Sept. 22, 1970 W. J. GORMAN ET AL 3,529,779

SANITARY DISPOSAL UNIT

Filed Oct. 18, 1967 2 Sheets-Sheet 1

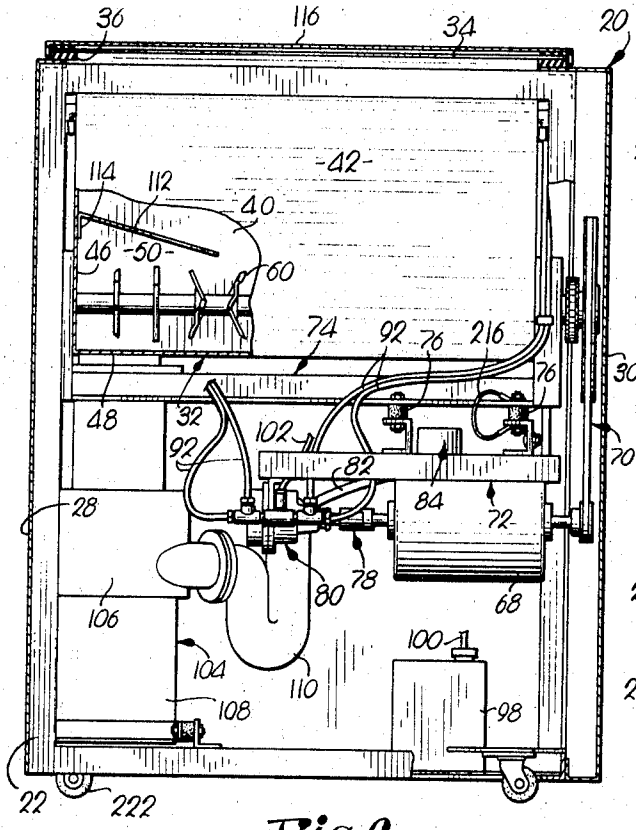


Fig.2.

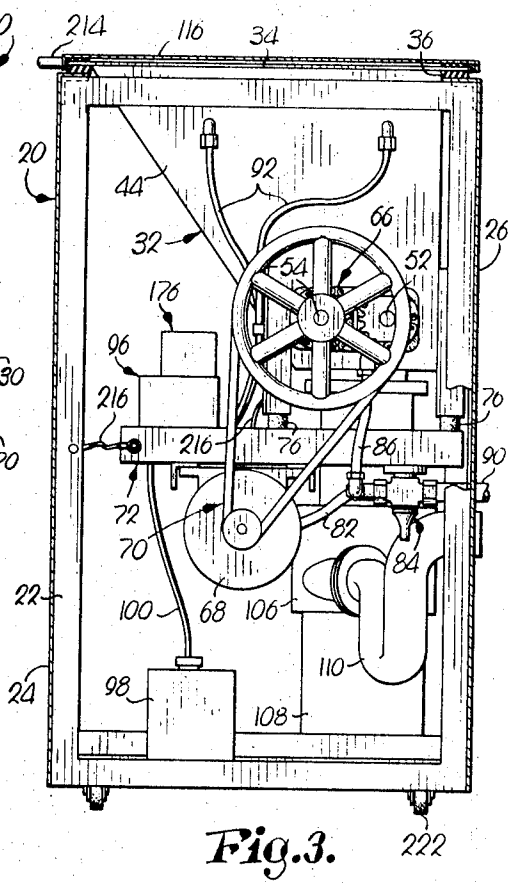


Fig.3.

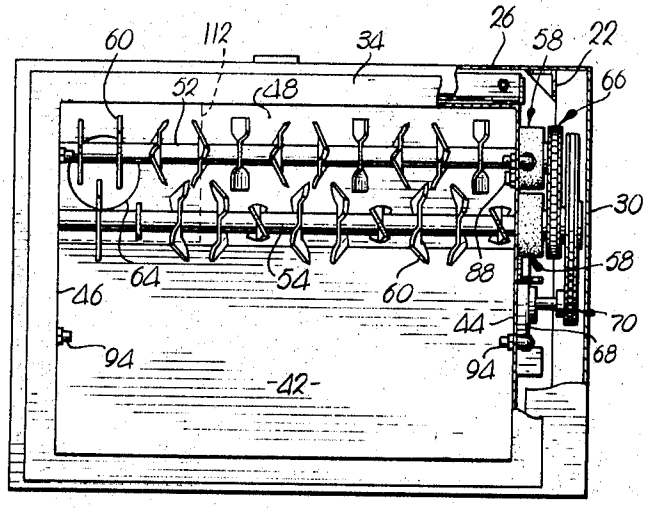


Fig.4.

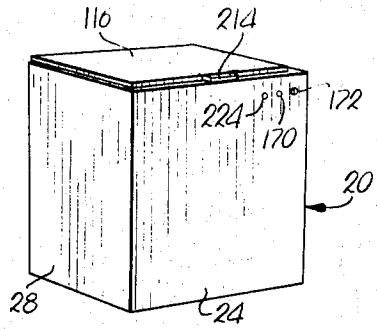


Fig.1.

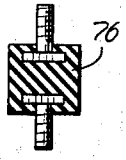


Fig.10.

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SANITARY DISPOSAL UNIT

Filed Oct. 18, 1967 2 Sheets-Sheet 2

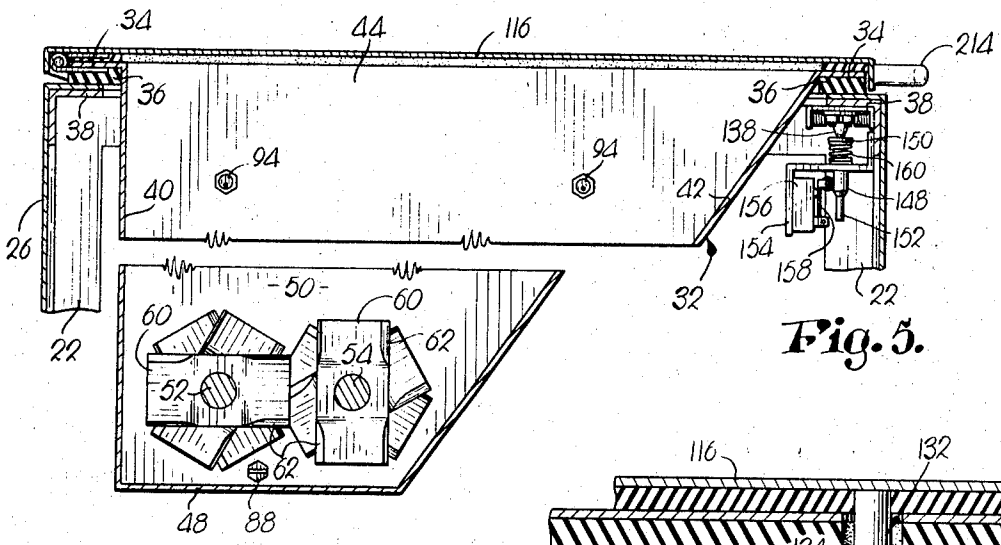


Fig. 5.

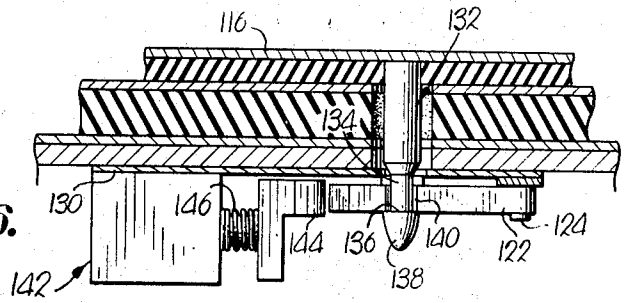


Fig. 6.

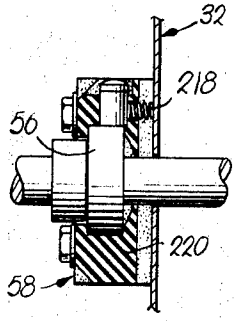


Fig. 8.

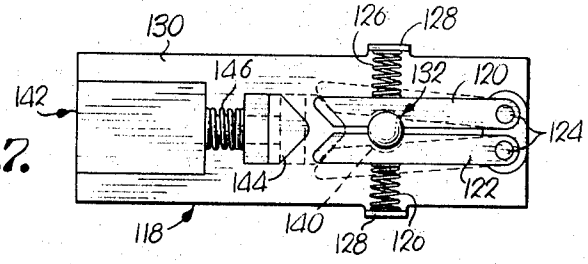


Fig. 7.

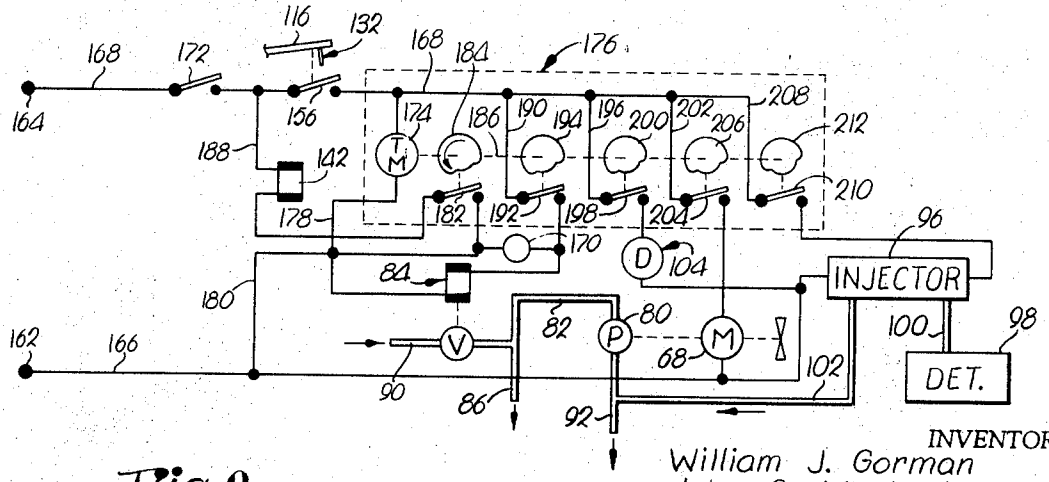


Fig. 9.

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3,529,779

SANITARY DISPOSAL UNIT

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Int. Cl. B02c 13/22
U.S. Cl. 241—38 7 Claims

ABSTRACT OF THE DISCLOSURE

A conditioner for waste material having a substantial paper content comprising a receiver having a pair of parallel, rotatable shafts extending across the receiver and provided with knives for comminuting the paper. Water at high pressure is introduced into the receiver through nozzles to direct the water downwardly and in a direction to urge the paper material into engagement with the knives. Some of the knives are angled to advance the material toward an outlet opening for discharge into a waste disposer and subsequent passage to a sewer line or the like. An injector is provided to intermittently introduce a treating agent such as a detergent and disinfectant into the water supply. Electrical circuitry provided with a timer operate the components in timed sequence and a cabinet cover latch and switch insure that the apparatus operates only when the cover is closed.

This invention relates to waste disposers and, more particularly, to apparatus for the sanitary disposal of waste material having a high paper content, such as that from a hospital which uses disposable paper containers and other materials. With the advent of paper utensils which are practical for use as bedpans or the like, hospitals, nursing homes and similar institutions are increasingly desirous of taking advantage of the increased sanitation and convenience offered by such utensils. However, satisfactory disposal of waste, including paper utensils, has heretofore presented serious problems which have either prevented or severely curtailed use of such utensils.

Increased emphasis on elimination of air pollution, together with the fact that such waste often includes noncombustible matter, has generally eliminated incineration as a satisfactory means of disposal. Attempts have been made to pass such material through conventional waste or garbage disposers, but insufficient comminution of the paper content of the material has heretofore resulted in clogging of such conventional disposers.

Accordingly, it is the primary object of this invention to provide apparatus which is capable of handling waste material having a substantial paper content to precondition the material so that the material is in a state for final comminution by conventional garbage disposers for subsequent passage to a sewer line or the like.

It is another important object of this invention to provide apparatus which is simple and easy to operate, yet which is capable of disposing of such waste material in a sanitary and efficient manner and with a minimum of operator attention.

Still another object of this invention is to provide apparatus of the type described which automatically introduces both a wetting agent to enhance the comminution of paper material and a disinfectant to eliminate the likelihood of the spread of disease or the contamination of the disposal apparatus by germs or the like.

A yet further important object of the invention is to provide apparatus utilizing vibration dampening mounting means for various components to minimize the noise attendant upon operation of the machine.

Another object of this invention is to provide disposal apparatus provided with a cabinet having a novel cover latch to insure that the apparatus is prevented from operating unless the cover is closed to thereby insure safe operation of the apparatus.

These and other important objects of the instant invention will be further explained or become apparent from the description, claims and drawings.

In the drawings:

FIG. 1 is a top perspective view on a reduced scale of a machine embodying the principles of this invention, showing the front and one end thereof;

FIG. 2 is a front elevational view of the machine, parts being broken away and shown in cross section to reveal details of construction;

FIG. 3 is a side elevational view thereof, parts being broken away and appearing in cross section to reveal details of construction;

FIG. 4 is a top plan view thereof, the cover and baffle being removed and parts being broken away to reveal details of construction;

FIG. 5 is an enlarged, fragmentary, vertical, cross-sectional view through the material receiver and knife assembly;

FIG. 6 is an enlarged, fragmentary, vertical, cross-sectional view through the cabinet and cover, parts of the cover latch being shown in side elevation;

FIG. 7 is an enlarged, bottom plan view of the cover latch, alternate positions of the components thereof appearing in phantom;

FIG. 8 is an enlarged, fragmentary, vertical cross-sectional view through one of the knife shaft mountings;

FIG. 9 is a schematic diagram illustrating both the electrical and fluid circuitry of a machine embodying the principles of this invention; and

FIG. 10 is an enlarged, vertical, cross-sectional view through one of the mountings for minimizing vibration of the components of this machine.

The machine embodying the principles of this invention is broadly designated by the numeral **20** and includes a generally rectangular frame **22** covered by a front panel **24**, a rear panel **26** and side panels **28** and **30**. A waste material receiver broadly designated by the numeral **32** is provided with a peripherally extending flange **34** which rests upon a peripherally extending, resilient mounting gasket **36** which is, in turn, supported by an inwardly extending flange **38** of frame **22** as best seen in FIG. 5. Thus, the open top receiver **32** is suspended by frame **22** in a manner to permit receiver **32** to hang downwardly into the machine within the confies of panels **24–30**.

Receiver **32** includes a substantially vertically extending rear wall **40**, an inclined front wall **42**, and a pair of opposed end walls **44** and **46** respectively. The walls **40–46** are interconnected at the lowermost edges thereof with a substantially horizontally extending bottom wall **48** to define a trough **50** extending entirely across receiver **32** at the lowermost portion thereof. A pair of elongated, transversely circular shafts **52** and **54** are journalled in end walls **44** and **46** by bearings **56** which are mounted in resilient brackets **58** to be more fully described hereinafter. Shafts **52** and **54** are disposed in substantial parallel relationship in trough **50** adjacent the bottom wall **48** as illustrated particularly in FIG. 5. Each shaft is provided with a plurality of longitudinally spaced, radially extending knives **60**, the knives of shaft **52** being offset with respect to the knives of shaft **54** as illustrated best in FIG. 4.

It should be noted that each knife **60** is of generally rectangular configuration with the respective shaft **52** or **54** passing through the midpoint of the knife. The knives

are rigidly mounted on the respective shafts as by welding or the like for rotation with the shafts as the latter rotate in their respective bearings as will be hereinafter described. Diametrically opposite corner edges of each knife are sharpened as at **62** as is clearly illustrated in FIG. 5.

Referring now to FIGS. 2 and 4, it may be seen that some of the knives **60** on each shaft are bent at the outermost ends, while other knives **60**, which are located in generally overlying relationship to a discharge opening **64** in bottom **48** of the material receiver **32**, remain essentially flat. Furthermore, the knives **60** mounted on shaft **52** are substantially identical with the knives **60** mounted on shaft **54** and each of the bent knives **60** are bent in a direction to impart a generally longitudinal movement of waste material in receiver **32** in the direction toward discharge opening **64** as the shafts are rotated in a clockwise direction as viewed in FIG. 5. The knives **60** which are not bent are situated adjacent discharge opening **64** to enhance the movement of the waste material into opening **64** as will be more fully explained hereinafter.

Shafts **52** and **54** are connected at one end with a chain and sprocket assembly **66** and shaft **54** is interconnected to an electric motor **68** by a pulley and belt assembly **70**. Motor **68** is mounted on a subframe **72** which is suspended from an intermediate portion **74** of frame **22** through resilient mounting members **76**, one of which is illustrated in detail in FIG. 10. Thus, subframe **72** is mounted in a manner to dampen the vibrations which are attendant upon operation of motor **68** to prevent such vibrations from being transmitted to frame **22**.

Motor **68** is also interconnected through a coupler **78** with a high pressure pump **80** (FIG. 2), the inlet of which communicates through line **82** with a solenoid operated water valve **84**. A line **86** emanating from valve **84** terminates in a nozzle **88** (FIGS. 4 and 5) disposed at the end of trough **50** remote from discharge opening **64**. Valve **84** is, in turn, connected to a source of pressurized fluid such as a water supply line **90** or the like.

The high side of pump **80** is provided with a plurality of feeder lines **92** which communicate with corresponding nozzles **94** disposed in ends **44** and **46** as illustrated best in FIGS. 3, 4 and 5. It should be noted that nozzles **94** are disposed substantially above the elongated knife and shaft assemblies comprised of shafts **52** and **54** and knives **60**. Further, the nozzles are in position to emanate liquid in a generally downwardly direction while flooding the entire inner surface of material receiver **32** as will be described hereinafter.

A liquid material injector **96** of conventional construction is mounted on subframe **72** and communicates with a treating agent container **98** through a conductor **100**. The injector **96** may be of any suitable type such as that commonly employed in washing machines for introducing detergent or any other conditioning agent into the water. Injector **96** communicates with the high side of pump **80** through a line **102** (FIG. 2) which discharges at a point upstream from the inlet ends of the respective lines **92**.

A conventional heavy duty waste disposer **104** such as is manufactured and sold by The Salvajor Company, Kansas City, Mo., under the designation "Salvajor Model J-H," and which includes a grinding unit **106** and a motor **108** is mounted on frame **22** in communication with discharge opening **64** of material receiver **32** and, in turn, is coupled with a pipe **110** for receiving material handled by machine **20**. It is contemplated that pipe **110** will normally comprise a part of a sewer line or the like. However, it will be recognized by those skilled in the art that pipe **110** could also lead to any other suitable receiver for the treated material handled by machine **20**.

Referring now to FIG. 2 of the drawings, it will be noted that an elongated, generally rectangular baffle **112** is mounted on wall **46** and extends in partially overlying relationship above the shafts **52** and **54** and their respective knives **60**. Baffle **112** is substantially rectangular in configuration with a downwardly inclined flange **114** for mounting the same to end **46** by welding or the like.

Referring now particularly to FIGS. 5–7, machine **20** is provided with a hinged cover **116** which is secured at the front with a latch broadly designated **118**. Latch **118** includes a pair of opposed, swingable jaws **120** and **122** pivotally mounted at their respective ends on pins **124** for movement toward and away from the full-line positions thereof illustrated in FIG. 7. Springs **126** retained by downwardly extending projections **128** integral with a mounting frame **130** urge the jaws toward the full-line position of FIG. 7.

The outermost ends of jaws **120** and **122** are inclined as illustrated to define therebetween a substantially V-shaped notch when the jaws are in position adjacent the path of travel of an elongated, transversely circular pin **132** carried by cover **116**. Pin **132** has a portion **134** intermediate its ends of reduced transverse dimension to present an upwardly facing shoulder **136** on pin **132** in spaced relationship to the lowermost pointed end **138** thereof. It will be apparent to those skilled in the art that when cover **116** is in its closed position, pin **132** extends between jaws **120** and **122** of latch **118**, and the jaws engage shoulder **136** to prevent lifting of cover **116**. Jaws **120** and **122** are conveniently provided with indentations **140** for generally complementally embracing pin **132**, and also to permit ready insertion of the pointed end thereof between the jaws even when the jaws are biased toward one another by springs **126**. A solenoid **142** mounted on frame **130** has an armature including a generally V-shaped nose **144** which moves along a path of travel toward and away from the V-shaped notch defined by the outermost ends of the jaws **120** and **122**. Nose **144** is normally biased toward jaws **120** and **122** under the influence of a spring **146** whereby the nose **144** engages the jaws and spreads them apart to the dotted line positions thereof illustrated in FIG. 7. However, when solenoid **142** is energized, nose **144** is withdrawn and the jaws assume the full-line positions of FIG. 7 as heretofore explained.

A plunger **148**, provided with an uppermost pressure plate **150** and a lowermost portion **152** of reduced diameter, is mounted by means of a generally Z-shaped bracket **154** on frame **22** immediately beneath pin **132** when the cover **116** is in its closed position. A switch **156** having an operating arm **158** is also mounted on bracket **154** as illustrated best in FIG. 5 in disposition for operation of arm **158** by plunger **148** as will be hereinafter described. A spring **160** between bracket **154** and pressure plate **150** urges plunger **148** upwardly to a position where arm **158** engages the portion **152** of reduced diameter of plunger **148**. On the other hand, when cover **116** is closed, as illustrated in FIG. 5, the lowermost pointed end **138** of pin **132** engages pressure plate **150** and forces the plunger downwardly so that operating arm **158** of switch **156** is moved outwardly by engagement with the portion of increased diameter of plunger **148**.

Referring now to FIG. 9 wherein is illustrated a schematic wiring diagram and illustration of the fluid conduits, it may be seen that power for operating machine **20** is provided by a pair of terminals **162** and **164**. A power line **166** leads from terminal **162**, and a line **168** is coupled with terminal **164**. A switch **172** which may be of the type which can be operated with a key is interposed in line **168** and also may be mounted in front panel **24** of machine **20** as illustrated in FIG. 1. Switch **156**, heretofore described, is interposed in line **168** between switch **172** and a motor **174** of a timer **176** which controls the sequential operation of the various components of machine **20**. Referring to FIG. 3, timer

176 is mounted on subframe 72 in relative proximity to injector 96.

The other side of timer motor 174 is coupled through a line 178 to a line 180 which is, in turn, connected to line 166. Line 180 is connected to one contact of a timer switch 182 which may be operated by a cam 184 carried on a timer shaft 186 which is driven by motor 174. The other side of switch 182 is connected to the latch solenoid 142 which is, in turn, coupled through a line 188 to line 168 between switches 156 and 172.

A line 190 leads from line 168 to the solenoid of valve 84 through a timer switch 192 operated by a timer cam 194. The other side of the solenoid of valve 84 is connected to line 180. A pilot light 170 which may conveniently be mounted on the front panel 24 of machine 20 as illustrated in FIG. 1, is coupled between switch 192 and line 180 in parallel with the solenoid of valve 84. A line 196 is connected to the motor of disposer 104 through a switch 198 operated by timer cam 200. The other side of the motor of disposer 104 is connected to line 166. A line 202 is coupled with one side of motor 68 which operates the shaft and knife assembly and pump 80. A switch 204 operated by timer cam 206 is interposed in line 202. Still another line 208 is electrically connected to the injector 96 through a switch 210 operated by timer cam 212.

In operation of machine 20, waste material such as that which is generated at a hospital, nursing home, or the like and which contains a relatively high paper content, such as disposable bedpans or similar receptacles, or other fibrous products such as paper napkins, aprons, shields, etc., is deposited by the hospital personnel in the open top receiver 32. After the waste material is deposited in receiver 32 the attendant closes cover 116 to initiate operation of the disposal cycle. Manifestly, it is contemplated that machine 20 will be electrically coupled with a source of electrical energy and switch 172 closed prior to placing the waste material in receiver 32.

The act of closing lid 116 closes switch 156 through physical engagement of the projecting pin 132 against plunger 148 as heretofore described. The closing of switch 156 energizes the timer motor 174 for automatically controlling the sequence of operations to be hereinafter explained. It should be pointed out at this juncture that jaws 120 and 122 of latch 118 automatically operate to hold lid 116 closed by virtue of the fact that the closing of switch 172 to place machine 20 in readiness for operation, results in energizing of solenoid 142 to withdraw nose 144 to the full-line position shown in FIG. 7.

As timer motor 174 begins to rotate shaft 186, the respective cams 184, 194, 200, 206 and 212 are also rotated. The cams are shown schematically in the drawings and no attempt has been made to illustrate the precise cam configuration nor to show the cams in their exact positions of relative rotation in FIG. 9. Rather, it will be readily understood by those skilled in the art that the cams are adjusted with respect to one another to effect the sequence of operations to be hereinafter explained. Cam 194 initially closes switch 192 to energize pilot light 170 and to open valve 84 to admit water to machine 20. The water passes through line 86 and emanates at nozzle 88 to wash any water-flushable material toward and through discharge outlet opening 64. The spray pattern emanating from nozzle 88 is such that it gives a rather broad flushing pattern capable of moving most flushable material into the outlet opening.

Shortly after valve 84 is opened, cam 200 operates switch 198 to energize the electric motor of disposer 104. This moves the flushed material on into pipe 110 for discharge from the machine and also tends to eliminate any residue from the preceding disposal cycle. Both the flow of water through nozzle 88 and operation of the disposer 104 continue throughout the entire cycle of machine 20.

About two seconds following energizing of the disposer motor, cam 206 closes switch 204 to energize motor 68. This initiates rotation of shafts 52 and 54 also initiates operation of pump 80 to provide high pressure water to nozzles 94. Shafts 52 and 54 rotate in a clockwise direction as viewed in FIG. 5 at speeds of approximately 600 r.p.m.'s. The water from nozzles 94 provides a thorough flushing of the material downwardly from the sides of receiver 32 into trough 50 and the force of the water tends to urge all of the paper and solid content of the waste material into contact with the rotating knives 60. The knives 60 provide a chopping action and, although they have a tendency to bounce the material and particularly the paper content thereof away from contact with their leading cutting edges 62, the continued application of the high pressure water from nozzles 94 repeatedly brings the paper material back into contact with the high speed, sharpened edges 62 for chopping the paper into relatively small fragments. It is contemplated that the water emanating from nozzles 94 should be at a pressure in the order of 200 pounds per square inch to provide the force which is advantageous for holding the paper against the rotating knives. Manifestly, water at this pressure continues to clean the sides of the receiver 32 and also contributes to the general flushing action toward discharge outlet 64. The flushing action of the water from nozzle 88 continues throughout the cycle.

The angle at which the outermost ends of the bulk of the knives 60 are disposed with respect to the axes of shafts 54 and 52 insure that the knives serve as impellers for moving the material longitudinally of the shafts toward opening 64. Further, the fact that those knives 60 which are disposed in immediate proximity to openings 64 are not angled insures that such knives will not move the material away from opening 64. Rather, the knives continue the chopping action on the waste material but tend to force it down into opening 64.

Inasmuch as the material handled does have a high paper content, it has been found to be extremely important for proper comminution of the material that a treating agent such as a detergent be added to the water sprayed from nozzles 94 to thoroughly soak the paper. Thus, cam 212 closes switch 210 to energize injector 96 shortly after motor 68 is energized. This causes an introduction of the treating agent (which may also include a disinfectant for destroying disease germs or the like in the material to be disposed). The treating agent is introduced into the high pressure line and is distributed thoroughly throughout the entire content of receiver 32 as the disposing operations continues. It is contemplated that ejector 96 will be of a type which is commercially available and readily known to those skilled in this art so that no further description is necessary. Manifestly, it is contemplated that the ejector may be of any type which intermittently ejects the material into the fluid stream. A time interval of approximately 10 or 15 seconds between injections which are of approximately two seconds duration has been found to be effective when the treating agent, comprised of a combination disinfectant and detergent, is utilized.

The comminution effected by the knives 60 of this machine results not only from a cutting action on the paper products, but also a tearing of the fibers occurs such that the material has generally the consistency of a slurry by the time it is discharged through outlet opening 64. The wetting action afforded by the detergent assists materially in the disengaging of the paper fibers from one another.

The material so disintegrated is conducted to the disposer 104 and it is in such a condition that there is no tendency for the material to clog the disposer. Rather, the material is handled by the disposer in the conventional manner similar to the handling by disposers of this type of kitchen waste products wherein the material is further comminuted and discharged into the sewer line.

The length of time machine 20 must operate to trans-

form the material into the condition described and which may readily be handled by disposer **104** may vary, depending upon the type and amount of waste material generated at a particular institution. Accordingly, the characteristics of timer **176** are chosen with consideration to the speed of motor **174** to effect complete transformation of the material as described from the time the cycle is initiated until the timer automatically terminates the cycle.

Not to be overlooked is the elongated, sloping front wall **42** which serves to continually direct the material which may be thrown from the rotating knives **60** back to trough **50** for successive engagement with the knives. Of similar import is the baffle **112** which serves to direct the material falling thereon toward those rotating knives which are located relatively remote from opening **64**. This action continues until the particles have been comminuted to a size where they are not readily thrown from the knives, whereupon they may gravitate through opening **64**. This helps in preventing inadvertent transfer of relatively large particles to disposer **104** where clogging might occur.

Cover **116** may conveniently be provided with a handle **214** for opening and closing lid **116**, and it can be seen that the operator may dispose of the waste material into receiver **32** without need for coming into close contact with the knives **60**. Further, whenever lid **116** is open, switch **156** is automatically opened to disable the circuitry leading to the moving components of the machine. This further insures the safety of the operator and also positively prevents against initiation of the cycle when the cover **116** is not in a position to deflect any rebounding particles back down into the comminuting assembly.

At the end of the cycle, the timer motor **174** has rotated cam **184** to a position which opens switch **182**. This deenergizes solenoid **142** whereupon nose **144** enters the V-shaped notch defined by jaws **120** and **122** to spread the latter part. Pin **132** and cover **116** are thereupon urged upwardly under the influence of spring **160** for partially opening cover **116** to an extent to permit switch **156** to open and disable the electrical circuit to the operating components of the machine. This results in deenergizing of pilot light **170** and in the closing of valve **84**, deenergizing of motor **68** and deenergizing of motor **104** of disposer **106**. Further, power is removed from the injector **96**.

Manifestly, timer **176** is constructed whereby the cams are in positions at the end of the cycle which were described with respect to initiation of the cycle and are thereby ready for re-initiation of the succeeding cycle. This is accomplished when lid **116** is again closed and held for a sufficient length of time for timer motor **174** to have an opportunity to rotate cam **184** a sufficient time increment to close switch **182**. The cover **116** may thereupon be released and it will again remain locked by jaws **120** and **122** while solenoid **142** remains energized.

It is contemplated that the walls of receiver **32**, as well as shafts **52** and **54** and knives **60**, will be constructed from stainless steel to facilitate the cleaning of the receiver and to prevent corrosion of any of the components. Further, it should be pointed out that the resilient mounting of receiver **32** and bearings **56**, as well as the resilient mounting of subframe **72** and disposer **104**, reduces the noise level attendant upon operation of machine **20** to a bare minimum. This feature is especially well suited for installation of machine **20** in hospitals or the like. Even though machine **20** operates in an extremely quiet manner however, an operator is advised when the cycle is terminated since cover **116** automatically moves upward slightly at the end of the cycle and pilot light **170** is deenergized. The operator may merely observe the position of the cover **116** or the condition of pilot light **170** to know whether or not the cycle is completed.

It will be recognized by those skilled in the art that switch **156** might be of the mercury type and could be mounted for movement with cover **116** whereby the physical position of cover **116**, when the latter is not in its fully closed position, would disable timer **176**. In addition, those skilled in the art will recognize further modifications which could be accomplished without departing from the spirit of this invention.

Means is provided to prevent a buildup of static electricity to reduce the hazard of fire should combustible materials such as alcohol, ether or the like be placed in the machine. This also minimizes the danger from operation of the machine in an environment where combustible gases may be present. Thus, grounding straps **216** (FIGS. 2 and 3) electrically interconnect subframe **72** and receiver **32** with main frame **22** because the subframe and receiver are otherwise electrically isolated from the main frame due to insulation of the resilient mounting described above. Bearings **56** for each of the shafts **52** and **54** are also provided with an electrical grounding spring **218** (FIG. 8) electrically coupling the respective bearings with frame **22** through the proximal side wall of the machine. This drains off any electrical charge which might otherwise build up in the bearings **56** because of the electrical isolation afforded by the resilient body **220** of each bearing bracket **58**.

It will be understood that machine **20** may be constructed for fixed installation or it may be portable. When intended for portable operation, casters **222** are constructed of electrically conductive rubber or other resilient material so that any electrical charges are conducted through the casters to ground. Manifestly, a grounding wire may be used to ground the machine in a conventional manner.

If the machine is to be used as a portable unit, appropriate "quick disconnect" couplings will be used at the discharge line and at the water inlet. Both the inlet and outlet lines are, of course, preferably provided with suitable check valves to prevent any backflow through the lines.

The machine may, however, be installed in a stationary position. The "quick disconnect" couplings and the check valve in the discharge outlet may thereupon be omitted if desired. Further, the casters are not necessary and a fixed grounding wire may be substituted for preventing the buildup of any electrical charge and to render the machine safe for operation.

It is contemplated that a suitable indicating system should be provided for sensing and revealing the quantity of treating material in container **98**. This system forms no part of the present invention per se and has, therefore, not been illustrated in detail. It suffices to say that the system may include spring means normally carrying the weight of container **98** with an electrical switch disposed for energizing a warning light **224** mounted in front panel **24** to indicate the condition of container **98** having a relatively small supply of treating material.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In apparatus for disposing of waste material having a substantial paper content and including a waste disposer, a conditioner for said waste material for shredding said paper and conducting the material to the disposer, said conditioner comprising:

a waste receiver provided with an outlet opening;

a pair of elongated shafts mounted for rotation on said receiver, extending generally toward said opening and spanning the distance thereacross, each shaft having a plurality of longitudinally spaced, radially extending knives rigidly secured thereto for rotation therewith, at least some of said knives being disposed at an angle with respect to said shaft and in a direction for imparting movement of said material toward said opening as the material is contacted by said rotating knives;

a plurality of fluid nozzles mounted in the receiver at an elevation higher than said shafts and adapted for

coupling with a source of fluid under pressure, said nozzles being directed generally downwardly and toward said shafts for urging paper into contact with said knives;

means coupled with said shafts for rotating the same; and

means communicating said outlet opening with said disposer.

2. The invention of claim 1, wherein said outlet opening is disposed proximal one end and below said shafts, a plurality of said knives adjacent said opening being substantially flat and disposed for rotation in planes perpendicular to the axis of the corresponding shaft for comminution of said waste material without movement thereof longitudinally of the shaft, whereby to facilitate movement of the material through said outlet opening.

3. The invention of claim 2, said shafts being disposed in parallel relationship.

4. The invention of claim 2, and a baffle in the receiver in partial overlying relationship to said shafts, said baffle sloping downwardly and extending from the ends of the shafts adjacent said outlet opening toward the opposite ends of said shafts for conducting material in the receiver toward said opposite end by gravity, whereby the material is forced to proceed longitudinally of said shafts in relatively close proximity thereto for enhanced comminution as the material moves toward said outlet opening.

5. The invention of claim 2, at least some of said knives having a sharpened leading edge.

6. In apparatus for disposing of waste material having a substantial paper content and including a waste disposer, a conditioner for said waste material for shredding said paper and conducting the material to the disposer, said conditioner comprising:

a waste receiver provided with an outlet opening:

a pair of elongated shafts mounted for rotation on said receiver and spanning the distance thereacross, each shaft having a plurality of longitudinally spaced, radially extending knives rigidly secured thereto for rotation therewith;

a plurality of water nozzles mounted in the receiver at an elevation higher than said shafts and adapted for coupling with a source of water under pressure, said nozzles being directed generally downwardly and toward said shafts for urging paper into contact with said knives;

means coupled with said shafts for rotating the same;

means communicating said outlet opening with said disposer;

a motorized pump communicating with said water source and with said nozzles for increasing the pressure of the water between the source and said nozzles,

means for injecting a treating agent into the water between the pump and said nozzles,

control means operably coupled with the shaft rotating means, said pump and said injector means for operating the same in predetermined timed relationship for comminuting said waste material through the action of said knives on the material as water and said agent are introduced into the receiver for treating the material and holding the paper against said knives;

a cover for the receiver; and

disabling means operably coupled with said control means and said cover for preventing rotation of said shafts and operation of the pump and injector means when said cover is removed from the receiver.

7. The invention of claim 6, said control means including a timer and electrical circuitry connecting the timer with said shaft rotating means, the pump and said injector, the disabling means including a normally open electrical switch interposed in said circuitry and disposed for operation by said cover, whereby said switch is closed by said cover when the latter is in its closed position on said receiver.

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