Oct. 11, 1949. R. C. OSBORN 2,484,459

GARBAGE GRINDER

Filed Feb. 9, 1946 2 Sheets-Sheet 1

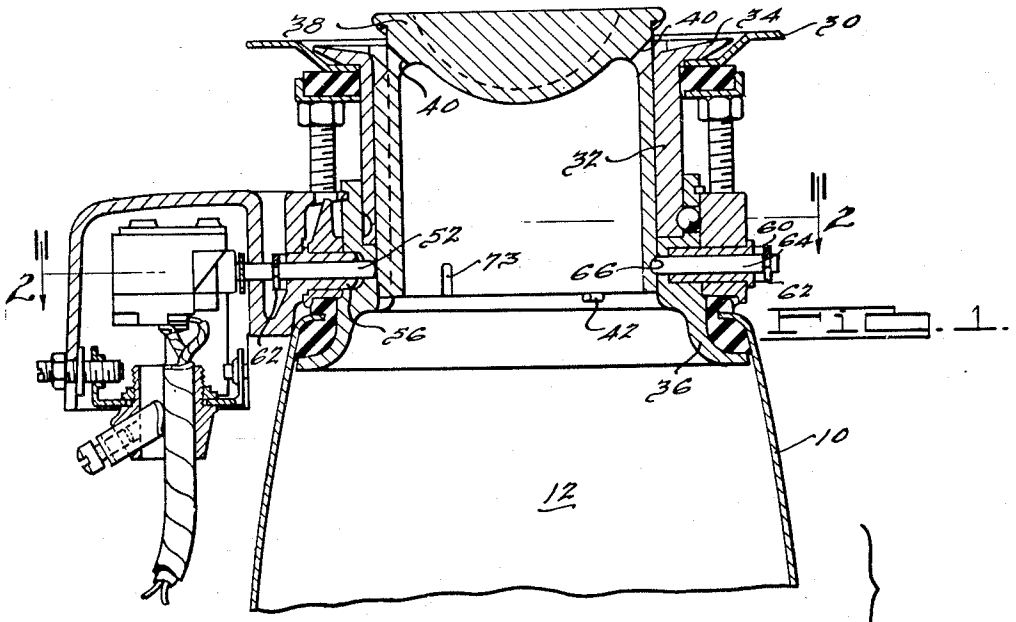


FIG. 1.

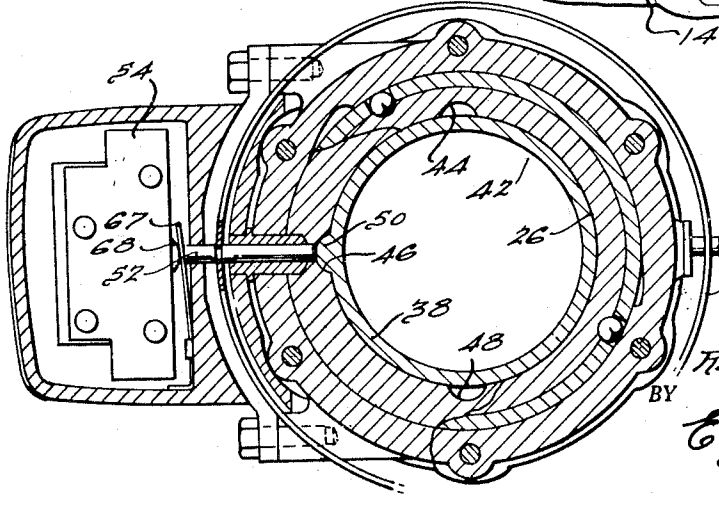


FIG. 2.

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GARBAGE GRINDER

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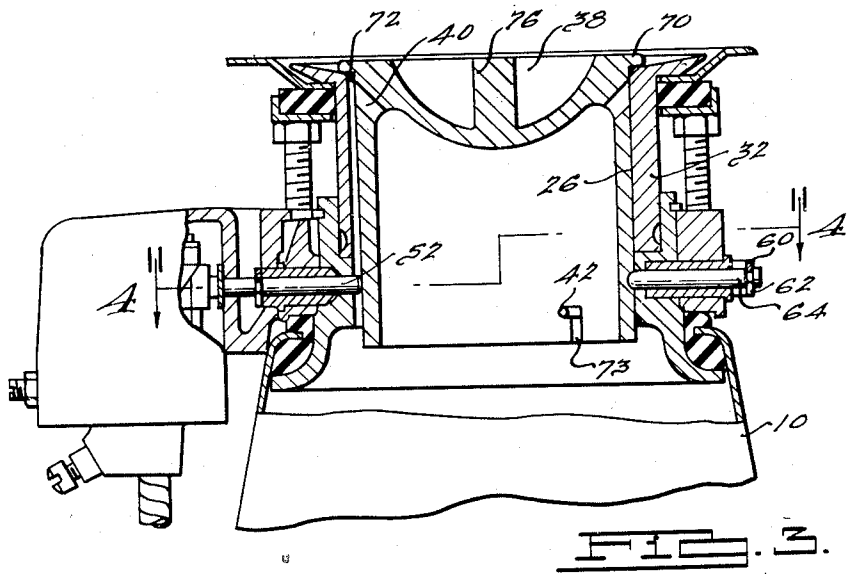


FIG. 3.

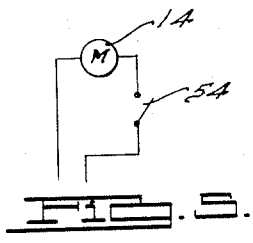


FIG. 5.

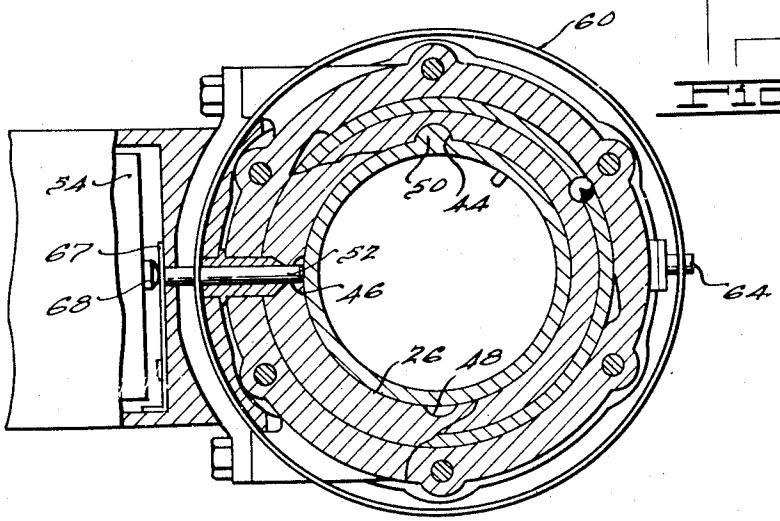


FIG. 4.

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UNITED STATES PATENT OFFICE

2,484,459

GARBAGE GRINDER

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Application February 9, 1946, Serial No. 646,602

6 Claims. (Cl. 4—190)

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This invention relates to garbage grinders and has particular reference to certain new and useful improvements relating to closures and motor controls therefor.

According to the present invention, the inlet to the garbage grinder is connected to the drain outlet of a sink and arranged so that garbage and other material to be disposed of by the grinder may be fed through the sink outlet into the grinder. During the process of reducing such material, it is desirable to supply water to the grinder to carry away the reduced material and to expedite the reducing process. It has been found to be convenient to control the motor circuit of the grinder by means of the closure for the grinder so that the grinder will operate only when the closure is obstructing the outlet from the sink.

While several arrangements have been suggested heretofore to accomplish this purpose, such suggested arrangements have been expensive and have also complicated the problem of connecting the garbage grinder to the sink and of arranging the switch for the motor circuit in such a way that it can be actuated by the closure control. There is disclosed herein what I believe to be a novel, simple and efficient construction and arrangement for a closure and motor control for garbage grinder in which the closure may be selectively positioned in any one of three positions to seal the outlet from the sink; to obstruct the outlet from the sink while permitting the flow of water from the outlet of the sink; and to obstruct the outlet from the sink while permitting the flow of water through the outlet of the sink and at the same time close the circuit of the motor for driving the garbage grinder. In particular, the invention has reference to the novel construction and arrangement of the parts which make possible the foregoing specified functions.

The principal object of the invention, therefore, is to provide a new and improved closure and motor control for a garbage grinder.

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 drawings, of which there are two sheets, which, by way of illustration, show 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. I also contemplate that of the several different features of my invention, certain ones thereof may be advantageously employed in some applications separate and apart from the remainder of the features.

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In the drawings:

Fig. 1 is a vertical sectional fragmentary view of a garbage grinder embodying the invention;

Fig. 2 is a sectional view taken along the staggered line 2—2 of Fig. 1;

Fig. 3 is a fragmentary sectional view similar to Fig. 1 illustrating the closure in its sealed position;

Fig. 4 is a sectional view taken along the staggered line 4—4 of Fig. 3; and

Fig. 5 is a diagrammatic view of the motor circuit.

As illustrated in the embodiment of the invention selected for purposes of illustration, a garbage grinder in general comprises a casing 10, providing a chamber 12 for material to be reduced, an electric motor 14 operatively connected to impelling means 16 in the bottom of the chamber 12 which are operative in conjunction with teeth provided on a shredding ring 18 for reducing material and for expelling the reduced material through the outlet from the chamber 12 into a trough 20 which terminates in a spout 22 which, in turn, is connected to a drain and sewage disposal system. The outlet from the chamber 12 in the present instance is provided by a series of relatively small holes 24 provided in the periphery of the ring 18 around the bottom of the chamber 12. For a more detailed disclosure of a reducing means, reference may be had to the application of George R. Coss et al., filed November 18, 1944, Serial No. 564,118, for "Garbage grinder," now Patent No. 2,421,014.

The inlet to the chamber 12 comprises a cylindrical opening 26 which also forms the drain outlet from a sink 30. This circular opening 26 is defined in part by a flanged collar 32, the flange 34 of which overlaps the rim of the opening in the bottom wall of the sink 30 through which the collar 32 projects. A sleeve 36 is detachably connected to the collar 32 and forms the lower part of the circular opening 26. The casing 10, in turn, is mounted upon the outwardly projecting flange of the sleeve 36. The means by which the casing 10 is attached to the drain outlet of the sink is more fully described and claimed in the copending application of George R. Coss, Serial No. 646,397, filed February 8, 1946, for Garbage grinder, now Patent No. 2,477,686.

A closure 38 comprising in general a cup-shaped member is adapted to be arranged in the opening 26 in three different ways. As illustrated in Figs. 1 and 2, the closure 38 is obstructing the opening 26 so as to prevent the ingress through the opening 26 of material other than liquids to the chamber 12. The ingress of liquid is provided for by the holes 40 in the circular wall of the closure 38 which, as shown in Fig. 1, are exposed above the cylindrical wall defining the circular opening 26. The cylindrical portion of the cover 38 is adapted to closely fit the circular opening 26.

A shoulder formed by a pin 42 projecting inwardly from the sleeve 36 into the circular opening 26 determines the position of the cover 38 in the opening 26 in the position as shown in Fig. 1. From Fig. 2, it will be observed that the circular opening 26 is provided with three vertical grooves 44, 46 and 48, and that the closure 38 has on its cylindrical portion, a vertically extending rib 50 which is arranged in the grove 46 and hence prevents rotation of the closure 38 relative to the opening 26. In the position in which the closure is arranged in Figs. 1 and 2, the rib 50 is engaging the switch actuating plunger 52 and holding the switch 54 in position to close the circuit of the motor 14.

The plunger 52 is slidably mounted in a bushing 56 in the parts defining the connection between the casing 10 and the sink 30 and is arranged so that one end of the plunger projects into the groove 46 when the closure 38 is removed from the opening 26 and when the closure 38 is positioned in the opening 26 so that the rib 50 is arranged in one of the groves 44 or 48. The plunger 52 is biased into such position which is illustrated in Fig. 4 by means of a circular spring 60 which surrounds the parts defining the circular opening 26. The spring 60 is slotted in two places as indicated at 62 so as to straddle reduced portions of the plunger 52 and a detent pin 64, the latter slidably projecting through an opening in the wall defining the circular opening 26 so that the inner end of the pin will function in conjunction with recesses 66 in the outer cylindrical portion of the cover 38 as detents to hold the cover 38 in position. In this connection, it may be observed that during the reducing operation, materials may be impelled against the cover 38 and tend to dislodge the same so that the inner end of the pin 64 and the recesses 66 will prevent the accidental displacement of the cover 38.

The spring 60 is carried by the plunger 52 and the pin 64 and functions to normally maintain the same in the position in which they are illustrated in Fig. 3. The other end of the plunger 52 bears against a leaf spring 67 which, in turn, bears against a switch actuating plunger or button 68 which when positioned as illustrated in Figs. 1 and 2 position the contacts of the switch 54 so as to close the motor circuit. When the plunger 54 is positioned as illustrated in Fig. 3, the switch contacts are open. The switch 54 may comprise any commercially available or suitable switch which is normally open when the parts are arranged as illustrated in Fig. 3.

In the position in which the parts are arranged as illustrated in Figs. 3 and 4, the rib 50 is positioned in the groove 44. In this position, the outwardly projecting flange or rim 70 of the cover is seated upon the upper end of the collar 32 to seal the opening 26 against the flow of fluid into the chamber 12 and, as will be observed, the openings 40 are obstructed by the wall defining the circular opening 26. If desired, a gasket 72 may be arranged in the corner below the flange or rim 70 so as to make a more effective seal.

In this position, a slot 73 in the cylindrical portion of the cover 38 is aligned with the pin 42 so that the pin 42 does not determine the position of the cover 38 in the opening 26. It should also be noted that in this position of the parts, the plunger 52 projects into the groove 46, as shown in Fig. 4. This arrangement of the end of the plunger 52 and the groove 46 makes it difficult, if not impossible, accidentally to engage the end of the plunger 52 and actuate the switch when the cover 38 is removed from the opening 26. The cover 38 includes pockets in its upper face defining a central bar 76 which forms a handle for the cover.

The cover 38 may also be positioned so that the rib 50 is in the groove 48. In this position, the pin 42 would position the cover so that the openings 40 were exposed as shown in Fig. 1, but the switch would be open as the plunger 52 would be arranged as shown in Fig. 4. The outer cylindrical portion of the cover 38 has recesses 66 positioned to be engaged by the inner end of the pin 64 in each of the positions of the cover 38. The upper face of the cover 38 and the upper face of the flange 34 may be provided with suitable markings so as to indicate how the cover should be positioned in the opening 26 in order to obtain the desired function.

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. In an electric motor driven garbage grinder, a chamber adapted to receive material to be reduced and having an inlet defined by a cylindrical passage, a cup-shaped cover including a horizontally extending disc-like imperforate wall constructed so that a cylindrical portion thereof may be fitted in one position in said passage so as to seal the passage against the flow of liquid through said passage into said chamber, a shoulder in said passage, a part of said cover being engageable with said shoulder so as to prevent rotation of said cover in and relative to said passage in said one position, said cylindrical portion of said cover being provided with holes, said cover being engageable with said shoulder in another position of said cover so as to maintain said cover in an elevated position and to permit rotation thereof in and relative to said passage so as to expose said holes so as to permit the flow of liquid into said chamber while obstructing the inlet to said chamber to prevent the ingress of material other than liquids to said chamber or the egress through said inlet of materials being acted upon in said chamber, an electric switch arranged in the circuit of the electric motor for the grinder and positioned adjacent said inlet, and means comprising a switch actuating member projecting into said passage and responsive to positioning of said cover in said last-mentioned position in said passage for actuating said switch to close the motor circuit, said cover being removable from said passage by direct axial movement of said cover relative to said passage from any of said positions.

2. In an electric motor driven garbage grinder, a chamber adapted to receive material to be reduced and having an inlet defined by a cylin-

irical passage provided with a vertically extending groove, a cup-shaped cover including a horizontally extending disc-like imperforate wall constructed so that a cylindrical portion thereof may be fitted in one position in said passage so as to seal the passage against the flow of liquid through said passage into said chamber, a shoulder in said passage, said cylindrical portion of said cover being provided with holes, a part of said cover being engageable with said shoulder in another position of said cover to maintain said cover in an elevated position in and relative to said passage so as to expose said holes so as to permit the flow of liquid into said chamber while obstructing the inlet to said chamber to prevent the ingress of material other than liquids to said chamber or the egress through said inlet of materials being acted upon in said chamber, an electric switch arranged in the circuit of the electric motor for the grinder and positioned adjacent said inlet, and means comprising a switch actuating member projecting into said groove and movable responsive to the angular positioning of said cover in said last-mentioned position in said passage for actuating said switch to close the motor circuit, said cover being removable from said passage by direct axial movement of said cover relative to said passage from any of said positions.

3. In an electric motor driven garbage grinder, a chamber adapted to receive material to be reduced and having an inlet defined by a cylindrical passage provided with a plurality of vertically extending grooves, a cup-shaped cover including a horizontally extending disc-like imperforate wall constructed so that a cylindrical portion thereof may be fitted in one position in said passage so as to seal the passage against the flow of liquid through said passage into said chamber, a shoulder, said cylindrical portion of said cover being provided with fluid flow ducts, a part of said cover being engageable with said shoulder in another position of said cover so as to maintain said cover in an elevated position in and relative to said passage so as to expose said ducts so as to permit the flow of liquid into said chamber while obstructing the inlet to said chamber to prevent the ingress of material other than liquids to said chamber or the egress through said inlet of materials being acted upon in said chamber, said cylindrical portion of said cover being provided with an exterior projection adapted to be selectively arranged in one of said grooves, an electric switch arranged in the circuit of the electric motor for the grinder, and means comprising a switch actuating member projecting into one of said grooves and responsive to positioning of said cover in said passage with said projection arranged in said one of said grooves for actuating said switch to close the motor circuit.

4. In an electric motor driven garbage grinder, a chamber adapted to receive material to be reduced and having an inlet defined by a cylindrical passage, a cup-shaped cover including a horizontally extending disc-like imperforate wall constructed so that it may be fitted in one position in said passage so as to seal the passage against the flow of liquid through said passage into said chamber, a shoulder, a portion of said cover being engageable with said shoulder in another position of said cover so as to maintain said cover in an elevated position in and relative to said passage so as to prevent said cover from sealing said passage against the flow of liquid into said chamber while obstructing the inlet to said chamber to prevent the ingress of material other than liquids to said chamber or the egress through said inlet of materials being acted upon in said chamber, said passage having a groove, an electric switch arranged in the circuit of the electric motor for the grinder and positioned adjacent said inlet, and means comprising a switch actuating member projecting into said groove and responsive to the angular positioning of said cover in said last-mentioned position in said passage for actuating said switch to close the motor circuit.

5. In an electric motor driven garbage grinder, a chamber adapted to receive material to be reduced and having an inlet defined by a cylindrical passage, a cover including a horizontally extending disc-like imperforate wall constructed so that it may be fitted in one position in said passage so as to seal the passage against the flow of liquid through said passage into said chamber, a shoulder, a part of said cover being engageable with said shoulder in another position of said cover in and relative to said passage so as to prevent said cover from sealing said passage against flow of liquid through said passage into said chamber while obstructing the inlet to said chamber to prevent the ingress of material other than liquids to said chamber or the egress through said inlet of materials being acted upon in said chamber, an electric switch arranged in the circuit of the electric motor for the grinder and positioned adjacent said inlet, means comprising a plunger projecting into said passage and responsive to positioning of said cover in said last-mentioned position in said passage for actuating said switch to close the motor circuit, and a spring in the form of a ring encircling said passage and biasing said plunger into said passage.

6. In an electric motor driven device of the class described, a chamber having an inlet, a cover adapted to be arranged in said inlet, a switch, a pair of plungers projecting into said inlet, a spring in the form of a ring carried by said plungers and biasing the same into said inlet, one of said plungers being associated with said switch and operable upon positioning said cover in said inlet for actuating said switch, the other of said plungers comprising a detent and being cooperable with portions of said cover for securing said cover in said inlet.

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