

Feb. 23, 1954

H. JORDAN

2,670,143

GARBAGE DISPOSER WITH PROTECTIVE INLET

Filed July 24, 1951

2 Sheets-Sheet 1

*Fig. 1*

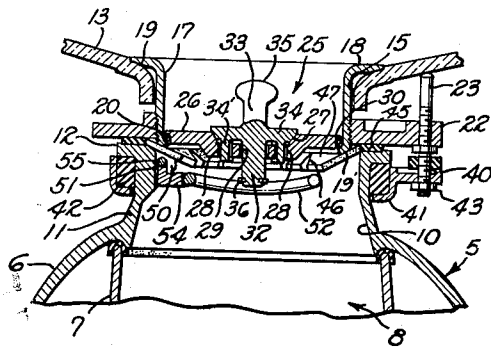


*Fig. 2*

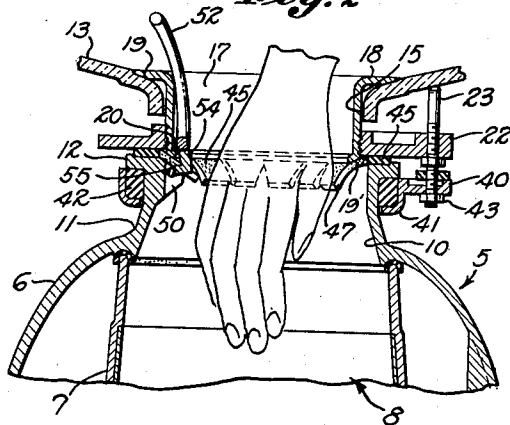
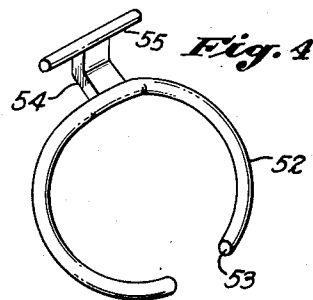
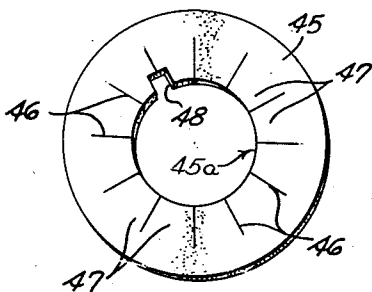


*Fig. 3*



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GARBAGE DISPOSER WITH PROTECTIVE INLET

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2 Sheets-Sheet 2

*Fig. 5*

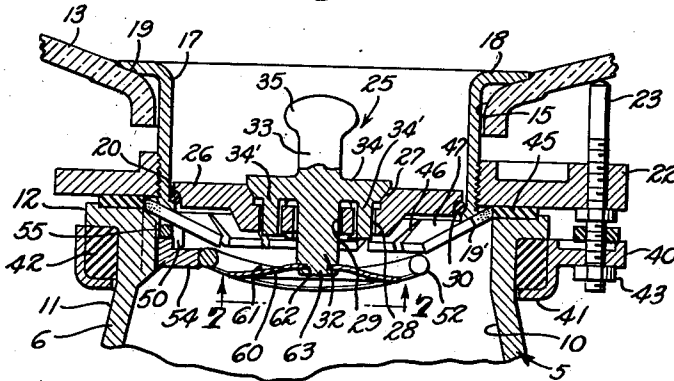


*Fig. 6*

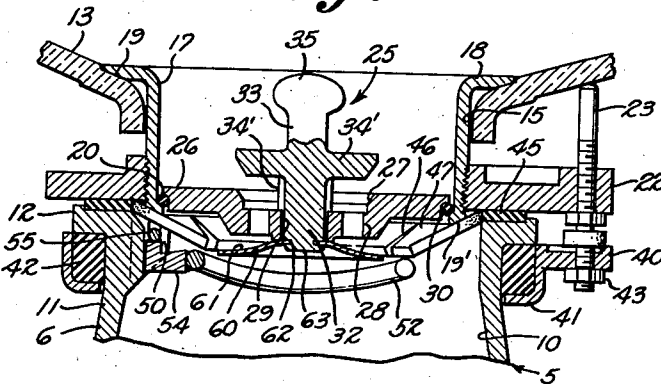


*Fig. 9*

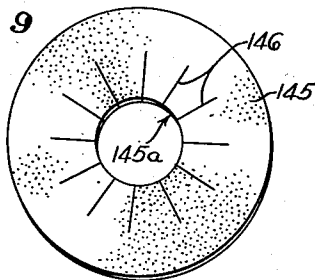


*Fig. 7*

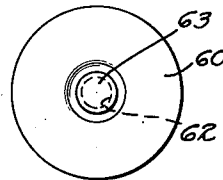
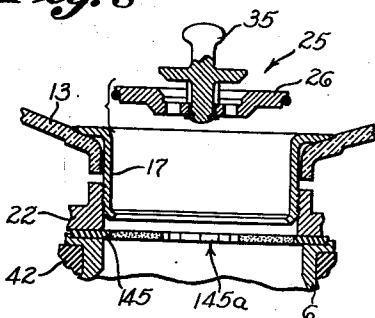


*Fig. 8*



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## UNITED STATES PATENT OFFICE

2,670,143

GARBAGE DISPOSER WITH PROTECTIVE  
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a copartnership

Application July 24, 1951, Serial No. 238,259

46 Claims. (Cl. 241—301)

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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 and restaurant use where only relatively small volumes of such materials are normally passed through the device. The present invention is directed to improvements in waste disposal devices of the general type disclosed in my patent on Garbage Disposal Device, No. 2,442,812 dated June 8, 1948. Specifically, this application is concerned with protector or guard means incorporated in the upper inlet end of the waste disposal device and adapted to reduce splashing of liquid upwardly from the device when the stopper means is removed, and embodying safety means for normally guarding against the insertion of a human hand into the device during a comminuting operation. This application is a continuation-in-part of my co-pending application Serial No. 21,153.

It has been determined that during operation of waste disposal devices, when the stopper means is removed from the upper inlet opening of the device, there is a tendency for the flushing water contained in the comminuting chamber to splash upwardly through the opening due to agitation thereof and, as will be readily apparent, such a condition is objectionable. It is therefore an object of my invention to overcome this condition by providing splash guard means which functions to divert flushing water rising within the device back into the comminuting chamber so as to prevent escape of the water through the inlet opening into the sink to which the device is connected.

It is another object of the invention to provide splash guard means in the form of an annular, resilient baffle element having a central opening which permits the insertion of waste material and flushing water into the comminuting chamber and it is a further object to provide such an element which is slit radially at spaced circumferential points to form segments which are adapted to yield and flex downwardly so as to increase the size of the central opening and thus facilitate the insertion of relatively large pieces of waste material into the comminuting chamber or the insertion of a human hand into the chamber when it is desired to retrieve an uncomminutable object inadvertently placed in the device.

Another object is to provide a splash guard element which is conveniently held in position by the means for attaching the waste disposal device

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to the sink so that separate mounting means is unnecessary.

Another object is to provide a device, or the character referred to, which embodies means for flexing the segments of the splash guard element downwardly so as to cause them to assume an inclined position. By this means, the segments provide inclined baffles capable of directing the splashing water downwardly and outwardly against the sides of the comminuting chamber to permit it to flow therealong, back into the chamber.

A still further object is to provide a splash guard structure having a water-passing opening adapted to be closed by water passing to the chamber, whereby to block off the greater part of the noise which occurs in such chamber during operation.

It is highly desirable in waste disposal devices that means be provided for guarding against insertion of a human hand into the comminuting chamber during the operation of the device so as to prevent injury to the hand. It is therefore an object of my invention to provide such safety means and also to arrange the same to cooperate with the splash guard. Such an object is attained by providing a protector or blocking element disposed in the upper opening or throat of the disposal device and forming an obstruction against which a human hand engages when an attempt is made to insert the hand into the comminuting chamber. In a preferred embodiment of the invention, the protector element is annular and is pivotally mounted within the throat to block the insertion of the hand into the comminuting chamber, but adapted to be pivoted upwardly to inoperative position so as to effect an unobstructed passage to the chamber, thus permitting the utilization of the entire width of the throat when it is desired to place relatively large objects of waste material in the chamber for disposal or when it is necessary to insert the hand into the chamber to retrieve uncomminutable objects inadvertently placed in the device. It is found that the presence of the blocking means in the throat has the effect of calling to the operator's attention that the operation of the device should be stopped before his or her hand is inserted into the comminuting chamber and thus effectively safeguards against serious injury to the operator.

It is a further object of my invention to provide a safety means in which the blocking member is substantially annular in outline so that the normal flow of flushing water and the inser-

tion of waste material into the comminuting chamber are not impaired. A further object in this respect is to provide a protector or blocking member which is preferably made from wire of circular cross section so as to avoid edges which might catch the material being placed in the device. A still further object is to provide a substantially annular blocking member which has a slot therein so that any filamentary material, such as hair or threads which might wrap around the member can be readily stripped therefrom.

It has been determined that the comminuting of waste material can be expedited if the material is flushed from the sides of the comminuting chamber and carried downwardly to the cutters. It is therefore an object of the invention to provide means for cleaning the walls of the comminuting chamber and carrying particles of the waste material downwardly to the comminuting means. This object is attained by providing a deflector plate disposed in the throat of the waste disposal device and operative to divert flushing water introduced into the device through the throat radially outward so as to direct the water against the circular wall of the device. Through this means, a film of the water is caused to flow downwardly along the wall to clean the same by washing away particles of waste material, such particles being carried by the water to the comminuting means.

It is another object to mount the water deflector plate centrally of the throat and this is readily accomplished by connecting the plate to the lower end of the plug member of the stopper device.

Further objects of my invention will be apparent from the following description and from the drawing, which is for the purpose of illustration only, and in which:

Fig. 1 is a vertical sectional view of the upper throat portion of a waste disposal device incorporating the features of my invention, the device being shown as closed by the stopper means;

Fig. 2 is a view similar to Fig. 1 but showing the stopper means removed to permit placing of waste material into the device or the insertion of a human hand into the comminuting chamber;

Fig. 3 is a perspective view of the splash guard element used in the device;

Fig. 4 is a perspective view of the hand protecting or blocking element;

Fig. 5 is a vertical sectional view of the upper portion of a waste disposal unit showing a water deflecting means applied to use therewith;

Fig. 6 is a view similar to Fig. 5 showing the stopper means raised and the water deflecting means operative to deflect the flushing water;

Fig. 7 is a bottom plan view of the deflecting means as indicated by the line 7-7 of Fig. 5;

Fig. 8 is a vertical section showing a further modification; and

Fig. 9 is a plan view of the splash guard element of Fig. 8.

Referring to the drawing in detail, the illustrated waste disposal device 5 may be more or less conventional in design but is herein shown as constructed in accordance with my prior application, previously referred to. The disposal device 5 includes a housing 6 having an annular inner wall 7 providing a comminuting chamber 8 in which cutters or similar means (not shown) are located and adapted to comminute waste material when operated. The housing 6 is reduced in diameter at its upper end to define an inlet passage or throat 10 through which the waste ma-

terial and flushing water can be inserted into the comminuting chamber 8. The upper reduced portion 11 of the housing 6 is provided with an annular flange 12. The disposal device 5 is adapted for attachment to a household sink 13 of conventional type having a flanged discharge opening 15 in its bottom.

A sleeve member 17 is adapted to be inserted in the discharge opening 15 and has an annular flange 18 at its upper end which is adapted to rest upon a seat 19 formed in the bottom wall of the sink and surrounding the opening. The lower end of the sleeve member 17 is bent inwardly to a slight extent to provide an inclined, annular, internal flange 19', the upper surface of which forms a seat 20. The lower end of the sleeve member 17 also has external screwthreads to adapt an annular connecting member 22 to be screwed thereon. A plurality of screws or studs 23 are screwed through tapped holes in the member 22 and their upper ends engage the bottom surface of the sink 13 to force the member 22 and sleeve member 17 downwardly so as to maintain the flange 18 firmly engaged in the seat 19.

Adapted for insertion in the sleeve member 17 is a stopper assembly or stopper means 25 which includes a circular plate-like element 26 having a depressed central seat portion 27 provided with discharge openings 28 and a central hole 29. Held in a peripheral groove of the element 26 is a sealing ring 30 which is adapted to rest upon the tapered seat 29. Slidable and rotatable in the hole 29 is the lower spindle 32 of a plug element 33 which has a head 34 adapted to rest upon the seat portion 27, when the plug element is lowered, so as to prevent fluid flow through the openings 28 of the plate element 26. The plug element 33 has a pair of projections 34' and also has a knob 35, by means of which the element can be raised and turned to cause its projections to rest upon the plate element and to thus permit fluid flow through the openings 28. The plug element 33 is retained on the plate element 26 by means of a washer 36 carried at its lower end. It will be apparent that by raising the knob 35 sufficiently the entire stopper assembly can be removed completely from the sleeve member 17 so that pieces of waste material can be inserted into the throat 10 of the disposal device.

The waste disposal device 5 is attached to the sink 13 by means to be next described. An annular mounting member 40 has its central portion 41 underlying the flange 12 of the housing member 6 and a resilient ring 42 is interposed therebetween. The lower ends of the connecting screws 23 extend through holes in the member 40 and by screwing nuts 43 onto these ends the member 40 is caused to draw the housing member 6 upwardly toward the connecting member 22, the resilient ring 42 being compressed therebetween. By this means, the waste disposal device 5 is resiliently suspended from the bottom of the sink 13.

In accordance with my invention, a splash guard means is provided for reducing splashing of the liquid out of the upper end of the disposal device when the stopper means 25 is removed from the sleeve member 17. The splash guard means consists of an annular baffle element 45 which is shown in detail in Fig. 3. The baffle element 45 is made from resilient material, such as rubber, and has an opening 45a (Fig. 3) having an inside diameter which is somewhat smaller than the inner diameter of the sleeve member 17

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The inner portion of the baffle element 45 is slit radially at spaced points, as indicated at 46 in Fig. 3, so as to provide a plurality of segments 47. The element 45 is also provided with a clearance slot 48 which is used for the purpose to be later explained.

The baffle element 45 is adapted to be clamped in position between the flange 12 of the housing member 6 and the lower surface of the connecting member 22, as shown in Figs. 1 and 2, so that it extends transversely of the throat 10 beneath the stopper means 25. It will be noted that by means of the resilient element 45 and the resilient ring 42, the housing 6 is floatingly mounted so that vibration of the disposal unit and accompanying noise are reduced to a minimum.

It will be observed by reference to Fig. 1 that the inner baffle segments 47 contact the bottom of the tapered flange 19' of the sleeve member 17 so that they assume a downwardly inclined position. It is apparent, therefore, that if liquid splashes upwardly from the comminuting chamber during operation of the waste disposal device, the segments 47 will act to deflect the liquid outwardly and downwardly against the inner wall of the housing 6 so that it will drain back into the comminuting chamber. Thus, when the stopper means 25 is removed to permit the insertion of waste material into the device, reverse flow of liquid from the chamber 8 into the sink 13 is reduced considerably.

It will also be observed by reference to Fig. 2 that the resilient baffle segments 47 are adapted to be flexed downwardly by a human hand inserted into the throat 10 so as to enlarge the central opening of the baffle element 45 and thereby enable the hand to be passed into the comminuting chamber 8 when it is desired to do so for any reason. When the hand is withdrawn from the throat 10, the baffle segments 47 spring upwardly to first or operative position.

Formed within the upper reduced end portion 11 of the housing 6 is a pair of spaced ears 50 (one of which is shown) having recesses or notches 51 in their upper portions. The ears 50 are provided for the purpose of supporting a protector or blocking member 52 which is shown in detail in Fig. 4. The member 52 is preferably made from stiff wire stock of circular cross-section and is of substantially annular shape but having an opening or slot 53 therein so that any hair, threads or the like which might wrap around the member can be easily stripped off through the slot. At its side opposite the slot 53, the blocking member 52 has an angular projection 54 which may be welded thereto. The vertical portion of the projection 54 is adapted to fit between the ears 50 of the housing 6, and the ends of a cross-pin 55 carried by the projection are adapted to be received in the notches 51 of the ears so as to pivotally mount the blocking member within the throat 10 beneath the splash guard element 45.

Downward pivotal movement of the blocking member 52 under the force of gravity is limited by the engagement of the projection 54 with the wall of the throat 10 so that the member is normally retained in a substantially horizontal position. Because the blocking member 52 is of smaller diameter than the diameter of the throat 10, passage of a human hand through the throat, while the member is in horizontal position, is prevented. However, when the stopper means 25 is removed from the sleeve member 17, the blocking member 52 can be pivoted upwardly through the splash guard element 45 and

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sleeve member 17 to the position shown in Fig. 2, with the projection 54 passing through the slot 48. With the element 45 thus pivoted to inoperative position, the passage leading to the comminuting chamber is unobstructed so that the hand can be passed downwardly into the chamber.

The presence of the blocking member 52 within the throat 10 indicates to the operator that the waste disposal device might be in operation so that to avoid injury to a hand inserted through the throat, the operation of the comminuting means must be arrested. In other words, the blocking member 52 precludes the possibility of the operator's inadvertently or unconsciously placing his or her hand into the comminuting chamber during operation of the device.

My invention also provides deflector means within the throat 10 for deflecting water introduced through the sleeve member 17 radially against the annular internal surface of the housing 6 so as to clean the walls and thus wash waste material therefrom downwardly to the comminuting means. The deflector means consists of a circular plate 60 of substantially inverted dish shape provided with an upper conical surface 61. The deflector plate 60 has a central aperture 62 to adapt the plate to be mounted on the lower reduced end 63 of the spindle 32 of the plug element 33. The plate 60 may be retained on the plug element 33 by any suitable means, the present drawing showing the lower extremity of the reduced end 63 as headed over against the lower surface of the plate to hold the latter in place.

As will be observed, the deflector plate 60 is of a diameter slightly smaller than the internal diameter of the blocking member 52 so that when the plug element 33 is raised to permit the flow of water into the disposal device the deflector plate can readily pass through the blocking member 52 and through the splash guard or baffle element 45 as shown in Fig. 6. When the plug element 33 is in raised position, water flowing from the sink faucet and through the sleeve 17 passes downwardly through the opening 23 and, upon striking the deflector plate 60, is diverted radially outward against the circular inner surface of the wall of the housing 6 and flows downwardly along this surface to clean the same by washing or flushing therefrom particles of waste material and carrying the particles downwardly into the comminuting chamber.

In Figs. 8 and 9, a modified form of the annular resilient, rubber splash guard is shown at 145. Here the central opening, which is indicated as 145a, and from which the slits 143 extend radially outward, is reduced in size so that, when the whole stopper 25 is removed entirely from the sleeve 17, the flow of water normally supplied by the sink's faucet during comminuting operations will overflow and close the entire opening 145a, and thereby cut off the noises generated in the comminuting chamber during such comminuting operations. In practice, the area of this opening is approximately the capacity of the discharge openings 23 of the plate element 26, or even a little smaller. Thus, in a splash guard of an exposed total area of about three inches in diameter the opening 145a will be about one inch in diameter, such three inch diameter approximating the diameter of the internal flange 19' of the sleeve 17 and that of the plate element 26, and being therefore approximately three times the diameter of the splash

guard opening 145a. Such arrangement effectively blocks off noises when using a modest, normal water supply delivered by the sink's faucet. Otherwise expressed, the area of the opening 145a and the combined area of the openings 28 may each approximate one eighth to one tenth of the total exposed area of the splash guard 145 and the plate member 26 of the stopper assembly 25.

This distinguishes from the particular relationship of Figs. 1 to 6 where the opening in the splash guard 45 may be two inches in diameter with an exposed over-all diameter of three inches, the area of the opening 45 thus being in the order of one half the over-all exposed area of the splash guard 45.

In the case of all forms of splash guard, as shown in Figs. 1, 2, 5, 6, and 8, these may be retained by being clamped between the flange 12 and the ring or annular connecting member 22, as previously described, or may be permanently secured to either of them, especially the flange 12, as by vulcanizing directly thereto prior to assembly of the parts in the illustrated operative positions.

While I have herein shown and described the improvements as embodied in preferred forms of construction, by way of example, it will be apparent that modifications might be made therein without departing from the spirit of the invention. Consequently, I do not wish to be limited in this respect, but desire to be afforded the full scope of the patent claims.

I claim as my invention:

1. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink; connecting means for retaining said sleeve in the opening; stopper means removably disposed in said sleeve; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and guard means fixedly retained between said housing and said mounting means and operative to reduce splashing of the liquid outwardly from said housing through said sleeve when said stopper means is removed from said sleeve.

2. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink; connecting means for retaining said sleeve in the opening; stopper means removably disposed in said sleeve; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and resilient, annular guard means fixedly retained between said housing and said mounting means and through which the waste material and liquid can pass into said chamber, said guard means being operative to reduce splashing of the liquid outwardly from said housing through said sleeve when said stopper means is removed from said sleeve.

3. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink; connecting means for retaining said

sleeve in the opening; stopper means removably disposed in said sleeve; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and an annular, resilient guard element having its peripheral portion fixedly retained between said housing and said mounting means and partially closing said open end, said guard element being operative to reduce splashing of the liquid outwardly from said housing through said sleeve when said stopper means is removed from said sleeve.

4. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink; connecting means for retaining said sleeve in the opening; a housing member providing a comminuting chamber and having an open upper flanged end through which waste material and liquid can be inserted into said chamber; annular mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and an annular, resilient guard element having its peripheral portion fixedly retained at the top of said housing and partially closing said open end of said housing, said element being operative to reduce splashing of the liquid outwardly from said housing through said sleeve; and a resilient ring interposed between said annular mounting means and said flanged end of said housing member, said ring and said annular, resilient guard element together floatingly supporting said housing member.

5. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink, said sleeve having an internal dimension permitting passage of a human hand therethrough; connecting means for retaining said sleeve in the opening; stopper means removably disposed in said sleeve; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber, said open end having an internal dimension permitting passage of a human hand therethrough; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and an annular guard element of resilient material interposed between said housing and said mounting means and partially closing said open end of said housing, said element being operative to reduce splashing of the liquid outwardly from said housing through said sleeve when said stopper means is removed from said sleeve, said element being slit radially to provide segments on its inner portion adapted to yield so as to permit passage of a human hand into said chamber.

6. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink and having an internal dimension permitting passage of a human hand therethrough, said sleeve having an inclined end; connecting means for retaining said sleeve in the opening; stopper means removably disposed in said sleeve; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be

inserted into said chamber, said open end having an internal dimension permitting passage of a human hand therethrough; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and an annular guard element of resilient material interposed between said housing and said connecting means and partially closing said open end of said housing, said element being operative to reduce splashing of the liquid outwardly from said housing through said sleeve when said stopper means is removed from said sleeve and said element being slit radially to provide segments on its inner portion adapted to flex so as to permit passage of a human hand into said chamber, said segments being inclined and deflected inwardly toward said chamber.

7. A waste disposal device for use in connection with a sink having a vertical drain opening in its bottom portion, comprising: a sleeve disposed within the drain opening and having an inclined flange at its lower end portion providing an annular internal seat and a conical lower end, said sleeve having an internal dimension permitting passage of a human hand therethrough; connecting means for retaining said sleeve in the drain opening; stopper means insertable in said sleeve and adapted to rest upon said seat; a housing member providing a comminuting chamber and having an open upper flanged end through which waste material and liquid can be inserted into said chamber, said open end having an internal dimension permitting passage of a human hand therethrough; annular mounting means surrounding said flanged end of said housing member and carried by said connecting means for mounting said flanged end against said connecting means with the open end of the housing member in axial alignment with said drain opening; and an annular guard element of resilient material having an outer portion secured between said flanged end of said housing member and said connecting means and an inner slitted portion providing internal baffle segments partially closing said open end of said housing member to reduce splashing of the liquid outwardly from said housing through said sleeve when said stopper means is removed from said sleeve, said segments underlying said lower conical end of said sleeve and being deflected downwardly thereby so that liquid striking the lower surface of said segments is deflected radially outward and downward, said baffle segments being adapted to flex so as to permit enlargement of the inner diameter of said annular guard element to facilitate passage of a human hand into said chamber.

8. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink; connecting means for retaining said sleeve in the opening; stopper means removably disposed in said sleeve; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber; mounting means for mounting said housing member on said connecting means with its open end in axial alignment with said opening; yielding guard means fixedly held to said housing and through which the waste material and liquid can pass into said chamber, said guard means being operative to reduce splashing of the liquid outward from said housing member through said sleeve when said stopper means is removed from said sleeve; 75

and a protector element pivotally mounted within the upper end of said housing member and adjacent said guard means, said protector element being normally disposed in a substantially horizontal position to provide an obstruction for preventing insertion of a human hand downwardly into said chamber, but adapted to pivot to a substantially vertical position so as to provide unobstructed access to said chamber.

9. A device as defined in claim 8 in which said protector element is substantially annular.

10. A device as defined in claim 9 in which said protector element has a slot so that filamentary material passing downwardly through said sleeve and wrapping around said protector element can be readily stripped from said element through said slot.

11. A device as defined in claim 8 in which said upper end of said housing member has spaced recesses formed therein, and in which said protector element has pin means pivotally receivable in said recesses to pivotally mount said protector element.

12. A device as defined in claim 8 in which said upper end of said housing member has spaced bosses therein provided with recesses, and in which said protector element has a projection disposed between said bosses and pin means on said projection pivotally disposed in said recesses.

13. A device as defined in claim 8 in which said protector element has a projection which is pivoted in said housing member to pivot said protector, and in which said annular guard means has a clearance slot in its inner circular edge through which said projection of said protector element passes when said protector element is pivoted to substantially vertical position.

14. A device as defined in claim 2 and including a resilient ring interposed between said mounting means and said end of said housing member, said ring and said annular resilient guard means together floatingly supporting said housing member.

15. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink; connecting means for retaining said sleeve in the opening; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and guard means fixedly retained between said housing and said mounting means and operative to reduce splashing of the liquid outwardly from said housing through said sleeve.

16. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink; connecting means for retaining said sleeve in the opening; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and resilient, annular guard means fixedly retained between said housing and said mounting means and operative to reduce splashing of the liquid outwardly from said housing through said sleeve.

17. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening

of the sink; connecting means for retaining said sleeve in the opening; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and an annular, resilient guard element having its peripheral portion fixedly retained between said housing and said mounting means and partially closing said open end, said guard element being operative to reduce splashing of the liquid outwardly from said housing through said sleeve.

18. A waste disposal device for use in connection with a sink having a drain opening, including: a sleeve disposed within the drain opening of the sink, said sleeve having an internal dimension permitting passage of a human hand therethrough; connecting means for retaining said sleeve in the opening; a housing member providing a comminuting chamber and having an open end through which waste material and liquid can be inserted into said chamber, said open end having an internal dimension permitting passage of a human hand therethrough and into said comminuting chamber; mounting means for mounting said housing member against said connecting means with its open end in axial alignment with said opening; and an annular guard element of resilient material interposed between said housing and said mounting means and partially closing said open end of said housing, said element being operative to reduce splashing of the liquid outwardly from said housing through said sleeve, said element being slit radially to provide segments on its inner portion adapted to yield so as to permit passage of a human hand into said chamber.

19. A waste disposal device for use in connection with a sink having a drain outlet, including: housing means providing a comminuting chamber and having at its upper end a tubular inlet opening through which waste material and liquid can be introduced into said chamber and having an annular seat in said opening to receive a stopper, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; and a protector element pivotally mounted adjacent the lower end of said opening and below said seat, said protector element being normally disposed so as to provide an obstruction adapted to prevent insertion of a human hand downward through said opening and into said chamber but permitting the passage of such waste material and liquid thereby into said chamber, said protector element being pivotally movable upwardly in said opening to a position permitting the passage of a human hand past said protector element and through said opening and into said comminuting chamber.

20. A waste disposal device for use in connection with a sink having a drain outlet, including: housing means providing a comminuting chamber and having at its upper end a tubular inlet opening through which waste material and liquid can be introduced into said chamber and having an annular seat in said opening adapted to receive a stopper, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; and a protector element pivotally mounted adjacent the lower end of said opening and below said seat, said protector ele-

ment being normally disposed in a substantially horizontal plane in said opening so as to provide an obstruction adapted to prevent insertion of a human hand downward through said opening and into said chamber but permitting the passage of such waste material and liquid thereby into said chamber, said protector element being pivotally movable upwardly in said opening to a substantially vertical position permitting the passage of a human hand past said protector element and through said opening and into said comminuting chamber.

21. A waste disposal device for use in connection with a sink having a drain outlet, including: housing means providing a comminuting chamber and having at its upper end a tubular inlet opening through which waste material and liquid can be introduced into said chamber, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; and a protector element pivotally mounted within said opening, said protector element being normally disposed in a substantially horizontal plane in said opening so as to provide an obstruction adapted to prevent insertion of a human hand downward through said opening and into said chamber but permitting the passage of such waste material and liquid thereby into said chamber, said protector element being pivotally movable upwardly in said opening to a substantially vertical position permitting the passage of a human hand past said protector element and through said opening and into said comminuting chamber, said protector element being generally annular in form and having an external diameter less than the internal diameter of said opening.

22. A waste disposal device for use in connection with a sink having a drain outlet, including: housing means providing a comminuting chamber and having at its upper end an inlet opening through which waste material and liquid can be introduced into said chamber, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; and a protector element pivotally mounted adjacent to said opening, said protector element being normally disposed in a substantially horizontal plane in said opening so as to provide an obstruction adapted to prevent insertion of a human hand downward through said opening and into said chamber but permitting the passage of such waste material and liquid thereby into said chamber, said protector element being pivotally movable upwardly in said opening to a substantially vertical position permitting the passage of a human hand past said protector element and through said opening and into said comminuting chamber, said protector element being substantially annular in form and having an external diameter less than the internal diameter of said opening and having slot means therein adapted to permit ready removal from said protector element of filamentary material lodging thereon.

23. A waste disposal device for use in connection with a sink having a drain outlet, including: a housing member providing a comminuting chamber and having at its upper end an inlet opening through which waste material and liquid can be introduced into said chamber, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; and a protector element pivotally mounted within

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said opening, said protector element being normally disposed in a substantially horizontal plane in said opening so as to provide an obstruction adapted to prevent insertion of a human hand downward through said opening and into said chamber but permitting the passage of such waste material and liquid thereby into said chamber, said protector element being pivotally movable upwardly to a substantially vertical position permitting the passage of a human hand past said protector element and through said opening and into said comminuting chamber, the portion of said protector element lying in said opening being in the form of a ring having an internal diameter sufficiently small to prevent the passage of a human hand therethrough.

24. A device as in claim 19 wherein said upper end of said housing member is provided with pivot recesses, and said protector is provided with pin means pivoting in said recesses.

25. A waste disposal device for use in connection with a sink having a drain outlet, including: housing means providing a comminuting chamber and having at its upper end a tubular inlet opening through which waste material and liquid can be introduced into said chamber and having an annular seat in said opening adapted to receive a stopper, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; a protector element pivotally mounted within said opening and below said seat, said protector element being normally disposed so as to provide an obstruction adapted to prevent insertion of a human hand downward through said opening and into said chamber but permitting the passage of such waste material and liquid thereby into said chamber, said protector element being pivotally movable upwardly to a position permitting the passage of a human hand past said protector element and through said opening and into said comminuting chamber; and a splash guard disposed across said opening adjacent said protector to reduce splashing outward from said chamber through said opening.

26. A device as in claim 25 in which the protector element has a central opening therein and the splash guard has a central opening therein smaller than the opening of the protector element.

27. A device as in claim 26 wherein the protector element is disposed below the splash guard.

28. A device as in claim 27 wherein said splash guard provides passage means for passage of said pivotal protector element when moved upward to pass an operator's hand.

29. A waste disposal device for use in connection with a sink having a drain outlet, including: housing means providing a comminuting chamber and having at its upper end an inlet opening through which waste material and liquid can be introduced into said chamber, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; and yieldable guard means secured adjacent said opening of said housing means and operative to reduce splashing of liquid outwardly from said chamber through said opening, said guard means having an opening therethrough smaller than said inlet opening for passage of waste material and water running into said chamber.

30. A device as in claim 29 wherein said yieldable guard means is provided with slits radiating

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from said opening therein, such opening being small, to be closed by water running into said chamber.

31. A device as in claim 29 wherein said inlet opening of said housing means is vertically elongated and has a seat adapted to receive a stopper in the lower portion thereof, and said guard means is disposed below said seat.

32. A device as in claim 29 wherein said yieldable guard means has slits radiating from its opening providing yieldable segments adapted to pass a human hand and waste material larger than such opening.

33. A device as in claim 32 wherein the area of said opening of said guard means approximates one tenth of the area of said housing opening.

34. A device as in claim 29 wherein said guard means has an opening therethrough to pass waste material, such opening approximating in area one-half the area of said housing opening.

35. A waste disposal device for use in connection with a sink having a drain outlet, including: housing means providing a comminuting chamber and having at its upper end a vertically elongated tubular inlet opening having a seat for a stopper and through which waste material and liquid can be introduced into said chamber, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; and guard means secured adjacent the lower end of said opening of said housing means below said seat and operative to reduce splashing of liquid outwardly from said chamber through said opening.

36. A device as in claim 35 wherein said guard means is normally disposed in a substantially horizontal position and is yieldable to pass a human hand and waste material.

37. A waste disposal device for use in connection with a sink having a drain outlet, including: a housing member providing a comminuting chamber and having at its upper end an inlet opening through which waste material and liquid can be introduced into said chamber, said opening having an internal dimension sufficiently large to permit the insertion of a human hand therethrough into said comminuting chamber; a protector element pivotally mounted within said opening, said protector element being normally disposed so as to provide an obstruction adapted to prevent insertion of a human hand downward through said opening and into said chamber but permitting the passage of such waste material and liquid thereby into said chamber, said protector element being pivotally movable upwardly to a position permitting the passage of a human hand past said protector element and through said opening and into said comminuting chamber; and a splash guard disposed across said opening adjacent said protector to reduce splashing outward from said chamber through said opening, said protector being disposed below said splash guard and having a projection from one side thereof, said projection having pivot means engaging cooperating pivot means on the upper end of said housing member, and said splash guard having a slot adjacent said projection for passage of said projection when said protector is pivoted upward.

38. A device as in claim 36 wherein said guard means is substantially annular and only partially closes said opening.

39. A device as in claim 36 including an annu-

lar hand guard movably mounted on said housing means below said seat to obstruct the insertion of the human hand into said comminuting chamber and to move vertically in said opening to permit introduction of such hand, said hand guard having therethrough a passage to pass waste material to be comminuted but smaller than said inlet opening.

40. A waste disposal device including: housing means having walls defining a comminuting chamber and providing a tubular open upper end having a stopper seat and through which open end waste material and flush liquid can be introduced into said chamber; stopper means adapted to rest on said seat and to be raised thereabove, said stopper means having a vertical stem, said stem having a deflector plate on the lower end thereof, said deflector plate having a smaller diameter than said seat to pass through said seat and to divert liquid introduced through said open end radially outward toward said walls; and a hand guard mounted on said housing means below said seat to prevent introduction of the human hand into said chamber, said hand guard having an opening smaller than the diameter of said seat and larger than said deflector plate to pass material to be comminuted and passing said deflector plate when said stopper is placed on said seat.

41. A device as in claim 40 including: a yielding splash guard disposed adjacent said hand guard and below said seat.

42. A device as in claim 40 including: a yielding splash guard disposed adjacent said hand guard and below said seat and providing passage means for passage of said deflector plate there-through.

43. A device as in claim 40 wherein said stopper means includes a plate member to rest on said seat, said plate member having guide means movably mounting said stem and deflector plate thereon.

44. A waste disposal device including: housing means having walls defining a comminuting chamber and providing a tubular open upper end having a stopper seat and through which open end waste material and flush liquid can be introduced into said chamber; stopper means adapted to rest on said seat and to be raised thereabove, said stopper means having a vertical stem, said stem having a deflector plate on the lower end thereof, said deflector plate having a smaller diameter than said seat to pass through said seat

and to divert liquid introduced through said open end radially outward toward said walls; and a splash guard mounted on said housing means below said seat and having a passage therethrough smaller than the diameter of said seat and larger than the diameter of said deflector plate to pass material therethrough to be comminuted and passing said deflector plate when said stopper is placed on said seat.

45. A waste disposal device for use in connection with a sink having a drain outlet, including: housing means providing a grinding chamber and having at its upper end tubular inlet means providing an inlet opening to be aligned with said outlet and through which waste material and flushing liquid can be introduced into said chamber, said opening having an internal dimension sufficiently large to pass waste material to be ground, said inlet means enclosing means for positioning stopper means; and yieldable guard means retained adjacent said stopper-positioning means and spanning said opening to reduce splashing of liquid from said chamber upward through said opening, said guard means having an opening smaller than said inlet opening for the passage of water therethrough and having slits radiating from its opening and providing yieldable segments for the passage of material larger than such small opening of said guard means.

46. A device as in claim 45 wherein said opening of said yieldable guard means approximates about only one tenth of the area of said inlet opening.

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