

4. Smoke gas purification dust removing device and the technique thereof CN101036847

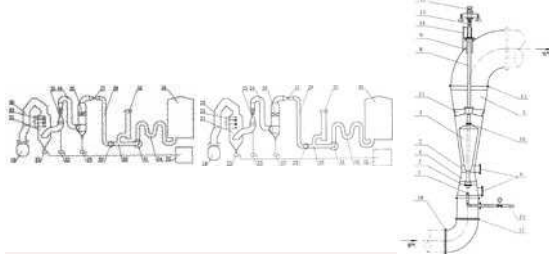
2007-02-12

BEIJING CENTRAL ENGINEERING & RESEARCH INCORPORATION OF IRON & STEEL INDUSTRY*

2007-09-19

2007-09-19

A flue gas purifying collector and process method thereof are provided. The flue gas purifying collector comprises a transpiration cooling flue, a water seal, a flue, a ring-seal Venturi tube, a dehydrator, a flowmeter, pipelines, a main air blower, a three-way valve, a rotary water seal, an irradiation flue pipe, a water treatment device, a U-shape water seal, a gas cabinet, etc, characterized in that the transpiration cooling flue is connected with a cooling washing tower with a nozzle arranged inside the cooling washing tower, the flue gas outlet on the lower part of the collector is connected to the flue gas inlet on the lower part of the ring-seal Venturi tube, the flue gas outlet of the ring-seal Venturi tube is connected to the dehydrator, and on the throat opening of the ring-seal Venturi tube and below the heavy iron are arranged a water supply pipe and a nozzle, and a heavy iron inverted cone is arranged inside the throat opening. An up-running type flue gas flowing manner and water supply below the heavy iron are employed in the process provided in the invention, redundant mechanical water can be directly reclaimed without passing through the throat opening of the ring-seal Venturi tube, water is atomized thoroughly and agglomerates with dust on the throat opening of the ring-seal Venturi tube, thereby improving dust purifying and dust collecting effect, facilitating the adjustment of the heavy iron, and preventing dust agglomeration below the heavy iron and dust deposit on the throat opening of the ring-seal Venturi tube.



5. Filtration arrangement utilizing pleated construction and method WO200220130

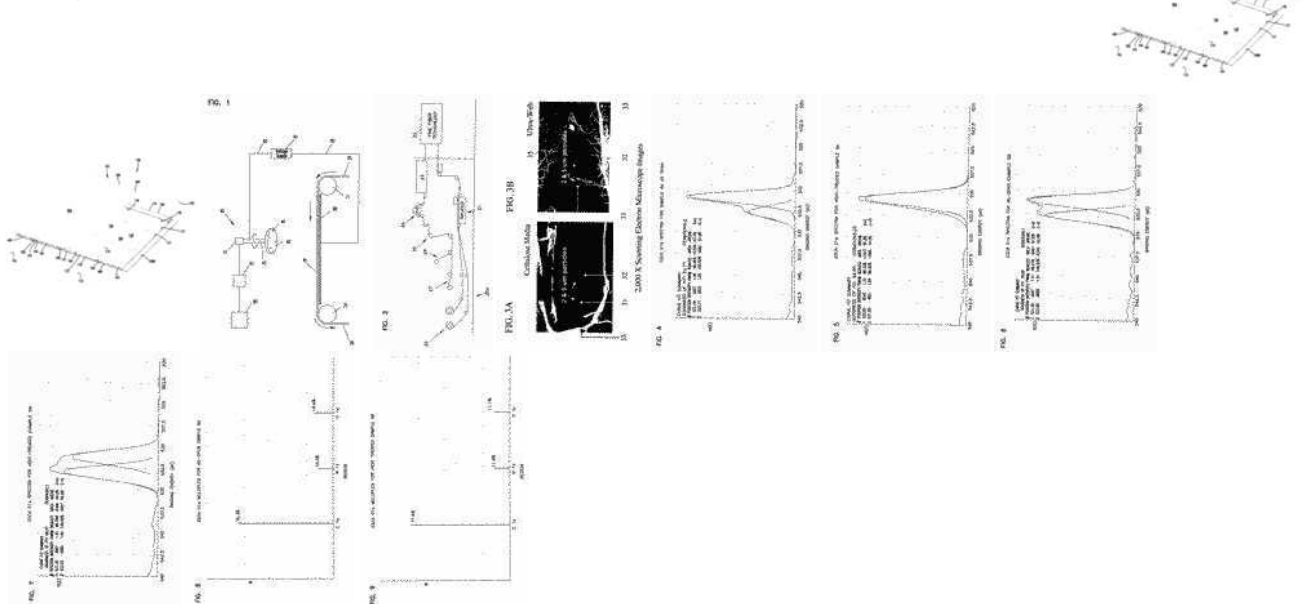
2001-05-31

DONAL DSON KOMPANI INK DONALDSON*

2002-03-14

2002-03-14

Filter arrangements include a barrier media, usually pleated, treated with a deposit of fine fibers. The media is particularly advantageous at high temperature (greater than 140° F) systems. Such systems may include engine systems and fluid compressor systems. Filter arrangements may take the form of tubular, radially sealing elements; tubular, axial sealing elements; forward flow air cleaners; reverse flow air cleaners; and panel filters.



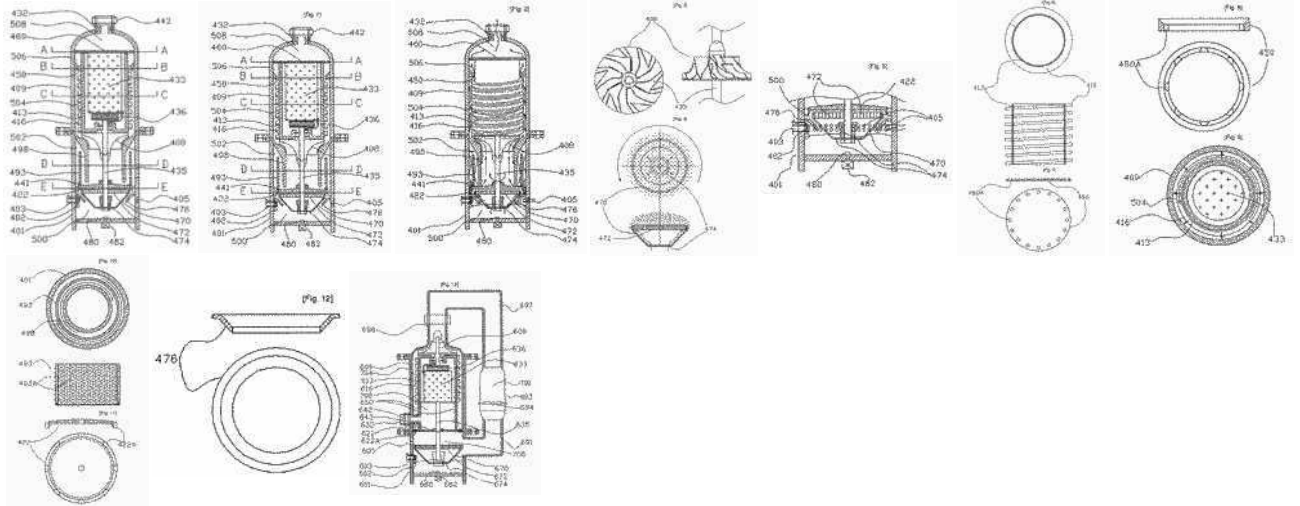
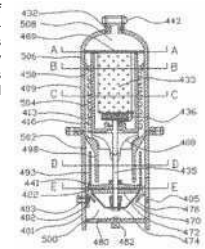
6. Centrifugal wet type air cleaner utilizing a spin vaporizer and a spiral on the basis of a labyrinth effect KR20040099193

2004-10-08

BROOKS KUSHMAN*
KIM TAE SOO
KIM THAE SUE
TAE SOO KIM
YUN JANG SHIK
YUN JANG-SHIK

2004-11-26 2004-11-26

This invention relates to a wet type centrifugal "filter less" air cleaner utilizing a labyrinth effect on the basis of spiral grooves for generating vortex flow, thus the separation of particular dust, mist can be absolutely, above 99.9% purified from air with the difference of specific gravity, 1: 1000 between air and water under centrifugal force, 10000G-80000G after collecting pollution substances from air with an aqua viscosity of water mist. An wet type air cleaner utilizing a centrifugal impeller comprising: spiral grooves (416), a spin vaporizer (401) for large size, an ultra sonic vaporizer (482) for small size, an electric motor (433) with a centrifugal impeller 408, a drain trap (441) and humidity controller (442) installed on an exit pipe (432) etc. Therefore centrifugal wet type air cleaner make fresh air efficiently to be carried out by centrifugal force without using filters in the field of industrial cleanroom, hospital, asepis labotory, home appliances, military use for purifying poison gas, exhaust gas cleaner for automobiles and an industrial burner etc.



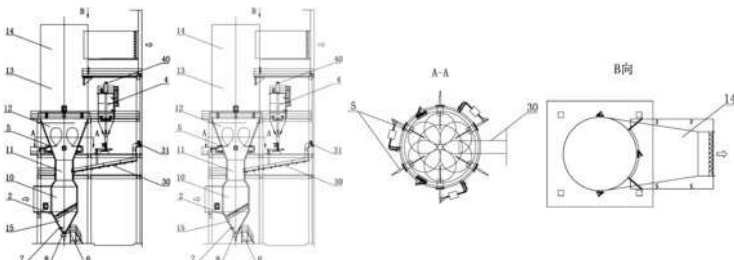
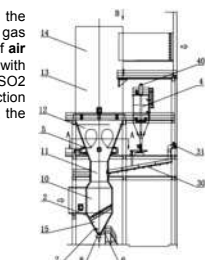
7. Semidry method flue gas desulfurization device of single venturi structure CN205073877

2015-11-06

KELIN ENVIRONMENTAL PROTECTION EQUIPMENT*

2016-03-09 2016-03-09

(B,) the utility model relates to a semidry method flue gas desulfurization device of single venturi structure, including the desulfurizing tower main part, be used for to the desulfurizing tower main part desulfurizer that provides the desulfurizer throw the material device and be used for to the desulfurizing tower main part fresh water (FW) flue gas quenching and tempering device of humidification carries out, the desulfurizing tower main part include the air inlet section, with the venturi throat section that is connected of air inlet section upper portion, with the diffuser that is connected of venturi throat section upper portion, with the direct current section that is connected of diffuser upper portion, with the air-out section that is connected of direct current section upper portion, with the collection sediment ash bucket that is connected of air inlet section lower part, (b) (b) the SO₂ (b) (b) in the flue gas is in the desulfurizing tower main part in accomplish the desulfurated time when being not less than (b) (b) 2 (b) (b) second, the height of direct current section no longer than (b) (b) 10 (b) (b) rice. The utility model provides a be used for dragging STREAMING semidry method desulfurization process's desulfurization unit specially, the equipment height is low, the low equipment investment, and desulfurization effect is good. (B,)



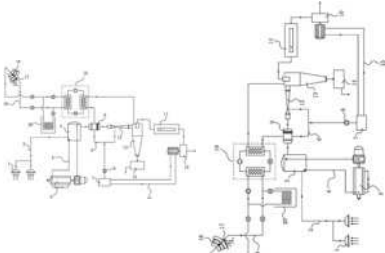
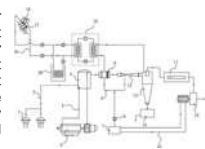
8. Exhaust system with function of waste gas purification treatment CN204121930

2014-09-30

HEBEI AJIE ENVIRONMENTAL PROTECTION TECHNOLOGY*

2015-01-28 2015-01-28

The utility model relates to an exhaust system with the function of waste gas purification treatment. The exhaust system is applicable to the chemical medicine production or research and development process and belongs to the technical field of air purification equipment. The exhaust system comprises waste gas treatment equipment and a heat collecting system for providing a heat source, wherein the waste gas treatment equipment comprises exhaust hoods, a Venturi tube, a cyclone dust collector, a laser air cleaner and a centrifugal fan, the heat collecting system comprises an optical energy heat collecting device, a sewage source heat pump and a heat converter used for heat conversion, heat insulating jackets or heating coils are arranged on the Venturi tube and the cyclone dust collector and are connected with the heat converter. The exhaust system has the positive effects that heat is transferred to the equipment by virtue of the optical energy heat collecting device and the sewage source heat pump, so that the equipment can be used normally under the condition that the temperature is lower in winter; the solar energy and the heat in wastewater pools in chemical plants are effectively utilized, so that the energy consumption is greatly reduced and the carbon emission is reduced; and therefore the exhaust system has the advantages of environmental friendliness and energy conservation.



9. Exhaust gas treatment device

CN108014571

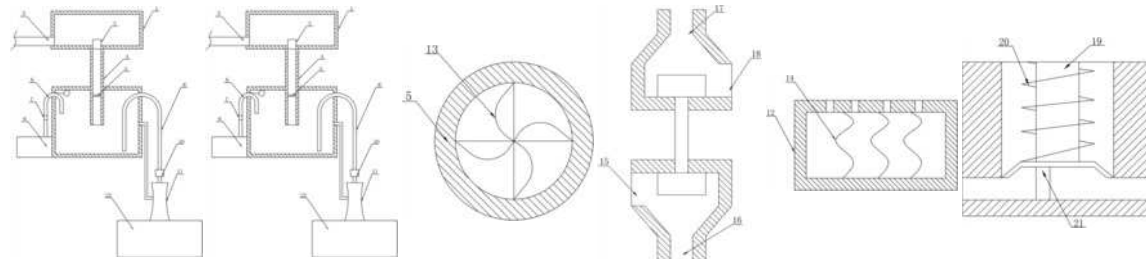
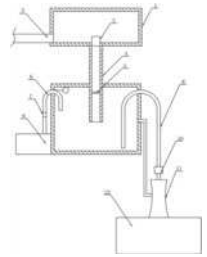
2017-11-28

NINGBO JIANGBEI QINGWEI
ENVIRONMENTAL PROTECTION
TECHNOLOGY*

2018-05-11

2018-05-11

The invention relates to the technical field of environmental protection and discloses an exhaust gas treatment device. The exhaust gas treatment device comprises a rack, a gas gathering box and a **water collecting tank**, the gas **collecting** box is connected with an exhaust gas source and provided with a pressure valve, the **water collecting tank** is provided with a **water pipe**, a stirring **fan** is arranged in the **water pipe**, and a float switch is hinged to the interior of the **water collecting tank**; a first siphon tube and a second siphon tube are arranged on both sides of the **water collecting tank**, the first siphon tube includes a first vertical section, a second vertical section and a first bending section, the second siphon tube includes a third vertical section, a fourth vertical section and a second bending section, the first vertical section is located outside the **water collecting tank** and connected with a **collecting box**, a solenoid valve is arranged in the second vertical section, an opening of the second vertical section is formed in the upper portion of the **water collecting tank**, and the fourth vertical section is communicated with a turbocharger; the turbocharger is located below a pipe orifice and fixed on the rack, the turbocharger is provided with a treatment box fixed on the rack, and a **venturi** tube communicated with the turbocharger is fixed on the treatment box. The exhaust gas treatment device can conduct layering treatment on dust in exhaust gas.



10. Burning waste gas treatment system

CN205412678

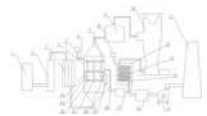
2016-03-10

JINING HENGYI ENVIRONMENT
PROTECTION TECHNOLOGY*

2016-08-03

2016-08-03

The utility model relates to a burning waste gas treatment system belongs to the waste gas treatment technical field, including cyclone, active carbon absorption tower and sack dust **collector**, the boiler is connected to cyclone's **air inlet**, active carbon absorption tower connects sack dust **collector**, sack dust **collector** connects glazed catalytic oxidation device, the gas outlet and the calcium ion adsorption tower **air inlet** intercommunication of light catalytic oxidation device, the gas outlet of calcium ion adsorption tower upper end and the **air inlet** intercommunication at **venturi** middle part, pipeline and heat exchange device upper end intercommunication are passed through to the gas outlet of **venturi** lower extreme opposite side, heat exchange device's lower extreme gas outlet and deodorizing device intercommunication, deodorizing device passes through the exhaust **fan** and connects the chimney. The utility model discloses simple structure, the materials such as chloride, sulphide, nitrogen oxide and metallic sodium in the flue gas are got rid of to the clean efficient of light catalytic oxidation reaction energy, realize SOx/NOx control, can also effectively get rid of various bacteriums, virus and peculiar smell, make flue gas waste gas obtain further purification.



11. Cylindrical dedusting apparatus

CN101837346

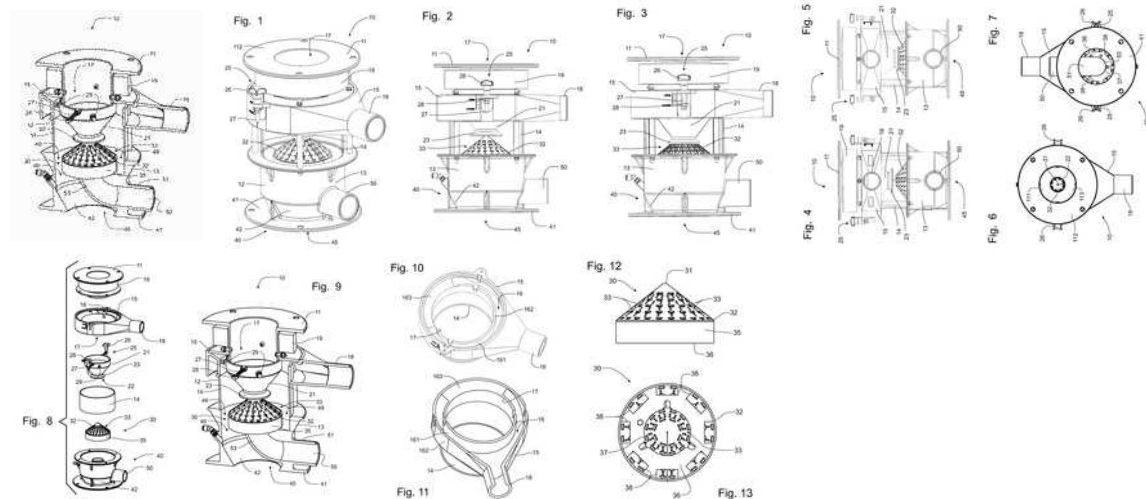
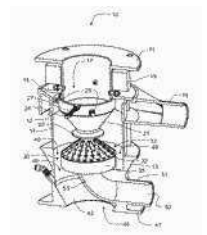
2010-03-05

PELLETRON*
PELLETRON CORPORATION

2010-09-22

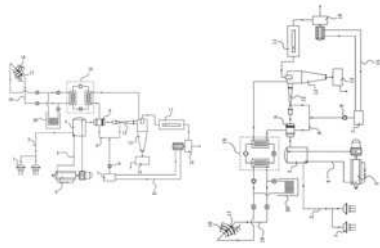
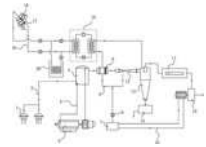
2010-09-22

A dedusting apparatus for cleaning contaminates from particulate material, comprising: a cylindrical housing (12); a feed hopper (21) supported on said housing and terminating in a product inlet opening, said feed hopper being mounted on said housing for vertical movement relative thereto; an **air supply apparatus** supported by said housing at a lower portion to provide a flow of **air** into said housing; an inverted conical wash deck (30) mounted on said housing and having an apex (31) positioned centrally within said product inlet opening to receive particulate material therefrom, said wash deck including a top surface (32) formed with a plurality of apertures (33) for the passage of **air** through said wash deck, the vertical movement of said feed hopper changing the dimensions of a gap (39) separating said product inlet opening (111) from said conical wash deck (30) such that the rate of flow of particulate material over said conical wash deck (30) can be selectively controlled; and an **air discharge collector** (15) mounted above said conical wash deck (30) for **collecting air** passing through said wash deck apertures, said **air discharge collector** (15) including an annular chamber surrounding a central opening in said **air discharge collector** to **collect air** moving upwardly from said wash deck into said central opening.



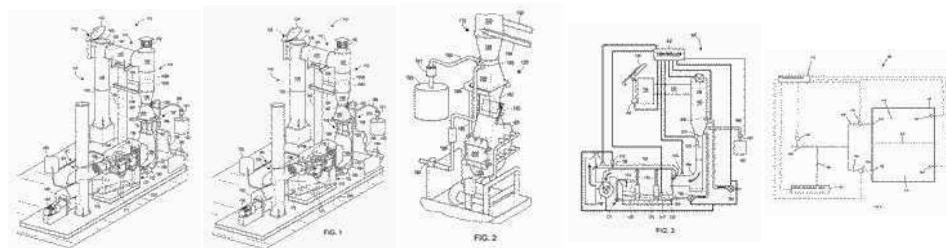
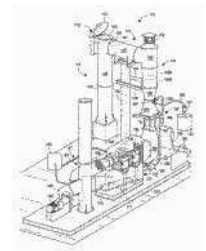
12.	Waste gas purification treatment system with advantages of energy conservation and environmental friendliness	CN204121955	2014-09-30	HEBEI AIJIE ENVIRONMENTAL PROTECTION TECHNOLOGY*	2015-01-28	2015-01-28
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The utility model relates to a waste gas purification treatment system with the advantages of energy conservation and environmental friendliness. The system is applicable to the chemical medicine production or research and development process and belongs to the technical field of air purification equipment. The system comprises waste gas treatment equipment and a heat collecting system for providing a heat source, wherein the waste gas treatment equipment comprises exhaust hoods, a Venturi tube, a cyclone dust collector, a laser air cleaner and a centrifugal fan; the heat collecting system comprises an optical energy heat collecting device, a sewage source heat pump and a heat converter used for heat conversion; heat insulating jackets or heating coils are arranged on the Venturi tube and the cyclone dust collector and are connected with the heat converter. The system has the positive effects that heat is transferred to the equipment via the optical energy heat collecting device and the sewage source heat pump, so that the equipment can be used normally under the condition that the temperature is lower in winter; the solar energy and the heat in wastewater pools in chemical plants are effectively utilized, so that the energy consumption is greatly reduced and the carbon emission is reduced; and therefore the system has the advantages of environmental friendliness and energy conservation.



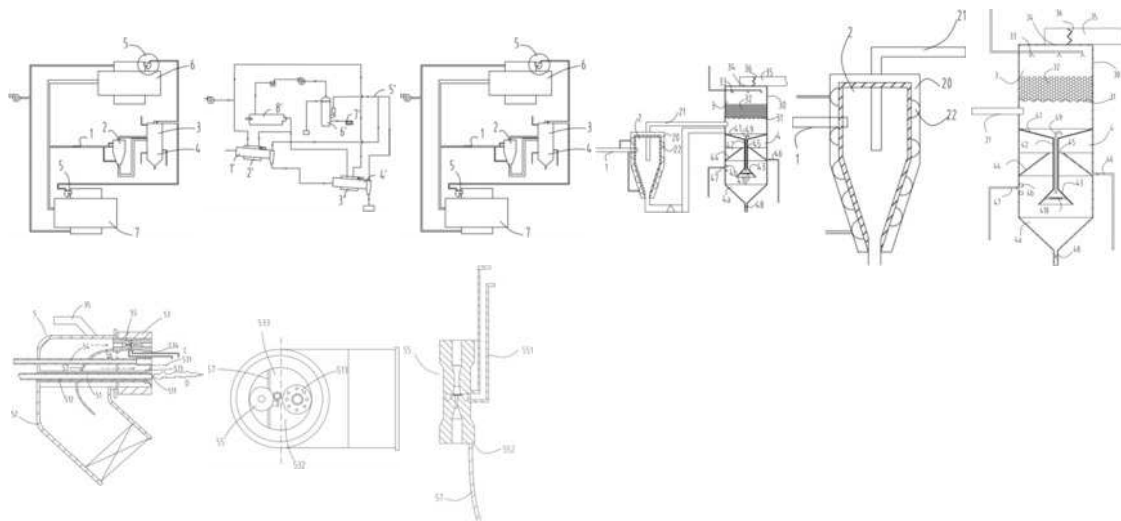
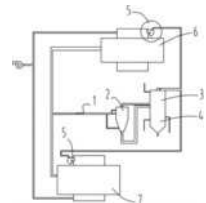
13.	Apparatus for concentrating wastewater and for creating custom brines	WO2017079058	2016-10-28	HEARTLAND TECHNOLOGY*	2017-05-11	2017-05-11
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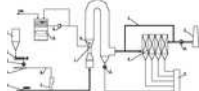
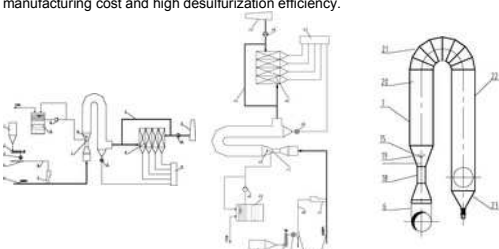
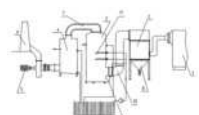
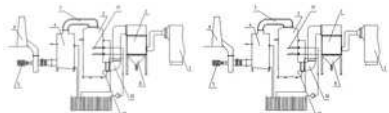
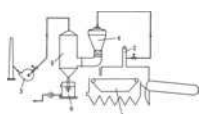
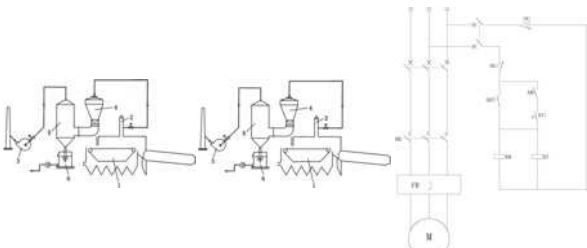
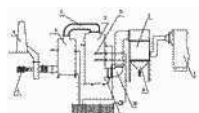
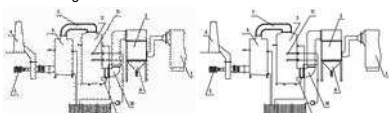
A liquid concentrator system includes a concentrator section having a gas inlet, a gas outlet, and a mixing corridor disposed between the gas inlet and the gas outlet. A liquid inlet is disposed in the mixing corridor between the gas inlet and a narrowed portion. A demister is disposed downstream of the concentrator section. The demister includes a liquid collector to remove liquid from gas flowing through the demister, and a reservoir that collects the removed liquid. A re-circulating circuit is disposed between reservoir and the mixing corridor to transport liquid within the reservoir to the mixing corridor, and a secondary re-circulating circuit includes a settling tank to separate saturated liquid and suspended solids. A custom brine mixing device is operatively coupled to the settling tank.

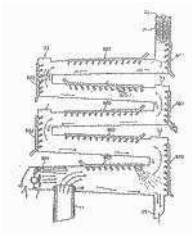
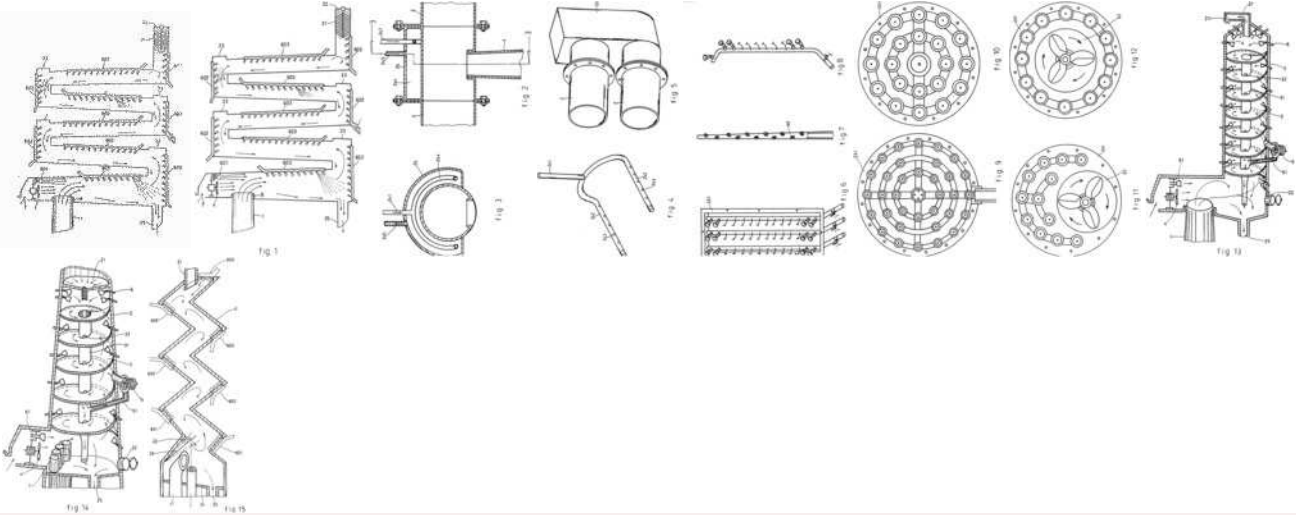
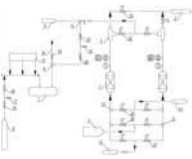
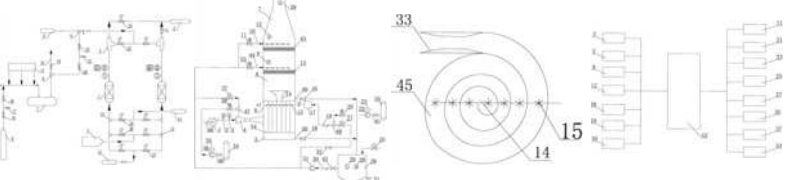
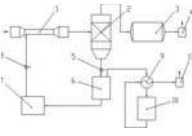


14.	Sludge pyrolysis carbonization heat supply system	CN105709552	2016-03-21	ZHEJIANG SHANGDING INDUSTRIAL FURNACE*	2016-06-29	2016-06-29
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The invention relates to a sludge pyrolysis carbonization heat supply system which comprises a smoke feeding pipe, a cyclone dust collector, a spray treatment tower, an oil and water separator, a combustor, a drying chamber and a carbonization chamber. The oil and water separator comprises a conical inlet, a vertical channel, a conical outlet and a conical partition plate. The combustor comprises a fuel discharge assembly, an air pipeline, a combustor wall, an igniter and a Venturi tube. The fuel discharge assembly comprises a discharge end, a fuel elevating pipe and a flame stabilizing structure. The flame stabilizing structure is arranged on the first inner side of one side of the axis of the combustor wall. The Venturi tube is arranged on the second inner side of the other side of the axis of the combustor wall. The air pipeline is arranged in a bent shape. The problems that heavy oil and light soil are not separated, the smoke combustion structure is complex, and the NOX emission amount is large are solved.

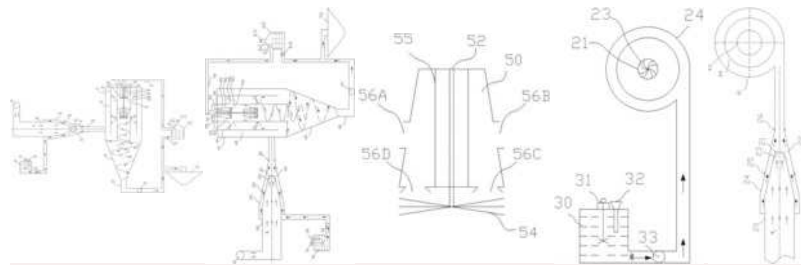
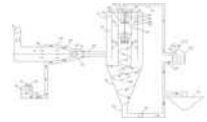


15.	Fume desulfurization system and method by adopting dried alkali electrostatic spraying and fume humidifying cooling method	CN102580517	2011-01-18	LIU SHANGGUANG	2012-07-18	2012-07-18
The invention discloses a fume desulfurization system by adopting a dried alkali electrostatic spraying and fume humidifying cooling method. The fume desulfurization system comprises a fume system, an absorbing tower, an absorbent electrostatic spraying device, a fume water-spraying cooling device and an absorbent storing and delivering device, wherein the fume system comprises a main flue, a dust catcher, a draught fan and a funnel; a Venturi tube is mounted in the absorbing tower; a humidifying spray gun is arranged at the outlet of the Venturi tube; the absorbent storing and delivering device comprises an alkali cabin, a variable frequency spiral conveyor, an alkali cabin electrical clapper and a dilute-phase conveyor; the absorbent electrostatic spraying device is connected with the dilute-phase conveyor by a dilute-phase delivery duct; the fume water-spraying cooling device comprises a process water tank and a process water pump; and the process water pump is used for sending process water in the process water tank to the humidifying spray gun at the outlet of the Venturi tube to spray the process water. In addition, the invention further discloses a fume desulfurization method by adopting the mode of dried alkali electrostatic spraying and fume humidifying cooling. The system provided by the invention has the characteristics of less equipment, simple process, low manufacturing cost and high desulfurization efficiency.						
						
16.	Flue gas desulfurization system with dry alkali electrostatic spray and flue gas humidification and temperature reduction method	CN201940171	2011-01-18	LIU SHANGGUANG	2011-08-24	2011-08-24
The utility model discloses a flue gas desulfurization system with a dry alkali electrostatic spray and flue gas humidification and cooling method. The system comprises a flue gas system, an absorption tower, an electrostatic absorbent-spraying device, a flue gas water-spraying cooling device and an absorbent storing and conveying device. The flue gas system comprises a main flue channel, a dust remover, a draught fan and a funnel, wherein a Venturi tube is arranged in the absorption tower; a humidification spraying gun is arranged at an outlet of the Venturi tube of the absorption tower; the absorbent storing and conveying device comprises an alkali storehouse, a variable-frequency spiral conveyor, an electric air locker of the alkali storehouse and a dilute phase conveyor; the electrostatic absorbent-spraying device is connected with the dilute phase conveyor by a dilute phase delivery pipeline; and the flue gas water-spraying cooling device comprises a process water tank and a process water pump, wherein the process water pump is used for feeding the process water in the process water tank to a humidification spraying gun at the outlet of the Venturi tube of the absorption tower and injecting the process water. The flue gas desulfurization system has less equipment, simple process, low manufacture cost and high desulfurization efficiency.						
17.	Combined three-stage efficient desulfurization dust-removal system and method thereof	CN101569814	2009-05-27	BEIJING TONG MING ENVIRONMENTAL PROTECTION EQUIPMENT FACTORY*	2009-11-04	2009-11-04
The invention provides a combined three-stage efficient desulfurization dust-removal system and a method thereof. The system comprises a dry dust remover internally provided with a turboseparator, a desulfurization purification tower and a centrifugal hydroextractor which are arranged between a flue gas generating device and a chimney in sequence and are communicated by an connecting channel, wherein a venturi is arranged at the front of the tangential inlet of the desulfurization purification tower, and a draught fan is arranged between the centrifugal hydroextractor and the chimney. In the method, firstly about 90% dust particles are removed in the dry dust remover by dry dust removal, then wet desulphurization dust removal is carried out in the venturi and the desulfurization purification tower for many times, and finally dehydration, dehumidify and discharge are carried out in the centrifugal hydroextractor. The wear of flue gas on the device is reduced with high dust removal efficiency and the invention enjoys good desulfurization effect, stable property, long service life and easy operation, thus thoroughly overcoming the disadvantages of easy corrosive wear of other desulfurization dust-removal devices.						
						
18.	Bypass flue gas purification system	CN104399338	2014-12-15	CHANGZHOU GAUSS PRECISION TOOLS*	2015-03-11	2015-03-11
The invention discloses a bypass flue gas purification system. The bypass flue gas purification system comprises a preheater, a water cooler and a fan, and further comprises a Venturi tube dust remover and a moisture separator, wherein the output end of the preheater is connected with the input end of the water cooler; the output end of the water cooler is connected with the input end of the Venturi tube dust remover; the output end of the Venturi tube dust remover is connected with the input end of the moisture separator; the exhaust output end of the moisture separator is connected with the fan; the moisture input opening of the moisture separator is inserted in a water seal tank. The bypass flue gas purification system is conducive to improving the flue gas purification effect.						
						
19.	One combined highly effective sweetening dust removal system	CN201534039	2009-05-27	BEIJING TONG MING ENVIRONMENTAL PROTECTION EQUIPMENT FACTORY*	2010-07-28	2010-07-28
This utility model provides one combined highly effective sweetening dust removal system, in including the method dust remover and sweetening purification tower and centrifuge dehydrator, the haze produces between the equipment and chimney establishes in turn has the tornado method dust remover and sweetening purification tower, the centrifuge dehydrator and with the connection air flue connection, the before tangential import of sweetening purification tower, establishes Venturi, between the centrifuge dehydrator and Yantong establishes the drawing fan, uses this system to carry on the highly effective sweetening dust removal, the first method dust removal in the method dust remover after about 90% dust particles and in Venturi in the sweetening purification tower carries on the multiple aqueous method sweetening dust removal, finally dehydrates to dehumidify outside in the centrifuge dehydrator the back row, reduced mist and dust's attrition to the equipment, The efficiency of dust collection is high, sweetening effect is good, the stable property, the service life is long, the simplicity of operator, has solved sweetening dedusting equipment easy corrosive wear other shortcomings from the basis.						
						

20.	Filter system for smoke or polluted air.	CN1070587	1992-05-19	FRANKLIN T KIT KIT FRANKLIN T* MAI KONG MING MAI KUNG MING MAI SUNG CHUAN MAI SUNG CHUAN KIT FRANKLIN T	1993-04-07	1993-04-07
A filter system for smoke or polluted air comprises a smoke or polluted air filter device (2), a bag filter device (81) and a water treatment device (3). A duct (2) and a plurality of power sprayers (601, 602, 603) are provided in the smoke or polluted air filter device (2) to remove harmful substances in the smoke or the polluted air. A plurality of filtering air bags (8) are provided in the bag filter device to clean the waste liquid coming from the smoke or polluted air filter device. A plurality of treating troughs (33) are provided in the water treatment device to purify the liquid flowing down from the filter bag device. A coarse ash collecting device (30) is provided additionally in the filter system to collect particle ashes or dusts in the smoke before entering the smoke or polluted air filter device. Ingredients such as carbon ashes, grease or oily substances, offensive odors, poisonous substances, and etc. contained in the smoke or the polluted air may be suitably treated by the filter system.						
						
21.	Labyrinth cyclone dust collector device	CN206549374	2017-01-22	HENAN XINLIANXIN FERTILIZER*	2017-10-13	2017-10-13
The utility model belongs to a labyrinth cyclone dust collector device, including mechanical part and control section, mechanical part includes dust collector, the draught fan, the surface-active agent storage tank, circulating water pond and foam storage tank, dust collector includes the casing, the inside of casing is equipped with the chimney, upper strata flushing pipe, the upper strata defroster, the flushing pipe of lower floor, lower floor's defroster, subside deentrainment tower, labyrinth whirl device and grey hydroecium, control section includes the controller, the signal input part of controller detects the sensor with flue gas flux respectively, cigarette dust content analytical instrument, the 2nd pressure sensor, a pressure sensor, the circulating water densimeter, the level gauge and the dust content detector of discharging fume outward link to each other, simple structure has, the operation is stable, the investment economizes, area is little, the running cost hangs down and has the advantage of desulfurization function.						
						
22.	Purification device and method for waste gas containing low-concentration voc	CN106139840	2015-04-21	HANGZHOU ZHONGBING ENVIRONMENTAL PROTECTION*	2016-11-23	2016-11-23
The invention relates to a purification device and method for waste gas containing low-concentration VOC. The purification device comprises a Venturi gas-solid mixer, an efficient pulse bag type dust collector, an oxidation tower, a desorption device, an active carbon powder storage tank, a small heat storage oxidation furnace, a heat exchanger, a gas scrubber and a fan. According to the purification device, carbon powder and waste gas are mixed evenly by the Venturi gas-solid mixer, carbon powder with adsorbed VOC and waste gas with VOC adsorbed are separated and captured by the efficient pulse bag type dust collector, separated waste gas is treated by the oxidation tower, captured carbon powder is desorbed by the desorption device, carbon powder obtained after desorption is conveyed to the Venturi gas-solid mixer to be recycled, VOC obtained after desorption is decomposed by the small heat storage oxidation furnace, and heat energy is recycled by the heat exchanger. The purification device is simple in structure, high in enterprise acceptability and suitable for treatment of waste gas containing low-concentration VOC; by recycling carbon powder and heat energy, cost is lowered, and emission of intermediate pollutants is avoided; due to the oxidation tower and the small heat storage oxidation furnace, the removal efficiency is greatly improved.						
						

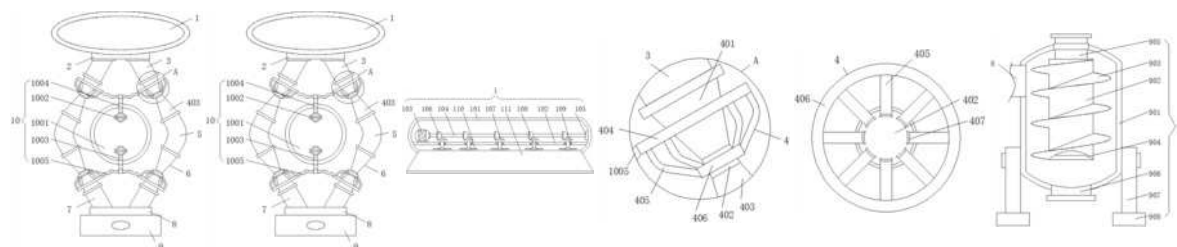
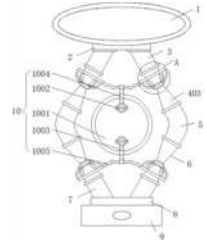
23. Whirl inertial dust collection ware that efflux spray type is mining CN205925306 2016-08-10 ANHUI UNIVERSITY OF SCIENCE & TECHNOLOGY* 2017-02-08 2017-02-08

The utility model relates to a colliery wet dedusting technical field, concretely relates to whirl inertial dust collection ware that efflux spray type is mining. The utility model discloses a dirty gas conveying fan, annulus jet nozzle, storage water tank, cyclone dust collector, rotatory impeller inertial dust collection device, deareator and concentrated machine, it progressively removes dust to adopt has ensured the complete desorption of each grade dust with the mode of removing dust many times, through the effect of annulus jet nozzle, realize the moist and parcel of dust among the dirty gas, detach great dust and the mixed parcel granule of dirt water through cyclone dust collector's self effect, set up a set ofly in cyclone dust collector's central overflow passageway or the rotatory impeller inertial dust collection device of multiunit for the seizure and the discharge of particulate dust, the complete desorption of dust has been ensured to baffle and backplate before the deareator entrance sets up. The utility model discloses the dust collection efficiency is high, and the effect is reliably stable, has used coal mine enterprise's universal device, and capital construction is with low costs.



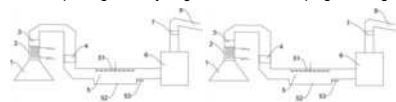
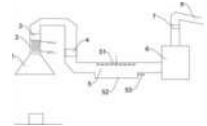
24. Method based on a venturi effect as a wooden processing dust removing device CN108837652 2018-06-28 HUANG JIANGUO 2018-11-20 2018-11-20

The present invention relates to the technical field of processing a wooden door, and more particularly to a method based on a venturi effect as a wooden machining dust removing device. The present invention is to solve the technical problem that dust is likely to adhere on the tubing, it is difficult to clean up, causing inconvenience of maintenance and management. In order to solve the technical problems, the present invention provides such a method based on a venturi effect as a wooden processing dust removing device, including a dust suction mechanism, the dust suction mechanism is fixedly connected with the bottom side of the 1st chimney flange, the flange away from the side of 1st chimney dust suction mechanism is fixedly connected with both ends of the 1st connecting pipe, one end of the 1st connecting tube away from the 1st chimney flange is secured to the 1st Venturi dust-removing mechanism. The present invention dust particles are wetted with water, dirt and dust particles and droplets or particulates collide violently with between, condensation, mist, dust is likely to adhere to the inner wall of the tube so as to avoid, is convenient for maintenance and management of the dedusting apparatus.



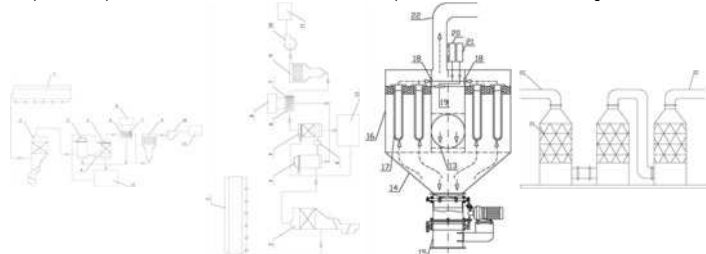
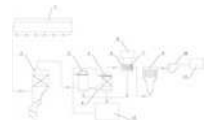
25. Hot flue gas row of steam turbine steel electroslag takes out processing apparatus CN206867906 2017-06-16 JIANGYOU SANFENG STEAM TURBINE MATERIAL* 2018-01-12 2018-01-12

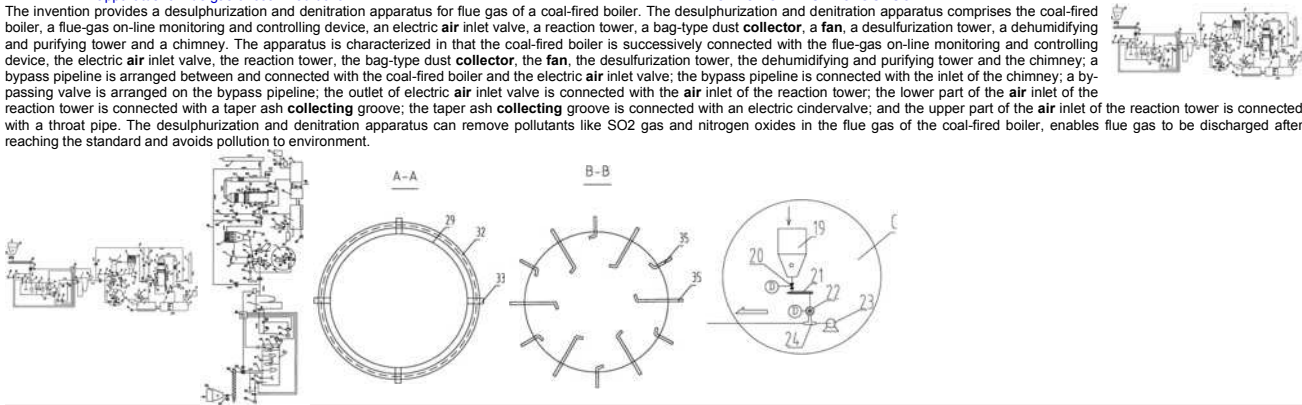
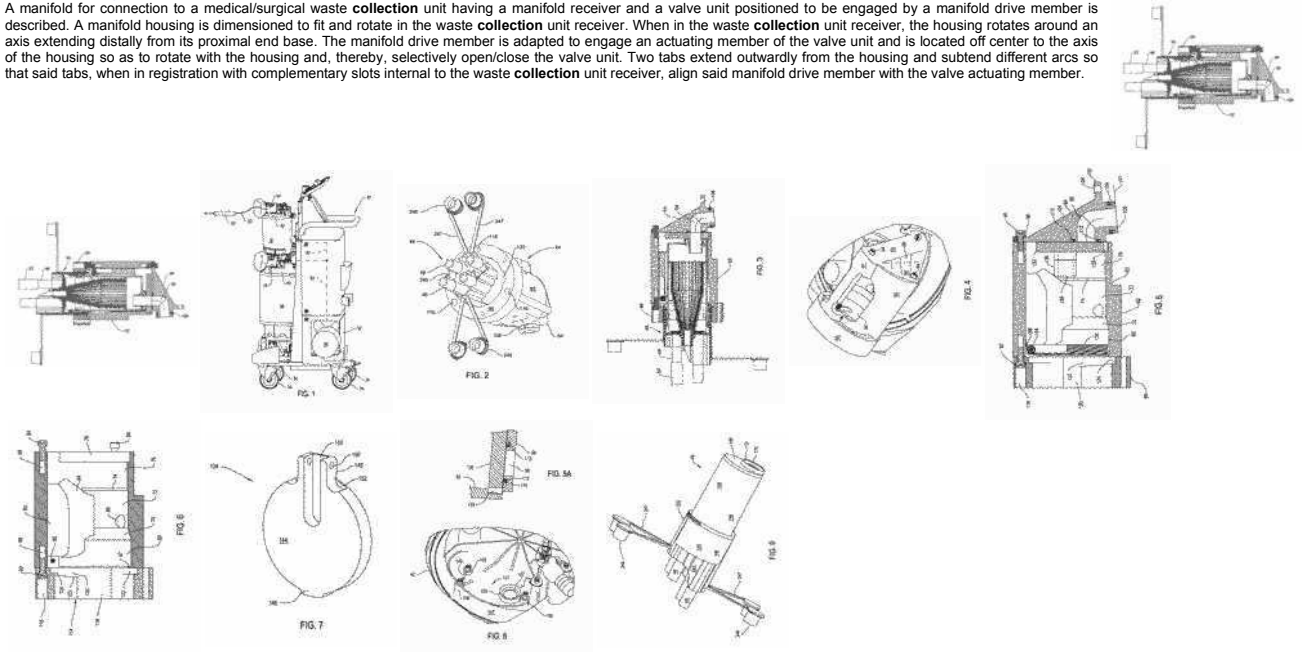
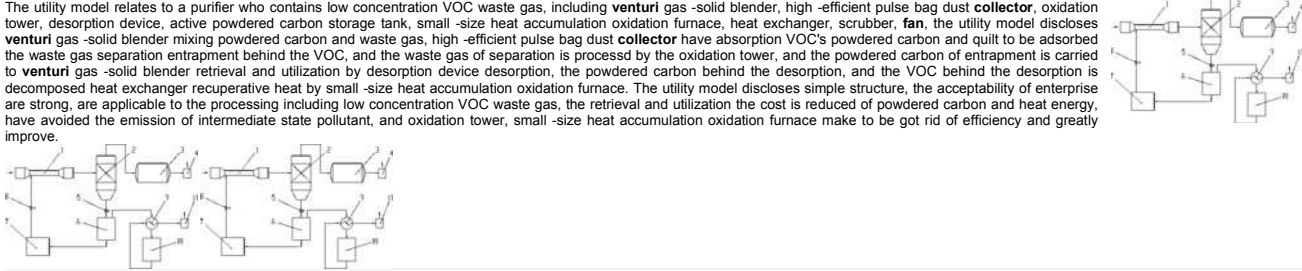
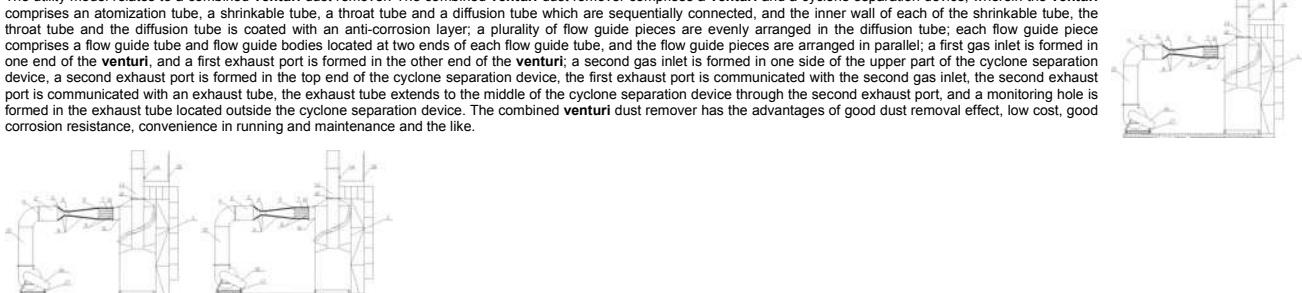
The utility model provides a hot flue gas row of steam turbine steel electroslag takes out processing apparatus, including setting up the tubaeform cover head in the electroslag furnace top, the coverhead top is connected with cooling heat transfer passageway, be equipped with the serpentine form cold water pipe in the cooling heat transfer passageway, the cold water inlet tube is connected to serpentine form cold water pipe one end, the heat transfer drain pipe is connected to the other end, the first air exhauster of cooling heat transfer path connection, first air exhauster passes through pipe connection second air exhauster, the second air exhauster passes through pipe connection spraying cooling passage, be equipped with spraying shower nozzle group in the spraying cooling passage, spraying shower nozzle group link is to the cold water inlet tube, spraying shower nozzle group below is regional for precipitating, pipe connection venturi scrubber is crossed all to the mist cooling, venturi scrubber's gas vent passes through pipe connection third air exhauster, exhaust pipe is connected to the third air exhauster. Collecting, cool down, handling the high temperature flue gas, the exhaust passage of recycling the downward sloping discharges, avoids the flue gas to remain and paces up and down, reduces the influence to the workshop air quality.



26. Method for the indirect thermal desorption of mercury-containing solid waste and soil processing flare system CN108744829 2018-07-18 BCEG ENVIRONMENTAL REMEDIATION* 2018-11-06 2018-11-06

A method for the indirect thermal desorption of mercury-containing solid waste and soil processing off-gas treatment system, an exhaust gas processing system belonging to the technical field of thermal desorption. And an outlet end of the pyrolysis gas desorption apparatus of the pyrolysis gas communication with the inlet end of the hot and the filter, the outlet end of the pyrolysis gas to quench hot and filter inlet end of the pyrolysis gas communication with the scrubber, the scrubber gas outlet of the quenching is connected to a venturi scrubber inlet, an outlet connected to the scrubber inlet venturi scrubber filter, the filter and the refrigeration unit and the condensing coil connected to the scrubber, demister end that is connected to the condensing coils, the demister outlet and inlet of the sorption tank sulfur-laden in communication with activated carbon, activated carbon adsorption sulfur-laden with the outlet of the canister communicates with the air inlet of an induced draft fan, which is in communication with the chimney draught fan air-out port, quench scrubber, scrubbing tower and condensing coil and with both the outlet of the packing water processing unit in communication with the inlet of the processes, processes are the water treatment unit outlet quench the interior of the washing tower scrubber in communication with the sprinkler and a filler.



27.	Desulphurization and denitration apparatus for flue gas of coal-fired boiler	CN106139843	2015-03-26	WUXI SHENGJIE ENVIRONMENTAL PROTECTION TECHNOLOGY CO*	2016-11-23	2016-11-23
The invention provides a desulphurization and denitration apparatus for flue gas of a coal-fired boiler. The desulphurization and denitration apparatus comprises the coal-fired boiler, a flue-gas on-line monitoring and controlling device, an electric air inlet valve, a reaction tower, a bag-type dust collector, a fan, a desulfurization tower, a dehumidifying and purifying tower and a chimney. The apparatus is characterized in that the coal-fired boiler is successively connected with the flue-gas on-line monitoring and controlling device, the electric air inlet valve, the reaction tower, the bag-type dust collector, the fan, the desulfurization tower, the dehumidifying and purifying tower and the chimney; a bypass pipeline is arranged between and connected with the coal-fired boiler and the electric air inlet valve; the bypass pipeline is connected with the inlet of the chimney; a bypassing valve is arranged on the bypass pipeline; the outlet of electric air inlet valve is connected with the air inlet of the reaction tower; the lower part of the air inlet of the reaction tower is connected with a taper ash collecting groove; the taper ash collecting groove is connected with an electric cinder valve; and the upper part of the air inlet of the reaction tower is connected with a throat pipe. The desulphurization and denitration apparatus can remove pollutants like SO₂ gas and nitrogen oxides in the flue gas of the coal-fired boiler, enables flue gas to be discharged after reaching the standard and avoids pollution to environment.						
28.	Removable manifold for a medical/surgical waste collection system, the manifold including tabs for alignment of the manifold	US20070135779	2006-10-31	STRIKER STRYKER*	2007-06-14	2007-06-14
A manifold for connection to a medical/surgical waste collection unit having a manifold receiver and a valve unit positioned to be engaged by a manifold drive member is described. A manifold housing is dimensioned to fit and rotate in the waste collection unit receiver. When in the waste collection unit receiver, the housing rotates around an axis extending distally from its proximal end base. The manifold drive member is adapted to engage an actuating member of the valve unit and is located off center to the axis of the housing so as to rotate with the housing and, thereby, selectively open/close the valve unit. Two tabs extend outwardly from the housing and subtend different arcs so that said tabs, when in registration with complementary slots internal to the waste collection unit receiver, align said manifold drive member with the valve actuating member.						
29.	Purifier who contains low concentration voc waste gas	CN204619702	2015-04-21	HANGZHOU ZHONGBING ENVIRONMENTAL PROTECTION*	2015-09-09	2015-09-09
The utility model relates to a purifier who contains low concentration VOC waste gas, including venturi gas-solid blender, high-efficient pulse bag dust collector, oxidation tower, desorption device, active powdered carbon storage tank, small-size heat accumulation oxidation furnace, heat exchanger, scrubber, fan, the utility model discloses venturi gas-solid blender mixing powdered carbon and waste gas, high-efficient pulse bag dust collector have absorption VOC's powdered carbon and quilt to be adsorbed the waste gas separation entrapment behind the VOC, and the waste gas of separation is processed by the oxidation tower, and the powdered carbon of entrapment is carried to venturi gas-solid blender retrieval and utilization by desorption device desorption, the powdered carbon behind the desorption, and the VOC behind the desorption is decomposed heat exchanger recuperative heat by small-size heat accumulation oxidation furnace. The utility model discloses simple structure, the acceptability of enterprise are strong, are applicable to the processing including low concentration VOC waste gas, the retrieval and utilization the cost is reduced of powdered carbon and heat energy, have avoided the emission of intermediate state pollutant, and oxidation tower, small-size heat accumulation oxidation furnace make to be got rid of efficiency and greatly improve.						
30.	Combined venturi dust remover	CN204107255	2014-08-27	HANGZHOU JIETIAN ENVIRONMENTAL PROTECTION TECHNOLOGY*	2015-01-21	2015-01-21
The utility model relates to a combined venturi dust remover. The combined venturi dust remover comprises a venturi and a cyclone separation device, wherein the venturi comprises an atomization tube, a shrinkable tube, a throat tube and a diffusion tube which are sequentially connected, and the inner wall of each of the shrinkable tube, the throat tube and the diffusion tube is coated with an anti-corrosion layer; a plurality of flow guide pieces are evenly arranged in the diffusion tube; each flow guide piece comprises a flow guide tube and flow guide bodies located at two ends of each flow guide tube, and the flow guide pieces are arranged in parallel; a first gas inlet is formed in one end of the venturi, and a first exhaust port is formed in the other end of the venturi; a second gas inlet is formed in one side of the upper part of the cyclone separation device, a second exhaust port is formed in the top end of the cyclone separation device, the first exhaust port is communicated with the second gas inlet, the second exhaust port is communicated with an exhaust tube, the exhaust tube extends to the middle of the cyclone separation device through the second exhaust port, and a monitoring hole is formed in the exhaust tube located outside the cyclone separation device. The combined venturi dust remover has the advantages of good dust removal effect, low cost, good corrosion resistance, convenience in running and maintenance and the like.						

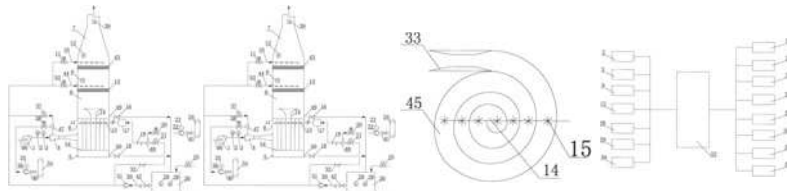
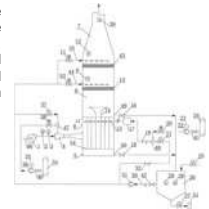
31. [Dispenser for hot and cold water](#) WO9420784 1994-03-04 [SHERINGHAM INVESTMENTS*](#) 1994-09-15 1994-09-15

A dispenser tap (10) dispenses boiling and cold **water** through a plurality of inlet pipes (18, 20, 21) in a main body (14). Each inlet pipe (18, 20, 21) is thermally isolated from the main body (14) by means of an **air** gap maintained by an outlet plug (30), an inlet plug (23) and a divider (24) in the main body (14). The tap cold **water** tube (20) may include a **venturi** type restriction (102) and bleed tube (104) on the outlet side of the restriction which drains the outlet tube (20) to prevent dripping when the tap is turned off. **Water** supply for the tap (10) may pass through a filter including a filter detection system (200) with a housing (202) having a switch (210) detecting the presence of a magnet (208) on a screw-in cartridge (204). Also disclosed is a filter exhaustion indication system (300, Figure 5) which is a microprocessor based system indicating when recorded flow times reach a predetermined amount. Also disclosed is a **water** dispenser (400, figure 6) incorporating the above devices and which includes a refrigeration system and a **water** heating device (402), in which the condenser coil (414) of the refrigeration system heats the source of **water** for the heating device (402).



32. [Labyrinth type cyclone dedusting device and dedusting method](#) CN106669347 2017-01-22 [HENAN XINLIANXIN FERTILIZER*](#) 2017-05-17 2017-05-17

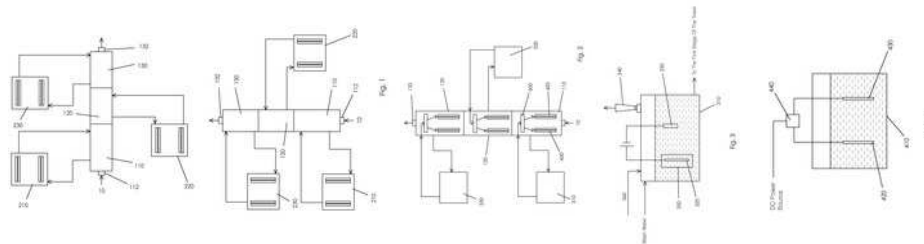
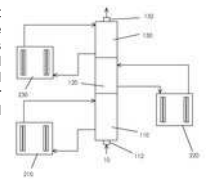
The invention belongs to a labyrinth type cyclone dedusting device and a dedusting method. The device comprises a mechanical part and a control part, wherein the mechanical part comprises a dedusting device, an induced draft **fan**, a surfactant storage tank, a circulating **water** tank and a foam storage tank; the dedusting device comprises a casing, and a chimney, an upper-layer flushing pipeline, an upper-layer demister, a lower-layer flushing pipeline, a lower-layer demister, a settling demisting tower, a labyrinth type cyclone device and a grey water chamber are arranged in the casing; the control part comprises a controller, a signal input end of the controller is connected with a smoke flow detection sensor, a smoke dust concentration analyzer, a second pressure detector, a first pressure detector, a circulating **water** densitometer, a liquid level meter and an outside exhausted smoke concentration detector. The device has the advantages that the device is simple in structure, low in investment and low in operation cost, operates stably, occupies a small area and has a desulfurization function.



33. [Methods and system for removing gas components from flue gas](#) WO2011147085 2010-05-26 [ECO SPEC GLOBAL TECHNOLOGY PTE](#) 2011-12-01 2011-12-01

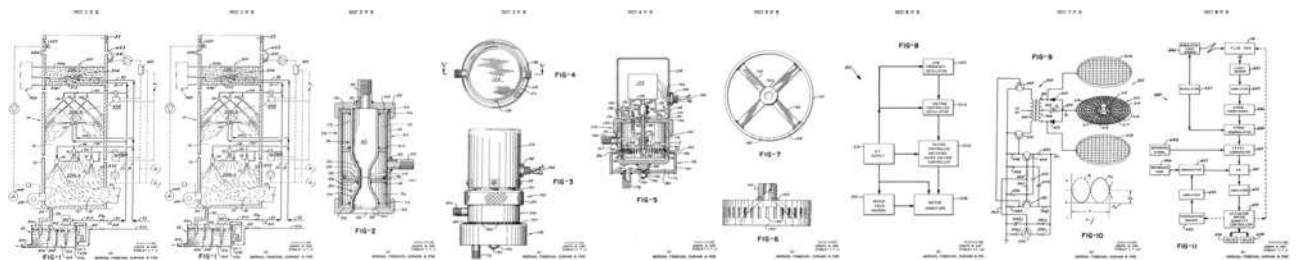
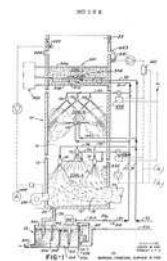
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A method for removing gas components SO_x, NO_x, and CO₂ from a flue gas, comprises the steps of: a) contacting the flue gas with a first liquid medium which provides a first plasma containing reactive electrons or ions in an amount such that the gas molecules SO_x are subjected to impingement of the electrons or ions in the first plasma to enable the dissociation of the gas molecules SO_x so as to remove SO_x from the flue gas; b) contacting the flue gas obtained from step a) with a second liquid medium which provides a second plasma containing reactive electrons or ions in an amount such that the gas molecules CO₂ are subjected to impingement of the electrons or ions in the second plasma to enable the dissociation of the gas molecules CO₂ so as to remove CO₂ from the flue gas, and c) contacting the flue gas obtained from step b) with a third liquid medium which provides a third plasma containing reactive electrons or ions in an amount such that the gas molecules NO_x are subjected to impingement of the electrons or ions in the third plasma to enable the dissociation of the gas molecules NO_x so as to remove NO_x from the flue gas. A system for removing gas components SO_x, NO_x, and CO₂ from a flue gas is also disclosed.



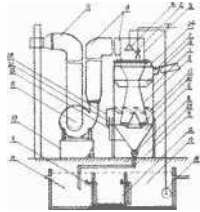
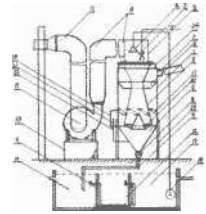
34. [Method of and apparatus for purifying polluted gases](#) US3643624 1969-09-12 [ELECTRO SONIC POLLUTION CONTROL*](#) 1972-02-22 1972-02-22

This invention relates to a method of and apparatus for removing contaminants from polluted gases with a low flow resistant, porous, infinite capacity filter in which ultrasonically generated, oscillating fog of substantially increased contact area and contact duration, contacts, absorbs and agglomerates contaminants carried by such gases, and from which the absorbed agglomerated contaminants are removed. Preferably the fog droplets are charged electrically and activated chemically, as well as generated in a range of sizes best suited for removing contaminants from the polluted gases.



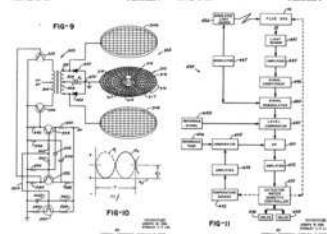
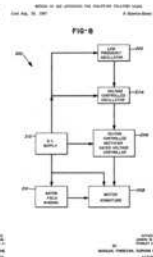
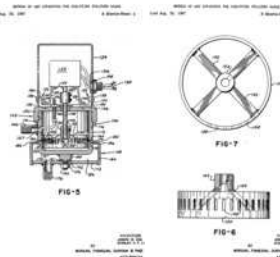
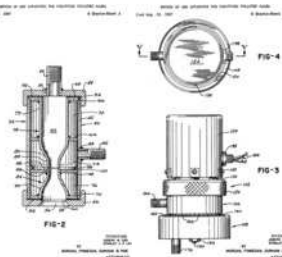
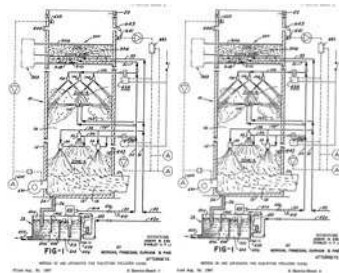
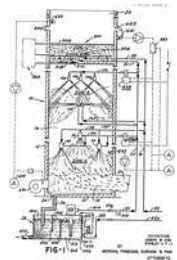
35. Smoke prevention desulfurizing duster CN2421535 2000-05-24 ZIBO WANQUAN WATER PLANT* 2001-02-28 2001-02-28

The utility model discloses a smoke prevention desulfurizing duster, which comprises a vortex surrounding wetting mechanism, a spraying dusting **collecting** mechanism, a self excitation washing mechanism and a deslagging mechanism. The whole process structure is compact; the dust removing effect is high; the occupation area for the mechanisms and devices can be reduced; the utility model has the advantages of high efficiency on desulfurizing, simple structure, convenient installation, convenient maintenance and wide serviceable range; the utility model is suitable for boilers burning fuel oil, gas and coal with from one to thirty five tons and all kinds of kilns; working capacity is large; waste **water** generated by a system can be recycled after seal treatment; wet treatment process is separated from a blower; thereby, the corrosion of the **fan** is avoided, and the service life is extended; the utility model is superior to other environmental-protecting treater, achieving that GreenMan densitysat is less than one stage.



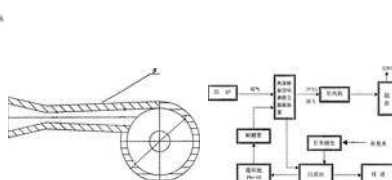
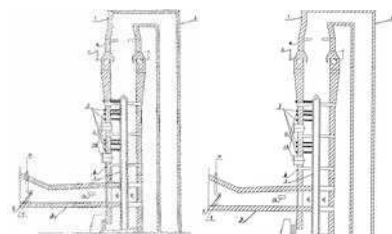
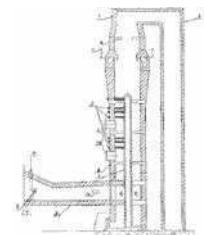
36. Method of and apparatus for purifying polluted gases US3494099 1967-08-30 ELECTRO SONIC POLLUTION CONTROL* 1970-02-10 1970-02-10

A method and apparatus for ultrasonically generating fog with a **venturi** having a converging section, a diverging section and an intermediate restricted throat section through which extends a slot for substantially the entire width thereof and in a plane substantially transverse to the axis thereof. Concurrently **water** is fed through the throat slot to form a continuously flowing thin sheet of **water** across the width of the throat section while gas under pressure is fed into the converging section of the **venturi** wherein the gas is formed into a stream. The gas stream is then fed into the throat section to increase its linear velocity to produce a sound wave which, together with the gas under pressure, moves through said sheet of **water** flowing across the width of said throat section continually, breaking the sheet of **water** into fine **water** droplets having vibrating surfaces. The comingled gas under pressure and the **water** droplets are then expanded in the **venturi** divergent section and pass therefrom as ultrasonically generated fog with fine vibrating droplets of **water**. (From US3643623 A)



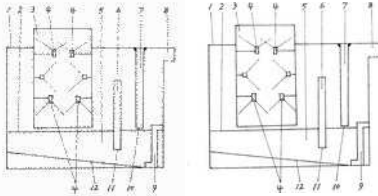
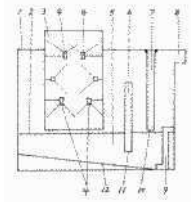
37. High efficient spiral type spraying dust separation desulfur device CN2708986 2004-03-02 ON BEHALF OF THE GERMAN SPRING* 2005-07-13 2005-07-13

The utility model provides a high efficient spiral type spraying dust separation desulfur device, comprising a main tower, an auxiliary tower and a **venturi** pipe. The high efficient spiral type spraying dust separation desulfur device is characterized in that a screw device is composed of a screw center post, a screw spraying device arranged on the screw center post, and a screw blade. The screw device and a gas-**water** separator are arranged in the main tower. A nozzle is arranged on the **venturi** pipe through a jet pipe. The flue gas can finish the dust removal and the desulfurization for once through the **venturi** pipe, the nozzle on the **venturi** pipe, the main tower, the screw device and the gas-**water** separator in the main tower. The treatment effect is stable. The utility model has reasonable and simple structure, safe, and convenient operation. The dust removal and the desulfurization can be finished for once. The effect of the dust removal and the desulfurization is enhanced. The high efficient spiral type spraying dust separation desulfur device is favorable to environment protection.



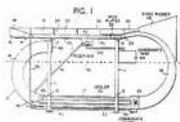
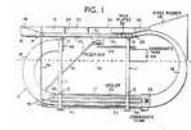
38. Pre-sprinkling impulse type **water-bath dust collector** CN201257350 2008-08-19 HAN GUOPING 2009-06-17 2009-06-17

The utility model relates to wet dedusting equipment, in particular to an improved impingement **water bath scrubber**. The pre-spray impingement **water bath scrubber** comprises a housing, wherein a smoke dust inlet pipe for guiding smoke gas inside is installed on one end of the housing, a purified gas discharge pipe for discharging the smoke gas is installed on the other end of the housing, a guide plate and a baffle plate are installed between the smoke dust inlet pipe and the purified gas discharge pipe, and at least one spray head is installed in the smoke dust inlet pipe. The utility model has the advantages of high dedusting efficiency, small volume, low cost and smoke gas resistance, no increase of blower electricity consumption and much more convenient installation.



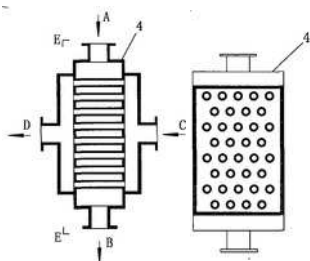
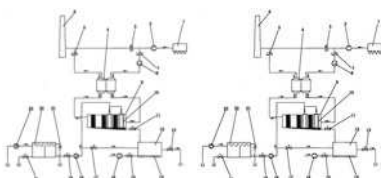
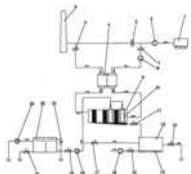
39. Producing fresh **water** from **air** raised to high humidity by exposure to **water** vapor from contaminated sources of **water** GB1200221 1967-08-01 DOBELL CURZON 1970-07-29 1970-07-29

1,200,221. Purification of **water**. CURZON DOBELL. 1 Aug., 1967, No.35178/67. Heading B1B. [Also in Divisions F3 and F4] Potable **water** is obtained from sea **water** (or other non-potable **water**) in reservoir 20 by passing a stream of atmospheric **air** over braded-cotton wick plates 22, which are saturated with the sea **water**, so that the **air** takes up **water**-vapour, drawing the moistened **air** by fan 25 in section 17 where the **air** is cooled by coils 32, 33 and **water**-vapour condenses. The condensate (i.e. potable **water**) is withdrawn from section 17 through pipe 41 by pump 42, and is received in tank 44. Partially unsaturated atmospheric **air** enters the apparatus through inlet 19 and is heated in section 15 before it passes over wick plates 22. The **air** may be heated by the sun, in which case baffle plates 30 are painted black. As shown, the apparatus will float in the sea at level 39; and rudder 45 adjusts its position so that inlet 19 is constantly facing the wind. **Air** is discharged from the apparatus through outlet 46. Coils 32, 33 may be cooled by feed **water** which then passes through pipe 36 to reservoir 20. A land-based apparatus is described wherein the **air** to be heated flows up an annular passage, the external wall of which has annular fins to absorb solar heat.



40. Seawater flue gas desulfurizing device of coal burning boiler CN101513588 2009-02-17 QUANZHOU TIANLONG ENVIRONMENTAL ENGINEERING* 2009-08-26 2009-08-26

A seawater flue gas desulfurizing device of coal burning boiler relates to an industrial waste gas cleaning device. The present invention provides the seawater flue gas desulfurizing device of coal burning boiler with better desulfurizing effect. A smoke outlet of dust collector is communicated with an **air** inlet of booster fan through the **air** outlet of draught fan. The **air** outlet of booster fan is communicated with a first smoke inlet of gas/gas heat exchanger. A first **air** outlet of gas/gas heat exchanger is communicated with a smoke inlet of desulfurizing groove. The **air** outlet of desulfurizing groove is communicated with a chimney through a second **air** inlet of gas/gas heat exchanger. A lock gate hatch is respectively installed between the second **air** outlet of gas/gas heat exchanger and the chimney, between the **air** outlet of draught fan and the chimney, and between the **air** outlet of draught fan and the **air** inlet of booster fan. A **water** outlet of second seawater pump is communicated with a **water** inlet of sedimentation tank. A **water** outlet of sedimentation tank is communicated with a spraying tube system through a second seawater pump. A cutoff valve is provided between the **water** outlet of sedimentation tank and the **water** inlet of first seawater pump. The sedimentation tank is provided with a **water** discharge cutoff valve and an overflow port. The **water** outlet of desulfurizing groove is communicated with the **water** inlet of aeration tank through the cutoff valve. The **air** outlet of aeration fan is communicated with an aeration head through the cutoff valve.



41. System and method for removing brake dust and other pollutants WO2004080740 2004-03-09 3K TECHNOLOGIES* 2004-09-23 2004-09-23

Systems and methods for capturing pollutants from braking mechanisms are provided. The systems can include a housing (402) partially surrounding at least a portion of a vehicle brake assembly (404) and disposed to receive brake dust from the brake assembly (404) and collector (450) disposed to capture the brake dust received in the housing. A method can include providing a housing (402) partially surrounding at least a portion of a vehicle brake assembly (404) and disposed to receive brake dust from the brake assembly (404) and a collector (450) disposed to capture the brake dust received in the housing, creating a first **air** flow using the forward motion of the vehicle to move the pollutants from the housing to the collector, and capturing the brake dust in the collector.

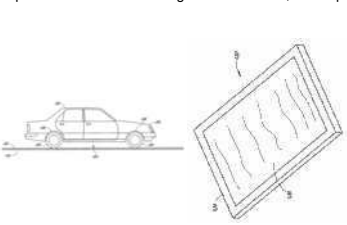


FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5

FIG. 6

FIG. 7

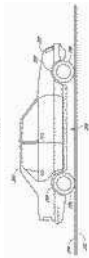


FIG. 8

FIG. 9

FIG. 10

FIG. 11

FIG. 12

FIG. 13

FIG. 14

FIG. 15

FIG. 16

FIG. 17

FIG. 18

FIG. 19

FIG. 20

FIG. 21

FIG. 22

FIG. 23

FIG. 24

FIG. 25

FIG. 26

FIG. 27

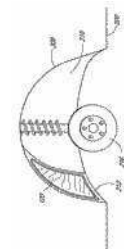


FIG. 28

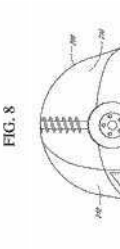


FIG. 29

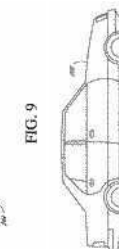
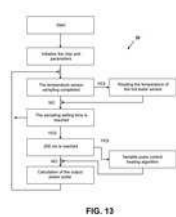
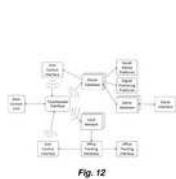
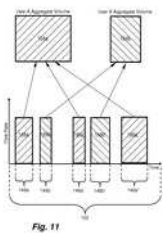
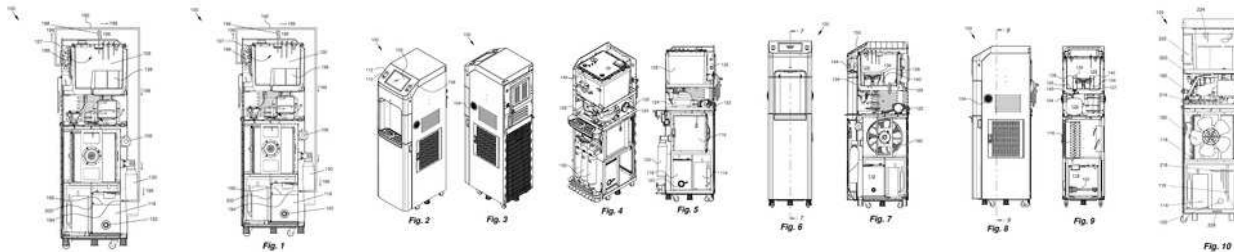
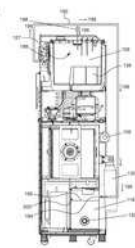


FIG. 30

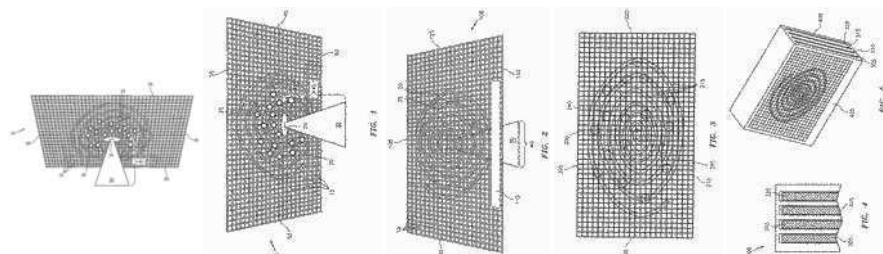
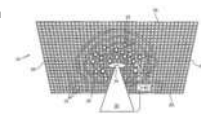
42. Atmospheric **water** generator system and method CA2926818 2014-10-08 SKYWELL* SKYWELL LIABILITY 2015-04-16 2015-04-16

Atmospheric **water** generators, systems and methods are presented involve user authentication, recording and tracking of **water** volumes dispensed by respective users over periods of various lengths, controlling component noise level and timing, and cleaning, heating and cooling the **collected water** more efficiently. The generators may be placed in network communication with other such generators to exchange **water** availability information therewith, or may communicate with a central server element by way of LAN, Internet, cell tower, peer-to-peer mesh or satellite. Information is conveyed to the user regarding the amount of **water** they consume from the **water** generators, and their resulting positive impact on the environment. **Water** dispensing data may be shared on the users' social media accounts, or used as inputs for competitions or games in order to further engage the user. User authentication may be accomplished by way of biometrics or an RFID/NFC tag embedded in the user's **water** vessel.



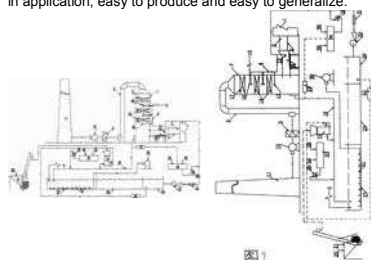
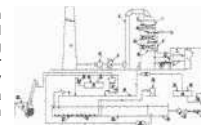
43. Apparatus for producing oxygen and/or hydrogen gas WO2009035545 2008-09-05 ACER BEN YOUNG A COHEN DORISUIN MOSHE USA NEW YORK BROOKLYN CROWN STREET 4 4 1 DRIZIN SHALOM* 2009-03-19 2009-03-19

An apparatus for providing oxygen and/or hydrogen by splitting **water** and filtering out oxygen from exhaled **air**, atmospheric **air**, and/or **air** from a fan motor using an alternating repeating catalytic and filtering screens with the first screen in the repeating unit having diRuthenium and second screen having Zeolite crystalline bodies.



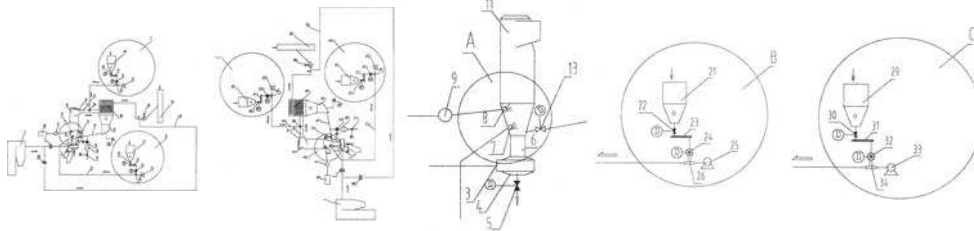
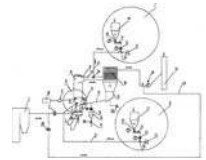
44. Double alkali wet method desulfur dust collecting device for industrial smoke gas CN2920372 2006-03-15 LUOYANG HIGH TECHNOLOGY BROAD ENVIRONMENTAL PROTECTION NEW TECHNOLOGY* 2007-07-11 2007-07-11

The utility model relates to environment protection equipment, in particular to a double alkali wet method desulfur dust **collecting** device for industrial smoke gas which comprises front flue 3, a venture tube 6, a high efficiency desulfurization and dust **collection** reactor 7, a back flue 8, an induced fan 10, a chimney 11 and a double alkali method circulation **water** treatment and recovery system. The double alkali method circulation **water** treatment and recovery system comprises a dry powder feeder 19, a spiral feeding machine 21, a coagulant aid producer 23, a slag settling pool 27, a settling pool 28, a clean **water** pool 29, a root's fan 30, a desulfur **water** circulation pump 32, a sewage filter 32, a sodium alkali producing system 34 and a diaphragm metering pump 38. the utility model is characterized in that two vertically symmetric groups of high efficiency atomizers 13 is provided are arranged on two spiral-flow towers 14, a high efficiency washing device 16 is provided between the spiral tower 14 and a dehydrating plate 17, a mist eliminator 9 is provided between the back flue 8 and the induced fan 10, a lime feeding pH value controlling device 22 is provided in the clean **water** pool 29, a sodium alkali feeding pH value controlling device 37 is provided in drain ditch 18, and an aeration device 31 is provided in the slag settling pool 27. The device can effectively increase the contact area with the sulfur dioxide gas to improve the deacidifying ratio and the purifying rate. The utility model is simple in structure, convenient to use, highly valuable in application, easy to produce and easy to generalize.



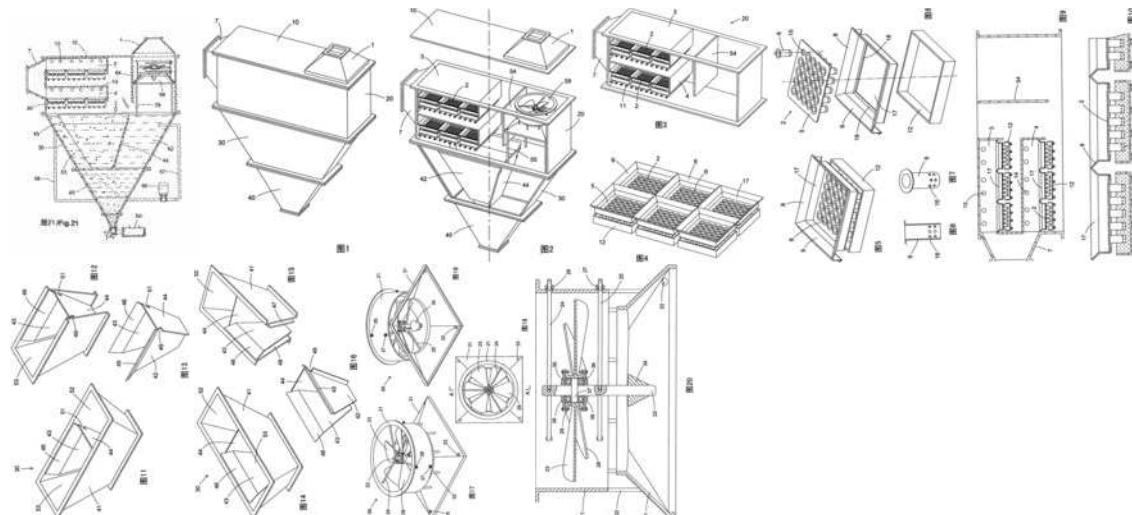
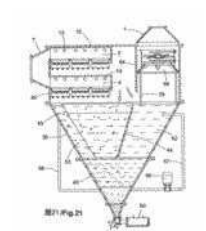
45. Deacidification device for incinerator flue gas CN204307522 2014-12-14 WUXI HUAXING ELECTRIC POWER ENVIRONMENTAL PROTECTION REPAIR MANUFACTURE* 2015-05-06 2015-05-06

The utility model relates to a deacidification device for incinerator flue gas. The deacidification device comprises an incinerator, an electric air inlet valve, a reaction tower, a bag-type dust collector, a main air blower and a chimney, and is characterized in that the incinerator is sequentially connected with the electric air inlet valve, the reaction tower, the bag-type dust collector, the main air blower and the chimney; a bypass pipeline is connected between the incinerator and an inlet of the electric air inlet valve; the bypass pipeline is connected with an inlet of the main air blower; a bypass valve is arranged on the bypass pipeline; an outlet of the electric air inlet valve is connected with an air inlet of the reaction tower; the lower part of the air inlet of the reaction tower is connected with a cone-shaped dust collecting groove; the cone-shaped dust collecting groove is connected to an electric dust discharging valve; the upper part of the air inlet of the reaction tower is connected with a throat pipe; the upper part of the throat pipe is sequentially connected with a calcium hydroxide powder spraying port and a water spraying port; the water spraying port is connected to a water pump through a pipeline; the water pump is connected to a water tank. The deacidification device can be used for removing acidic gas in flue gas generated in a household garbage incinerator and adsorbing harmful pollutants such as dioxin and heavy metals in the flue gas, so that the emission of the flue gas reaches the standard, and the pollution to the environment is avoided.



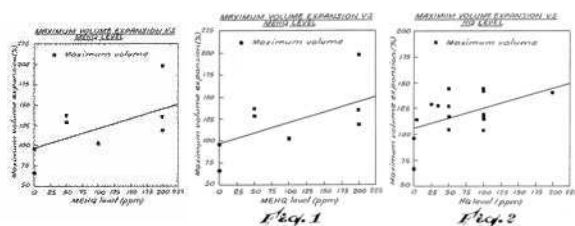
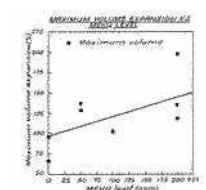
46. A high-efficiency low energy consumption desulfurizing dust-removing device CN101254399 2007-12-07 BEIJING AIRUI MECHANICAL PLANT* 2008-09-03 2008-09-03

A high-efficiency low energy consumption desulfurizing dust-removing device comprises a depositing tank (30), a sludge-collecting tank (40), a water circulating pump (60), and a water-bath purifying tank (20). A spray room (3, 4) is provided in front of said water-bath purifying tank (20), on whose top is installed a water spray pipe or nozzle (13, 14). One or more sets of screen pipes (2) are provided on the bottom of the spray room (3, 4), each set consisting of a screen plate (5) distributed all over with multiple round holes (15) and multiple guide pipes (6) inserted one by one in these corresponding round holes (15). There is a radial through hole (16) in the pipe wall of each guide pipe (6). A water-bath overflow box (12) is suspended under each set of screen pipes (2) whose guide pipes (6) extend into the corresponding water-bath overflow box (12). The depositing tank (30) is connected to the bottom of the water-bath purifying tank (20) by means of flanges, the sludge-collecting tank (40) is connected to the bottom of the depositing tank (30) by means of flanges, and within the depositing tank (30) is provided a water dividing hopper that divides the depositing tank (30) into a sewage region (53) and a clear water region (52). The inlet of said water circulating pump (60) communicates with the clear water region (52) of the depositing tank (30) via a water inlet pipe (57).



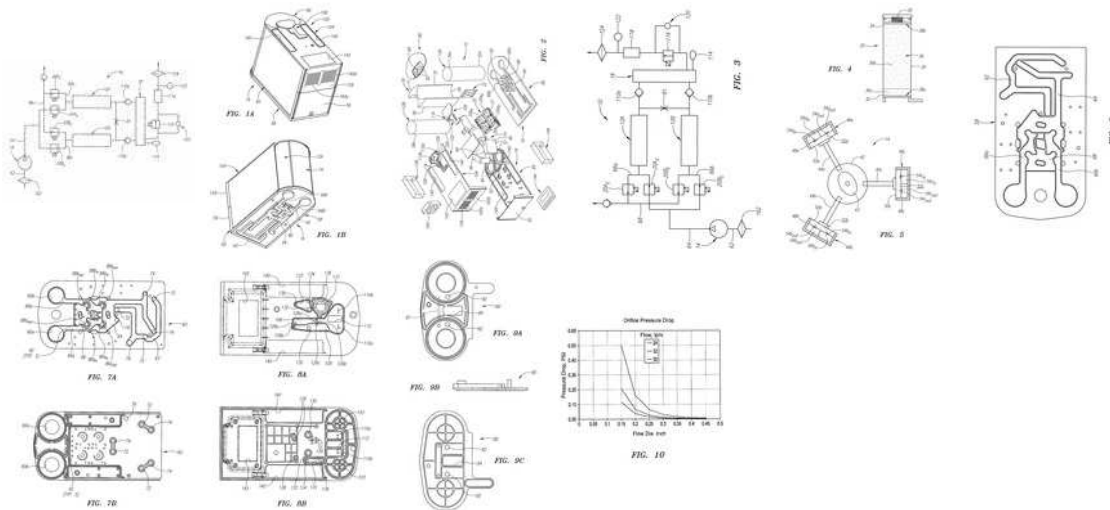
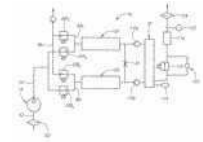
47. A method for cleansing gas and apparatus herefor SE8603914 1986-09-17 ABB FLAECT* DOW CHEMICAL DOW GLOBAL TECHNOLOGIES FACT Å - ACTIVATION SE FLAECT 1986-09-17 1986-09-17

Method for cleansing gas from solid, liquid and/or gaseous contaminants, by bubbling the gas through a liquid bath (32), and by introducing the incoming gas into a distribution means (14) and causing the gas to pass in part-streams through a multiple of inlet orifices (64) located at progressively increasing depths beneath the surface (34) of the liquid (32). With increasing inlet pressure an increasing number of inlet orifices (64) are utilized for an increasing number of part-streams. The gas flow is passed from respective inlet orifices (64) through connecting means (24, 26, 28) to outlet orifices (31) located at a considerably higher height level (h) than corresponding inlet orifices (64). The gas flow is caused to flow out through venturi nozzles (28) and/or to strike against impinger or striking surfaces (39) with a minimum pressure drop corresponding to said height differential (h). In this way full operational pressure is immediately achieved, as soon as gas is passed out through any of the inlet orifices (64), and an intense mixing of gas and liquid as well as a high cleansing efficiency are guaranteed.



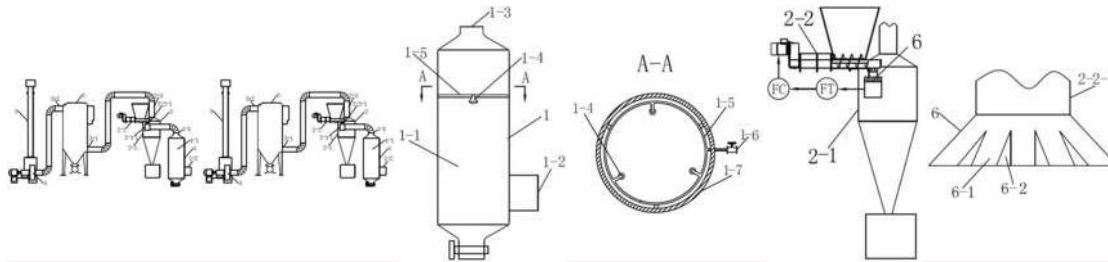
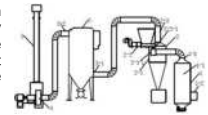
48. [Portable oxygen concentrator](#) WO2006108092 2005-04-05 [OXYTEC MEDICAL](#)
[PHILIPS ELECTRONICS*](#)
[PIRRO LESS ELECTRONICS](#)
[RESPIRONICS*](#) 2006-10-12 2006-10-12

A portable oxygen concentrator includes a pair of sieve beds having first and second ends, a compressor for delivering air to the first ends of the sieve beds, a reservoir communicating with the second ends of the sieve beds, and an air manifold attached to the first ends of the sieve beds. The air manifold includes passages therein communicating with the compressor and the first ends of the sieve beds. A set of valves is coupled to the air manifold, and a controller is coupled to the valves for selectively opening and closing the valves to alternately charge and purge the sieve beds to deliver concentrated oxygen into the reservoir. An oxygen delivery manifold communicates with the second ends of the sieve beds for delivering oxygen from the reservoir to a user. Pressure sensors may be provided in the reservoir and/or delivery line for controlling operation of the controller.



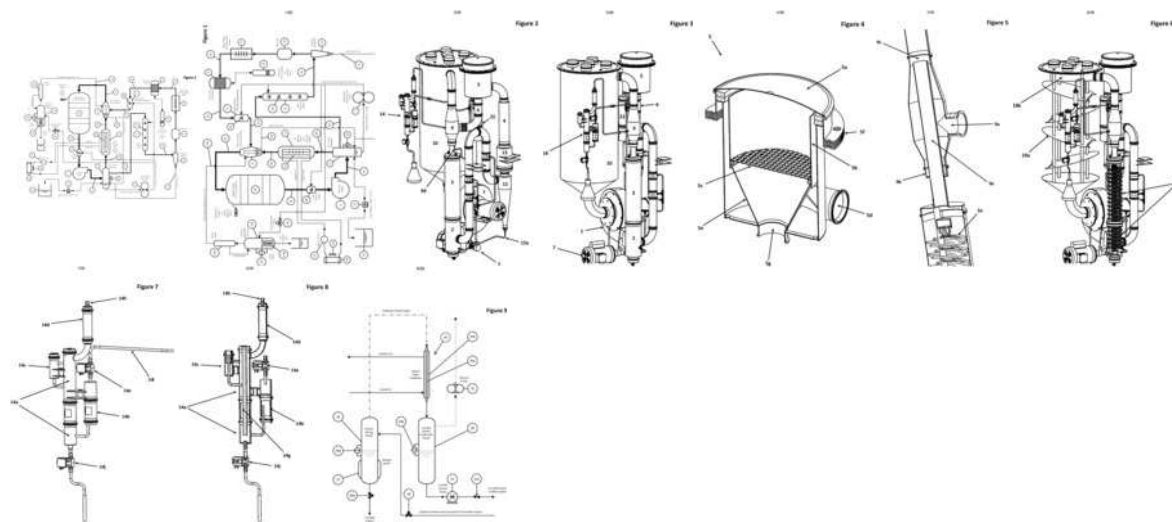
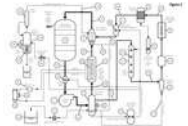
50. High -efficient flue gas desulfurization denitration dust removal integrated device CN205832938 2016-06-30 HEBEI HUICANG ENERGY SAVING TECHNOLOGY* 2016-12-28 2016-12-28

The utility model discloses a high -efficient flue gas desulfurization denitration dust removal integrated device, including oxidation reactor, high -efficient neutralization reaction dust remover, bag type dust collector, draught fan and the pipe of discharging fume, oxidation reactor includes the reacting chamber, equipped with at least one artificial spray painting head in the reacting chamber, high -efficient neutralization reaction the dust remover includes cyclone and spiral quantitative feeding machine, do spiral quantitative feeding machine's discharge gate and cyclone's air inlet intercommunication still include ratio control system, high -efficient neutralization reaction the dust remover gas outlet communicates with bag type dust collector's air inlet, and bag type dust collector's gas outlet is through the draught fan and tub intercommunication of discharging fume. The utility model has the characteristics of desulfurization, denitration, dust collection efficiency height, no secondary pollution etc.



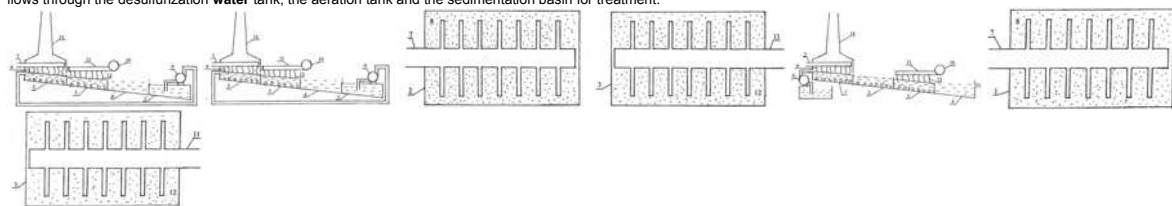
51. Method and apparatus for extracting botanical oils CA2926016 2014-10-06 NATURAL EXTRACTION SERVICES* 2015-04-09 2015-04-09

An apparatus for extracting an oil from plant material includes an extraction chamber for plant material. The plant material is exposed to a heated gas stream with a temperature sufficient to volatilize oil from the plant material. The gas stream is rapidly cooled to liquefy the oil into entrained droplets. The oil is collected with a collection solvent.



52. Wet-method desulfurization device for micropressure flue gas and seawater or reclaimed water desulfurization device CN104383803 2014-11-13 ZHANG YINGHUA 2015-03-04 2015-03-04

The invention discloses a wet-method desulfurization device for micropressure flue gas and a seawater or reclaimed water desulfurization device. In the wet-method desulfurization device for the micropressure flue gas, a water pump is used for pumping filtered lime water in a water collecting tank into a desulfurization water tank; the flue gas flows through a main flue pipe and an organic silicon rubber flue pipe and comes out from a hard plastic pipe below blended cotton cloth on the desulfurization water tank, and reaction that $\text{SO}_2 + \text{Ca}(\text{OH})_2 = \text{CaSO}_3 + \text{H}_2\text{O}$ is generated; nitrogen in the flue gas slowly flows through the wet blended cotton cloth on the desulfurization water tank, and then is discharged from a chimney above the desulfurization water tank; sewage after desulfurization passes through a water baffle and reaches an aeration tank; air from an air blower passes through sponge laid on the aeration tank via a main air pipe and a rubber air pipe, and is blown out from the hard plastic pipe; calcium sulfate is generated in the aeration tank, and then flows into a sedimentation basin for settling; lime water overflowing from the sedimentation basin flows into the water collecting tank, and is pumped out by the water pump for recycling. In the seawater or reclaimed water desulfurization device, the flue gas firstly enters below the blended cotton cloth of an absorption water tank, and then flows through the desulfurization water tank, the aeration tank and the sedimentation basin for treatment.



53.	High-efficiency combined type dust collection device	CN104307286	2014-09-30	JIANGXI SITONG HEAVY INDUSTRY MACHINERY*	2015-01-28	2015-01-28
The invention discloses a high-efficiency combined type dust collection device, which comprises a first dust collection mechanism, a second dust collection mechanism and a third dust collection mechanism, wherein when a dust-containing gas passes the first dust collection mechanism, dust in the dust-containing gas attaches to fine water drops, and part of the dust is mixed with the fine water drops and then falls due to gravity, thereby realizing primary dust collection; when the dust-containing gas enters the second dust collection mechanism, the fine water drops on which the dust is attached rotate along the inner wall of a first cylinder and are thrown to the inner wall of the first cylinder, thereby realizing secondary dust collection; and when the dust-containing gas enters the third dust collection mechanism, the dust and the water are forced to be mixed due to the centrifugal force and strong disturbance effect produced by an eccentric fan and are thrown to the inner wall of the eccentric fan, thereby realizing third dust collection. The high-efficiency combined type dust collection device disclosed by the invention has a better dust collection effect on a polluted gas with high initial dust content and small dust grain size, is compact in structure and high in efficiency and a water spout is easy to machine and difficult to block.						
54.	Water cooling system and heat transfer system	US20080277270	2008-05-08	ESUDISHI MATERIALS INTEL SDC MATERIAL SDC MATERIALS* UMICORE*	2008-11-13	2008-11-13
A heat exchanger comprising: a gas transport conduit providing a channel through which a fluid mixture can flow; an outer conduit disposed around the gas transport conduit, the outer conduit having a first cap covering a first end and a second cap covering a second end, the gas transport conduit passing through the outer conduit; and a conductive tube passing through the outer conduit, providing a channel through which a circulating fluid can flow through the outer conduit, wherein a static fluid chamber is formed between the conductive tube and the gas transport conduit, the static fluid chamber configured to house a static fluid, wherein the gas transport conduit is configured to conduct heat from the fluid mixture in the gas transport conduit to the static fluid and the conductive tube is configured to conduct heat from the static fluid to the circulating fluid.						
55.	Apparatus for the treatment of combustion gas used as an inert gas in an anti-explosive system	PT69439	1978-04-06	HITACHI SHIPBUILDING & ENGINEERING*	1979-05-01	1979-05-01
Apparatus for washing combustion gas comprises a tubular passage, suitably a venturi tube (44), a downstream-facing water spraying nozzle (47) at the combustion gas inlet portion of the tube to cool the gas and remove soot, a water receiving vessel (49) arranged against the outlet of the tube such that the gas flow from the tube contacts the water in the vessel producing a mist for further removal of soot and removal of sulphur dioxide from the gas, one or more inward flow volute passages (51, 58) which have holes (59, 60) to let in gas exhausted from the tube, several spray nozzles (61, 62, 63) arranged in said volute passage for further removal of sulphur dioxide and a chamber (64) for separating liquid from the treated gas. The apparatus may be incorporated in the anti-explosive system of an oil tanker, flue gas from a boiler being treated and then fed to the oil storage tanks, means being provided to maintain a desired pressure of such gas in the tanks. <IMAGE>						

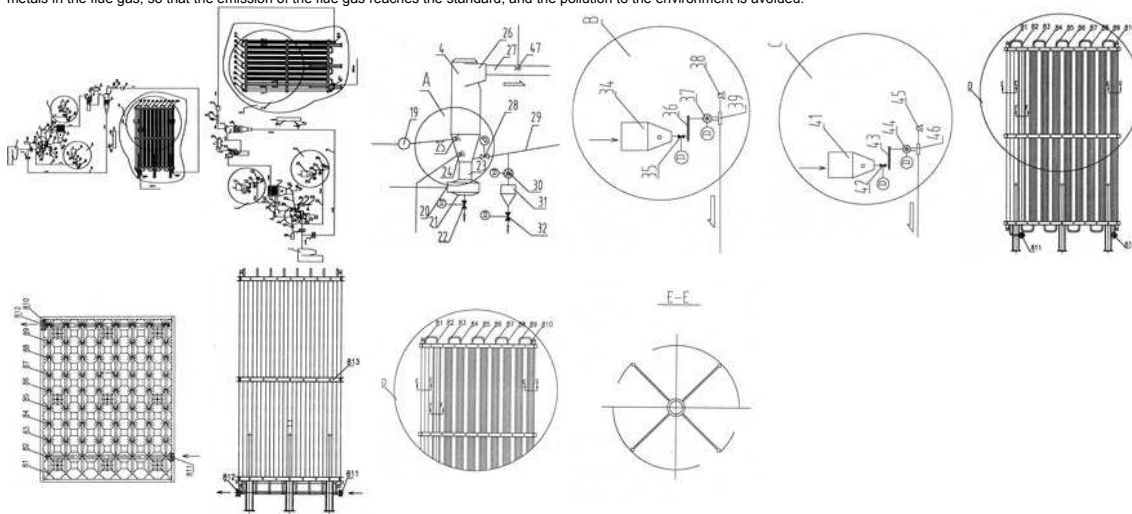
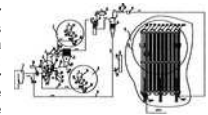
56. Deacidification and denitration device for incinerator flue gas CN204307513

2014-12-14

WUXI HUAXING ELECTRIC POWER
ENVIRONMENTAL PROTECTION
REPAIR MANUFACTURE*

2015-05-06 2015-05-06

The utility model relates to a deacidification and denitration device for incinerator flue gas. The deacidification and denitration device comprises an incinerator, an electric air inlet valve, a reaction tower, a bag-type dust collector, a heat pipe heat exchanger, an SCR reactor and an ammonia vaporizer, and is characterized in that the incinerator is sequentially connected with the electric air inlet valve, the reaction tower, the bag-type dust collector, the heat pipe heat exchanger, the SCR reactor and the ammonia vaporizer; a bypass pipeline is connected between the incinerator and an inlet of the electric air inlet valve; the bypass pipeline is connected with an inlet of a main air blower; an outlet of the main air blower is connected to a chimney; a bypass valve is arranged on the bypass pipeline; an outlet of the electric air inlet valve is connected with an air inlet of the reaction tower; the lower part of the air inlet of the reaction tower is connected with a cone-shaped dust collecting groove; the cone-shaped dust collecting groove is connected to an electric dust discharging valve; the upper part of the air inlet of the reaction tower is connected with a throat pipe. The deacidification and denitration device can be used for removing acidic gas and nitric oxides in flue gas generated in a household garbage incinerator and adsorbing harmful pollutants such as dioxin and heavy metals in the flue gas, so that the emission of the flue gas reaches the standard, and the pollution to the environment is avoided.



57. Filtering unit for dirt gas

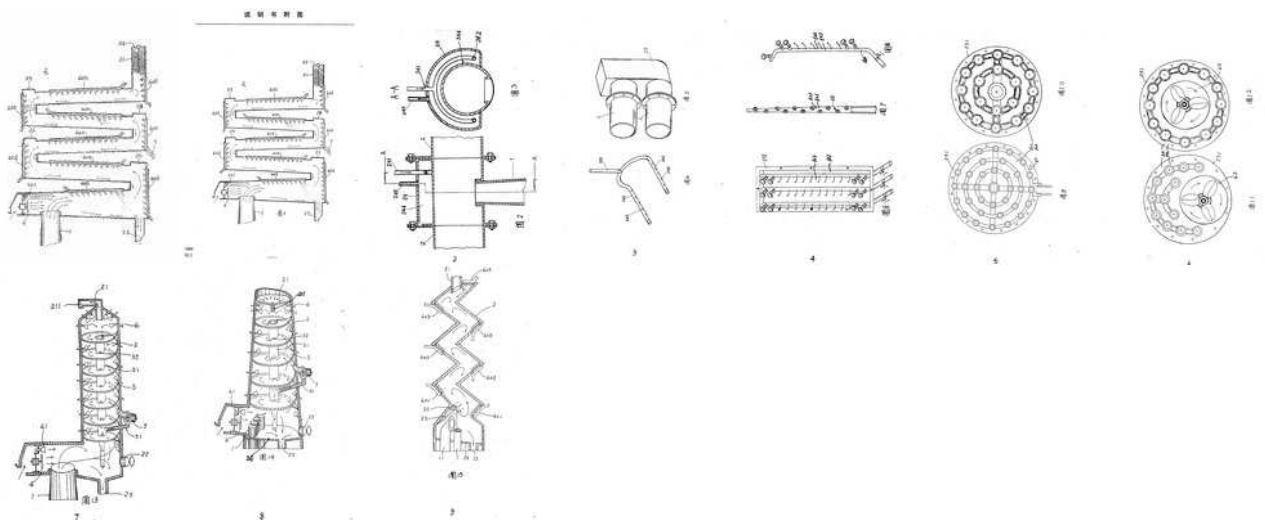
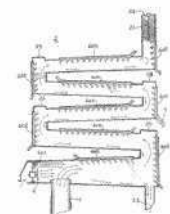
CN2165916

1992-08-20

MAI SONGQUAN

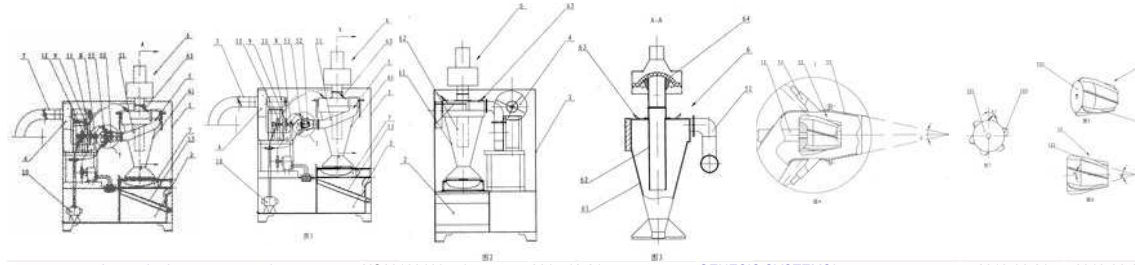
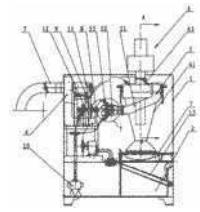
1994-05-25 1994-05-25

The utility model relates to a filtering device for dirt gas, comprising a roundabout type smoke dust filter device. The lower part of the smoke dust filter device is provided with a sewage down pipe and an exhaust gas drain pipe, and the sewage down pipe is communicated with the filter device of a filter bag. The down pipe of the filter device of the filter bag is also communicated with a mixing trough of a sewage treatment device, so the high concentration exhaust gas can firstly be collected by a smoke dust collection device and then enters the smoke dust filter device for being filtered. The inside of the roundabout type smoke dust filter is provided with a plurality of sets of reinforced sprayer groups, the upper part of the roundabout type smoke dust filter device is provided with a smoke outlet, and the sewage after treated by a water treatment device can flow back to the sprayer groups for being reused.



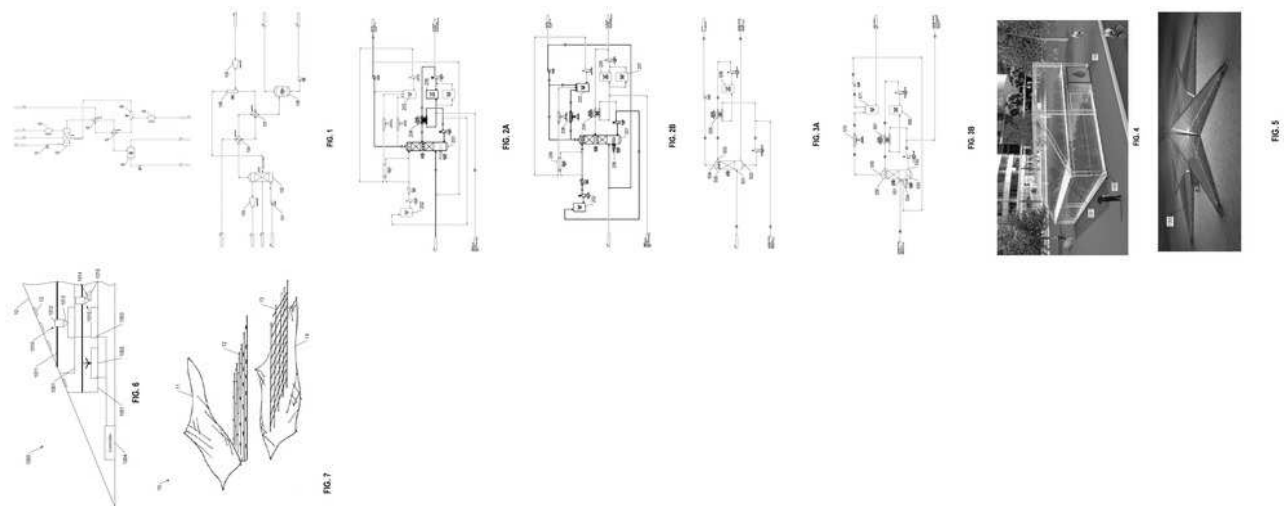
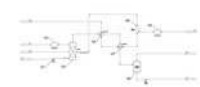
58. Efficient small air purifying device CN200991625 2006-12-12 CHENG SHUNYOU 2007-12-19 2007-12-19

The utility model relates to an environmental protection device, in particular to an efficient small air cleaner, which is composed of a driving device as well as an air guide pipe, a mighty draught fan, a water and gas blending device, a whirlwind separator, a dust collecting chamber, a water tank and a water pump are tightly coupled in succession. As water and gas blending device is applied, the pollution source generated by the user can be discharged from the air drawing outlet and enters into the mighty draught fan; the polluted gas mixture is accelerated to be completely blended by mighty blending after passing through the water and gas blending device so as to add the weight of the entire dust; under the push of the accelerated and pressurized air current, the aggravated dusts rapidly enter into the whirlwind separator and then are separated to drop down under the function of centrifugal force and upon enveloped in the mist of high pressure spray head, so the purifying effect is quite good. The key component of water and gas blending device is extremely simple and compact in structure and has a small volume, convenient manufacture, a low price and a low entire running cost, so the utility model is particularly suitable to be applied in small and medium sized enterprises.



59. Atmospheric water generation systems and methods US20180169571 2017-12-21 GENESIS SYSTEMS* 2018-06-21 2018-06-21

An atmospheric water generation system comprises water vapor consolidation systems configured to increase the relative humidity of a controlled air stream prior to condensing water from the controlled air stream. The water vapor consolidation system comprises a fluid-desiccant flow system configured to decrease the temperature of the desiccant to encourage water vapor to be absorbed by the desiccant from an atmospheric air flow. The desiccant flow is then heated to encourage water vapor evaporation from the desiccant flow into a controlled air stream that circulates within the system. The humidity of the controlled air stream is thereby increased above the relative humidity of the atmospheric air to facilitate condensation of the water vapor into usable liquid water.



60. Hybrid distillation method and apparatus AUPP364198

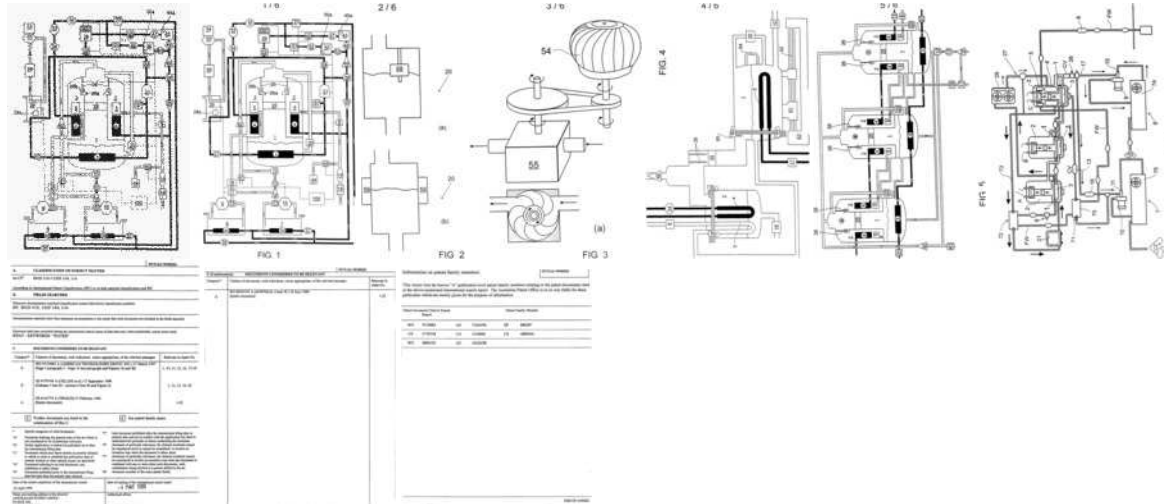
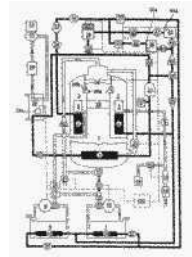
1998-05-22

AUSPAC TECHNOLOGY*

1998-06-11

1998-06-11

A hybrid distillation method and apparatus enables refrigerant pumped by one or more compressors (21) to be used to heat heating coils (3) in the boiling chamber (1) of a distillation unit, a hot water unit (28) which may also be heated by a solar panel (56); and to coil condensing coils (4) in the condensing chamber (2) of the distillation unit and to cool a refrigerator/freezer (45) and/or an air conditioner (50). Two or more units may operate simultaneously, controlled by a "fuzzy" logic circuit, optionally programmed to give priority to the refrigerator/freezer (45).



61. Spiral formula defogging dehydrating unit CN207253925

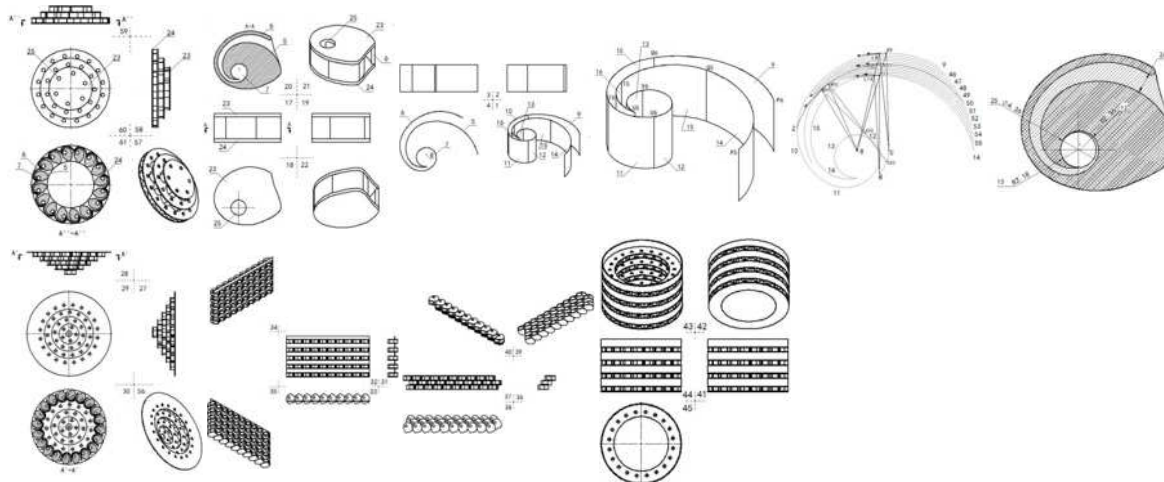
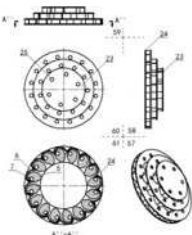
2017-07-07

Hao Zhanning

2018-04-20

2018-04-20

The utility model provides a spiral formula defogging dehydrating unit, the parallelly connected array horizontal installation of spiral formula constitutional unit of some is in airflow channel, their current reposition of redundant personnel is god forward at every spiral formula constitutional unit mesoscale eddies, the progressive constriction of inside section outside-in, the velocity of flow increases, pressure reduces, two inner walls in the helical curved surface passageway are gold spire cambered surface, tiny liquid drop is got rid of by the centrifugation because of the centrifugal radius effect and the increase of periodic camber of runner, the air current reduces at pressure, the in-process thermal drop low absorption heat of increase of speed, vapor is exothermic and condensation fogging then, together got rid of by the centrifugation in company with tiny liquid drop, drying gas flow carries the heat and flows from spiral formula constitutional unit top cap opening, the water film of runner both sides inner wall enrichment or liquid film receive gravity dirty in the bottom plate, it flows to collect back-porch air current entry bottom at the bottom plate.



62. On the basis of a coal fired power plant flue gas desorption method to heat the vortex hydroaminomethylation cleaning device according to the sulfuric acid CN108525489

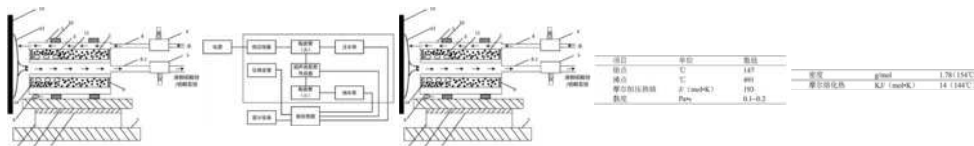
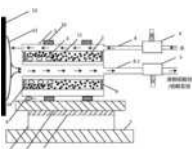
2018-04-10

XI'AN JIAOTONG UNIVERSITY*

2018-09-14

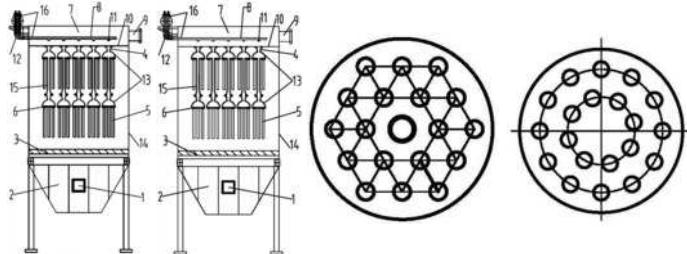
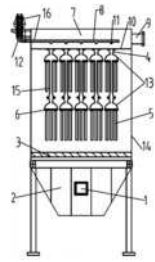
2018-09-14

The present invention relates to a gas of a coal fired power plant flue based on eddy currents heat the sulfuric acid cleaning device hydroaminomethylation desorption method, using ammonium hydrogen sulfate in water the cleansing device the solubility of the high electrical conductivity, electrical eddy currents to heat using ammonium bisulfate, accelerates its dissolution, a gas water pump suction and a dual-purpose; cleaning device comprising a ceramic, a ceramic water feeding channel on the inner wall, outer wall a distance sensor fixed at one end a ceramic, a ceramic thermal barrier ceramic cylinder fixedly attached to the lumen; induction coil wound around one end of a ceramic thermal barrier, and the other end through the water/air dual-purpose pump coupled to conduit; through a water supply conduit with one end of the pump passage connects the inner ceramic cylinder; a ceramic, a ceramic thermal insulation, the induction coil, a water pump, water/air dual pump, a distance sensor fixedly mounted to the rear, through fastening means fixedly attached to the displacement control platform on a countertop. The present invention enables cleaning of coal fired power plant flue hydroaminomethylation sulfate, cleaning efficiency is high, no residue is thoroughly cleaned, environmental savings.



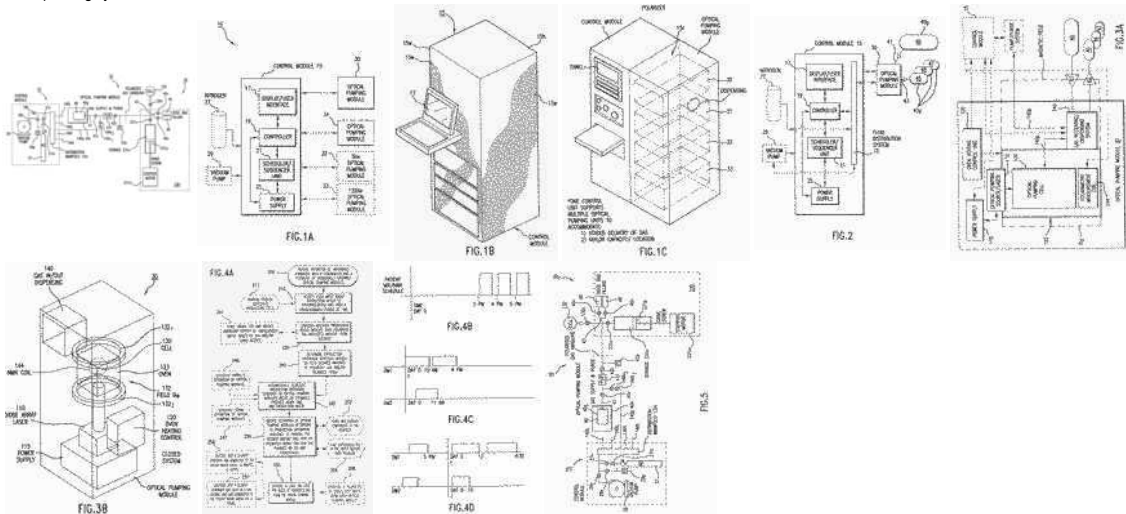
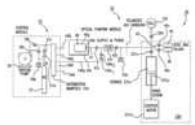
63. Ceramic dust removal equipment for tobacco cutting and process CN105251305 2015-11-09 JIANGSU JIULANG HIGH TECHNOLOGY* 2016-01-20 2016-01-20

The invention provides ceramic dust removal equipment for tobacco cutting and process. The equipment mainly comprises an ash hopper, a ceramic membrane integration assembly, a shell, a guide plate, a blowback device and an air purification chamber. During dust removal, dust-containing gases uniformly enter the shell by virtue of the guide plate and are purified by ceramic membranes under the action of an induced draft fan, and the dust is retained on the surface of the ceramic membranes. When the pressure rises to a set value for blowing back, blowback gases disperse in each membrane pipe in a membrane assembly for performing reverse pulse ash removal. According to the dust removal device, spark entrained dust can be treated, high temperature of 500 DEG C can be borne, and the retention rate of PM2.5 can be 99.99 percent. The device disclosed by the invention is compact in structure, high in dust removal precision, spark-resistant, high-temperature-resistant, acid and alkali resistant and long in service life, has high applicability to tobacco cutting and other sparked dust-containing gases and can be used for treating high-temperature flue gas dust in boilers and the like.



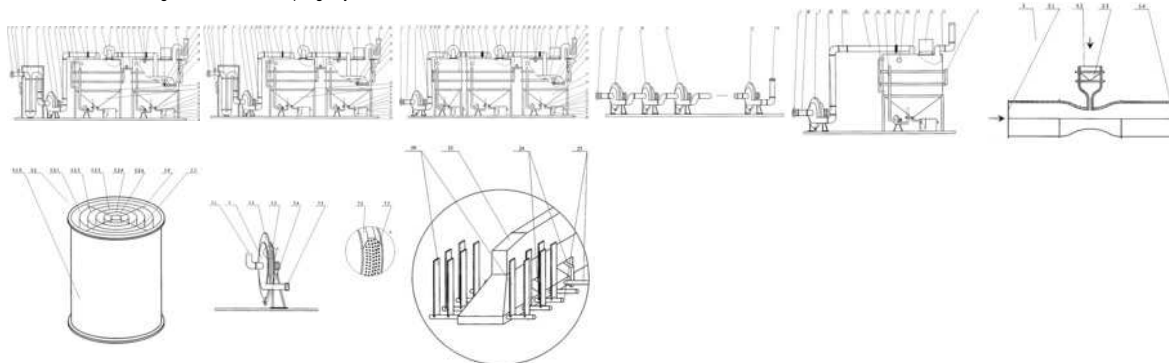
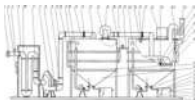
64. Optical pumping modules, polarized gas blending and dispensing systems, and automated polarized gas distribution systems WO03036317 2002-10-22 MEDI PHYSICS POLAREAN* 2003-05-01 2003-05-01

Hyperpolarizers for producing polarized noble gases can include: (a) a control module (15) configured to direct the operation of a hyperpolarizer to produce polarized noble gas via spin-exchange interactions between a noble gas and an alkali metal; (b) at least one optical pumping module (30) including an optical pumping cell operably associated with the control module; (c) a dispensing system (140) operably associated with the control module and the optical pumping module to dispense metered volumes of polarized gas from the hyperpolarizer; and (d) a fluid distribution system operably associated with the control module, the optical pumping module, and the dispensing system, such that, in response to commands transmitted from the control module, the fluid distribution system operates to automatically direct purge gas into and out of a gas travel path that extends from the control module to the optical pumping cell prior to commencing the spin-exchange interactions in the optical pumping cell, then to receive unpolarized gas and direct it to travel in the gas travel path to the optical pumping cell, and to automatically direct polarized gas from the optical pumping cell into a polarized gas exit travel path to the dispensing system.



65. Method and device for removing pollutants in gas CN105983308 2015-05-04 Shao Bo 2016-10-05 2016-10-05

The invention discloses a method and device for removing pollutants in gas. According to the method, the device which integrates a dry method, a wet method, a physical method and a chemical method and can achieve dust removal, dioxin removal, mercury particle removal, blackness removal, desulfuration, denitration, decarburization, hydrogen fluoride removal, hydrogen sulfide removal and straw incineration smoke purification at the same time is designed. Energy saving and emission reducing are achieved by reducing pollutant varieties and improving pollutant removal precision. The more the pollutant removal varieties are, and the higher the precision is, the higher the purification degree is. It is verified that the method is scientific and reasonable, the device is efficient and low in energy consumption, an air-induced sand removing machine achieves air blowing and removes sand and mercury particles, the chemical property and adhesion of liquid are utilized for removing harmful gas, and meanwhile dust removal and blackness reduction are achieved. A liquid bag type reactor is designed to serve as an oxygenizer or reducer of a variety of pollutants, the intercepting density of the method and device is much higher than the density of other intersecting technologies, and the device is most precise, most effective, highest in pollutant removal precision and most in pollutant removal variety and is suitable for treating smoke of a kiln adopting any fuel.



66. Apparatus for cleaning gaseous media EP1153644

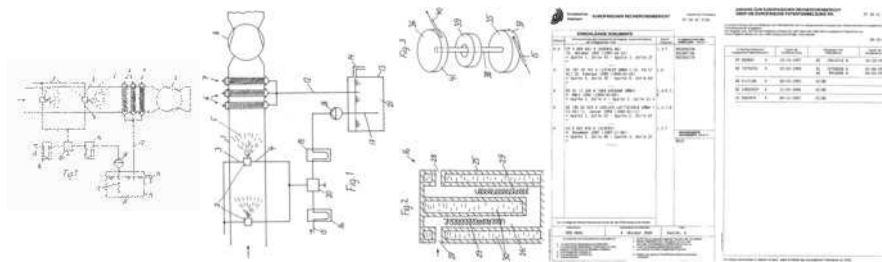
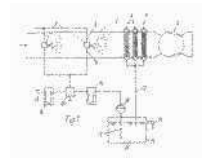
2000-05-10

VOIGT ANDREAS

2001-11-14

2001-11-14

An apparatus for purifying gaseous media comprises a first connection for introducing **water**; a second connection for introducing the medium to be purified; a mist **collector** arranged at the outlet end of the apparatus; and a **water** treatment device (16) arranged in the **water** feed line. The **water** treatment device contains an arrangement (29) for producing eddy currents in the **water** flowing through, and a magnet for producing magnetic fields in the **water** flowing through. Preferred Features: The **water** treatment device contains additional closed chambers (30) containing an activated medium. The mist **collector** is formed in such a way that it removes **water** droplets of less than 10 microns m. The apparatus additionally has a **collecting** vessel for the **water** removed in the mist **collector**; and a pump for mixing recycled **water** with fresh **water**.



67. Industrial small size air cleaner

CN101229468

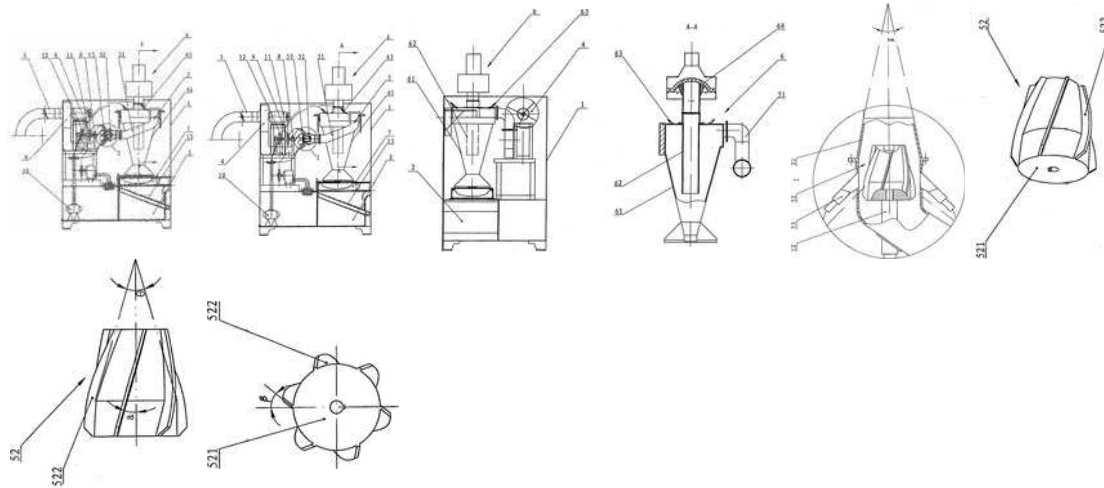
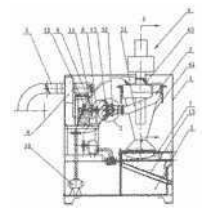
2007-10-29

CHENG SHUNYOU

2008-07-30

2008-07-30

The invention relates to environmental protection equipment for industrial use, in particular to a small scale **air** purifier used in industry. The industrial use small scale **air** purifier comprises a power plant and an **air** pipe, an ensilage dump blower, a **water**-gas combining device, a cyclone separator, a dust **collector**, a **water** tank and a pump that are sequentially and hermetically connected. As the **water**-gas combining device is arranged, pollution sources of users are discharged from an **air** pumping opening and go through the **air** pipe and the ensilage dump blower; mixture **air** of contamination is speeded up and is fully mixed while passing through the **water**-gas combining device, the weight of dust is increased and enters the cyclone separator under the pushing of the accelerated and pressured **air** stream, and then under the function of centrifugal force and a high-pressure nozzle, all weighted dust is separated and fell owing to centrifugal force, so as to obtain the great purifying effect. The key element of the device is the **water**-gas combining device, which has simple and compact structure, small volume, convenient production, low price and low cost of whole machine operation, thereby being especially suitable for being used in middle-small sized enterprises.



68. Multi-stage spiral-plate leaf desulfurizing dust collector CN2843595

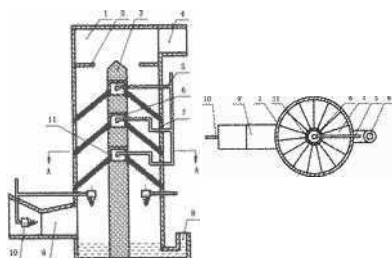
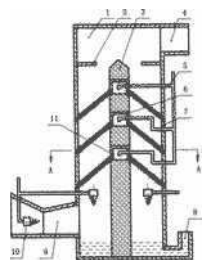
2005-11-18

YAN YUDE

2006-12-06

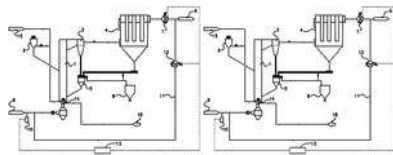
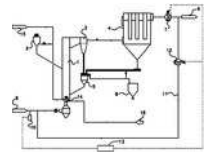
2006-12-06

The utility model discloses a multi-stage spiral-plate leaf desulfurizing dust **collector** which comprises a barrel body with both sealed ends, wherein the upper end of the barrel body is provided with a flue gas outlet pipe, the lower part of the barrel body is provided with a flue gas inlet pipe, the bottom of the barrel body is provided with a liquid seal type **water** discharging tank, and spiral spray heads with definite quantity are installed in the barrel body; the center of the barrel body is provided with a cylinder, spiral-plate leaf sets with definite quantity of layers are fixed between the barrel body and the cylinder and are composed of spiral-plate leaves with definite quantity according to the definite space and inclination pitch, a chamber is arranged in the cylinder above each spiral-plate leaf set, a spray head is installed in the chamber, **water** spraying holes with definite quantity are arranged on the body wall of the chamber so that **water** sprayed by the spray head can be uniformly sprinkled on the spiral-plate leaves, and the spray head is communicated with a **water** supplying mechanism. The utility model is provided with a plurality of conical spiral spray heads and the multi-layer spiral-plate leaf sets in the barrel body to make the **water** sufficiently contact flue gas, therefore the utility model has the advantage of good filtering, dust **collecting** and desulfurizing effect.



69. Device for preventing collapse of circulating fluidized bed CN204182286 2014-11-07 XINZHONGTIAN ENVIRONMENTAL PROTECTION* 2015-03-04 2015-03-04

The utility model discloses a device for preventing collapse of a circulating fluidized bed. The device comprises a circulating fluidized bed acid stripping tower, a slaked lime bin, a cyclone dust collector and a bag-type dust collector, and further comprises a bypass flue, a flow meter and a controller, wherein the gas inlet of the circulating fluidized bed acid stripping tower is communicated with a quench tower, and the gas outlet is sequentially communicated with the cyclone dust collector and the bag-type dust collector; the gas outlet of the bag-type dust collector is led to a washing tower through a main induced draft fan; the flow meter is arranged at the gas outlet of the quench tower; a backflow fan is arranged on the bypass flue; the controller is connected with the flow meter; the main induced draft fan is connected with the backflow fan. The device can ensure that the amount of flue gas entering the circulating fluidized bed enables the circulating fluidized bed to be stably operated.

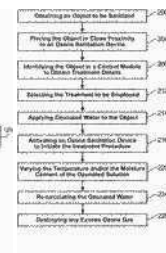
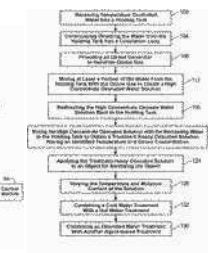
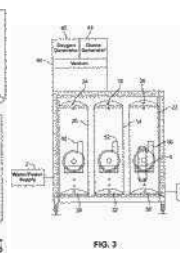
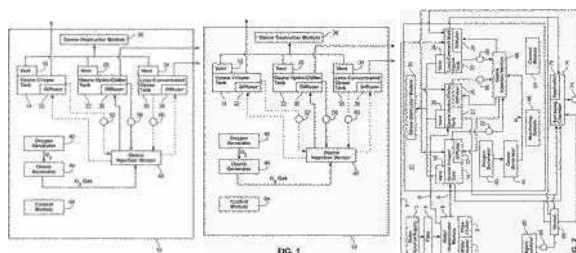
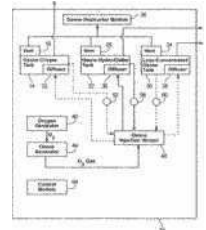


70. Desulfurizing-dusting apparatus CN201073589 2007-08-16 YANG YUMIN 2008-06-18 2008-06-18

The utility model relates to a desulfurizing and dust removing device, comprising a tower body, a Venturi tube, and an absorption solution communicating pipe, which is characterized in that: a desulfurizing and dust removing chamber is arranged at the upper part of the tower body, and the bottom of the desulfurizing and dust removing chamber is communicated with the inner cavity of the tower body; the absorption solution communicating pipe is extended inside the desulfurizing and dust removing chamber, and spray nozzles are arranged on the absorption solution communicating pipe in the desulfurizing and dust removing chamber. The Venturi tube is internally tangent and communicated with the desulfurizing and dust removing chamber, and the end of the Venturi tube away from the desulfurizing and dust removing chamber is communicated with an outlet of boiler exhaust; the upper end of a gas water separating pipe is communicated with a boiler smokestack, the lower end passes the desulfurizing and dust removing chamber and extends to the center of the inner cavity of the tower body, and the bottom of the gas water separating pipe is communicated with the inner cavity of the tower body. A liquid seal chamber communicated with the inner cavity of the tower body is arranged at the lower part of the tower body inner cavity, and a waste liquid outlet is arranged at the lower part of the liquid seal chamber. The utility model has the advantages of the integration of desulfurization and dust removal, high efficiency of desulfurization and dust removal, wide application range, and conformity with the relevant state standards in terms of both desulfurization and dust removal effects.

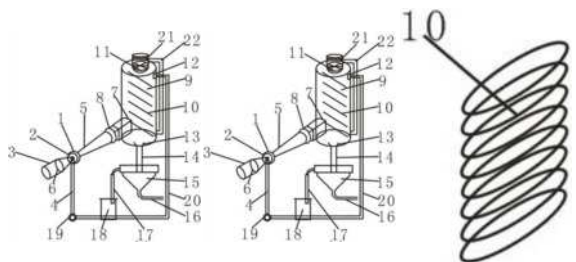
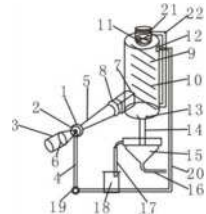
71. Systems and methods for reducing off-gassed ozone US20030156978 2002-11-26 FRESH FOOD TECHNOLOGY* 2003-08-21 2003-08-21

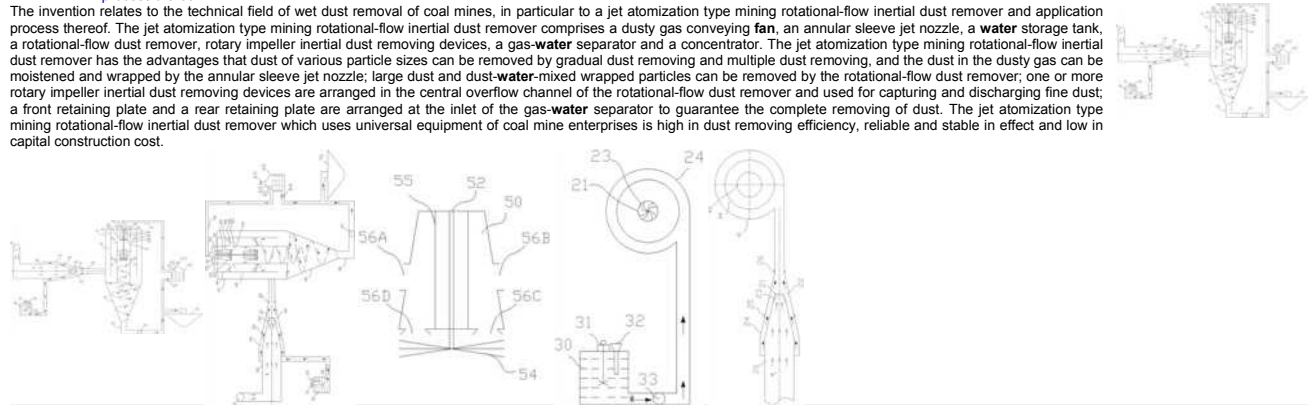
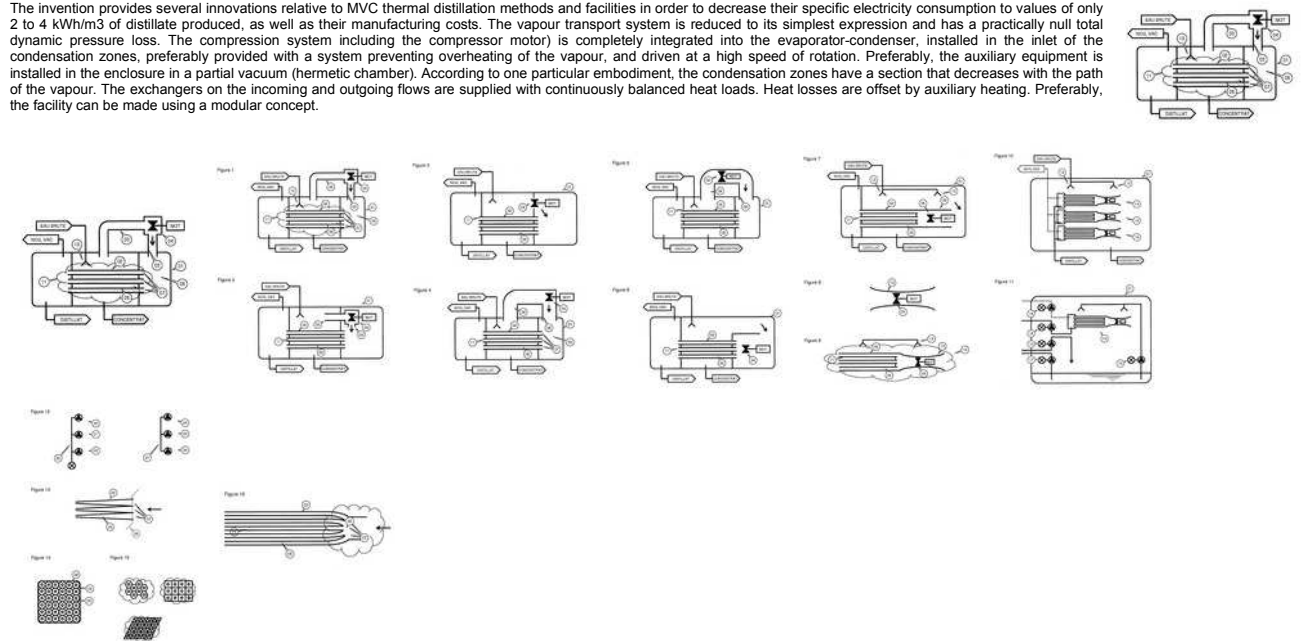
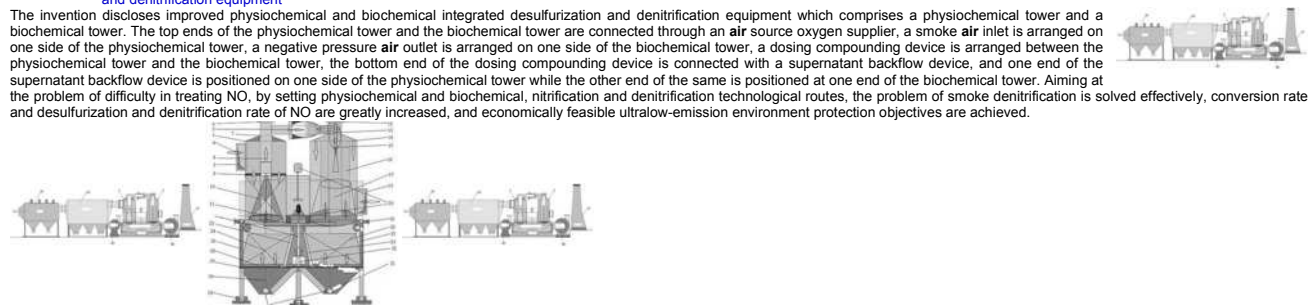
Systems and methods for producing ozonated water on demand. In particular, these systems comprise a water source, an ozone source, and a nozzle that mixes ozone and water to form a highly concentrated, ozonated water solution. Instead of requiring the ozonated water to be re-circulated to achieve a desired ozone concentration, the nozzle is configured to form the ozonated water solution in a single pass through the nozzle. Additionally, instead of requiring the ozonated water to be discharged into a pressurized tank to increase ozone absorption, the nozzle allows the ozonated water to be openly discharge. In some cases, the nozzle comprises a venturi with multiple ozone inlets to increase mixing. Additionally, in some cases the nozzle comprises a single pass mixing mechanism that mixes the water and ozone to form the high concentrate, ozonated water solution in a single pass through the nozzle.



72. Environment -friendly dust shaker CN206424720 2017-01-11 DONGGUAN CITY JIABING CHOI PRINTING* 2017-08-22 2017-08-22

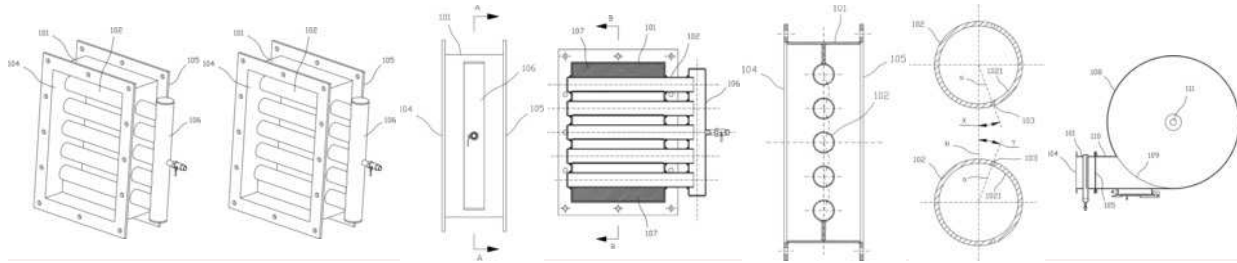
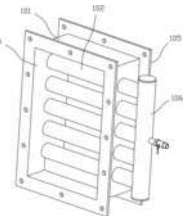
The utility model discloses an environment -friendly dust shaker, including the foggers, fixed mounting has the three -way pipe on the foggers, the three -way pipe is connected with the intake pipe respectively, mends charging pipe and outlet duct, has an aspirator pump at intake pipe bottom fixed mounting, the outlet duct end is equipped with the baffle, and is equipped with venturi between outlet duct and baffle, baffle side is connected with the dehydration dust remover, and the dehydration dust remover is closed by leaching board and exhaust units and forms, just is equipped with the sprinkler at top, is equipped with the mud mouth at the bottommost, and the mud mouth has a sedimentation tank through sewage pipe connection, the sedimentation tank is connected with mud pipe and circulating pipe, the circulating pipe is connected with the circulating pump through replenishing the water tank to being connected with foggers and sprinkler respectively, coming clear dust with the eluviation of water, efficient, the dust clearance can reach more than 90, and whole process is not polluted moreover, and the dust of collection is convenient for handle for the mud form and can not be caused secondary pollution, can satisfy the dust removal demand of machine room.



73.	Jet atomization type mining rotational-flow inertial dust remover and application process thereof CN106076040	2016-08-10	ANHUI UNIVERSITY OF SCIENCE & TECHNOLOGY*	2016-11-09	2016-11-09
The invention relates to the technical field of wet dust removal of coal mines, in particular to a jet atomization type mining rotational-flow inertial dust remover and application process thereof. The jet atomization type mining rotational-flow inertial dust remover comprises a dusty gas conveying fan, an annular sleeve jet nozzle, a water storage tank, a rotational-flow dust remover, rotary impeller inertial dust removing devices, a gas-water separator and a concentrator. The jet atomization type mining rotational-flow inertial dust remover has the advantages that dust of various particle sizes can be removed by gradual dust removing and multiple dust removing, and the dust in the dusty gas can be moistened and wrapped by the annular sleeve jet nozzle; large dust and dust-water-mixed wrapped particles can be removed by the rotational-flow dust remover; one or more rotary impeller inertial dust removing devices are arranged in the central overflow channel of the rotational-flow dust remover and used for capturing and discharging fine dust; a front retaining plate and a rear retaining plate are arranged at the inlet of the gas-water separator to guarantee the complete removing of dust. The jet atomization type mining rotational-flow inertial dust remover which uses universal equipment of coal mine enterprises is high in dust removing efficiency, reliable and stable in effect and low in capital construction cost.					
					
74.	Facilities for thermal distillation with mechanical vapour compression CA2918990	2013-07-29	INDUSTRIAL ADVANCED SERVICES FZ INDUSTRIAL ADVANCED SERVICES FZ* INDUSTRY ADVANCED SERVICES FZ TETRA LAVAL HOLDINGS & FINANCE	2015-02-05	2015-02-05
The invention provides several innovations relative to MVC thermal distillation methods and facilities in order to decrease their specific electricity consumption to values of only 2 to 4 kWh/m³ of distillate produced, as well as their manufacturing costs. The vapour transport system is reduced to its simplest expression and has a practically null total dynamic pressure loss. The compression system including the compressor motor) is completely integrated into the evaporator-condenser, installed in the inlet of the condensation zones, preferably provided with a system preventing overheating of the vapour, and driven at a high speed of rotation. Preferably, the auxiliary equipment is installed in the enclosure in a partial vacuum (hermetic chamber). According to one particular embodiment, the condensation zones have a section that decreases with the path of the vapour. The exchangers on the incoming and outgoing flows are supplied with continuously balanced heat loads. Heat losses are offset by auxiliary heating. Preferably, the facility can be made using a modular concept.					
					
75.	Improved physiochemical and biochemical integrated desulfurization and denitrification equipment CN106422698	2016-08-24	JIANGSU HUAHUI ENVIRONMENTAL PROTECTION TECHNOLOGY*	2017-02-22	2017-02-22
The invention discloses improved physiochemical and biochemical integrated desulfurization and denitrification equipment which comprises a physiochemical tower and a biochemical tower. The top ends of the physiochemical tower and the biochemical tower are connected through an air source oxygen supplier, a smoke air inlet is arranged on one side of the physiochemical tower, a negative pressure air outlet is arranged on one side of the biochemical tower, a dosing compounding device is arranged between the physiochemical tower and the biochemical tower, the bottom end of the dosing compounding device is connected with a supernatant backflow device, and one end of the supernatant backflow device is positioned on one side of the physiochemical tower while the other end of the same is positioned at one end of the biochemical tower. Aiming at the problem of difficulty in treating NO_x by setting physiochemical and biochemical, nitrification and denitrification technological routes, the problem of smoke denitrification is solved effectively, conversion rate and desulfurization and denitrification rate of NO_x are greatly increased, and economically feasible ultralow-emission environment protection objectives are achieved.					
					

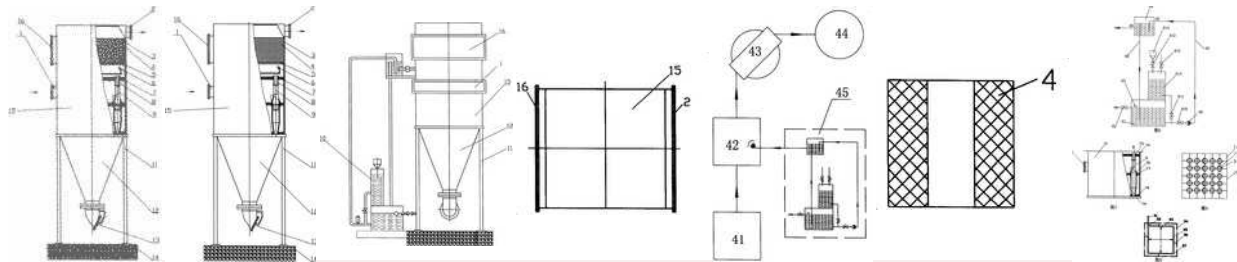
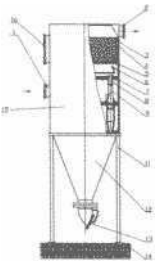
76. **Wet-type dust collection device** CN104307285 2014-09-30 JIANGXI SITONG HEAVY INDUSTRY MACHINERY* 2015-01-28 2015-01-28

The invention discloses a wet-type dust **collection** device, comprising a shell, which comprises an **air** inlet and an **air** outlet, wherein the shell is internally provided with a plurality of **water** pipes, a gap allowing a dust-containing gas to pass is reserved between two adjacent **water** pipes in a radial direction, one sides, close to the **air** outlet, of any two adjacent **water** pipes are provided with slot holes extending along the length directions of the **water** pipes, and in the cross sections of the two **water** pipes, two rays passing the slot holes are vertically crossed with axes of the **water** pipes and are crossed. The wet-type dust **collection** device disclosed by the invention is relatively good in dust **collection** effect, relatively simple in structure, and relatively small in size, a **water** spout is easy to machine and difficult to block, and therefore a booster pump is not needed.



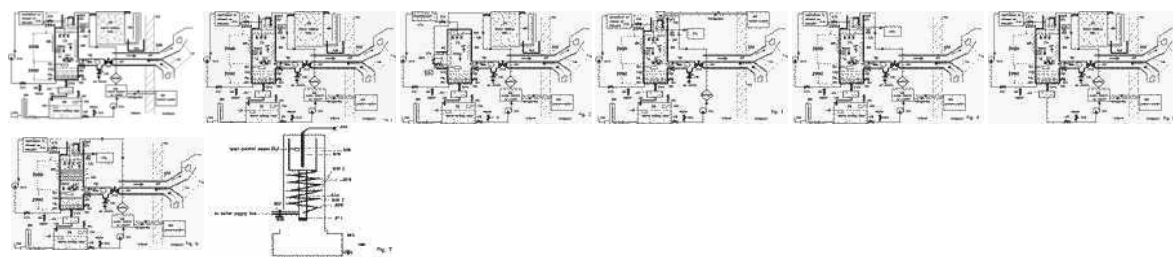
77. **Ceramic multi-tubular boiler desulfurizing dust removing device for flue gas** CN201052446 2007-06-08 Fu Taiping 2008-04-30 2008-04-30

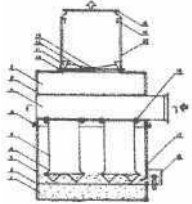
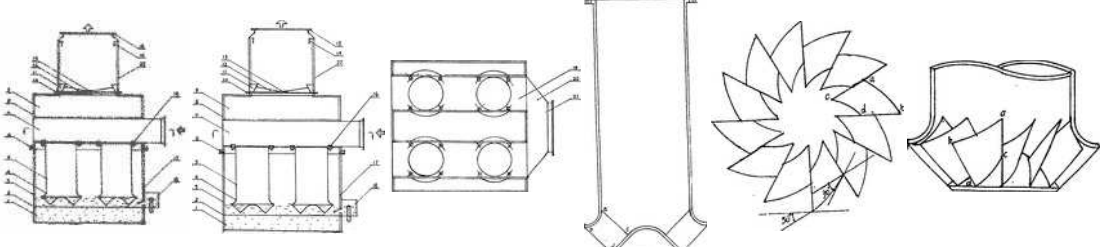
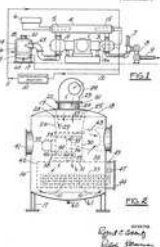
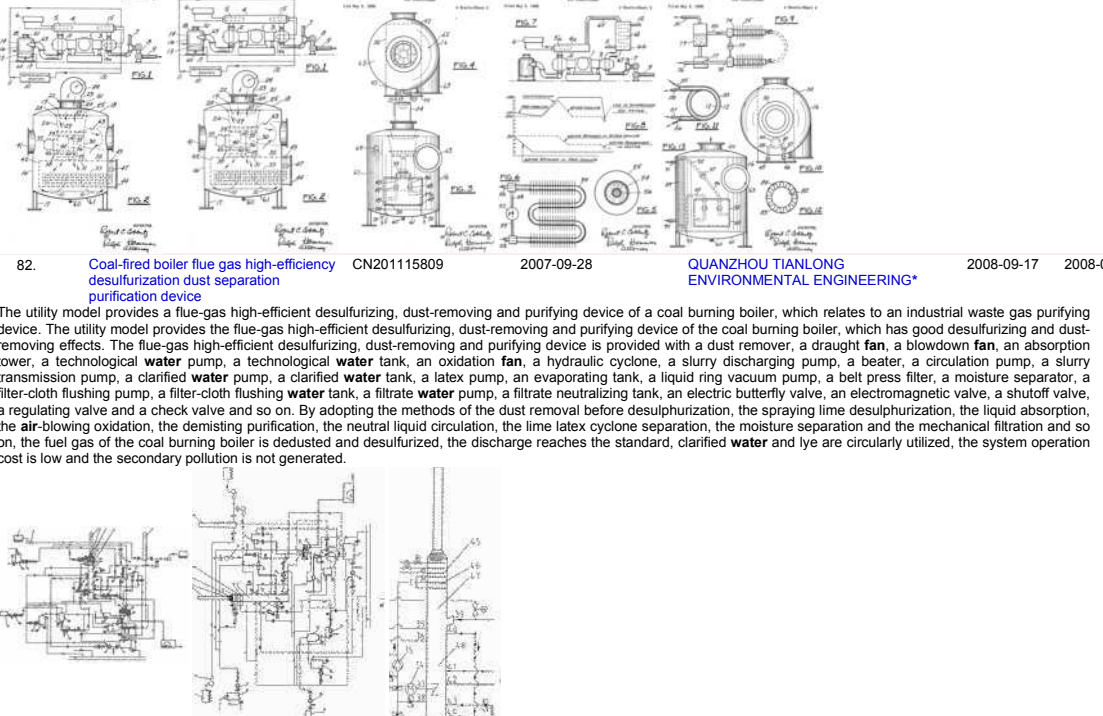
A flue gas desulfurization and dust-**collecting** device of a ceramic multitubular boiler relates to a desulfurization and dust-**collecting** device which has an excellent effect of desulfurization and dust **collection**. The desulfurization and dust-**collecting** device comprises a pedestal, a holdfast, a dust dropping bucket, a dust discharging device, a smoke intake box, an **air** outlet box, a cyclone tube, a smoke conduct pipe, a spray thrower, a desulfurization ring, a renewal box of the desulfurization ring, and a loading device. The holdfast is arranged on the pedestal, the dust drop bucket and the dust discharge device are arranged on the lower portion of the smoke intake box, the smoke intake box is arranged on the holdfast, the **air** outlet box is arranged on the smoke intake box, the cyclone tube is arranged in the smoke intake box, the cyclone tube is provided with the smoke conduct pipe, the upper end of the smoke conduct pipe is plugged into the **air** outlet box, the spray thrower is arranged on the lower portion of the **air** outlet box, the desulfurization ring is arranged in the removal box of the desulfurization ring, the removal box is arranged on the upper portion of the **air** outlet box, a delivery end which is arranged on the top portion of the **air** outlet box is connected with an induction pipe of a draught fan, a delivery end of the draught fan is connected with a chimney, a smoke intake port is connected with a smoke outtake port of the boiler, a **water** inlet pipe of the spray thrower is connected with the outlet end of an evaporation box of the loading device, and mist is sprayed to the desulfurization ring by the spray thrower.



78. **[air and water conditioning system and filter media]** US20050269254 2004-05-24 ROITMAN LIPA L 2005-12-08 2005-12-08

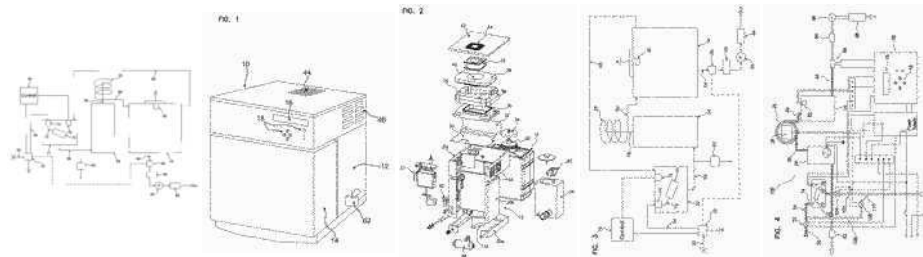
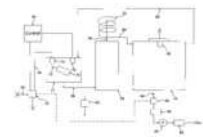
Disclosed is an **air-water**-catalyst-UV light contacting, **air** heating and cooling, humidifying and dehumidifying CHAMBER, which receives **water** that continuously recirculates through the **water** filtering, heating and cooling, (and deionizing) loop, which gets fresh outdoors **air** through the energy-efficient heat exchanger, which generates **water** from the atmospheric moisture, which stores and recirculates pure **water** through potable **water** holding tank, and to which is connected a novel design energy-efficient self-regulating steam distillation apparatus. Also, a **water** filtration system utilizing zwitterionic polymers as ion exchange and salt-absorbing and filtration media. Also disclosed are novel ionic and zwitterionic polymers, derived from cellulose.



79.	Swirl jet bubbling type dust removing desulfurizer	CN2595434	2003-01-20	ORIGINAL JUMP*	2003-12-31	2003-12-31
The utility model relates to a swirl injection bubbling type dust removing and desulfurizing device. A rectangular reaction slot is welded on a liquid storing slot and sits in a reserved frame of the liquid storing slot. A plurality of injection pipes and injection mouths are arranged in the rectangular reaction slot, wherein, the lower end of which is welded with a water channel for water level control, and the upper part of the rectangular reaction slot is welded with a connecting frame slot. An upper box body sits in the connecting frame slot on the rectangular reaction slot and is sealed and connected. The upper box body is composed of an air inlet flange, an air inlet mouth, air dividing chambers for inlet air and a decelerating and air collecting chamber. Each air dividing chamber for the inlet air is a pipe-shaped passage, wherein, a lower plate of which is provided with a flower plate, the upper surface of the flower plate is provided with holes, wherein, the inner diameters of which are the same to the inner diameters of the injection pipes, and the peripheries of the holes are welded with stainless steel bolts. The injection pipes and the injection mouths are connected to the flower plate by the stainless steel bolts via a rubber pad. An upper cover of the decelerating and air collecting chamber is provided with a short pipe of a circular passage, a flange is welded on the short pipe of the circular passage, and the flange and a dewatering device with a vortex plate are sealed by a rubber ring and connected by a bolt. The upper end of the dewatering device is welded with an outlet flange, a connecting pipeline is connected into an air inlet, and an inner surface of equipment contacted with water is coated with an anticorrosive coating. The utility model has the advantages of simple structure, convenient operation, little operation energy consumption, high purification efficiency and evident desulfurization effect.						
80.	Improvements to the volatilization of residual liquid monomers	NL6501691	1964-02-12	DUNLOP DUNLOP RUBBER*	1965-08-13	1965-08-13
1,126,743. Preparation of solid rubbery polymers. DUNLOP CO. Ltd. 18 Feb., 1966 [4 March, 1965]. No. 9195/65. Addition to 1,090,975. Headings C3P and C3Q. A solid rubbery polymeric composition is prepared from a feedstock containing a rubbery polymeric material in solution in an organic liquid by subdividing the feedstock into droplets and mixing the droplets with steam in conditions in which the steam condenses on the droplets and all the organic liquid is volatilized from each droplet while that droplet is free of external contact with a solid or bulk liquid, collecting the remaining portions of the droplets and separating the solid polymeric composition from water. The polymeric material may be a natural or synthetic rubber, e.g. a rubbery styrene-butadiene copolymer or a mixture thereof with butadiene rubber. The usual compounding ingredients may be present. The droplets may be passed into one or more jets of steam, preferably superheated and preferably moving in a direction at right-angles to the direction of motion of the droplets. The feedstock may be formed into a spray of droplets, e.g. by centrifugal atomization being supplied to the surface of a disc or inverted cup spinning at high speed to sub-divide the feedstock. Apparatus for carrying out the process is described. (From GB1126743 A)						
81.	Air conditioner	US3034315	1958-05-05	COBLENTZ ROBERT C	1962-05-15	1962-05-15
No abstract available						
82.	Coal-fired boiler flue gas high-efficiency desulfurization dust separation purification device	CN201115809	2007-09-28	QUANZHOU TIANLONG ENVIRONMENTAL ENGINEERING*	2008-09-17	2008-09-17
The utility model provides a flue-gas high-efficient desulfurizing, dust-removing and purifying device of a coal burning boiler, which relates to an industrial waste gas purifying device. The utility model provides the flue-gas high-efficient desulfurizing, dust-removing and purifying device of the coal burning boiler, which has good desulfurizing and dust-removing effects. The flue-gas high-efficient desulfurizing, dust-removing and purifying device is provided with a dust remover, a draught fan, a blowdown fan, an absorption tower, a technological water pump, a technological water tank, an oxidation fan, a hydraulic cyclone, a slurry discharging pump, a beater, a circulation pump, a slurry transmission pump, a clarified water pump, a clarified water tank, a latex pump, an evaporating tank, a liquid ring vacuum pump, a belt press filter, a moisture separator, a filter-cloth flushing pump, a filter-cloth flushing water tank, a filtrate water pump, a filtrate neutralizing tank, an electric butterfly valve, an electromagnetic valve, a shutoff valve, a regulating valve and a check valve and so on. By adopting the methods of the dust removal before desulphurization, the spraying lime desulphurization, the liquid absorption, the air-blowing oxidation, the demisting purification, the neutral liquid circulation, the lime latex cyclone separation, the moisture separation and the mechanical filtration and so on, the fuel gas of the coal burning boiler is dedusted and desulfurized, the discharge reaches the standard, clarified water and lye are circularly utilized, the system operation cost is low and the secondary pollution is not generated.						

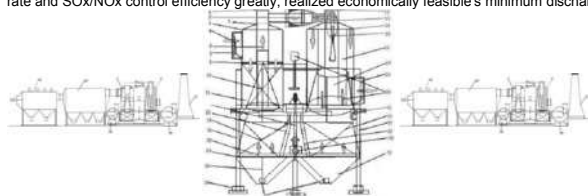
83. **Water purification system** WO200226642 2000-09-27 **INNOWAVE*** 2002-04-04 2002-04-04

An improved portable **water** purification system with reduced leaks and the capability of automatic draining of its boiling tank, as well as to a method preventing **water** spillage from a portable **water** purification system and a method of draining a boiling tank of a portable **water** purification system. The system includes control tank (22) that is connected to a **water** supply (50), a boiling tank (24) that is connected to the control tank (22) for boiling **water**, a condenser (26) that is connected to the boiling tank (24) for receiving steam from the boiling tank (24) and for condensing the steam to form distilled **water**, and a distilled **water** tank (14) that is connected to the condenser (26) for collecting distilled **water** from the condenser. An inlet solenoid control valve (52) is disposed between the **water** supply (50) controlling flow of **water** to the control tank (22). The system further includes a UV light sanitizer (88), leak prevention and leak detection features, and a mechanisms (66) for detecting **water** quality.



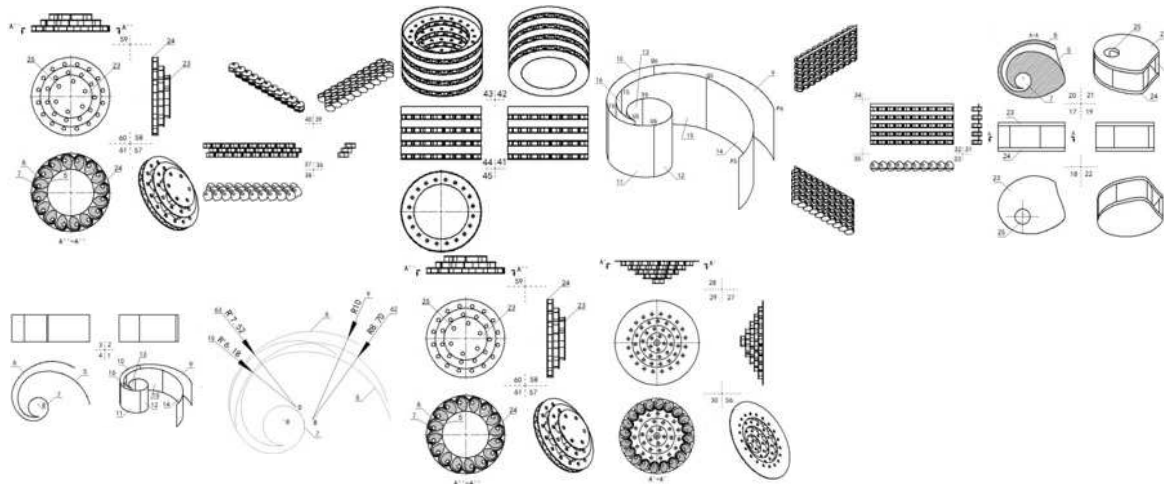
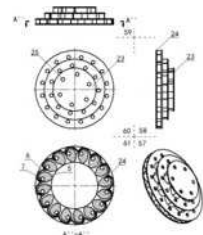
84. **Biochemical integration sox/nox control equipment of improved generation materialization** CN206184232 2016-08-24 **JIANGSU HUAHUI ENVIRONMENTAL PROTECTION TECHNOLOGY*** 2017-05-24 2017-05-24

The utility model discloses a biochemical integration SOx/NOx control equipment of improved generation materialization, including materialization tower body and biochemical tower body, connect for the oxygen were through the **air** source between materialization tower body top and the biochemical tower body top, materialization tower body one side is equipped with the flue gas **air** intake, biochemical tower body one side is equipped with the negative pressure **air** outlet, be equipped with with medicine compound device in the middle of materialization tower body and the biochemical tower body, it connects the supernatant reflux unit to add medicine compound device bottom, supernatant reflux unit one end is located materialization tower body one side, the supernatant reflux unit other end is located biochemical tower body one end, the utility model discloses to NO difficulty and the materialization + biochemistry that sets up, nitrify denitrification process technical route and effectively solved the out of stock problem of flue gas, improved NO's conversion rate and SOx/NOx control efficiency greatly, realized economically feasible's minimum discharge environmental protection target.



85. **Spiral demisting and dehumidifying device** CN107281822 2017-07-07 **Hao Zhanning** 2017-10-24 2017-10-24

The invention provides a spiral demisting and dehumidifying device. A certain quantity of spiral structure units are connected in parallel and horizontally mounted in an airflow channel in an array; split airflow advances in each spiral structure unit spirally, inside sections are gradually narrowed from outside to inside, the flow speed is increased, the pressure is reduced, two inner walls of the spiral curved channel are both golden spiral arc surfaces, small droplets are removed under centrifugal force due to the centrifugal radius effect of the channel and increase of periodical curvatures, the airflow is cooled and absorbs heat when the pressure is reduced and the speed is increased, vapor releases heat and is condensed into mist and removed under centrifugal force along with the small droplets, dry airflow carrying heat flows out of an opening of a top cover of each spiral structure unit, and **water** films or liquid films enriched on inner walls of two sides of the channel flow downwards to a bottom plate under the action of gravity, are collected on the bottom plate and then flow out from the bottom of an airflow inlet.

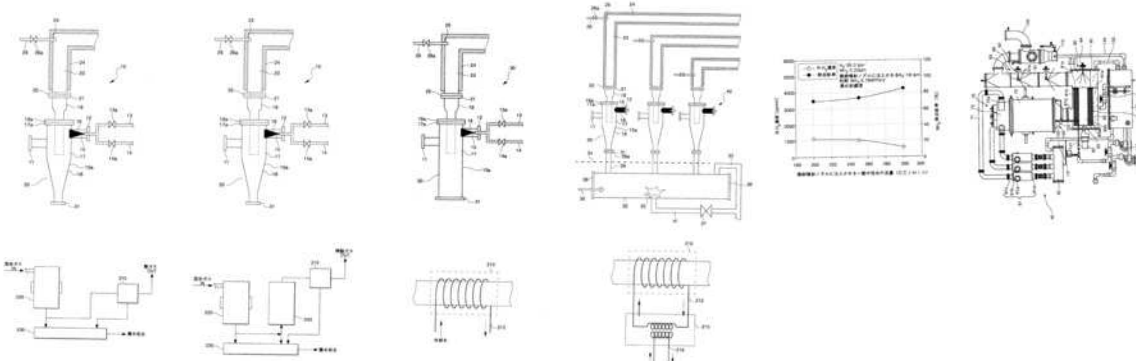
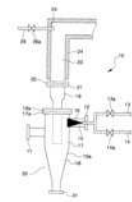


86. Waste gas treatment and waste gas treatment method JP2005131509 2003-10-29 UNISEM* 2005-05-26 2005-05-26

PROBLEM TO BE SOLVED: To provide a waste gas treatment and a waste gas treatment method.

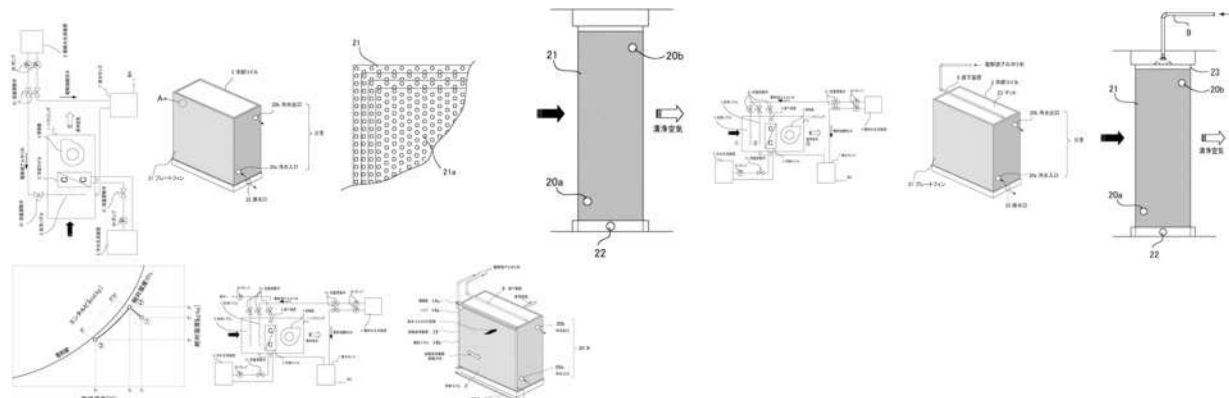
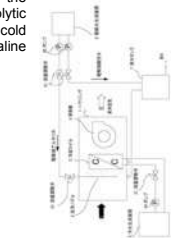
SOLUTION: In the waste gas treatment device, a waste gas pre-treatment device for treating the waste gas discharged from a semiconductor (or LCD) manufacturing facility by a wet treatment system is constituted to prolong the life of the waste gas treatment device and a moisture removal device for removing the moisture contained in the gas finally treated is constituted to prevent dew condensation from being generated in an exhaust duct. Further, a shielding unit is constituted at the inside of a heating chamber for burning the waste gas to prevent the inside of the heating chamber from being corroded by fluorine based gas and it is solved that a particulate is agglomerated by improving a cooling structure for cooling a lower part of the heating chamber. The time when the waste gas is stayed at the inside of the heating chamber is lengthened by improving a feed structure of the waste gas fed to the heating chamber.

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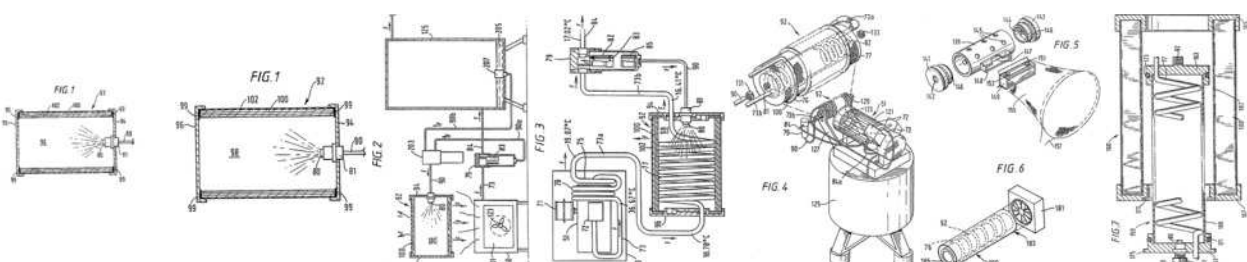
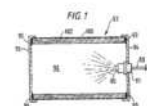
87. Oil mist remover JP2002331220 2002-02-06 AISIN KIKO* TECHNO RYOWA* 2002-11-19 2002-11-19

PROBLEM TO BE SOLVED: To provide an oil mist remover that can remove oil mist at good efficiency and is less laborious in maintenance. SOLUTION: In the inside of a housing 1 the left side of which has an air intake and the right side of which has an air feed port, a cooling coil 2 that cools air with circulating cold water, a washing nozzle 3 that jets electrolytic strongly alkaline water onto the coil 2 and an air discharger 4 for delivering the air from the housing 1 are provided. The coil 2 is provided with a cold water former 5 for feeding cold water into the nozzle 3, an electrolytic water former 6 for feeding electrolytic strongly alkaline water into the nozzle 3, a waste water tank 7 that recovers the electrolytic strongly alkaline water dropping from the nozzle 3 and the coil 2, and the like. A large number of small holes 21a are formed in the entire surface of the plate fin 21 of the coil 2.



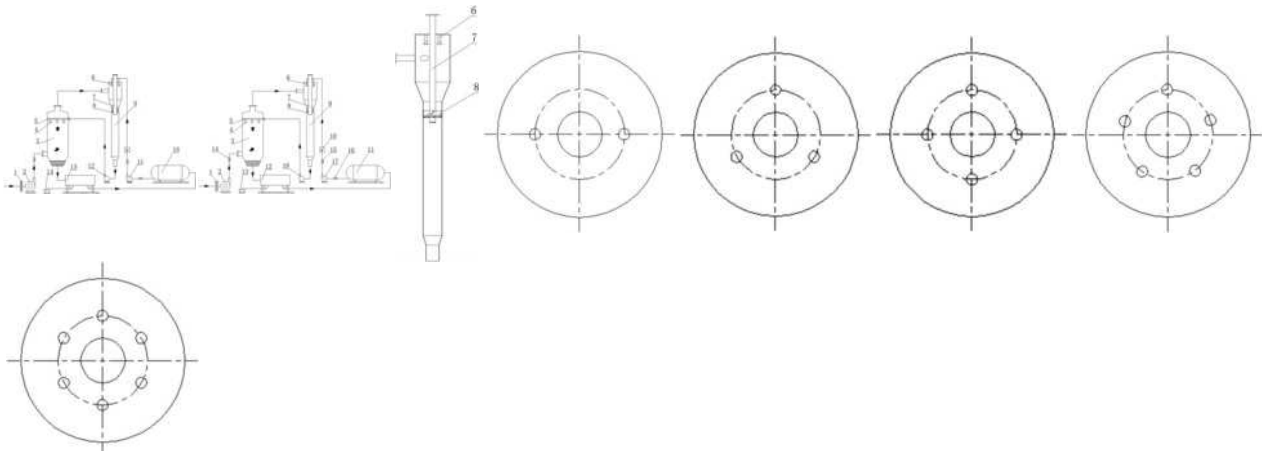
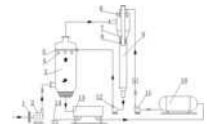
88. The treatment of gas streams WO9528219 1995-04-13 PROCESS SCIENTIFIC INNOVATIONS* PSI GLOBAL 1995-10-26 1995-10-26

A closed hollow filter canister is provided which may comprise gas-impermeable end walls (94, 96) and a gas-permeable side wall (100). Gas contaminated with liquid is sprayed under pressure through line (90) and flow-restricting orifice (80) into the interior space of the canister where the contaminants become atomised and are retained by the side wall (100). Gas free of liquid contaminants passes into the atmosphere. In a preferred embodiment the gas is air contaminated with water, and the wall (100) is of cellulosic material which becomes wetted with water which gradually volatilises. The filter canister may be used to treat streams (90a, 90b) from a gas compressor (50) and an associated reservoir tank (125).



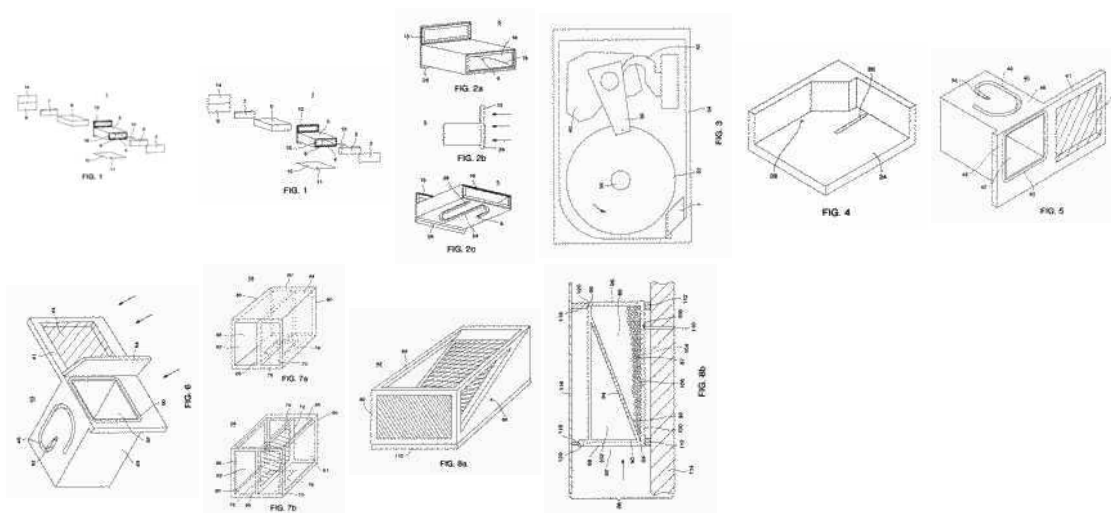
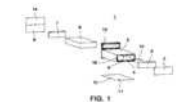
89. [Wet process sprays whirl integration air purification device](#) CN205379776 2016-03-14 [CHINA UNIVERSITY OF PETROLEUM EAST CHINA*](#) 2016-07-13 2016-07-13

The utility model relates to a wet process sprays whirl integration air purification device, including fan, spray set, spiral nozzle, whirl device, atomizing nozzle, storage tank, the parts such as spiral shell centrifuge, centrifugal pump, hopper that crouch, the fan is linked together with spray set, the spray set top is equipped with the spiral nozzle, the spray set lower part is linked together with spiral shell centrifuge for sleeping in, spray set upper portion is linked together with the whirl device, whirl device top is equipped with atomizing nozzle, whirl device lower part is linked together with the centrifugal pump, and the centrifugal pump is linked together with spray set, the spiral shell centrifuge that crouches is linked together with hopper and storage tank respectively, the storage tank is linked together with the centrifugal pump, the centrifugal pump is linked together with atomizing nozzle. The utility model has the advantages of it is following: adopt two-stage purification craft, the whirl device is as core component, effectively the fine particle thing of particle diameter below 5 mu m in the entrainment air, adopt the clear water as the absorbent to but absorbent cyclic utilization reduces the running cost.



90. [Rigid multi-functional filter assembly](#) WO200122422 1999-09-24 [W L GORE & ASSOCIATES*](#) 2001-03-29 2001-03-29

A unitary rigid filter that performs multiple contamination control functions within an enclosure for sensitive equipment (e.g., disk drives). The filter incorporates recirculation and adsorbent filtration, along with optional inlet and diffusion functions in a unique rigid filter construction.



91. Energy-saving type rotary sieve tube with wet cleaner CN101322894

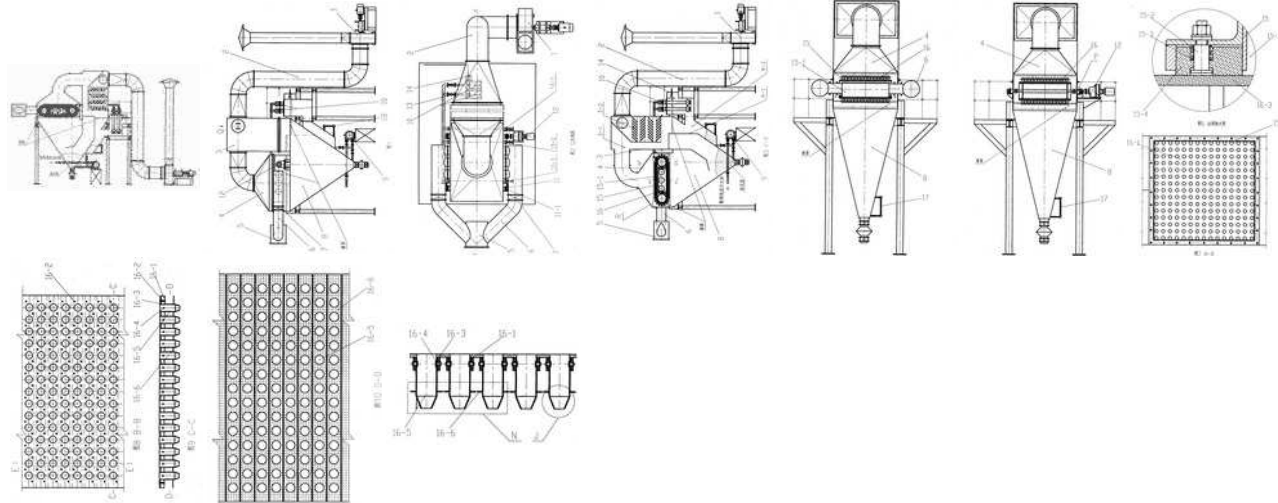
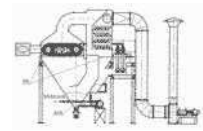
2008-06-30

WANG XINTIAN

2008-12-17

2008-12-17

The invention relates to an energy-saving wet duster with turning sieve tube belt. The lower part of a shell of the duster is provided with a sewage tank and a clean **water** tank, the bottom part is provided with a rubber hose pump, the upper part of the shell is provided with a dust and gas main pipe, a branch pipe, a dehydrator, an exhaust **fan** and a sewage pump for circular cleaning, and the shell is internally provided with a turning sieve tube belt-typed conveyor; a drive device is arranged externally; sealing devices are respectively arranged between a drive roller and the shell of the duster and between a turnabout roller shaft and the shell of the duster, and the turnabout roller is provided with a tensioning device. An elastic sealing device is arranged in a dust and gas chamber and on a sieve tube belt surface; a sieve tube bundle on the turning sieve tube belt is soaked under liquid level and moves slowly. The dust and gas chamber is provided with the sieve tube belt surface and a spraying tube for the inner wall of the sieve tube; an **air** cleaning chamber is provided with a sieve tube outer wall, a sieve tube outer wall space and a sieve spray tube. A dynamic cleaning is formed by a spraying and cleaning tube, the belt surface and the inner wall and the outer wall of the sieve tube and the sieve. The wet duster has the function of secondary dust and gas thinning and **water** bath purifying and can effectively filter fine dust particles in the gas, thus saving energy, having high efficiency but no blocking.



92. High efficiency hemp-stone multi-stage wetting desulfurizing duster CN2659528

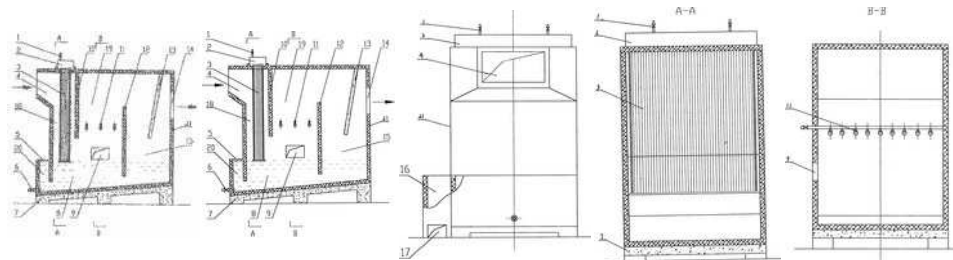
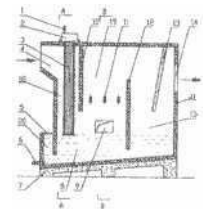
2003-05-30

JIANG ZHENGHUA

2004-12-01

2004-12-01

The utility model discloses a highly efficient dirt catcher of desulphurization of multilevel wet method of granite and includes a shell of dirt catcher (21), a fume inlet (4), a fume outlet (14), a drainage valve (6), and a supporting seat of cement (7). The utility model is characterized in that a flashback chamber (20) and a sedimentation tank (8) are arranged at the bottom of the shell of dirt catcher (21), two partitions (10, 12) are arranged in the dirt catcher (21) and divide the dirt catcher into a tubular **water** film dust chamber (18), a dust chamber of **water** spray (19) and a defog chamber (15), a **water** fence (3) is arranged in the tubular **water** film dust chamber (18), a screw nozzle (11) is arranged in the dust chamber of **water** spray (19), a guide wall (13) is arranged in the defog chamber (15), an overflow port (5) is arranged on the top of the flashback chamber (20) and the overflow port (5) is connected with an overflow chamber (16), and a drainage port (17) is arranged at the bottom of the overflow chamber (16). The dirt catcher has the advantages of good effect in dust removing and desulphurization, little resistance, eliminating the corruption of fume and **water** to the draught **fan** blade, and steady operation.



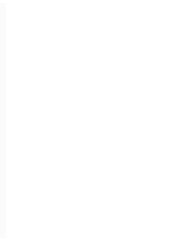
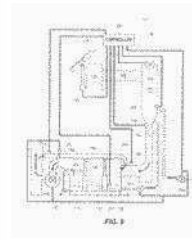
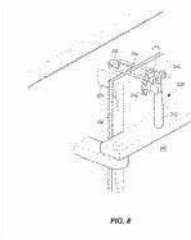
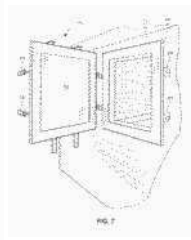
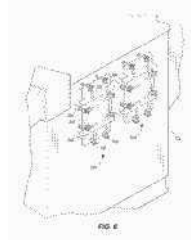
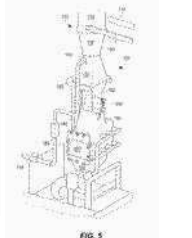
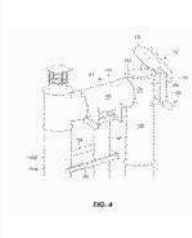
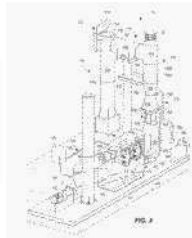
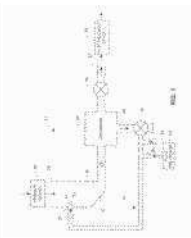
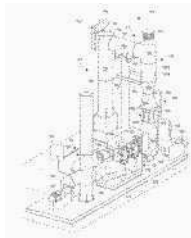
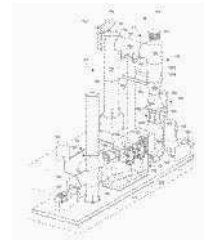
93. Compact wastewater concentrator and contaminant scrubber WO2011014617

2010-07-28

HEARTLAND TECHNOLOGY*
HEARTLAND TECHNOLOGY LIABILITY
KHARTLEHND TEKNOLODZHI LLK

2011-02-03 2011-02-03

A compact and portable liquid concentrator and contaminant scrubber includes a gas inlet, a gas exit and a flow corridor connecting the gas inlet and the gas exit, wherein the flow corridor includes a narrowed portion that accelerates the gas through the flow corridor. A liquid inlet injects liquid into the gas stream at a point prior to the narrowed portion so that the gas-liquid mixture is thoroughly mixed within the flow corridor, causing a portion of the liquid to be evaporated. A demister or fluid scrubber downstream of the narrowed portion removes entrained liquid droplets from the gas stream and re-circulates the removed liquid to the liquid inlet through a re-circulating circuit. A reagent may be mixed with the liquid to react with contaminants in the liquid.



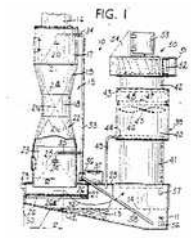
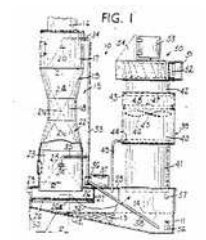
94. Apparatus for the purification of the air FR1500518

1966-10-12

CEN TRIFIC AIR PRODUCTS*
WALLACE MURRAY

1967-11-03 1967-11-03

1,169,187. Gas scrubber. WALLACE-MURRAY CORP. 12 Oct., 1966 [22 Oct., 1965], No. 45649/66. Heading B1R. A venturi gas scrubber has a cylindrical section 17 containing a liquid spray convergent and divergent sections 19 and 22 and a cylindrical throat section 18 which has the same diameter as an inlet pipe 16 connected to cylindrical section 17. A second liquid spray may be provided in a cylindrical section 23 following divergent section 22 and the gas and liquid discharged therefrom is passed through a grid 26 before passing upwardly through a droplet-eliminator assembly. In a modification the divergent section of a scrubber may be replaced by a cylindrical extension of the throat section.
(From GB1169187 A)



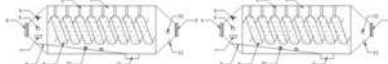
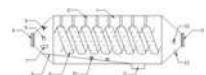
95. Spiral organic waste gas adsorption tower CN205288011

2016-01-21

JIANGXI XIAOMIAO ENVIRONMENTAL
PROTECTION*

2016-06-08 2016-06-08

The utility model discloses a spiral organic waste gas adsorption tower, including adsorption tower body, gas outlet, air inlet, spray set, polywater groove, activated carbon spiral adsorbed layer, manometer and release valve, the adsorption tower body is inside to be equipped with activated carbon spiral adsorbed layer, adsorption tower body one side is equipped with the air inlet, the opposite side is then be equipped with the gas outlet, adsorption tower body one end is equipped with the manometer with the release valve, adsorption tower body inner wall one side is equipped with spray set, adsorption tower body inner wall bottom is equipped with the polywater groove, this kind of adsorption tower carries out the filtration of preliminary small granule through spray set to the organic waste gas who gets into, through polywater groove and delivery port, gets rid of the sewage that sprays, and through activated carbon spiral adsorbed layer, the gaseous area of contact with the adsorbed layer of increase makes absorption efficiency improve greatly, and through manometer and release valve, the interior pressure differential of control adsorption tower prevents that pressure is too big, the danger of blasting.



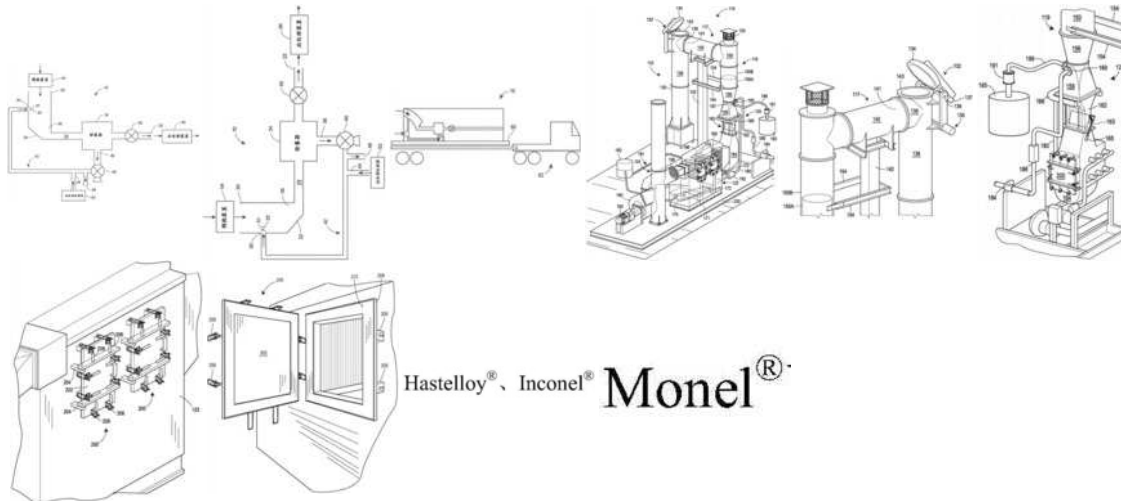
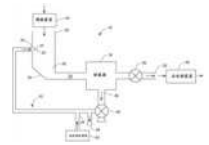
96. Compact wastewater concentrator and pollutant scrubber CN105126366

2010-07-29

HEARTLAND TECHNOLOGY*

2015-12-09 2015-12-09

A compact and portable liquid concentrator includes a gas inlet, a gas exit and a flow corridor connecting the gas inlet and the gas exit, wherein the flow corridor includes a narrowed portion that accelerates the gas through the flow corridor. A liquid inlet injects liquid into the gas stream at a point prior to the narrowed portion so that the gas-liquid mixture is thoroughly mixed within the flow corridor, causing a portion of the liquid to be evaporated. A demister or fluid scrubber downstream of the narrowed portion removes entrained liquid droplets from the gas stream and re-circulates the removed liquid to the liquid inlet through a re-circulating circuit. Fresh liquid to be concentrated is also introduced into the re-circulating circuit at a rate sufficient to offset the amount of liquid evaporated in the flow corridor.



Hastelloy®, Inconel® Monel®

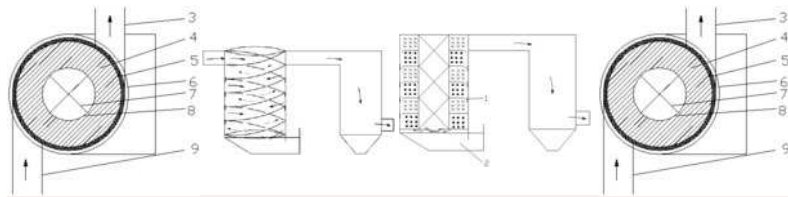
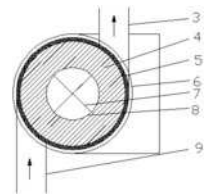
97. Whirlwind separates formula of way water film deduster CN204891510

2015-07-08

NANCHANG HANGKONG UNIVERSITY*

2015-12-23 2015-12-23

The utility model provides a whirlwind separates formula of way **water** film deduster includes mainly that **water** intake pipe, outlet pipe way, spiral separate way and basin, the spiral separates says to be become by stainless steel baffle, stainless steel guide plate, outer wall body, inner support and interior wall body group, its characterized in that: **water** intake pipe and outlet pipe way are connected the spiral respectively and are separated the way and have the basin at a distance from way, spiral, and the spiral separates dao nei and establishes the inner support, and the inner support skin is interior wall body, and the interior wall is the stainless steel baffle for external layer, the outer stainless steel guide plate that is of stainless steel baffle, and stainless steel guide plate skin is outer wall body. The utility model has the beneficial effects of: can reach the desulfurization dust removal effect of flue gas, overcome the problem of **fan** area **water**, can adapt to the high flue gas of solubility and handle.

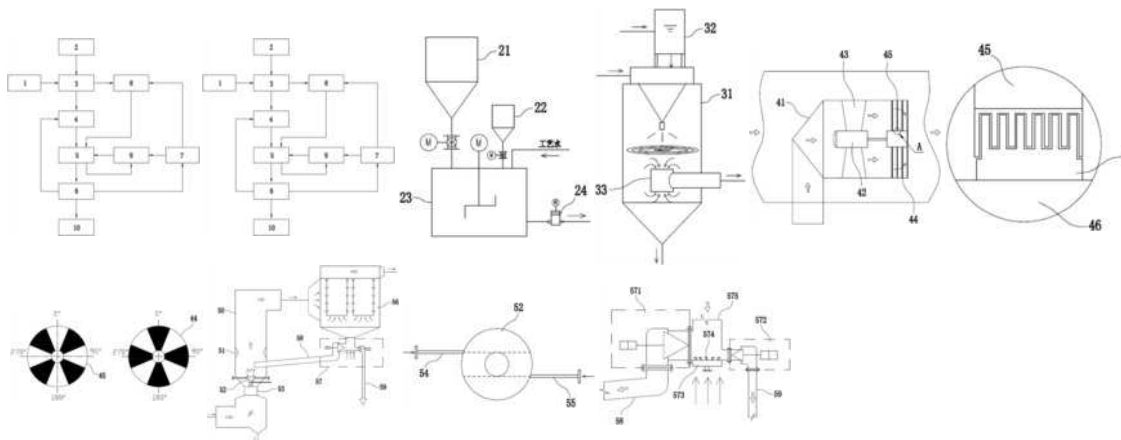
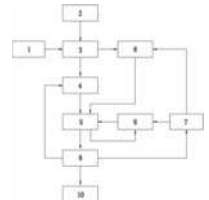


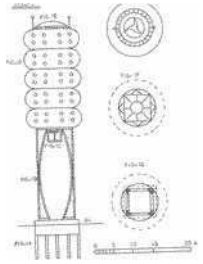
98. Flue gas desulfurization-denitration system and method CN108636092

2018-05-24

2018-10-12 2018-10-12

The present invention discloses a flue gas desulfurization-denitration system and method, which belongs to the technical field of treated flue gas. The system includes pre-duster disposed in this order, a rotating spray desulfurization-denitration system, an induced draft fan and stack, in a rotating spray system and is disposed between the circulating fluidized bed desulfurization-denitration desulfurization system induced draft fan; denitration system and the rotating spray desulfurizing flue gas desulfurization system is disposed between the circulating fluidized bed to adjust the flapper door mixing shaft; air-out port and flue gas to the mixing shaft of the induced draft fan is provided between the flapper door is adjusted for the net return flue gas flue; further comprising a pressurized delivery fan, a material transporting pump I and the material transfer pump II. The present invention will rotate the spray desulfurizing circulating fluidized bed desulfurization system in conjunction with the denitration system, implements the steps of the flue gas desulfurization, denitration, desulfurized, denitrated efficiently, the use of fractional desulfurized, denitrated, so that the present invention can be applied to the amount of nitrate-containing higher flue gas desulfurization-denitration and a sulfur content processing, and wide application range.



99.	Tower system to remove carbon dioxide from the atmosphere	CA2608784	2007-10-24	CAMERON RYAN;GRAZIANI ANTHONY	2009-04-24	2009-04-24
A gas separation system that extracts carbon dioxide from atmospheric air. Carbon dioxide (CO₂) is monitored with sensors and collected by intake rings of zeolite molecular sieves within pneumatic controlled chambers, and transformed by compression into liquid. A vortex thrust for extricating the greenhouse gas is provided by a wind fan , or, turbofan depending on the structural size of the respiring tower. The system is powered by ener gy from solar, wind and self-generated fuel sources. The tower anatomy is similar to an airplane fuselage utilizing a monocoque fabrication method. At optimum conditions the structure processes 9,407 metric tons of CO₂ daily, thus producing a minimum of 6,688,565 liquid liters per annum of CO₂ from cohesive air, based on 0.0445% concentrations (ppm). One million towers at 50 meters will remove 3.4 trillion tonnes annually of CO₂, situated on quadrants at every 40 square kilometers of land.						
						
100.	Flue gas desulfurization system using dry alkali electrostatic spraying and flue gas humidification cooling method	CN106552502	2015-09-25	WANG ZONGJU	2017-04-05	2017-04-05
The invention discloses a flue gas desulfurization system using a dry alkali electrostatic spraying and flue gas humidification cooling method. The system utilizes less equipment and has simple processes so that an overall cost of the system in small unit desulfurization retrofitting is lower than those of other desulfurization technologies. The system has high desulfurization efficiency. The invention also provides a flue gas desulfurization technology using a dry alkali electrostatic spraying and flue gas humidification cooling method. The flue gas desulfurization technology is a novel dry desulfurization method overcoming the limitation. The flue gas desulfurization system using a dry alkaline process utilizes an alkali as an absorbent and the absorbent is expensive and is suitable for flue gas humidification of a small unit. The whole system utilizes less equipment and has simple processes so that in small unit desulfurization retrofitting, the overall cost of the system is lower than those of other desulfurization technologies.						