

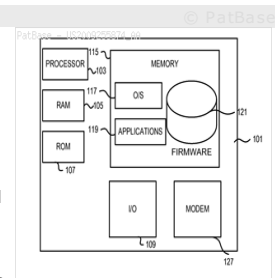
1) Family number: 43835928 (US2009255874A)

VERSATILE WATER PURIFICATION SYSTEMS AND METHODS

Abstract: Source: US2009255874A Systems and methods for versatile water purification are provided. A system according to the invention may include a first delivery pump. The first delivery pump may maintain a flow of water into a multi media filter. The multi media filter preferably filters the pumped water. The filtered water may then be pumped by a reverse osmosis pump through a plurality of reverse osmosis columns to produce an osmosis water having less particulate matter than the filtered water. The osmosis water may then be passed to a buffer tank. A second delivery pump for pumping water from the buffer tank may also be used. An ozone system for injecting ozone into water pumped by the second delivery pump may be also implemented. A first output path from the ozone system may pass the ozonated water from the ozone system to the buffer tank via a first valve. A second output path from the ozone system may also be implemented. The second output path may pass ozonated water from the ozone system via a second valve to a bottle washing station. An Ultra Violet (UV) System for receiving water from the buffer tank and for killing bacteria in the water prior to dispensing for drinking the water pumped by the second delivery system may also be used. In addition, a mineralization system for receiving water from the UV System and for adding minerals to the water prior to dispensing the water received from the UV system may be used. A computer for controlling operation of at least the first delivery pump, the reverse osmosis pump, the second delivery pump, the ozone system, the first valve, the second valve, and the UV System may be implemented according to the invention.

Probable Assignee: WATER CHEF INC

Earliest Publication Date: 20091015

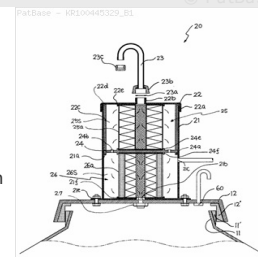


2) Family number: 28974596 (KR100445329B)

Abstract: Source: KR100445329B PURPOSE: An apparatus for preventing introduction of foreign substance and for sterilizing inflow air for water reservoir is provided, which can filter foreign substance contained in inflow air to water reservoir and sterilize the inflow air by ozone, and prevent emission of any harmful excess ozone by decomposing it at the site by passing through a filter member consisting of ozone decomposing filter made of nonwoven fabric cylinder filled with oxidizing agent such as carbon powder, iron, nickel, aluminum, metal net, nonwoven fabric or paper filter and second inner metal net. The assembly is easily installed at the existing water reservoirs. CONSTITUTION: In the system consisting of a water reservoir(10) and a foreign substance filtering and air sterilizing assembly(20) set above the water reservoir(10), the foreign substance filtering and air sterilizing assembly(20) comprises a cylindrical housing(21) in which air purifying unit(25) and air flowing space(26) are provided, with the purifying unit positioning at the top and the flow space at the bottom; a sealing device(22) of the top cover for sealing the assembly(20) from the ambient air; an air feeding device(23) of reverse J letter type set at the top of the assembly(20); an air purifying unit(25) made of folded nonwoven fabric or paper filter and inner metal net for removing foreign substance contained the inflow air by filter members(25a); air sterilizing and ozone decomposing unit(26) filled with filter member(26a) consisting of ozone decomposing filter made of nonwoven fabric cylinder filled with oxidizing agent such as carbon powder, iron, nickel, aluminum, metal net, nonwoven fabric or paper filter and a second inner metal net and connected to the ozone generator(30) for sterilizing air and decomposing the excess ozone; an ozone generator(30) for producing ozone; a check valve(60) for discharging interior air and preventing introduction of ambient air into the assembly(20).

Probable Assignee: PARK SOO TAE

Earliest Publication Date: 20011031



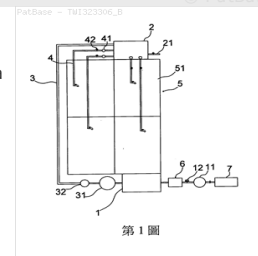
3) Family number: 41655307 (TW200732538A)

A METHOD OF GETTING RID OF FOULING FOR WATER SYSTEM OF A BUILDING

Abstract: Source: TW200732538A A method of softening silt, getting rid of fouling and disinfection for water system of a building is presented. The water system at least includes the reservoir, water towers, column pipes connected to the reservoir and water towers, and water pipes connected water towers and householders, and installs an ozone generation mechanism. When we want to get rid of fouling, the switches of water pipes of every household are first to be opened and next to start the ozone generation mechanism to let water pass through the ozone generation mechanism, so that water is to be ozone water. The ozone water is stayed in the reservoir, column pipes and water towers. After the preset time is reached, the ozone water in the reservoir, column pipes and water towers is drained, and then restart the ozone generation mechanism to pour the ozone water into the reservoir and to let the ozone water to pour into the water towers, and then open the switches of the water pipes to let the water outlet. Again restart ozone generation mechanism to pour the ozone water into the reservoir and also to let the ozone water pour into water towers, and then open the switches of the water pipes to let the water outlet for getting rid of fouling. Finally the turbidity of the exited ozone water is viewed to determine whether the getting rid of fouling is finished. Therefore, the simple and effective method of getting rid of fouling is achieved.

Probable Assignee: GOJYO SANGYO CO LTD TAIWAN BRANCH JAPAN

Earliest Publication Date: 20070901



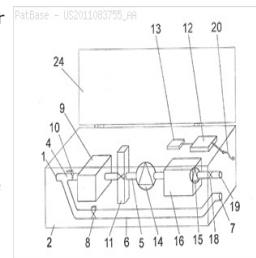
4) Family number: 42965793 (US2011083755A)

WATER ECONOMIZER SYSTEM FOR DOMESTIC INSTALLATIONS AND THE LIKE

Abstract: Source: US2011083755A Based on the idea of reusing grey water generated by the washhand basin and other sanitary appliances in the bathroom, with the exception of the toilet, storing the grey water in a tank wherefrom the cistern of the toilet is supplied when it is necessary, the invention consists of situating from the grey water intake connector (1) and in a main pipe (5), a particle filter (9), a flow switch (11), a circulation pump (14), an ozone injector (16) with its corresponding water recirculation pump (15), and a check valve (18), the flow switch (11) sending information to a programmable automaton (12) which in turn controls both the aforementioned pumps (14 and 15) and the electrovalve (8) of a secondary pipe (6) wherethrough the grey water is evacuated, by means of the outlet (7) to the building downpipe, when the storage device is full. It is thereby achieved that the toilet cistern receives perfectly filtered water, to avoid obstructions or loss of sealing in the closure system thereof, and that furthermore the water remains free of bacteria and other microorganisms, which are eliminated by the ozone injector (16).

Probable Assignee: FRANCISCO DOLO MASNOU

Earliest Publication Date: 20090219



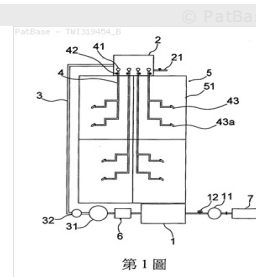
5) Family number: 41655305 (TW200732537A)

A METHOD OF GETTING RID OF FOULING WITH PULSE-TYPE OZONE OF WATER SYSTEM OF A BUILDING

Abstract: Source: TW200732537A A method of getting rid of fouling with pulse-type ozone of water system of a building is presented. When we want to get rid of fouling, the switches of water pipes of every householder are first to be opened and next to start the ozone generation mechanism to let water pass through the ozone generation mechanism, so that the water is to be ozone water. The ozone water is stayed in the reservoir, column pipes and water towers. After the preset time is reached, the ozone water in the reservoir, column pipes and water towers is drained to achieve the cleaning purpose of the reservoir, column pipes and water towers. On the other hand, every householder measures the pressure of water pipes and installs a pulse-type mechanism at an outlet of a faucet, and adjusts the ozone pulse pressure and time, next open the others faucets that need to be cleaned. Using the cooperation of ozone pulse pressure and time to let the ozone water intermittently burst at the faucets that need to be cleaned. Therefore, this invention fulfills a simple method for getting rid of fouling, eliminating rare delicacy, disinfection, cleaning silt of water system.

Probable Assignee: GOJYO SANGYO CO LTD TAIWAN BRANCH JAPAN

Earliest Publication Date: 20070901



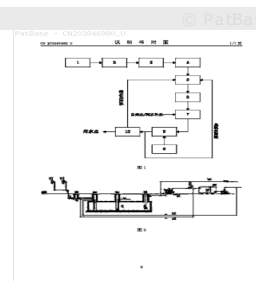
6) Family number: 57827234 (CN203946980U)

CONNECTIVE GREENHOUSE RAINWATER COLLECTING, TREATING AND RECYCLING DEVICE

Abstract: Source: CN203946980U The utility model discloses a connective greenhouse rainwater collecting, treating and recycling device. The connective greenhouse rainwater collecting, treating and recycling device comprises a rainwater collecting pipe, an abandoned flow filtering device, a double-power-supply programming controller, a safety distributing well, a modular impounding reservoir, a booster pump, a multi-medium filter, an ozone generator, a Venturi jet device and a clean water tank, wherein the abandoned flow filtering device is used for initially realizing 2-5mm rainwater filtration; the double-power-supply programming controller is used for controlling liquid level of the reservoir and start and stop of the abandoned flow filtering device; the safety distributing well is used for accurately filtering rainwater and controlling water quantity; and the ozone generator and the Venturi jet device are used for generating ozone water. The connective greenhouse rainwater collecting, treating and recycling device has the advantages that the ozone water is utilized for disinfecting and sterilizing the collected rainwater, the problem that water in the reservoir is deteriorated is solved, and the rainwater can be recycled, so that not only are utilization efficiency of water resource improved and regional ecological environment improved, but also extra economic benefit is produced.

Probable Assignee: BIOSUN BIOLOG ENVIRONMENTAL PROT TECHNOLOGY SHANGHAI CO LTD

Earliest Publication Date: 20141119



7) Family number: 78412989 (CO20190014474U)

RESERVORIO AUTONOMO CON OZONIZACION NATURAL AUTONOMOUS RESERVOIR WITH NATURAL OZONATION (MACHINE TRANSLATION)

Abstract: Source: CO20190014474U RESUMEN RESERVORIO AUTONOMO CON OZONIZACION NATURAL. La invencion es un reservorio de agua que dispone de placas de angeo sobre la superficie del estanque que permiten la disposicion calculada de celdas que alojan plantas acuaticas de la region, la funcion de estas es ozonificar el agua de manera natural y evitar la estratificacion del agua. Summary AUTONOMOUS RESERVOIR WITH NATURAL OZONATION. The invention is a water reservoir that provides angeo plates on the surface of the pond calculated that allow the arrangement of cells that housed in the region, the function of these aquatic plants is ozonificar water naturally and avoid the stratification of the water.

Probable Assignee: ROSILLO FLOREZ ERIES

Earliest Publication Date: 20200401

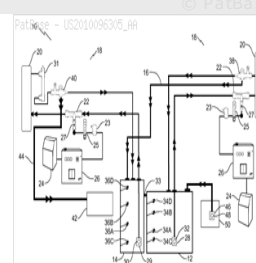
8) Family number: 42179292 (US2010096305A)

WASTEWATER TREATMENT APPARATUS

Abstract: Source: US2010096305A A wastewater treatment apparatus (10) includes one or more treatment tanks (12, 14). Each treatment tank (12, 14) has an associated oxygenation treatment circuit (18) including a gas and liquid mixing chamber (20), a gas injector (22) upstream of the mixing chamber (20) and one of an oxygen generator (24) or an ozone generator (26) supplying gas to the gas injector (22), and a pump (28, 29) for pumping wastewater from the treatment tank (12, 14) through the mixing chamber (20) and back to the treatment tank (28, 29).

Probable Assignee: SEAIR INC

Earliest Publication Date: 20080925



SISTEMA ECONOMIZADOR DE AGUA PARA INSTALACIONES DOMESTICAS Y SIMILARES WATER SYSTEM SAVER DOMESTIC AND SIMILAR INSTALLATIONS (MACHINE TRANSLATION)

Abstract: Source: GT201000030A BASADO EN LA IDEA DE REUTILIZAR EL AGUA SUCIA GENERADA POR EL LAVABO Y OTROS SANITARIOS DEL CUARTO DE BANO, CON EXCEPCION DEL INODORO, ALMACENANDO EL AGUA SUCIA EN UN DEPOSITO DESDE EL QUE SE ALIMENTA LA CISTERNA DEL INODORO CUANDO ES NECESARIO, LA INVENCION CONSISTE EN SITUAR A PARTIR DEL CONECTOR (1) DE ENTRADA DE AGUA SUCIA Y EN UNA CONDUCCION PRINCIPAL (5), UN FILTRO DE PARTICULAS (9), UN INTERRUPTOR DE FLUJO (11), UNA BOMBA DE CIRCULACION (14), UN INYECTOR DE OZONO (16) CON SU CORRESPONDIENTE BOMBA (15) DE RECIRCULACION DE AGUA, Y UNA VALVULA ANTI-RETORNO (18), ENVIANDO EL INTERRUPTOR DE FLUJO (11) INFORMACION A UN AUTOMATA PROGRAMABLE (12) QUE A SU VEZ GOBIERNA TANTO LAS BOMBAS (14) Y (15) CITADAS COMO LA ELECTROVALVULA (8) DE UNA CONDUCCION SECUNDARIA (6) A TRAVES DE LA QUE SE EVACUA EL AGUA SUCIA, MEDIANTE LA SALIDA (7) A LA BAJANTE DEL EDIFICIO, CUANDO EL DEPOSITO DE ALMACENAMIENTO ESTA LLENO. DE ESA MANERA SE CONSIGUE QUE A LA CISTERNA DEL INODORO LLEGUE AGUA PERFECTAMENTE FILTRADA, PARA EVITAR OBSTRUCCIONES O PERDIDA DE ESTANQUEIDAD EN SU SISTEMA DE CIERRE, Y QUE ADEMAS EL AGUA QUEDE EXENTA DE BACTERIAS Y OTROS MICROORGANISMOS, QUE SON ELIMINADOS POR EL INYECTOR DE OZONO(16).

Machine translation: Based on the idea of reusing water GENERATED BY DIRTY TOILET AND OTHER MEDICAL DEVICES BATHROOM TOILET except, storing dirty water into a reservoir from which feeds the toilet tank when necessary, The invention consists in placing FROM CONNECTOR (1) DIRTY WATER INLET AND a main pipe (5), a particulate filter (9), a flow switch (11), a circulation pump (14), an ozone injector (16) with a corresponding pump (15) water recirculation, AND A check valve (18), sending the flow switch (11) INFORMATIO N to a PLC (12) which in turn governs BOTH PUMPS (14) and (15) cited as the solenoid valve (8) A secondary line (6) through which dirty water is discharged, via the output (7) building downpipe TO WHEN THE TANK STORAGE IS FULL. THAT WAY YOU GET THAT TO GET WATER TANK TOILET perfectly filtered, to avoid clogging or loss of sealing at its closing system, and also the water is EXEMPT bacteria and other microorganisms, which are removed by the ozone injector (16).

Earliest Publication Date: 20120326

METHOD OF WATER USERS (MACHINE TRANSLATION)

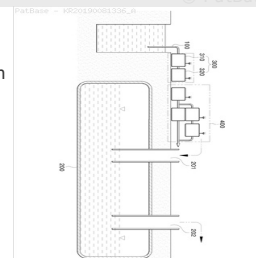
Abstract: Source: RU2002126589A

Machine translation: (Claim 1) Way to water consumers, including the definition of waters of the water intake filter placement and associated water main, water treatment water supplied to consumers, characterized in that the top of the water main is placed in an array of water area of the reservoir, the inlet section of which is connected to a filter, forming the beginning of the conduit, fence water reservoir in the array of produce at the bottom of the reservoir is above the upper limit and the free particles Vitanov bottom sediments, as well as at the level below the drift in the water column and the biologically active form of precipitation, settling of the line air-water interface, the water supplied to the original hydrocyclone cavity embedded in a section of the water main, the cavity bottom hydrocyclone tangentially to the inner wall, apply compressed air is cooled, aerated water hydrocyclone cavity, giving the specified air in the direction opposite the rotation of the water in the cavity hydrocyclone foam phase is withdrawn from the top part of the cavity cyclone in the atmosphere, and treated water is fed from the cyclone on the water main, laid on the bottom of the pond and the bottom of the waterway connecting the reservoir to the site divorce filed by water mains water to consumers, and the consumer before the water is passed through the lumen of its disinfecting installations - between the hollow perforated walls, radiator, wall serving ultrasonic vibrations from the transducer ultrasonic acoustic waves, and the through cavity walls, radiator flushed ozone simultaneously with the imposition of acoustic ultrasonic waves.

Earliest Publication Date: 20040410

ARTIFICIAL UNDERGROUND WATER RECHARGE SYSTEM

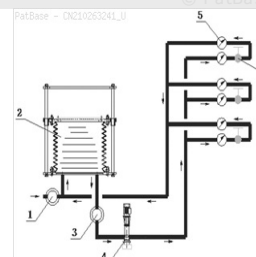
Abstract: Source: KR20190081336A According to the present invention, an artificial underground water recharge system comprises: a raw water pipe to guide raw water of a water source area from one side to the other side; an artificial recharge underground lake which is formed in an underground aquifer, has an inlet connected to the other side of the raw water pipe, and recharges raw water flowing into the ground through the inlet during a corresponding period; an aromatic compound detection unit which is arranged on the raw water pipe to detect an aromatic compound from raw water before entering the artificial recharge underground lake; a pretreatment unit arranged on the raw water pipe to pretreat the raw water by hydrogen peroxide, ozone, and ultraviolet (UV) light; and a control unit which is electrically connected to the aromatic compound detection unit and the pretreatment unit, calculates a specific UV absorbance (SUVA) value based on a measurement value measured by the aromatic compound detection unit, and uses the calculated SUVA value to control drive of the pretreatment unit to pretreat the raw water. An effective underground reservoir operating process is suggested to improve underground reservoir operating efficiency, improve water quality treatment efficiency in artificial underground reservoir recharge by pretreatment, and shorten water quality treatment time in artificial underground reservoir recharge by pretreatment.



Probable Assignee: UNIV SEJONG IND ACAD COOP FOUO

Earliest Publication Date: 20190709

A FULL CLOSED CYCLE WATER SYSTEM (MACHINE TRANSLATION)



Abstract: Source: CN210263241U The utility model proposes a full closed loop water system, which can solve the prior art presence of drinking water supply pipe network of secondary pollution, safety is not guaranteed, terminal faucet contamination risks and other issues. The technical solutions including the process water through ozone and ultraviolet disinfection, ozone will pass into the process water entering the closed retractable water storage containers, the effective contact oxidation, through the closed retractable water reservoir outlet pipe out of the water; the water pipes pass into the ozone and ultraviolet disinfection, after entering the water pump pressurized water supply, water supply pipe network; take the faucet reaches the terminal, take the tap water inlet pipe connected to one end of the process, one end of the return pipe connection process, mid in the water intake, water intake for the user wherein, designed as a drainage device for user access to water are recycled water, no stagnant water. The utility model can be applied to drinking water, especially drinking water water supply pipe.

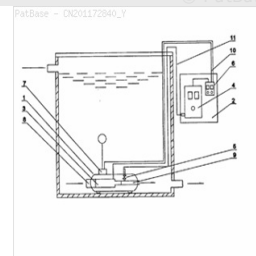
Probable Assignee: TSINGHUA UNIV

Earliest Publication Date: 20200407

13) Family number: 42829463 (CN201172840Y)

FULL AUTOMATIC WATER BOX STERILIZING PURIFIER

Abstract: Source: CN201172840Y The utility model relates to an automatic sterilization purifier for purifying water in a reservoir and a water tank, which is particularly suitable for water purification of secondary water supply in elevated tanks of high-floor buildings in cities, a water tank is not needed to be manually cleaned, and the automatic sterilization purifier automatically disinfects, sterilizes and purifies water in the water tank, and cleans the water tank. The automatic sterilization purifier comprises a diving tank (1) and an electric control box (2), wherein a diving type mix gas pump (3), an ejector (5), a level gauge (7), a water absorption tube (8) and an outlet pipe (9) are mounted in the diving tank (1), an ozone generator (4) and a controller (6) are mounted in the electric control box (2), and the ozone generator (4) and the controller (6) are connected through a cable (10) and a silicone tube (11). The automatic sterilization purifier is automatically controlled by the controller (6), the liquid level value is set to automatically turn on and turn off a power supply, time is set to timely open and close the automatic sterilization purifier in circulation to lower power consumption and operation cost. The water tank of the automatic sterilization purifier is not needed to be manually cleared, water in the water tank is automatically disinfected, sterilized and purified in circulation, and the security of secondary water supply is assured.



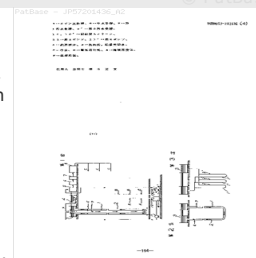
Probable Assignee: HUIXING ZHANG

Earliest Publication Date: 20081231

14) Family number: 2529294 (JP57201436A)

SERVICE WATER INSTALLATION FOR HIGH BUILDING

Abstract: Source: JP57201436A [Source: Claim 1 surrounding the roof of high-rise buildings along the vertical direction, Tate? ding downward from the cooling tube and the f from the aeration tank is installed in the deep underground pollution waste water and the like, the side lot of relatively tufts on each floor for current collection from the water storage tank and a first receiving the first sewage wastewater sewage from the deep water-receiving tub to suction the top portion of the first aeration tank, and supplies the pump from the aeration tank installed on the roof the above deep sewage aeration receiver is already supplied with the precipitation tank, tank, the raw water tank ozone reaction vessel over-processed through a reservoir water in the water-receiving tub installed in the underground garage (at a relatively less pollution waste water, waste water and the like washroom hot water supply room on each floor, a second for current collection from the water storage tank of the first sewage receiving sewage from the sewage suction receiving tank to be supplied to the first to the raw water tank 2 pump, characterized in that it comprises a high-rise building in a water supply facilities. 3,



Probable Assignee: MITSUBISHI KAKOKI KK

Earliest Publication Date: 19821209

15) Family number: 43107876 (GT200500304A)

SISTEMA DE ABASTECIMIENTO DE AGUA PURIFICADA A DOMICILIO EN EL MOMENTO DE SU PREPARACION - PROYECTO GEMA AZUL SYSTEM OF WATER SUPPLY PURIFIED AT HOME AT THE MOMENT OF ITS PREPARATION - PROJECT BLUE GEM (MACHINE TRANSLATION)

Abstract: Source: GT200500304A EL SISTEMA DE ABASTECIMIENTO DE AGUA PURIFICADA A DOMICILIO, DENOMINADO PROYECTO AGUA GEMA AZUL, COMPRENDE DOS FASES. LA PRIMERA FASE QUE INCLUYE LA OBTENCION DEL AGUA DE UN POZO ARTESANAL, SU TRATAMIENTO PREVIO POR MEDIO DE UNA BOMBA SUMERGIBLE DE AGUA DE ACERO INOXIDABLE, UN FILTRO MULTIMEDIA PARA RETENER LA SUCIEDAD DE LA MISMA, UN FILTRO SUAVIZADOR PARA BAJAR LA DUREZA DEL AGUA, UNA BOMBA DOSIFICADORA AUTOMATICA DE CLORO, DOS DISPOSITIVOS PARA TOMAR MUESTRAS DE AGUA Y UN EQUIPO AUXILIAR QUE INCLUYE UN DEPOSITO DE AGUA PARA EL RETROLAVADO DE LOS FILTROS MENCIONADOS, UN EQUIPO HIDRONEUMATICO DE ACERO INOXIDABLE, DOS BYPASS, UN DEPOSITO DE AGUA CON SAL SIN YODO, UN SISTEMA DE TUBERIA PARA EL RETORNO DEL AGUA Y UN SISTEMA DE DRENAJE. UNA SEGUNDA FASE LA CUAL SE REFIERE AL TRATAMIENTO DEL AGUA EN EL CAMION CISTERNA, LA CUAL CONSTA DE UN TANQUE DE ACERO INOXIDABLE, UN EQUIPO HIDRONEUMATICO DE ACERO INOXIDABLE, UN MANOMETRO, UN FILTRO DE SEDIMENTOS, DOS FILTROS DE CARBON ACTIVADO, UN PURIFICADOR DE RAYOS ULTRA VIOLETA, UN GENERADOR DE OZONO, UN BYPASS, DOS DISPENSADORES DE ACERO INOXIDABLE, UNA PLANTA ELECTRICA DE GASOLINA, UN INVERSOR DE CORRIENTE Y UN PANEL DE CONTROL ELECTRICO.

Machine translation: SYSTEM PURIFIED WATER SUPPLY TO ADDRESS WATER PROJECT CALLED BLUE GEM, has two phases. The first phase includes the taking of water from an artesian well, pretreatment THROUGH A WATER PUMP SUBMERSIBLE stainless steel, a multimedia filter to retain soiling, a filter SOFTENER TO LOWER WATER HARDNESS, a metering pump AUTOMATIC CHLORINE, two devices to take water samples and auxiliary equipment including a reservoir of water for filter backwash LISTED TEAM HYDROPNEUMATIC STAINLESS STEEL BYPASS TWO, A water tank with non-iodized salt, PIPE SYSTEM FOR THE RETURN OF THE WATER AND SEWER SYSTEM. A SECOND PHASE WHICH REFERS TO WATER TREATMENT The tanker, which consists of a steel tank STAINLESS STEEL EQUIPMENT STAINLESS HYDROPNEUMATIC, a manometer, a sediment filter, activated carbon filters DOS, purifier Ultra Violet, an ozone generator, BYPASS, two dispensers STAINLESS STEEL GAS ELECTRIC PLANT, an inverter and a panel of electrical control.

Earliest Publication Date: 20060314

**A BIORETENTION JOINT PERMEABLE PAVEMENT RECYCLING RAIN SEWAGE CAR WASH SYSTEMS
(MACHINE TRANSLATION)**

Abstract: Source: CN209162934U The utility model discloses a BIORETENTION joint permeable pavement recycling rain water washing system, comprising: Sink; Above the car wash, located in sink; Overflow grit hole, water tank through the connecting pipe and the overflow grit hole is connected; Cistern, overflow grit hole through ozone sterilization passageway in fluid communication with the reservoir connected; And car wash pipe, with the reservoir connected, the ability to rain and sewage generated in the car washing wastewater recycling to the car wash, to conserve water resources and reduce environmental pollution.

Probable Assignee: TSINGHUA UNIV

Earliest Publication Date: 20190726

