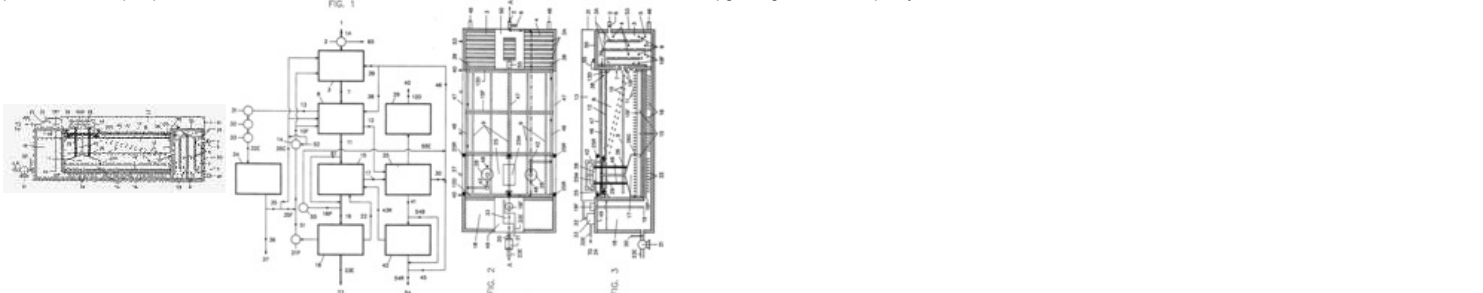
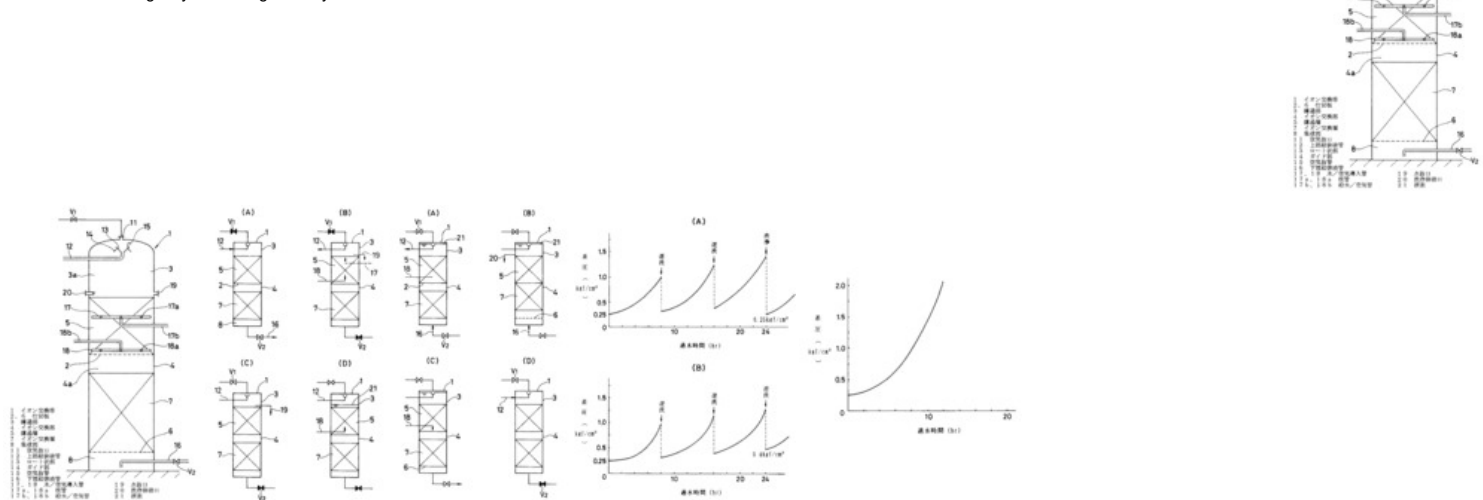


#	Title	Publication number	1st app. date	Applicant/Assignee	1st publ. date	Publ. date
1.	Air-backwashing and automatic vacuum recovery device for hollow fiber membrane biochemical reactor	CN201626869	2009-12-29	JIANGSU GAOLANG ENVIRONMENT TECHNOLOGY* NANTONG CITY ECONOMIC & TECHNOLOGICAL DEVELOPMENT ZONE SEWAGE TREATMENT PLANT*	2010-11-10	2010-11-10
The utility model discloses an air-backwashing and automatic vacuum recovery device for a hollow fiber membrane biochemical reactor. Two branches for connecting an ultrafiltration membrane aeration pipeline and an ultrafiltration suction pipeline are arranged between the ultrafiltration membrane aeration pipeline and the ultrafiltration suction pipeline; a second pneumatic valve is arranged on one of the two branches, one end thereof is connected between a vacuum suction device of the ultrafiltration membrane aeration pipeline and a rotor flow meter, and the other end thereof is connected with one side of a first pneumatic valve far away from an ultrafiltration suction pump; a third pneumatic valve is arranged on the other branch, one end thereof is connected with the vacuum suction device of the ultrafiltration membrane aeration pipeline, and the other end thereof is connected with one side of the first pneumatic valve far away from the ultrafiltration suction pipeline. The air-backwashing and automatic vacuum recovery device has the advantages of reasonable structure and better backwashing effect.						

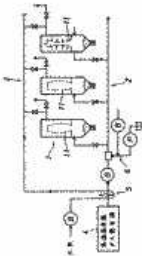
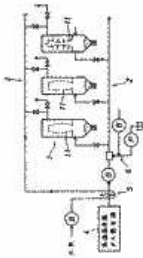
2.	Method and apparatus for liquid treatment	US5256299	1990-07-02	INTERNATIONAL ENVIRONMENTAL SYSTEMS*	1993-10-26	1993-10-26
An improved method and apparatus for purifying liquid in a square or rectangular tank involving ultra violet (UV) treatment, oxidation, flotation, filtration, effluent purging and disinfection is described. The liquid to be treated is fed into the mixing chamber of the apparatus in the presence of UV light and an oxidant (ozone and/or hydrogen peroxide), and then discharged into the flotation chamber for gas stripping of volatile organic compounds (VOC) and flotation removal of floating substances. The supernatant in flotation chamber flows downward through multiple automatic backwash liquid phase granular activated carbon (GAC) filters for final polishing before being discharged as the liquid effluent or further disinfected. The flotation chamber is hooded for collection of gas stream which is moved by a gas mover and purified by a gas phase granular activated carbon (GAC) filter. The gas effluent from said gas phase GAC filter is recycled to said flotation chamber for reproduction of gas bubbles, and elimination of secondary air pollution. The multiple liquid phase GAC filters when dirty are backwashed by backwash means comprising a backwash hood, mechanical gears, backwash pump(s), solid-liquid separators, and control means which are mounted on a moving carriage. During backwash, the backwash hood which has identical shape of a liquid phase GAC filter sits on the top of a liquid phase GAC filter, and the liquid phase GAC is suspended and washed by backwash pump(s) using clean water. The dirty backwash wastewater is recycled to the intake header for water treatment thus eliminating secondary water pollution. The floating substances on the liquid surface of said flotation chamber are skimmed off by a removal mechanism for disposal as the waste sludge. The liquid phase GAC when its regeneration is due is pumped out from a liquid phase GAC filter as a slurry by said backwash pump(s), and is separated by a solid-liquid separator for regeneration. A built-in purge system recycles a portion of said liquid phase GAC filter effluent for repeated treatment during filter backwash, thus upgrading the effluent quality.						



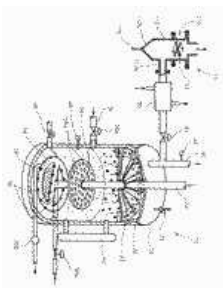
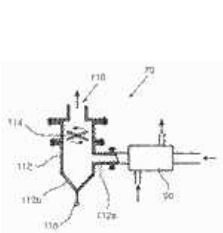
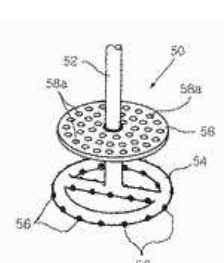
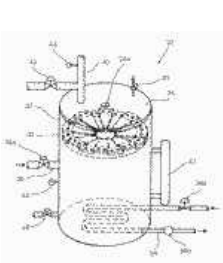
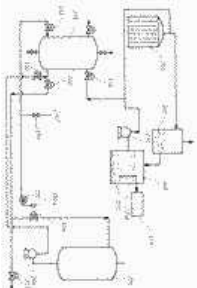
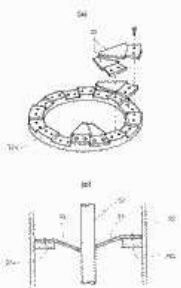
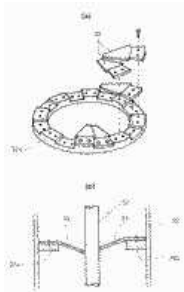
3.	Ion exchange equipment	JPH0871552	1994-09-07	KURITA WATER INDUSTRIES*	1996-03-19	1996-03-19
PURPOSE: To obtain ion exchange equipment in which a filter layer can be backwashed independently without disturbing an ion exchange layer so that ion exchange can be conducted sequentially without regenerating the ion exchange layer every time of backwash, capable of improving the utilization efficiency of an agent for regenerating the ion exchange layer and conducting the ion exchange for a long period of time. CONSTITUTION: In this ion exchange equipment in combination with a filter part, an ion exchange column 1 is divided into upper and lower parts by a liquid-permeable partition member 2 to form respectively a filter layer 5 and an ion exchange layer 7 so that the filter layer 5 can be backwashed independently by water/air introduction pipes 17, 18 to recover the filtration capacity by washing the filter layer 5 by passing the regeneration drainage from the ion exchange layer 7 through the layer 5.						



PURPOSE: To prevent a filter cloth from getting clogged with dust and reduce the running cost by **backwashing** a bag filter by means of high temperature and low humidity **air** prepared by utilizing waste heat of **gas**. CONSTITUTION: **Gas** from a generating source 4 of high temperature **gas** containing dust highly is introduced from a washing line 2 to the inside of a filter cloth 11 of respective bag filters 1. Waste heat of the introduced **gas** is **recovered** by a heat exchanger 5 to prepare **air** of high temperature low humidity and introduced from a **backwash** line 3 to respective dust collectors 1. Also, for the purpose of cooling the **gas** after heat **recovering** down to the heat-resistance temperature or lower of the bag filter, a mist spray 6 is installed on a part of the washing line 2. Accordingly, although the mist spray 6 is used for cooling **gas**, since high temperature low humidity **air** is used for **backwashing**, dust adhered to the bag filter can be dried and removed.



PURPOSE: An apparatus for **recycling air** for **backwashing** is provided which further increases **backwashing** efficiency of gravel filter by heating **air** and prevents loss and damage of gravel by always constantly maintaining pressure of **air**, and **recycles air** discharged into the atmosphere and removes noise of the **air** at the same time. CONSTITUTION: In a facility for **backwashing** a gravel filter used in the process of treating coke oven **gas** generated from coke oven during dry distillation of coal, the apparatus for **recycling air** for **backwashing** comprises an **air** collecting means(10) arranged between **air** blower and gravel filter on a pipeline for supplying **air** for **backwashing** to the gravel filter so that the **air** collecting means(10) collects and heats **air** generated by the **air** blower; and a condensate water separation means(70) arranged on an upper part of the **air** collecting means(10) to remove moisture from **air** circulated to the **air** blower so that **air** is **recycled**, wherein the **air** collecting means(10) comprises an **air** storage part comprising body(32), cover(34), water supply pipe(36) and water heating pipe(38); and an **air** supply part comprising **air** supply pipeline(52), ring shaped nozzle pipeline(54), a plurality of **air** nozzles(56) and **air** distribution plate(58), and wherein the condensate water separation means(70) comprises an **air** cooling part(90) connected to a pipe branched off from a pipe(40) fixed to the cover(34) of the body(32) to cool **air** circulated to the **air** blower; and a condensate water separation part(110) comprising body(112), rotation blade(114) and drain trap(116).



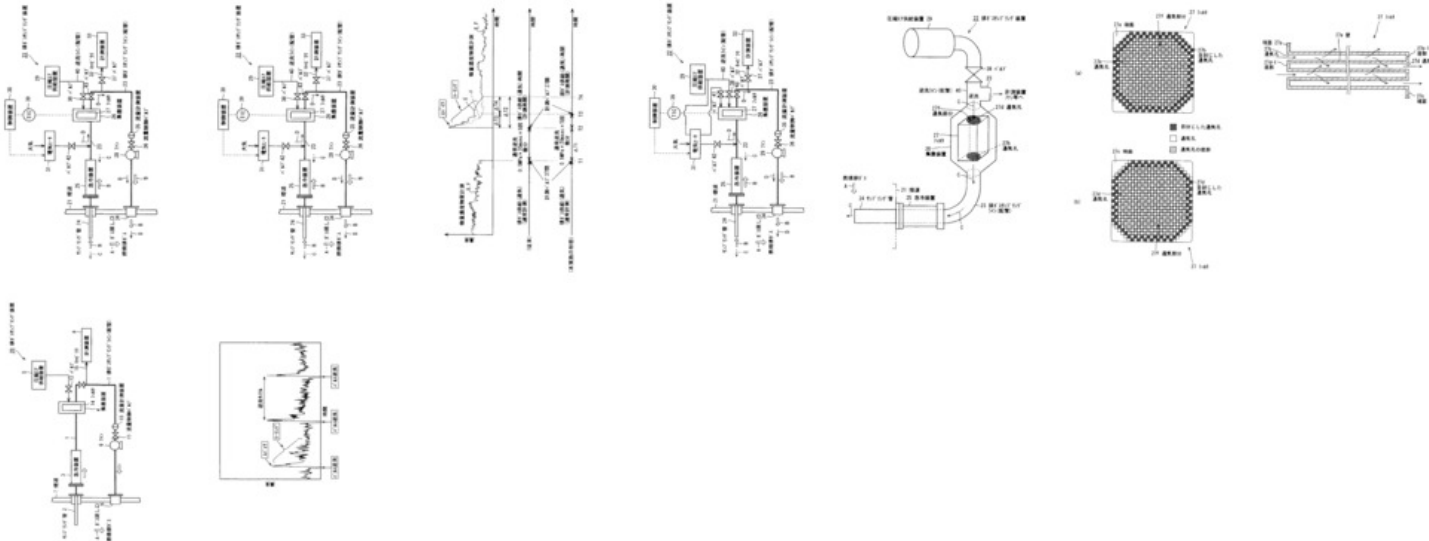
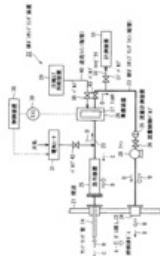
The invention provides an SF6 (sulfur hexafluoride) **gas recovery** vehicle which comprises a vacuum pump, an oil free compressor, a driving device, a **gas** liquefaction condenser, a pipeline, a filter, a regenerative dryer, a **gas** pressure regulating **backwash** device, a control valve and an instrument control device. The SF6 **gas recovery** vehicle is characterized in that the SF6 **gas recovery** vehicle further comprises a four-wheel metal frame vehicle; a whole **recovery** device is placed on the metal frame vehicle, so that the SF6 **gas recovery** vehicle can move around conveniently; the metal frame vehicle, which belongs to trolleys, is provided with two handles and four pneumatic tires; and meanwhile, the SF6 **gas recovery** device is provided with an automatic vacuum pumping device capable of automatically pumping **gas** in a storage container and the pipeline. In the invention, the SF6 **gas recovery** vehicle is more convenient for operation, saves more labor, and has a higher adaptability to the road surface.



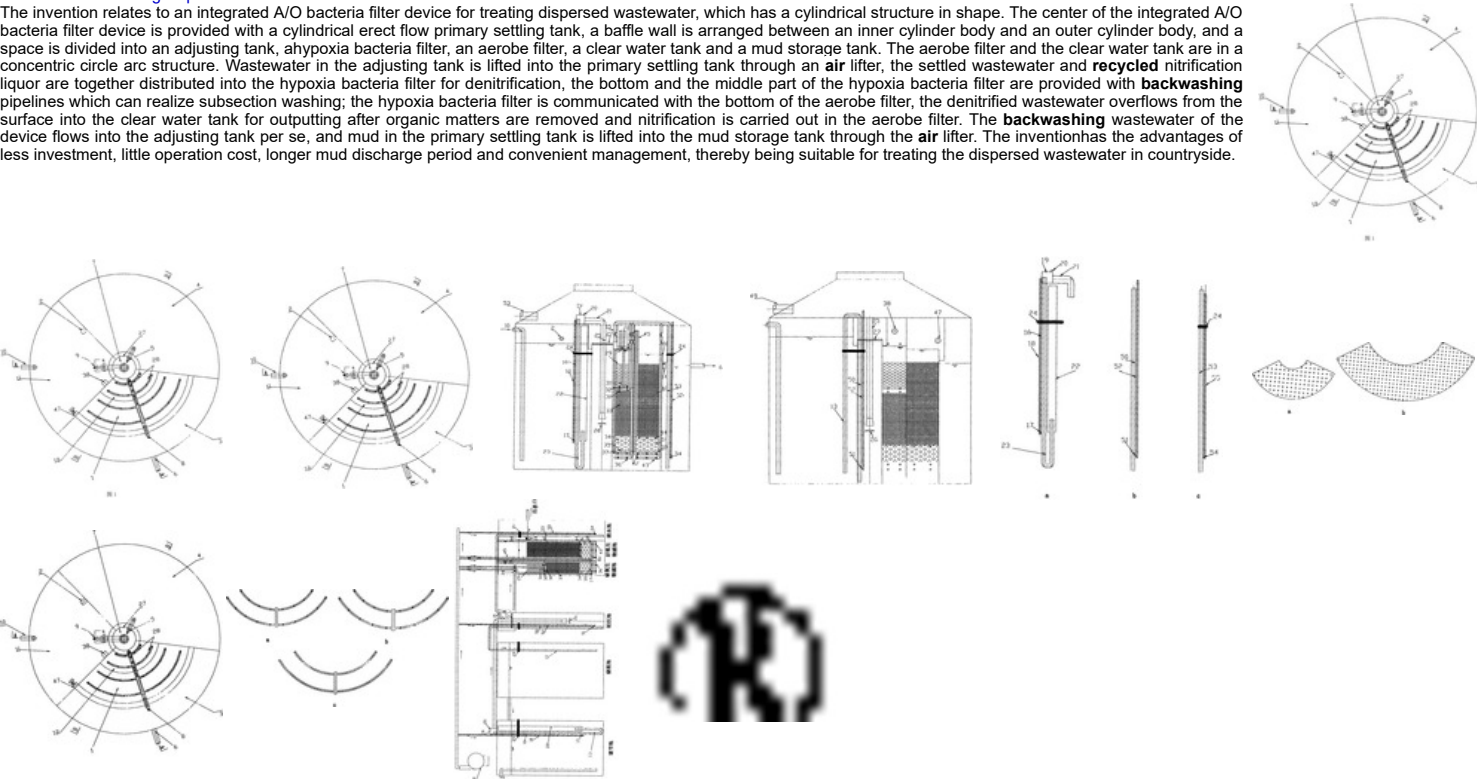
PROBLEM TO BE SOLVED: To provide an exhaust **gas** sampling device capable of **recovering** the measurement state of a measuring device for measuring a material having an infinitesimal concentration included in exhaust **gas** to the normal state quickly after the **backwash** of a filter.

SOLUTION: This device has a constitution wherein supply of a sampled exhaust **gas** to the measuring device 33 is stopped and the filter is back-washed, and then purge **air** is sent from the upstream side of the filter 27 into a **gas** duct 21 through the filter 27, and hereby dust or a measuring object material which is removed from the filter by back washing and rescattered is purged into the **gas** duct 21, and then supply of the sampled exhaust **gas** to the measuring device 33 is started. Hot **air** is preferable as the purge **air**. Purging or **backwash** may be performed by using inert **gas**. **Air** blow may be performed before purging. In this case, the **air** is preferably heated. The sectional shape of a ventilation part of the filter may be roughly equalized to the sectional shape of a **backwash** line by sealing an **air** hole on the peripheral part or the like.

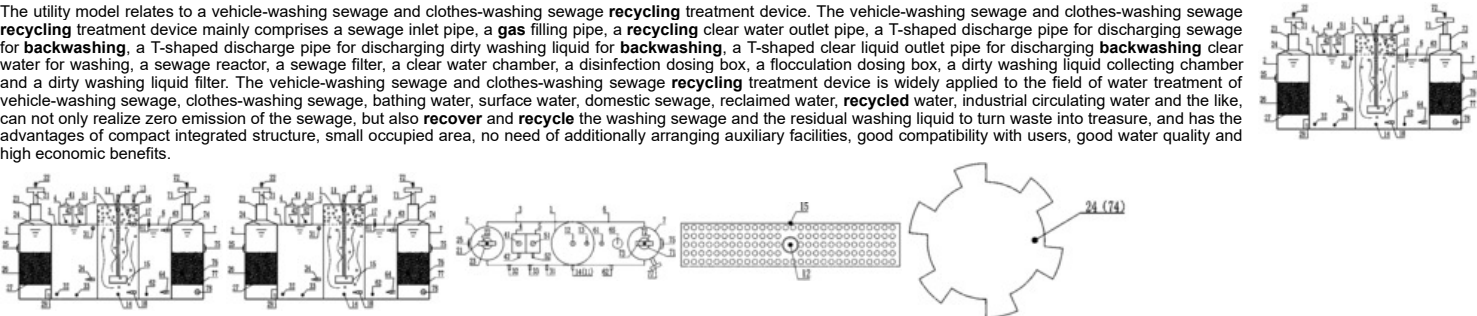
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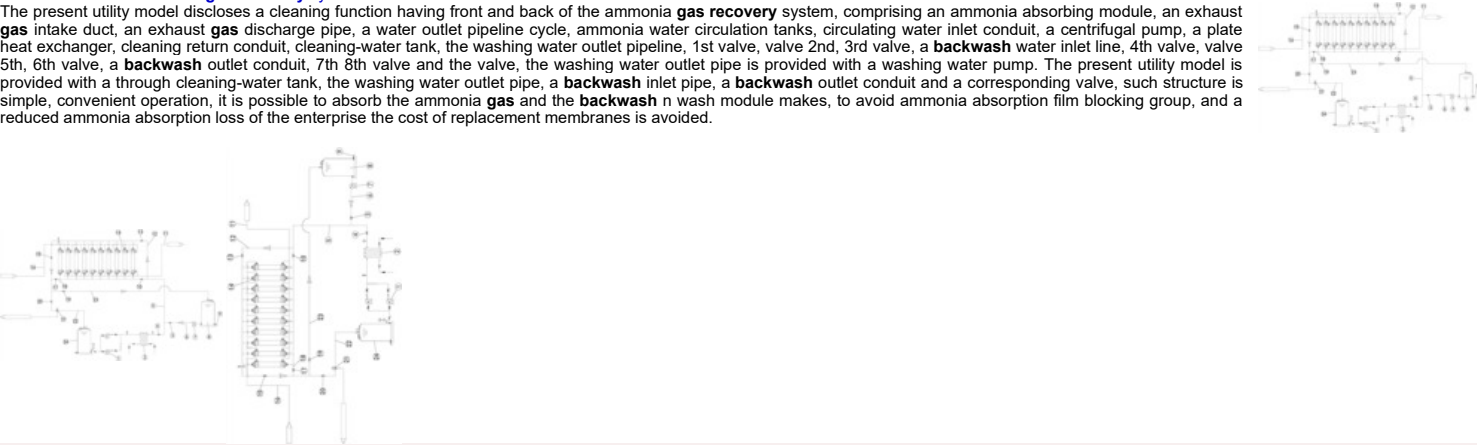
The invention relates to an integrated A/O bacteria filter device for treating dispersed wastewater, which has a cylindrical structure in shape. The center of the integrated A/O bacteria filter device is provided with a cylindrical erect flow primary settling tank, a baffle wall is arranged between an inner cylinder body and an outer cylinder body, and a space is divided into an adjusting tank, a hypoxia bacteria filter, an aerobic filter, a clear water tank and a mud storage tank. The aerobic filter and the clear water tank are in a concentric circle arc structure. Wastewater in the adjusting tank is lifted into the primary settling tank through an air lifter, the settled wastewater and recycled nitrification liquor are together distributed into the hypoxia bacteria filter for denitrification, the bottom and the middle part of the hypoxia bacteria filter are provided with backwashing pipelines which can realize subsection washing; the hypoxia bacteria filter is communicated with the bottom of the aerobic filter, the denitrified wastewater overflows from the surface into the clear water tank for outputting after organic matters are removed and nitrification is carried out in the aerobic filter. The backwashing wastewater of the device flows into the adjusting tank per se, and mud in the primary settling tank is lifted into the mud storage tank through the air lifter. The invention has the advantages of less investment, little operation cost, longer mud discharge period and convenient management, thereby being suitable for treating the dispersed wastewater in countryside.

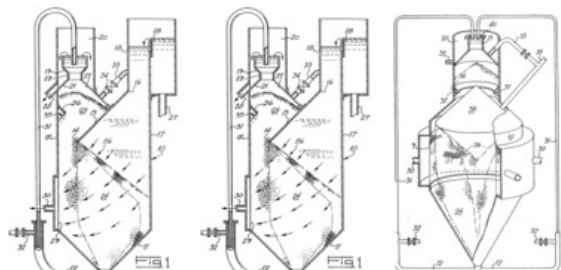


The utility model relates to a vehicle-washing sewage and clothes-washing sewage recycling treatment device. The vehicle-washing sewage and clothes-washing sewage recycling treatment device mainly comprises a sewage inlet pipe, a gas filling pipe, a recycling clear water outlet pipe, a T-shaped discharge pipe for discharging sewage for backwashing, a T-shaped clear liquid outlet pipe for discharging backwashing clear water for washing, a sewage reactor, a sewage filter, a clear water chamber, a disinfection dosing box, a flocculation dosing box, a dirty washing liquid collecting chamber and a dirty washing liquid filter. The vehicle-washing sewage and clothes-washing sewage recycling treatment device is widely applied to the field of water treatment of vehicle-washing sewage, clothes-washing sewage, bathing water, surface water, domestic sewage, reclaimed water, recycled water, industrial circulating water and the like, can not only realize zero emission of the sewage, but also recover and recycle the washing sewage and the residual washing liquid to turn waste into treasure, and has the advantages of compact integrated structure, small occupied area, no need of additionally arranging auxiliary facilities, good compatibility with users, good water quality and high economic benefits.

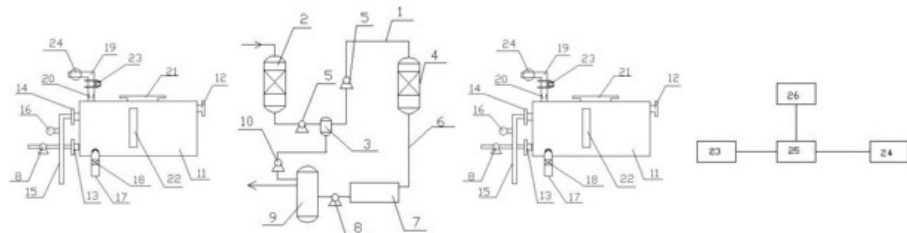


The present utility model discloses a cleaning function having front and back of the ammonia gas recovery system, comprising an ammonia absorbing module, an exhaust gas intake duct, an exhaust gas discharge pipe, a water outlet pipeline cycle, ammonia water circulation tanks, circulating water inlet conduit, a centrifugal pump, a plate heat exchanger, cleaning return conduit, cleaning-water tank, the washing water outlet pipeline, 1st valve, valve 2nd, 3rd valve, a backwash water inlet line, 4th valve, valve 5th, 6th valve, a backwash outlet conduit, 7th 8th valve and the valve, the washing water outlet pipe is provided with a washing water pump. The present utility model is provided with a through cleaning-water tank, the washing water outlet pipe, a backwash inlet pipe, a backwash outlet conduit and a corresponding valve, such structure is simple, convenient operation, it is possible to absorb the ammonia gas and the backwash n wash module makes, to avoid ammonia absorption film blocking group, and a reduced ammonia absorption loss of the enterprise the cost of replacement membranes is avoided.

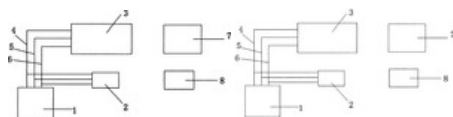




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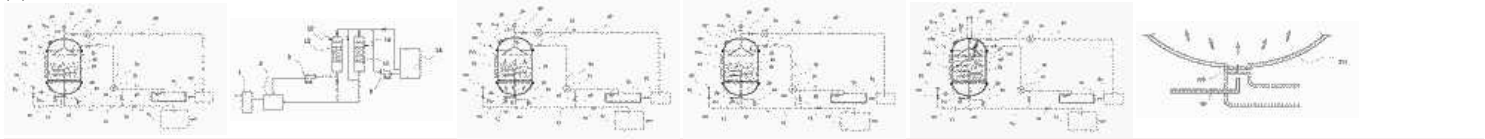
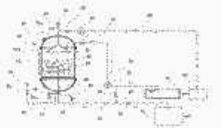


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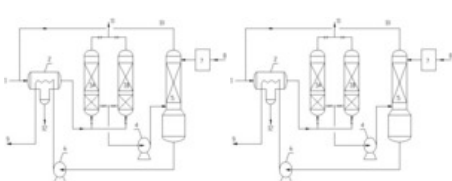
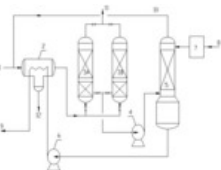
PURPOSE: An apparatus for treating sewage and wastewater is provided in which a media always displays the best purification capability by improving the structure of supplying and **backwashing** sewage and wastewater supplied to a filter vessel.

CONSTITUTION: The apparatus for treating sewage and wastewater comprises a suction pipe(37) which is installed at the upper of a media layer(43) in a filter vessel(30) and connected to a **backwash** line(60), wherein the suction pipe(37) has an inlet the upper part of which is narrow and the lower part of which is wide; a supply line(50) which is connected to the filter vessel(30) so that sewage and wastewater supplied from the supply line(50) is supplied from the upper part of the suction pipe(37); an **air** inflow valve(92) and an **air** inflow rate control valve(93) which are equipped at one side of a drain line(70), wherein the **air** inflow valve(92) is automatically opened during **backwashing**, thereby enabling the inflow of **air**, and the **air** inflow rate control valve(93) controls the flow rate of the inflow of **air**; and a **recover** line(80) which is installed between the supply line(50) and the drain line(70) so that a part of water purified and drained is **recovered** by a supply pump(51) through an opening and shutting valve for a certain period of time.

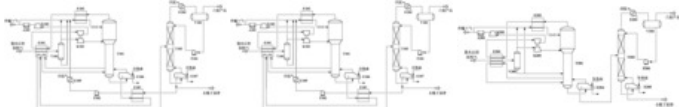
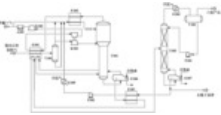
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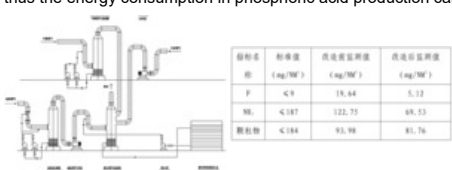
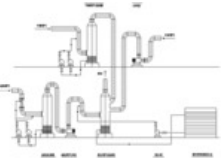
The utility model discloses an oil -gas recovery processing device, including cooling unit, absorption unit and absorptive unit, cooling unit includes cooler and reflux pipeline, the cooler be used for with the oil collection **gas** cooling to 4 DEG C ~8 DEG C, reflux pipeline is arranged in flowing back the rich finish that absorbs that the absorptive unit produced to the cooler and being used for the oil **gas** cooling, it includes two and above adsorption tanks and vacuum regeneration facility to adsorb the unit for adsorbing in turn and desorption regeneration of oil **gas**, the absorptive unit includes absorption tower, oil cooler and the rich finish **backwash** pump that absorbs, and the absorption tower is used for absorbing adsorption tanks regeneration oil **gas**, and oil cooler is used for cooling off the oil absorber to 2 DEG C ~5 DEG C, and the rich finish **backwash** pump that absorbs is arranged in flowing back the produced rich finish that absorbs of absorptive unit to the cooler. Advantages such as the device has that adsorbent long service life, operation energy consumption are low, safe and reliable, equipment are simple.



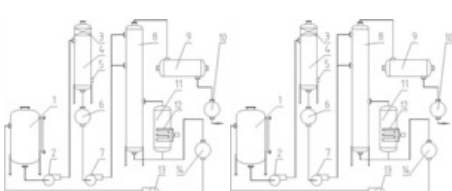
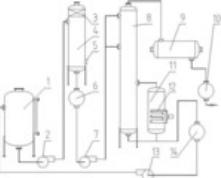
The utility model discloses a control CO2 freezes stifled natural **gas** ethane **recovery** unit, including the domethanizing column, first cold box, the second cold box, the inflation unit, the domethanizing column reboiler, the deethanizer, deethanation top of the tower propane evaporator, deethanation top of the tower **backwash** pump, the deethanizer reboiler, the return tank, still include with first cold box, second cold box and inflation unit homogeneous phase low temperature separation ware even, with the domethanizing column reboiler, deethanizer reboiler and first cold box homogeneous phase third cold box even, the third cold box passes through the lime set **backwash** pump and is connected with the second cold box with backward flow lime set propane evaporator, the inflation unit is connected with the second cold box through outer **gas** transmission compressor and **air** cooler, the deethanizer is connected with first cold box. The utility model provides the high bubble point temperature at domethanizing column top, the CO2 who has increased each column plate of domethanizing column upper portion freezes stifled temperature allowance, has improved control CO2 and has frozen the stifled ability and the ethane rate of **recovery**.



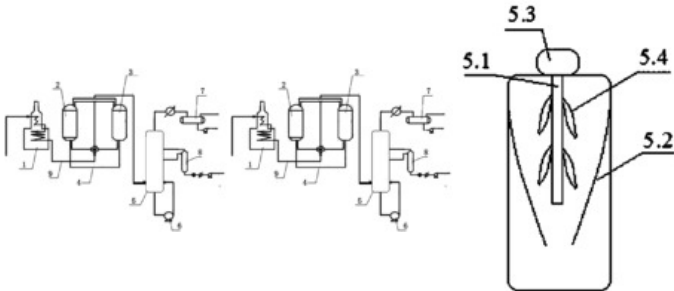
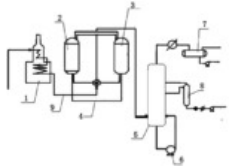
The invention discloses a processing method of tail **gas** of a diammonium phosphate production device. The method comprises the following steps: introducing granulation tail **gas**, dry tail **gas**, and cooling tail **gas** into a mixed tail **gas** washing tower along the tangential direction, introducing phosphogypsum storage yard backwater to the granulation tail **gas** inlet pipe of the mixed tail **gas** washing tower, back-washing the granulation tail **gas**, dry tail **gas**, and cooling tail **gas**; wherein during the **backwashing** process, swirling flows are formed in the mixed tail **gas** washing tower; collecting the washing liquid and condensed water during the tail **gas** cooling process, and delivering the **recycled** water used as acid washing water or supplement water to a phosphoric acid device. The adopted equipment is simple in structure, the purification efficiency is high, and the operation performance is stable and reliable under the production conditions that the **gas** flow and **gas** concentration are not stable. The phosphogypsum storage yard backwater has the characteristics of low temperature, large amount and acidic property, and can be used to **backwash** the tail **gas** so as to prominently reduce the temperature and humidity of tail **gas**. After **backwashing**, the backwater temperature rises prominently, the backwater can be delivered to a phosphoric acid device, and thus the energy consumption in phosphoric acid production can be effectively reduced.



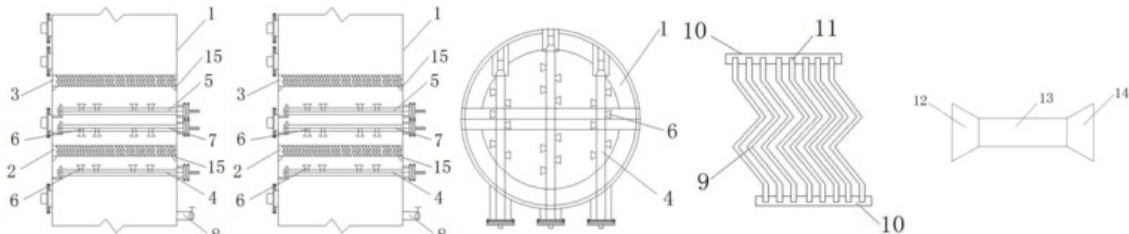
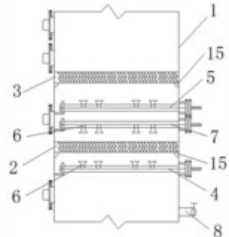
The utility model discloses an organic **gas** recovery type deodorization device that sterilizes, include: absorption tower, distillation column, condenser, stills, its characterized in that: the absorption liquid import on absorption tower is connected through the export of pipeline with the absorption liquid solution feed pump, the bottom leakage fluid dram on absorption tower is connected with liquid tank's import, liquid tank's export is connected with the import of stoste solution feed pump, the export of stoste solution feed pump is connected with the import of distillation column, the top **gas** vent of distillation column is connected with the import of condenser, the bottom of distillation column is connected through the bottom of pipeline with stills, stills's top **gas** vent is connected with the middle part of distillation column, install the heater in the stills, the bottom of distillation column still is connected through the import that pipeline and absorption liquid were kept in jar, the absorption liquid is kept in jar and to be connected through the import of **backwash** pump with the absorption fluid reservoir, the export of absorption fluid reservoir is connected with the import of absorption liquid solution feed pump, the utility model has the advantages of energy -conservation, environmental protection, **recovery** efficiency height.



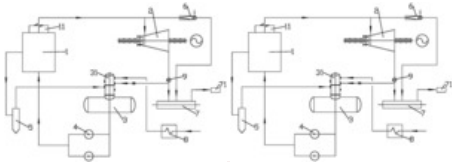
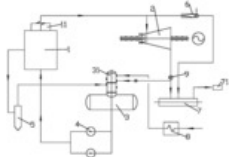
The utility model relates to a natural **gas** pentane **recovery** unit, its technical scheme is: the **gas** storage well passes through the outlet duct and connects first drainer and second drainer, is equipped with four control valves on the outlet duct, communicates the circulating pipe between the bottom of first drainer and second drainer, the top of first drainer, second drainer through condensation outlet duct connection isolation ware, the bottom of separator is equipped with the **backwash** pump, the top exit linkage gasbag of separator, the bottom exit linkage pentane collection tank of separator, separator include deoiling pole, splash shield, motor, the inside of separator is equipped with the deoiling pole, the fixed motor in top of separator, the motor connect the deoiling pole, the inner wall of separator is equipped with the toper splash shield, the beneficial effects of the utility model are that: simple structure, convenient to use has effectively improved the purifying effect and the purification degree of the natural **gas**.



The present utility model belongs to the field of **gas** generating furnace chimney structure technology, and particularly relates to a novel chimney cleaning device, mainly for blowing **gas** generating furnace atmosphere **recovery** device to provide a dust removing apparatus of a chimney, the chimney flue **gas** discharged from the contaminants-containing solution effective to drop a large number of main technical problems, and the dedusting apparatus, comprising a stack body, the chimney is arranged inside the primary and secondary baffle deflector by a two-stage deflector dedusting device consisting, the primary and secondary baffles of the baffle are provided with **backwash** piping and 2nd 1st lower back flushing of the pipeline, in the 2nd back flushing of the pipeline is also provided with a spray line below, at the chimney bottom of the body is provided with a drain inverted shower pipe, and the dedusting device not only effectively solves the chimney flue **gas** containing waste water discharged from the body a large number of technical problems, and it is effective to reduce flue **gas** emissions to the atmosphere due to environmental pollution, effectively improving the enterprise site environment.

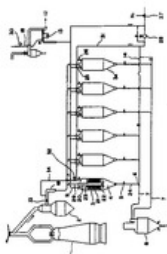
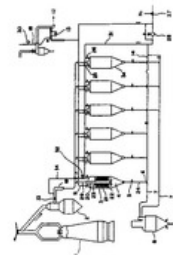


The utility model discloses a boiler thermodynamic system, including boiler, steam output system, water pitcher, electric feed water pump, **gas** -distributing cylinder, drainage, **recovery** pipeline and water charging system, the steam output system is equipped with the pipeline and is connected with the **gas** -distributing cylinder through a temperature and pressure reduction ware, retrieve pipeline and water pitcher, the **gas** -distributing cylinder is connected, electric feed water pump's input passes through the oxygen -eliminating device and is connected with the water pitcher, electric feed water pump's output passes through the pipeline and is connected with the boiler, the steam output and the **gas** collection vapour case intercommunication of boiler, be provided with the relief valve on the **gas** collection vapour case, the control valve on the steam outputting pipe way of driving power equipment, the high pressure gauge, the low pressure table, the control valve of personal steam pipework, discharge valve, the **backwash** valve with to empty discharge valve, the trap, still be provided with the thermocouple on **gas** collection vapour case. The utility model has the advantages of reduce environmental pollution, the reasonable **recycle** of condensate water exports stably and steam that meet the requirements to the life of extension equipment, environmental protection and energy saving.



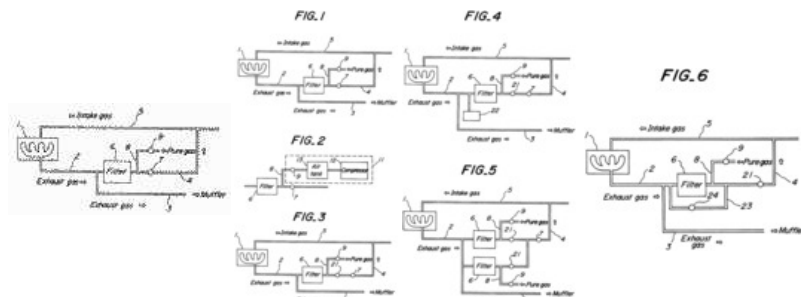
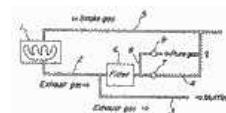
23.	Method for gas-purging dry type gas cleaning equipment	JPH01268812	1988-04-18	NIPPON STEEL*	1989-10-26	1989-10-26
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PURPOSE:To simplify a dry type **gas** cleaning equipment and to clean the environment by sucking **air** with a **backwashing** fan part from out of the system, sending this to inlet of the equipment, successively sending to the equipment main body and purging **gas** to outlet side. **CONSTITUTION:**The exhaust **gas** generated in a blast furnace 1 is treated with the dry type dust collector 3 through a rough dust collector 2. In order to purge the **gas** in the dry type **gas** cleaning equipment for **recovering** the dust with this, the **backwashing** fan 28 is set in the piping branched from an outlet pipe 9 of the dry type dust collector 2. In there, the **air** is sucked from out of the system and the **air** raising the pressure with the **backwashing** fan 28 is sent to the inlet of the dry type **gas** cleaning equipment through **backwashing** piping 31 and this **air** for purging is sent to the equipment main body to purge to the outlet side. By this method, the simplification of the dry type **gas** cleaning equipment and the cleanliness of the environment can be obtd.



24.	Exhaust gas recirculation device for internal combustion engine	JPH0882257	1994-09-14	NGK INSULATORS*	1996-03-26	1996-03-26
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An exhaust **gas** recirculation device for an internal combustion engine has a filter for trapping particulates in a recirculation **gas**, which is arranged in a recirculation **gas** route, and a device for generating a reverse **air** flow in which a pure **gas** flow for the reverse **air** flow passing through said filter in a reverse direction with respect to a recirculation **gas** flowing direction in the filter is generated. In the exhaust **gas** circulation device, the trapped gases are discharged out of the filter by the reverse **air** flow and are not returned into the internal combustion engine due to an engine exhaust pressure.



25.	Filter bed backwash system and process with recycled gas	CA2979197	2016-03-04	SIEMENS ENERGY*	2016-09-15	2016-09-15
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According to various aspects and embodiments, a system (100) and method (200) for **recycling gas** in a **backwash** process is provided. The **backwash** process (200) may comprise removing contaminants from a bed of filtration media (160) in a water treatment process. The method (200) may comprise generating (202) a mixed liquid-**gas** stream (140) from the **backwash** process, withdrawing (204) the mixed liquid-**gas** stream (140) from the **backwash** process, separating (206) the mixed liquid-**gas** stream (140) into a liquid (150) and a **gas** (145), and **recycling** at least a portion of the separated **gas** (145) to the water treatment device (105).

