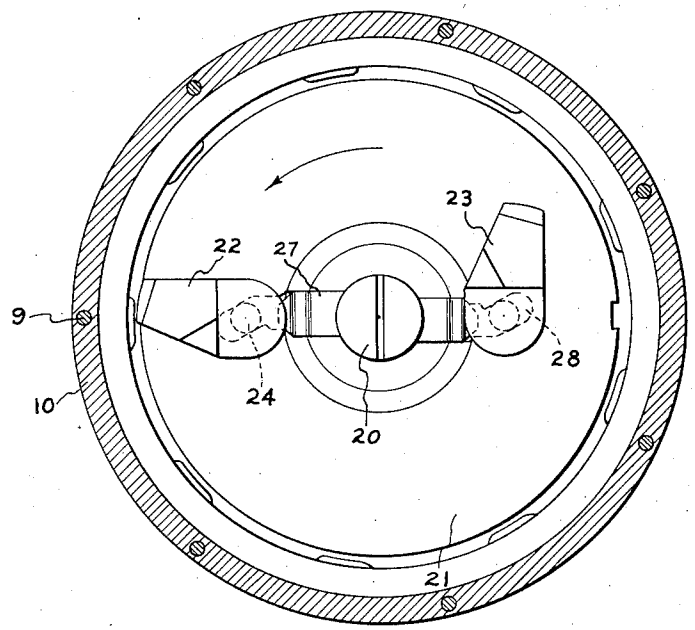
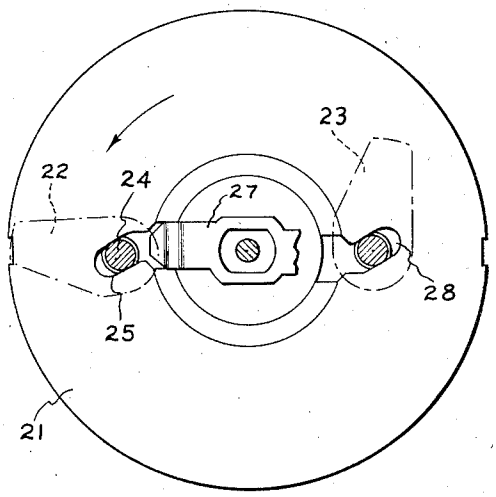


FIG. 3



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PIVOTAL MOUNTING OF HAMMER IN WASTE DISPOSAL APPARATUS

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Application October 15, 1956, Serial No. 615,850

4 Claims. (Cl. 241—100.5)

This invention relates to waste disposal apparatus of the type adapted to be connected to the drain opening of a sink, and has as its principal object the provision of an improved grinding mechanism for such apparatus. Another object of this invention is to provide waste disposal apparatus with an improved grinding mechanism impeller mounting arrangement whereby jamming of the mechanism is minimized.

Further objects and advantages of the invention will become apparent as the following description proceeds, and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

Briefly stated, in accordance with one aspect of my invention there is provided a waste disposer including a generally cylindrical grinding chamber, a rotary grinding member including a slot extending outwardly from the central portion thereof and forwardly inclined with respect to its direction of rotation, and an impeller mounted for pivotal movement in the slot about a pivot pin generally parallel to the axis of the rotary member, whereby the impeller is free to retreat inwardly toward the center of the grinding member so as to free particles tending to jam between the impeller and the wall of the chamber.

For a better understanding of the invention, reference may be made to the following description and the accompanying drawing in which:

Fig. 1 is an elevation view, in section, illustrating a waste disposal device incorporating this invention.

Fig. 2 is a sectional view taken along the line 2—2 in Fig. 1.

Fig. 3 is a top plan view, partly in section, of the rotary grinding member of the invention.

Referring to the drawing, there is shown a waste disposal device having a generally cylindrical casing or hopper 1 enclosing the grinding chamber 2 at the bottom of which the grinding or shredding of waste material takes place. The upper end of hopper 1 is provided with means suitable for supporting the device in the drain opening in a sink or the like, the supporting means including, for example, a flanged drain sleeve 3, a clamping ring 4, a sealing washer 5, and clamping bolts 6, all arranged so that the open top of hopper 1 may be supported in alignment with a sink drain opening. Preferably, the drain opening is equipped with a suitable drain stopper 7, which may be of the type disclosed in U. S. Patent Number 2,787,423 granted to Fred W. Moore and assigned to the assignee of the present application.

The lower end of hopper 1 is provided with a flange 8 which carries mounting screws 9 for securing a motor housing 10 to the hopper so as to form an integral structure. Mounted within motor housing 10 is an electric motor 11 provided with a vertically extending shaft 12 projecting into the chamber 13 defined by the upper walls of housing 10. Secured to the bottom of tubular hopper 1 is a generally cylindrical shredding ring 14 provided with a flange 15 at the top thereof which is clamped between flange 8 of the hopper and the upper end of motor housing 10 so that the shredding ring is stationary with respect to the hopper. Shredding ring 14 is provided with a plurality of shredding projections 16 on its inner surfaces, a plurality of openings 17 through which the comminuted material is expelled during grinding operations, and a row of apertures 18 arranged to drain excess water from the comminuting zone. Projections 16, openings 17 and apertures 18 may be conveniently formed by lancing or stamping operations, or by any other suitable means. The arrangement and function of shredding ring 14 are more fully described and claimed in my application Serial No. 553,119 filed December 14, 1955 and assigned to the assignee of the present application.

In accordance with the present invention I provide a rotary grinding member, generally designated by the numeral 19, fixedly secured to the upper end of motor shaft 12 by means of a fastening screw 20, for example, and provided with impelling means to be described below. Rotary grinding member 19 includes a generally cylindrical flywheel or table 21 having a running clearance with the lower edge portion of shredding ring 14, and a pair of impellers 22 and 23 mounted on flywheel 21 for rectilinear movement and also pivotal movement about an axis generally parallel to the axis of rotation of motor shaft 12. Impellers 22 and 23 are mounted on opposite sides of the axis of flywheel 21 and are preferably identical, only impeller 22 being described in detail herein.

Impeller 22 is provided with an integrally formed pivot pin 24, and, in accordance with the present invention, is located in a generally radial slot 25 in flywheel 21 retained therein by a collar 26 on the lower end of the pin 25. As shown in Fig. 2, slot 25 includes an enlarged portion and a narrow portion extending generally radially therefrom, but actually inclined at a slight angle to a radius of the flywheel. Enlarged portion of slot 25 is sufficiently large to receive collar 26 of the pivot pin, while the narrow portion of the slot will accommodate only the pivot pin 24 for radial movement therein. Thus provision is made for some rectilinear movement along slot 25 in addition to pivotal movement of the impeller about the axis of pin 24.

Pin 24 may be retained in the slot by a retaining member 27 which is clamped between the head of mounting screw 20 and the central top surface of flywheel 21, retaining member 27 being provided with a radially extending ear which overlies the enlarged portion of slot 25 and limits radial movement of pin 24. This impeller retaining arrangement is disclosed and claimed in application Serial No. 615,789 filed on October 15, 1956 by Bernard J. Brezosky and assigned to the assignee of the present invention. Retaining member 27 also includes a similar ear which cooperates with slot 28 in which the oppositely disposed impeller 23 is located.

Preferably, as illustrated in Figs. 2 and 3, the narrow portions of slots 25 and 28 are forwardly inclined (with respect to the direction of flywheel rotation) at approximately a 30 degree angle to the radius of the flywheel 21. In operation, slots 25 and 28 permit impellers 22 and 23 to retreat away from particles tending to jam between the free end of the impellers and the adjacent portion of the shredding ring 14, it being understood that during normal operation each impeller is held in its outermost position, with its free end closely adjacent the shredding ring. The mounting arrangement of this invention is particularly useful in avoiding jams of the grinding mechanism which tend to occur when the impeller swings ahead of its pivot and engages a large waste particle on the wall of the shredding ring. It is for this reason that the slot in which the impeller is secured is inclined forwardly with respect to a line lying along a radius of the flywheel and passing through the end of the slot adjacent the flywheel axis.

While I have shown and described a specific embodiment of this invention I do not desire the invention to be limited to the particular construction shown and described, and I intend by the appended claims to cover all modifiactions within the true spirit and scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. Waste disposal apparatus for use with a sink having a drain outlet comprising a housing providing a grinding chamber having at its upper end an inlet opening for water and waste material, mounting means for securing said housing to the sink with said inlet opening in alignment with said drain outlet, shredding members fixedly secured within said chamber, a rotatable grinding member within said grinding chamber, an impeller pivotally mounted by means of a pin and slot connection on said rotatable member for rotary movement about an axis generally parallel to the axis of rotation of said rotatable member, the slot of said pin and slot connection extending from the central portion of said rotatable member outwardly therefrom, said slot extending at an acute angle forwardly with respect to the direction of rotation from a radial line passing through the portion of said slot adjacent the central portion of said rotatable member whereby said impeller may pivot with respect to said rotatable member and also shift between an outwardly extended position and an inwardly retracted position.

2. Waste disposal apparatus for use with a sink having a drain outlet comprising a housing providing a grinding chamber having at its upper end an inlet opening for water and waste material, mounting means for securing said housing to the sink with said inlet opening in alignment with said drain outlet, shredding members fixedly secured within said chamber, a rotatable flywheel within said grinding chamber, said flywheel having a slot extending at an acute angle forwardly with respect to the direction of flywheel rotation from a radial line passing through the portion of said slot but adjacent the central portion of said flywheel therein, an impeller mounted for pivotal and rectilinear movement on said flywheel, said impeller including a pivot pin located in said slot, whereby said impeller may pivot with respect to said flywheel about an axis generally parallel to the axis of said flywheel and also shift between an outwardly extended position and an inwardly retracted position.

3. Waste disposal apparatus for use with a sink having a drain outlet comprising a housing providing a grinding chamber having at its upper end an inlet opening for water and waste material, mounting means for securing said housing to the sink with said inlet opening in alignment with said drain outlet, shredding members fixedly secured within said chamber, a rotatable flywheel within said grinding chamber, said flywheel having a slot therein extending from the central portion of said flywheel outwardly toward the periphery thereof, said slot extending at an angle of approximately 30 degrees forwardly with respect to the direction of flywheel rotation from a radial line passing through the portion of said slot adjacent the central portion of said flywheel, an impeller mounted for pivotal and rectilinear movement on said flywheel, said impeller including a pivot pin located in said slot, whereby said impeller may pivot with respect to said flywheel about an axis generally parallel to the axis of said flywheel and also shift between an outwardly extended position and an inwardly retracted position.

4. Waste disposal apparatus for use with a sink having a drain outlet comprising a cylindrical housing having at its upper end an inlet opening for water and waste material, mounting means for securing said housing to the sink with said inlet opening in alignment with said drain outlet, shredding members fixedly secured to the inner surface of said housing so as to project into said chamber, a rotatable flat-topped circular flywheel mounted in said grinding chamber for rotation about the axis of said cylindrical housing, said flywheel having a pair of slots therein located on diametrically opposite sides thereof and extending outwardly from the central portion thereof, each of said slots extending at an angle of approximately 30 degrees forwardly with respect to the direction of flywheel rotation from a radial line passing through the portions of said slots adjacent the central portion of said flywheel, a pair of impellers mounted for pivotal and rectilinear movement on said flywheel, each of said impellers including a pivot pin located in one of said slots; whereby said impellers may pivot about an axis generally parallel to the axis of said flywheel and also shift between an outwardly extended position and an inwardly retracted position.

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