

[54] **AUTOMATIC CLEANING SYSTEM FOR A HABITABLE ENCLOSURE**

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[51] Int. Cl. **A47k 17/00**

[58] Field of Search **4/1, 145-156, 4/2-5, 173; 52/69, 79; 134/167 R-169 R**

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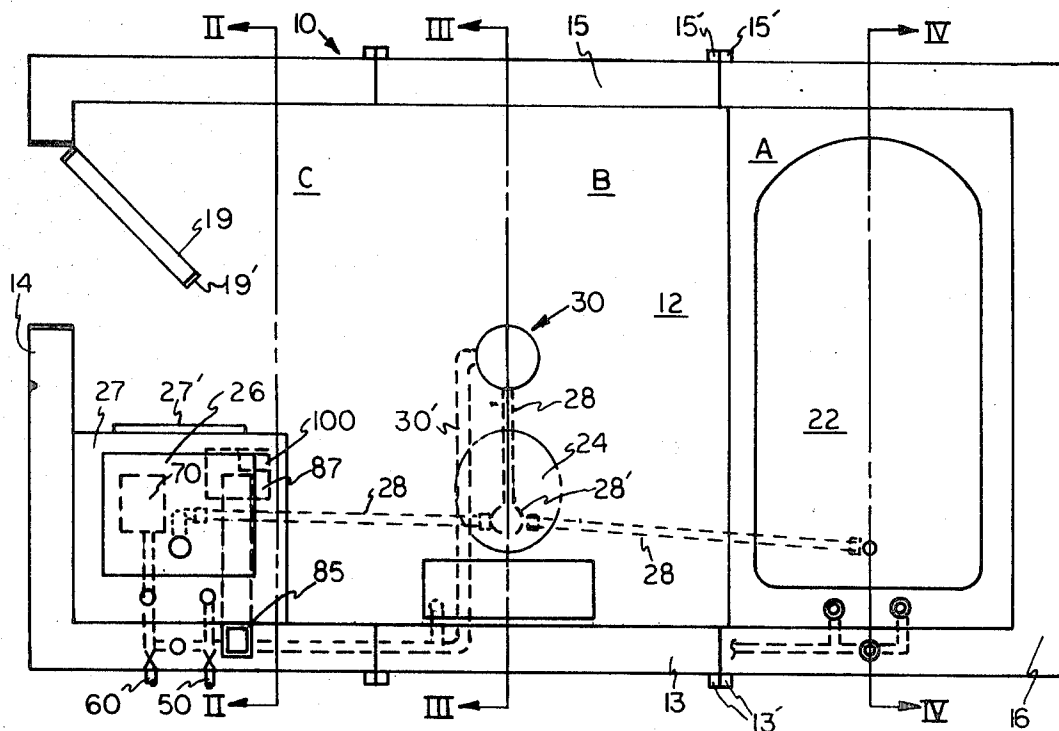
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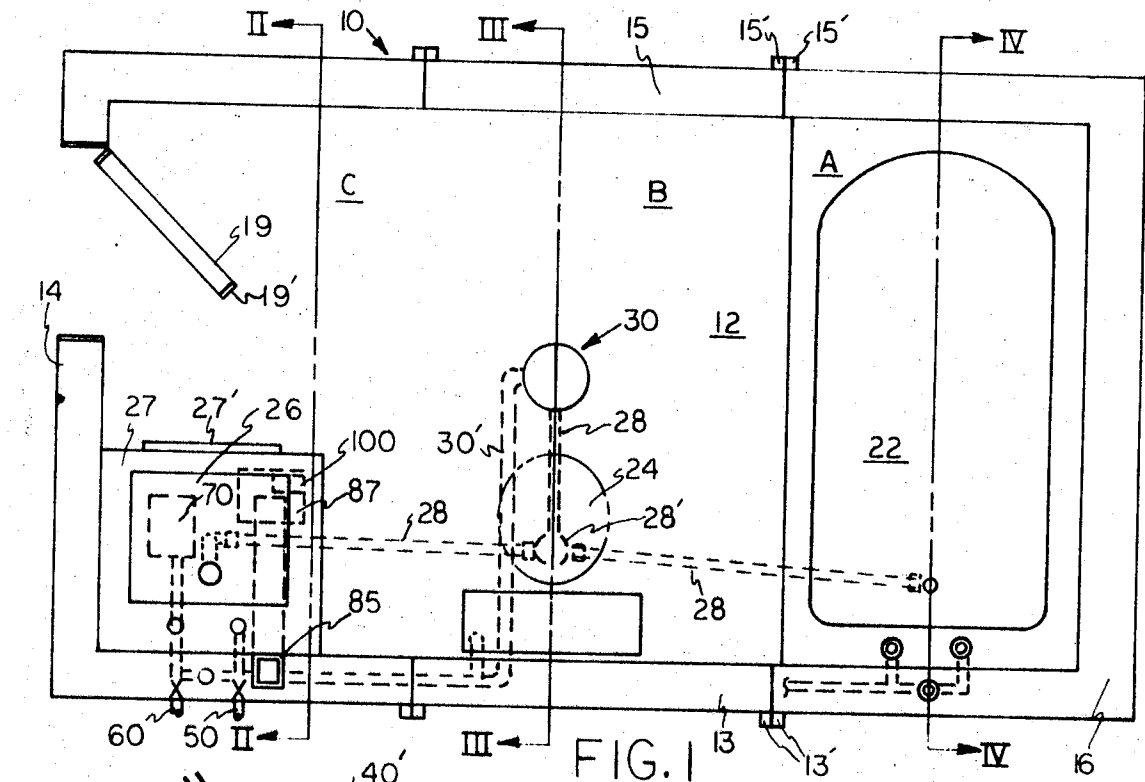
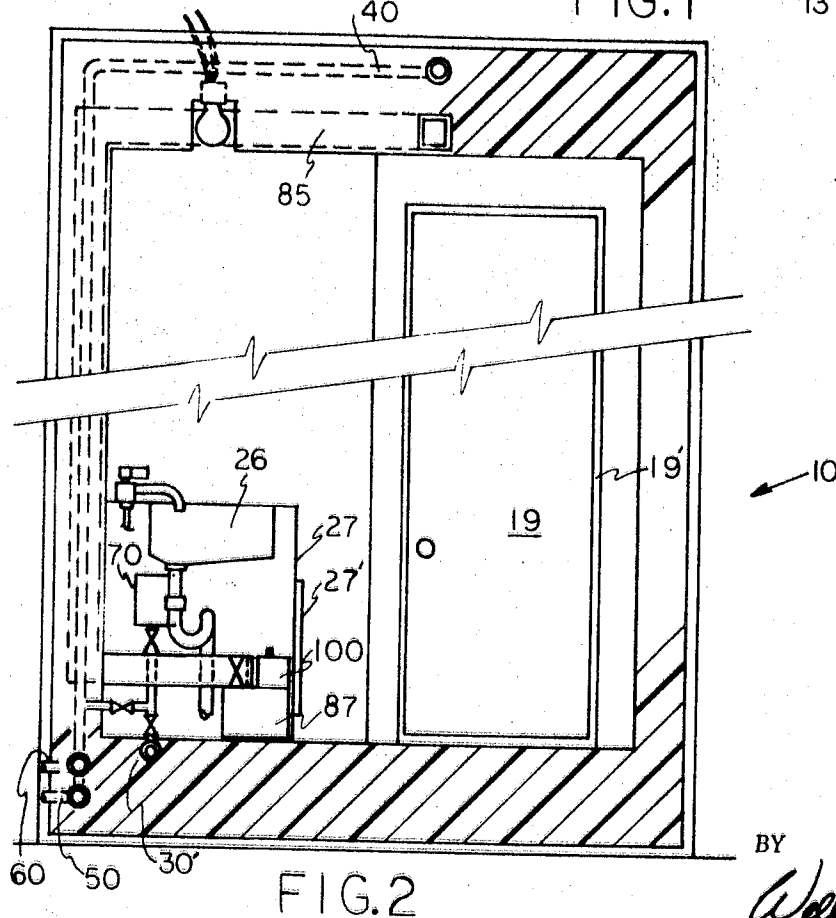
[57] **ABSTRACT**

A system is disclosed for automatically cleaning an en-

closure such as a bathroom or the like. Sufficient spray nozzles are disposed about the enclosure to ensure adequate spray coverage of same and are connected through the enclosure walls with a fluid supply line such as a water line. A cleaning solution supply, sanitizing solution supply or the like is associated with the fluid supply line to be discharged therein at the appropriate time. Likewise, a dryer means such as an air blower is disposed appropriately within the enclosure so as to assist in removing the fluid therefrom after cleaning. Further, a control means is provided that operatively associates all of the aforementioned elements into a cleaning cycle, whereby, upon actuation of the control means, particular valves are actuated to permit the flow of fluid to the spray nozzles for washing down the walls, floor and the like of the enclosure. At the appropriate time in the cycle, cleaning solution, sanitizers, or the like are discharged into the fluid supply line and carried with the fluid into the confines of the enclosure. Subsequent to cleaning, a rinse cycle is optionally included. After all washing steps are completed, the drying means is actuated as a part of the clean cycle to assist in removal of the cleaning solution from within the enclosure. Structures having the above described system incorporated therein are also claimed.

14 Claims, 8 Drawing Figures





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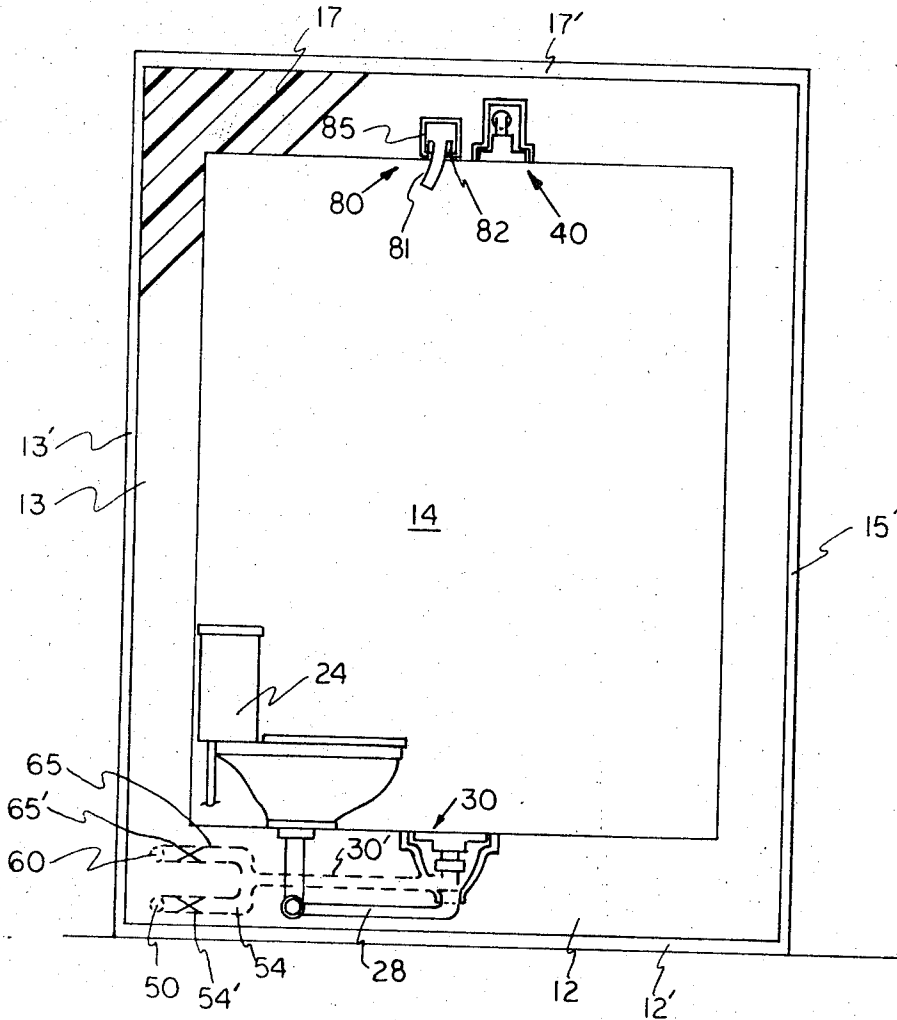


FIG. 3

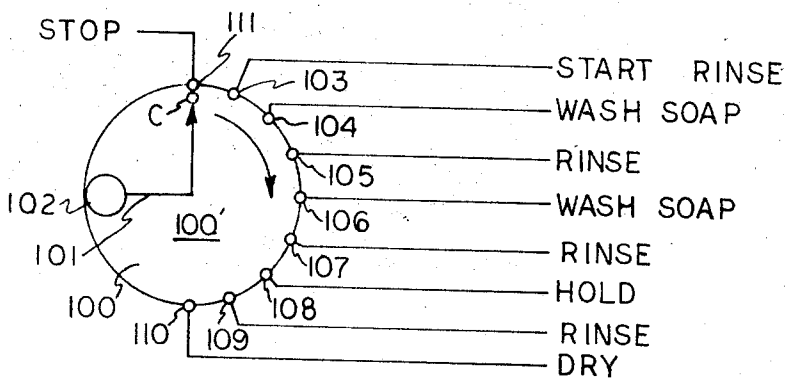


FIG. 6

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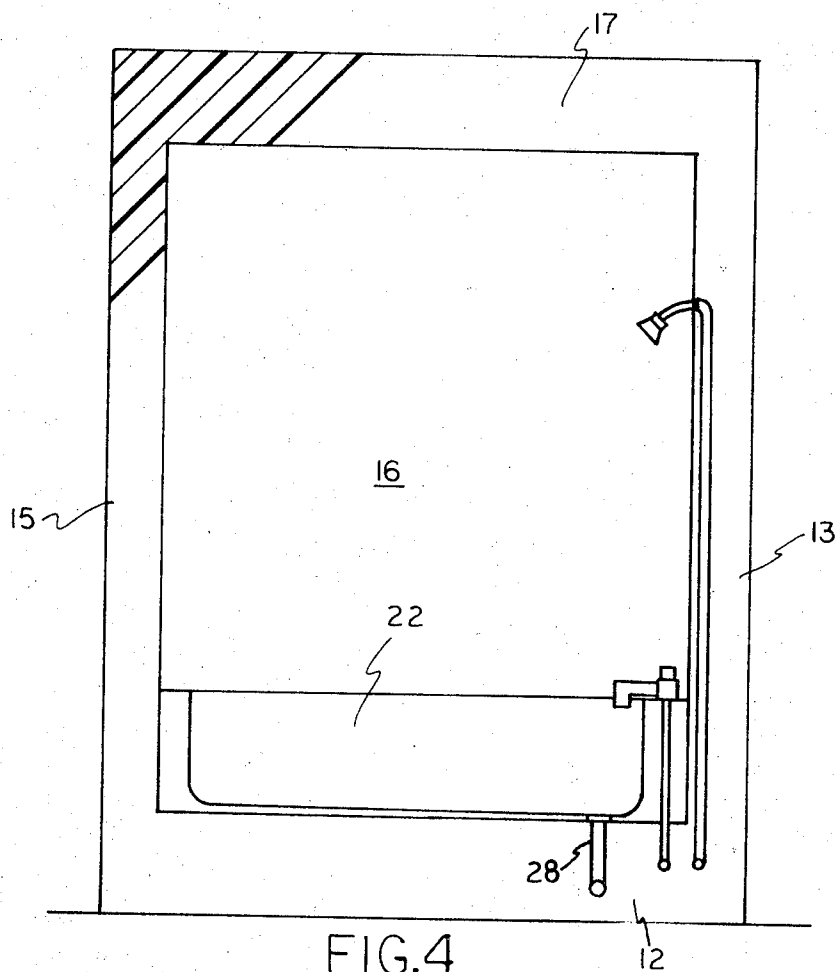


FIG. 4

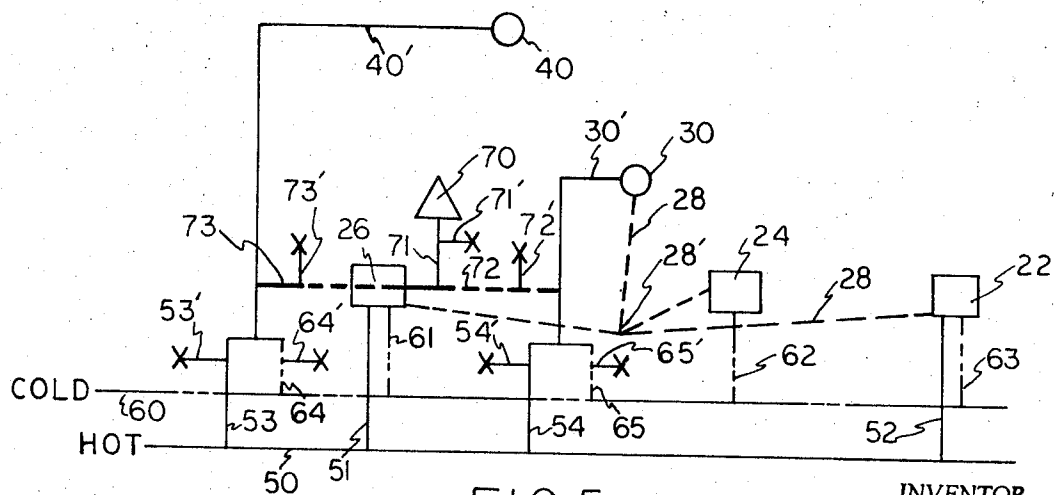
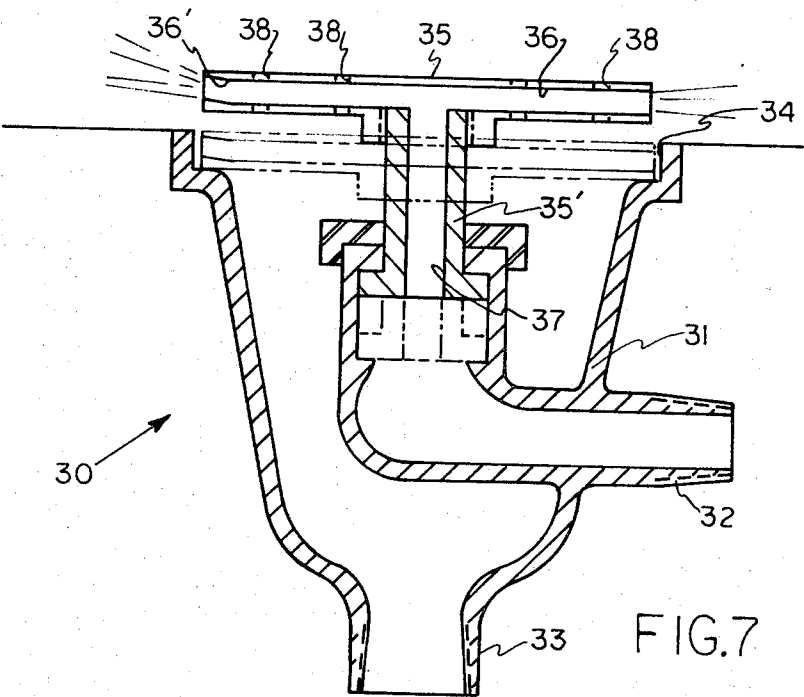
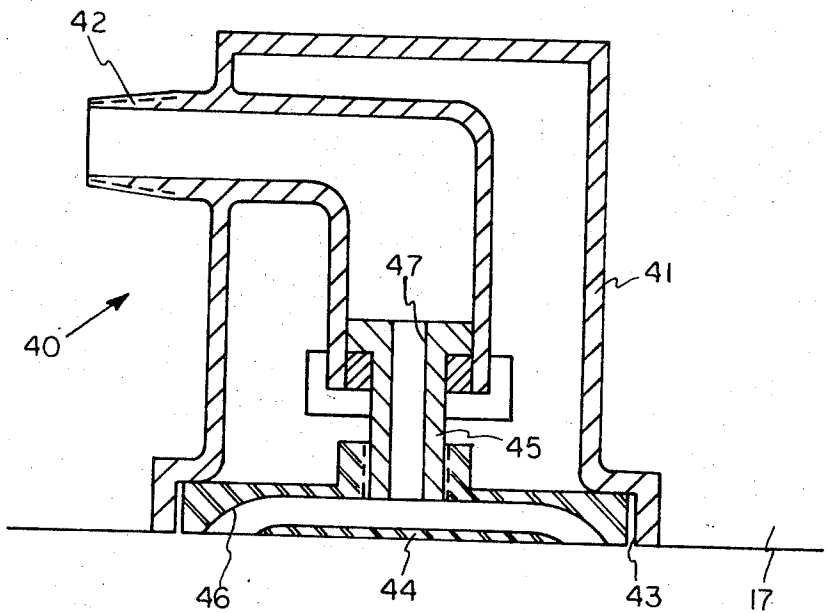


FIG. 5

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AUTOMATIC CLEANING SYSTEM FOR A HABITABLE ENCLOSURE

BACKGROUND OF THE INVENTION

There are numerous rooms and other types of enclosures throughout the business and industrial world that require cleaning on a daily basis due to health and general sanitation standards. Normally speaking, competent labor for the physical cleaning of these facilities is scarce, thus presenting a sizeable bottleneck in the maintenance of the enclosures. While not inclusive, prime examples of such enclosures are restrooms at factories, service stations, and other public facilities. The manual cleaning of such restrooms is now accomplished by individuals who manually mop the floors and clean the commodes, lavatories, and the like. Quite often, the walls as well as the various types of dividers are left uncleaned, and as such present definite health and sanitation hazards. Moreover, in general, the cleaning of these rooms is less than desired whereby the enclosures or rooms are never really cleaned to a point of good sanitary acceptance and even to the point of good visual acceptance.

Attempts have been made heretofore to improve the cleaning operation of these facilities. Such attempts include the design of cleaning machines, complicated cleaning systems suspended from the ceilings and the like. None of these systems have gained commercial acceptance due to their unwieldy use, expense and the like.

The present invention describes and teaches a system that may be cheaply installed in new or existing facilities to realize a much superior cleaning of the enclosures than that now being realized. This cleaning system substantially reduces the labor requirements for cleaning the enclosures. By use of the present system, once the system is actuated, a time cycle takes over and the cleaning operation is automatically conducted by spraying water, cleaning solution, sanitizing chemicals and the like into the enclosure after which the enclosure is rinsed and dried. It may then be necessary for an individual to quickly move through the enclosure and to hand wipe certain areas that are not adequately cleaned by the system of the present invention. This "touch up" cleaning is, however, a substantial reduction as opposed to previous requirements. As such, use of the present invention will now enable those areas where cleanliness was heretofore a problem, to be cleaned on a periodic basis thus improving the utility of the facilities as well as the cleanliness and sanitation thereof.

The prior art contains teachings that could be considered analogous to the present invention. There is, however, no teaching or suggestion of the present invention in the prior art which is exemplified by U. S. Pat. Nos. 2,712,863 to Busch; 3,005,205 to Breen; 3,212,105 to Baker et al.; 3,381,312 to Whitla and 3,447,166 to Gordon.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an automatic cleaning system for an enclosure.

Another object of the present invention is to provide a structure having automatic cleaning apparatus incorporated therewith.

Still further, another object of the present invention is to provide a modular structure having incorporated therein an automatic cleaning system.

Generally speaking, the present invention relates to an automatic cleaning system for a walled enclosure, said system comprising a cleaning fluid supply; at least one fluid supply nozzle received in at least one of said walls of said enclosure, said nozzle being operatively associated with said fluid supply and responsive to fluid therefrom to spray same over a desired area within said enclosure; control means operatively associated with said fluid supply to operate said fluid nozzle in a timed sequence; and dryer means received in at least one of said walls and operatively associated with said control means.

More specifically, the present invention comprises a system where a sufficient number of spray nozzles are disposed about the interior of the enclosure so as to provide adequate coverage for the entire enclosure. These nozzles may reside in the floor, side walls or ceiling of the enclosure and are connected to fluid supply lines which provide fluid thereto at a predetermined time or in a prearranged sequence after actuation of a control system therefor.

Depending upon the environment in which the system of the present invention is employed, the spray nozzles will be connected to a fluid supply line such as a water line and may also have associated therewith chemical dispensers, such that, a predetermined amount of detergent, sanitizer, deodorant, or the like may be introduced into the fluid supply line at a predetermined interval to be sprayed through the nozzles along with the water into the enclosure. Hence through suitable valving and actuator means, the spray nozzles throughout the enclosure may be simultaneously or sequentially actuated so as to dispense a cleaning solution or the like onto the particular area of the enclosure to be cleaned.

Insofar as the timed sequence for the system is concerned, any suitable timer may be employed that will, at a predetermined interval, actuate only a particular portion of the system while being capable of deactuating other parts of the system. An electric timer is preferred having a preset clean cycle. Hence upon starting the cycle, electrical contact will be sequentially made so as to operate suitable valving or other means to actuate and/or deactuate a predetermined segment of the apparatus of the system. The time interval as well as the order of actuation can be varied according to the requirements of the system.

Insofar as the enclosure per se is concerned, the system of the present invention may be added to an existing enclosure or may be incorporated into the walls of the enclosure during construction. A modular type enclosure may be provided such that the enclosure may be positioned at the desired site and the fluid lines and drains connected, after which the system will be operable. Moreover, while the system of the present invention is primarily designed for the automatic cleaning of industrial restrooms and the like, it likewise has suitability for the cleansing of any enclosure where it is desirable to wash down the walls, floors and the like on a periodic basis. A good example of such an enclosure could be a room in a slaughter house, animal cages, barns, silos, storage bins and the like. Moreover, it may be desirable or necessary to provide the enclosure with proper seals or gaskets around doors, windows, cabinet

doors, and the like so as to preclude the passage of water or other cleaning solution through the space through such openings.

The spray nozzles employed with the system of the present invention can be any type nozzle that is suitable for use within the enclosure. For example, it is preferable that all the nozzles utilized in the floor of the enclosure should be recessed within the floor and should either spray from within the recess or should raise from the recessed position during spraying. Likewise, it is preferable that wall nozzles would be recessed within the wall so as not to affect the aesthetics of the enclosure and also to avoid the placement of a safety hazard within the enclosure. Ceiling nozzles, on the other hand, are generally out of the way and may be recessed or may be suspended from the ceiling as desired. The dryer means for use with the present system, while preferably air blower means that are used to direct hot air onto the wet surfaces, could be any type dryer means that may be suitably employed in conjunction with the spray system.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top plan view of a modular type enclosure having the automatic cleaning system of the present invention incorporated therewith.

FIG. 2 is a vertical cross sectional view of the enclosure of FIG. 1 taken along lines II—II.

FIG. 3 is a vertical cross sectional view of FIG. 1 taken along lines III—III.

FIG. 4 is a vertical cross sectional view of FIG. 1 taken along lines IV—IV.

FIG. 5 is a line drawing of the piping and control arrangements for a cleaning system for the enclosure as shown in FIG. 1 according to the teachings of the present invention.

FIG. 6 is a pictorial illustration of a clean cycle according to the teachings of the present invention.

FIG. 7 is a vertical cross sectional view of a preferred floor spray nozzle according to the teachings of the present invention.

FIG. 8 is a vertical cross sectional view of a ceiling spray nozzle according to the teachings of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the Figures, preferred embodiments of the present invention will now be described in detail. In FIGS. 1 through 4, there is shown a modular unit for a bathroom that may be incorporated into a building structure such as a home, factory, service station or the like. An automatic cleaning system according to the teachings of the present invention is incorporated therein.

The enclosure generally indicated as 10 is shown to have a floor 12, side walls 13, 14, 15 and 16 and a ceiling 17. As mentioned hereinbefore, the automatic cleaning system of the present invention may be employed with numerous types of enclosures. Hence though a residential bathroom is shown with the normal fixtures therein, wide variation is possible for the enclosures, per se. Specific descriptions of the present invention will, however, be made with respect only to a bathroom or restroom environment.

Enclosure 10 is shown provided with a bath tub 22, a commode 24 and a lavatory 26. Certainly any fixture

arrangement would be acceptable and would include any number of suitable fixtures. Enclosure 10 is further illustrated as containing three sections, A, B and C, which, when united at flanges provided therefor, form the modular unit. Side walls 13 and 15 are equipped with flanges 13' and 15' respectively that define the inner edges of the sections. If necessary or desired, flanges 12' and 17' may be provided on floor 12 and ceiling 17 whereby the sections may be joined completely around the peripheries thereof. Thus by joining flanges 12', 13', 15' and 17', sections A, B and C are united to form a unitary enclosure 10.

Wall 14, as shown in FIG. 1 is also provided with a door 19 for access to the inside of enclosure 10. Since water or other cleaning solution will be sprayed throughout enclosure 10, door 19 is provided with a gasket or the like 19' to seal the area around door 19 against the passage of liquid thereby. Likewise lavatory 26 is shown having a cabinet 27 therearound. Cabinet 27 provides storage space under lavatory 26 and is provided with a door 27' that like door 19 is provided with a sealing gasket 27''. Any other opening in the walls of enclosure 10 or areas within enclosure 10 should also be so equipped if it is desirable to prevent the passage of liquid therethrough.

A floor spray nozzle generally indicated as 30 and a ceiling spray nozzle generally indicated as 40 (See FIG. 3) are provided in enclosure 10. Both nozzle 30 and nozzle 40 are connected to a suitable fluid supply line as will be described hereinafter and preferred forms of the nozzles are illustrated in FIGS. 7 and 8 respectively. Nozzles 30 and 40 will be described in greater detail hereinafter. Insofar as the placement of nozzles 30 and 40 are concerned, only one of each is illustrated in central locations within enclosure 10. The type of nozzle used and as the particular use of the enclosure will dictate the number of nozzles desired as well as the specific placement of the nozzles. As such, elaboration as to placement of spray nozzles will not be further discussed.

Piping, to include hot and cold water supply lines and drains are shown to be enclosed within the enclosure walls. Except where necessary to show operation of the present cleaning system, piping will not be shown or discussed. Likewise conventional connections for the fixtures, through obviously included are thought to be such that elaboration thereon is superfluous and not necessary. Drain lines 28 for all of the fixtures and floor nozzle 30, shown within enclosure 10 run together to form a common drain line 28' which is the only drain connection required for the modulator enclosure.

A dryer means 80 is also shown mounted in ceiling 17 of enclosure 10 in the form of a nozzle. As shown in FIG. 3, dryer means 80 is preferably one or more nozzles 81 that are received around the inside of enclosure 10 as required and are mounted for rotation in bearings 82. The nozzle 81 is thus connected to an air duct 85 which supplies hot air thereto from an air heater and blower 87 positioned beneath lavatory 26. Upon actuation of heater-blower 87, hot air is forced through duct 85 to nozzle 81. Air passing through nozzle 81 acts on the curved configuration thereof and causes the nozzle to rotate and thus distribute hot air throughout a particular area of the inside of enclosure 10. Air ducts for the dryer nozzles 81 are illustrated as being positioned within the walls of enclosure 10 along with the water pipes, etc. Though hot air is preferred

as a drying medium, any type dryer means may be employed that will adequately remove the lingering moisture from within enclosure 10 after the washing and/or rinsing portion of the automatic cleaning cycle.

FIG. 7 illustrates a preferred embodiment of the floor spray nozzle 30. Nozzle 30 is shown to comprise a housing 31 which includes a connector 32 for union with a fluid supply line, said connector extending into housing 31 and turning upwardly, a connector 33 for attachment to a drain line 28, with a seat 34 at the upper end thereof. A disc 35 resides within seat 34 and has a stem 35' that is received for rotary and limited axial movement within supply line connector 32. Disc 35 is provided with a plurality of radially extending fluid passageways 36 that are preferably tortuous and communicate with an opening 37 in stem 35' to permit fluid to pass from the fluid supply line into the enclosure. The outer ends 36' of passageways 36 around disc 35 may be presented at varying angles with respect to disc 35 to direct fluid in different directions therefrom. Further a plurality of drain openings 38 may be spaced around disc 35 between passageways 36 to permit fluid from enclosure 10 to pass therethrough into housing 31 and into drain line 28. Upon receipt of fluid pressure from the fluid supply line, disc 35 and stem 35' move upwardly away from housing 31 and seat 34. Fluid then passes through opening 37 and passageways 36, causing disc 35 to rotate. The fluid passing through passageways 36 exits disc 35 at an angle determined by the angle of the outer end 36' of the particular passageway 36. Once the fluid flow is interrupted, pressure on disc 35 ceases and disc 35 returns to its formant position, in engagement with seat 34 of housing 31. Thereafter, fluid previously sprayed may pass through drain openings 38, housing 31 and into drain line 28. Any fluid remaining within enclosure 10 is later removed by dryer means 80 and/or manual wiping.

A preferred design of spray nozzle 40 that is received in the ceiling 17 of enclosure 10 is shown in FIG. 8. Nozzle 40 comprises a housing 41 having a supply line connector 42 that passes into housing 41, and a seat 43 at an outer end of said housing. A disc 44, having a stem 45 extending outwardly therefrom is rotatably received within housing 41. Stem 45 passes into connector 42 and is rotatably received thereat while being secured against axial movement. Disc 44 has a plurality of radially extending, tortuous, fluid passageways 46, said passageways 46 being in communication with an axial opening 47 in stem 45 and thus in communication with fluid supply line connector 42. Hence as fluid is introduced from the fluid supply line into connector 42, fluid passes through axial opening 47 and passages 46 into the interior of enclosure 10. The tortuous path of passageways 46 causes disc 44 to rotate as the fluid passes therethrough. Preferably, nozzle 40 is mounted flush with ceiling 17 so as to present a good aesthetic appearance. Also, a nozzle such as nozzle 40 could be used in a side wall of the enclosure if desired.

Referring to FIG. 5, a piping arrangement for a system according to the teachings of the present invention will be described. Again making reference to an enclosure containing a lavatory 26, a commode 24 and a bath tub 22, a hot water supply line 50 is shown having a leg 51 and a leg 52 being connected to the lavatory 26 and tube 22 respectively. Likewise, legs 53 and 54 lead from hot water supply line 50 to T connections which lead to overhead spray nozzle supply line 40' and

floor spray nozzle supply line 30' respectively. Nozzle supply lines 30' and 40' are, in turn, connected to spray nozzles 30 and 40. A cold water line 60 is likewise provided having legs 61, 62 and 63 connected to lavatory 26, commode 24 and tub 22 respectively. Likewise, legs 64 and 65 are connected to nozzle supply lines 40' and 30' respectively. A dispensing container 70 is also shown being connected by lines 71, 72 and 73 to nozzle supply lines 30' and 40'. Obviously the lines to the tub, commode and lavatory are provided with suitable valving at the individual fixtures. The legs connecting the water supply lines to the spray nozzle supply lines, however, each contain a suitable valve for the passage of water or other fluid therethrough. Such valves are indicated as 53', 54', 64' and 65'. Likewise valves 71', 72' and 73' are provided in the dispensing lines 71, 72 and 73 so as to control gravity flow of soap, etc. from the dispenser 70 to the particular spray nozzle supply line being utilized.

The piping arrangement as shown in FIG. 5 is illustrative of an arrangement according to the present invention. Whereas both hot and cold water supply lines 50 and 60 respectively are shown, it is satisfactory if only one is used. Likewise, both may be used simultaneously, blending water into the nozzle supply lines 40' and 30'. Further, as mentioned hereinbefore, any number of spray nozzles may be provided to adequately clean the particular enclosure in which they are located.

Having described the apparatus of the present invention, operation of the cleaning system will now be described with reference to FIGS. 5 and 6. FIG. 6 graphically illustrates a timer device 100 being connected by an electrical connector 101 to a source of electrical current 102. Timer 100 has a plurality of fixed electrical contacts disposed thereabout with each contact being electrically associated with a pertinent portion of apparatus of the system of the present invention. Timer 100 also has a contact C that moves in a clockwise manner at a predetermined speed. After timer 100 is actuated, contact C moves therearound, progressively engaging the surrounding fixed contacts to actuate and/or deactuate the various segments of the cleaning system.

A dial face 100' may be provided for timer 100 with indicia thereon showing the various operations and describing the portion of the time cycle in which the operation is conducted. Accordingly, timer 100 may be actuated by manual movement of dial face 100' to the start position or to any particular portion of the cycle as desired. Likewise, if desirable, a remote switch means may be provided to permit actuation of timer 100 from without the enclosure 10. With manual operation, a time delay sequence should be incorporated into the timer to permit withdrawal from enclosure 10 prior to actuation of the cleaning system. Depending upon the particular environment, the cycle may be modified to vary the number of wash steps, rinse steps, drying steps or the like as well as the time for each operation. Set forth below is one example of the operation of a complete clean cycle. For the sake of clarity only the cold water operation is being considered.

Once timer 100 is actuated, by manual movement or by an electrical switch means, movable contact C starts its clockwise movement, away from stop contact 111. When contact C engages contact 103, the cycle begins. Closing of contact 103 actuates a solenoid associated

with valves 64' and 65' which opens valves 64' and 65' and admits water to spray nozzles 40 and 30 through lines 40' and 30' respectively. Water is thus sprayed into enclosure 10 to wet down the interior thereof. Contact C continues to move and next engages contact 104 which closes the switch to solenoids associated with valves 71', 72' and 73' to open the said valves and permit a detergent, soap, etc. to flow by gravity from dispenser 70 through lines 71, 72 and 73 into nozzle supply lines 30' and 40'. The flow of water thorough lines 40' and 30' thus carries the detergent through lines 40' and 30' to nozzles 40 and 30. Also, detergent is mixed with the water during travel and a detergent solution is thus sprayed into enclosure 10 onto the desired area.

Contact 105 is next engaged by contact C to close the switch and provide a further electrical current to the solenoids associated with valves 71', 72' and 73' whereby valves 71', 72' and 73' are closed and detergent ceases to flow into supply lines 40' and 30'. At that point, however, valves 64' and 65' are not changed and water continues to be sprayed through nozzles 30 and 40 to rinse the detergent solution from within enclosure 10. As water is sprayed into enclosure 10, the water collects on the floor 12 and runs to housing 31 of nozzle 30 where it passes therethrough into drain line 28.

Further movement of contact C brings about engagement with contact 106 which reintroduces detergent into the water, followed by another rinse step at contact 107. Certainly any number of wash and rinse steps may be provided as are necessary to ensure cleaning of enclosure 10. After the last rinse step as shown in FIG. 6, contact C engages contact 108, which actuates the appropriate solenoids to close valves 64' and 65' and interrupt water flow to nozzles 40' and 30' respectively. This step in the operation is a hold step where the water remaining in enclosure 10 stands. Thereafter, contact C engages contact 109 to reinstitute a rinse step by allowing water to flow to nozzles 40' and 30' for a predetermined period of time. At the end of the last rinse step contact 110 is engaged by contact C to actuate the drying means 80 for a time sufficient to remove at least a major portion of the water now present in enclosure 10. Dryer means 80 would preferably comprise an air heater and blower 87 which forces hot air through a conduit 85 that is connected to the one or more air nozzles 81 mounted within the enclosure. After the prescribed drying time has elapsed, the contact C will again stop contact 111 to cut off the dryer means and deactuate the timer.

Once the clean cycle is completed, the enclosure should, for all practical purposes, be completely washed down and dried. Obviously, there may be areas or fixtures within the enclosure that will require a hand wiping so as to clean and dry same. As mentioned above, however, such cleaning would be greatly reduced over that now being experienced if everything in the restroom is to be cleaned.

The specific embodiment shown in the Figures, utilizes a single floor spray nozzle and a single ceiling nozzle. Obviously, depending upon the particular enclosure and the degree of cleanliness required, any number of nozzles may be employed with all of the valving for the nozzles being associated with the timer mechanism so as to control the flow of fluid to the nozzles. In fact, a particular arrangement may involve the opera-

tion of only a portion of the nozzles at any one time. Additional dispensers may be provided for the addition of any number of chemicals to the wash water. In this regard, while a gravity flow is shown for the dispenser, certainly a pump could be provided if necessary to introduce the chemicals into the fluid supply lines. Likewise, additional drying means may be required. In fact, the drying means has been shown in the Figures to be a forced hot air type dryer. Other type dryers may equally be employed. It is also feasible to add small amounts of a highly volatile solvent in with the cleaning solution to improve the drying efficiency within the enclosure.

Insofar as the clean cycle is concerned, the specific number of soapy water wash cycles, rinse cycles and the like may be modified as desired. Likewise, it may be desirable to include a wash down with a deodorizer, sanitizer or the like after the wash step and before drying. Further, the time element involved with the complete cycle may vary according to the dictates of the particular environment.

A further feature of the present invention that may optionally be provided as a precautionary measure, is a circuit breaker provided in any enclosure having a door or the like thereon. With such a circuit breaker in use, if any one of the doors to or in the enclosure are open, the circuit to the timer mechanism is broken and the clean cycle will not function. It would thus be impossible for one to start the system with a door open whereby water would escape from within the enclosure and create a safety hazard or possibly damage to the surrounding area.

Electrical connections for the present system are not shown in the Figures. Such connections are conventional and can be readily made by one having an ordinary skill in the art.

The modular unit shown in FIG. 1 through 4 may be constructed as desired. In fact, such units for the bathroom per se are readily molded from synthetic plastic materials. Such may likewise be utilized according to the teachings of the present invention wherein the various piping arrangements are embedded in the plastic, or are affixed to the outside of the enclosure walls. Likewise, the various nozzles may be incorporated into the molded walls. As shown in the Figures, it is preferable to mold the enclosure in more than one section so as to permit ease of transportation and assembly. As such, the sections are manufactured in suitable fashion such that when assembled the joints on the inside of the enclosure will not be appreciably noticeable.

Insofar as additional apparatus is concerned, for the system according to the teachings of the present invention, the soap dispenser, valves, timer, air heater, and the like may be located under a suitable cover within the enclosure, such as under the lavatory as shown in FIGS. 1 and 2. Location of these devices outside the enclosure is also satisfactory, though the apparatus should be positioned at a fairly accessible location so as to permit maintenance thereof as required.

Having described the present invention in detail, it is obvious that one skilled in the art will be able to make variations and modifications thereto without departing from the scope of the invention. Accordingly, the scope of the present invention should be determined only by the claims appended hereto.

What is claimed is:

1. An automatic cleaning system for a walled enclosure comprising:
 - a. a cleaning fluid supply;
 - b. a plurality of rotatable fluid spray nozzles received in said enclosure, each of said nozzles being secured to a wall of said enclosure and being operatively associated with said fluid supply, said nozzles further being secured against substantial axial movement with respect to the walls to which they are secured and permitting substantial spray coverage of at least the lower area of the enclosure;
 - c. control means operatively associated with said fluid spray nozzles to operate at a predetermined time; and
 - d. dryer means operatively associated with said control means in timed sequence to dry said enclosure after spraying.
2. An automatic cleaning system for a walled enclosure as defined in claim 1 wherein at least one fluid spray nozzle is received in a bottom wall of said enclosure and at least one fluid spray nozzle is received in a top wall of said enclosure.
3. An automatic cleaning system for a walled enclosure as defined in claim 1 further comprising an additive supply associated with said cleaning fluid supply and said control means, said additive supply being dischargeable at a predetermined time in a clean cycle.
4. An automatic cleaning system for a walled enclosure as defined in claim 1 wherein said control means comprises a plurality of electrically actuatable valves and an electrical timer, said timer being programmed for a sequential cleaning cycle.
5. An automatic cleaning system for a walled enclosure as defined in claim 4 wherein said valves are equipped with solenoids for the operation thereof.
6. An automatic cleaning system for a walled enclosure as defined in claim 1 wherein at least one nozzle spray nozzle is received in a bottom wall of said enclosure, said nozzle comprising a rotatable plate that is movable to a spray position by a fluid force thereon and rotated by fluid passing therethrough, said plate having a plurality of drain openings therein.
7. An automatic cleaning system for a walled enclosure as defined in claim 1 wherein said dryer means comprises an air blower and at least one rotatable air nozzle associated therewith.
8. An automatic cleaning system for a walled enclosure as defined in claim 4 wherein said timer is manually actuatable.
9. A modular, self-cleaning structure comprising:
 - a. a plurality of mating structural sections, said sections being connectable to define at least a portion of a building unit, said unit having at least one closure associated therewith, said closure mating with adjacent portions of said unit to substantially preclude passage of liquid thereby;
 - b. at least one fluid supply line associated with said unit;
 - c. at least one fluid spray nozzle received in at least

- one of said sections, said nozzle being operatively associated with said fluid supply line;
 - d. control means received in a portion of said unit, said control means being operatively associated with said fluid supply, whereby upon actuation said control means selectively admits fluid in timed sequence to said nozzle to permit fluid spray into said unit; and
 - e. dryer means received in a portion of said unit, said dryer means being operatively associated with said control means to operate in timed sequence for removal of at least a portion of fluid from within said unit.
10. A modular, self-cleaning structure as defined in claim 9 further comprising an additive supply operatively associated with said fluid supply line and said control means whereby additives may be discharged into said fluid supply line in timed sequence.
11. A modular, self-cleaning structure as defined in claim 10 wherein said structure further contains built-in bathroom fixtures.
12. A modular, self-cleaning structure as defined in claim 10 wherein further at least one fluid spray nozzle is received in a top of at least one section of said unit, and one nozzle is received in a bottom of at least one section of said unit, said nozzles being operatively associated with said fluid supply line.
13. A modular bathroom comprising a plurality of structural sections, said sections being connectable to define a complete bathroom, at least certain of said sections having bathroom facilities incorporated therein, said sections having fluid supply lines secured thereto, said lines being connectable to provide a fluid supply line system, said system being operatively connectable with a fluid supply; at least one of said sections having a spray nozzle secured to a portion thereof, said nozzle being recessed in said portion of said section and secured to said fluid supply line, a plurality of valves received in said fluid supply line, said valves determining flow through said line, a control means associated with said bathroom, said control means being operatively associated with at least certain of said valves, said control means having a predetermined time sequence incorporated therein, said control means being actuatable to start said time sequence; and dryer means received in at least one of said sections, said dryer means being operatively associated with said control means, whereby upon actuation of said control means, fluid will be sprayed into said bathroom after which said bathroom will be dried.
14. A modular bathroom as defined in claim 13 comprising further an additive supply operatively associated with said fluid supply line and said control means whereby at a predetermined time in said timed sequence, additives will be discharged into said supply line and sprayed into said bathroom along with said fluid.

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