

[EPODOC: SS 6] ..fi EPODOC

 Database: EPODOC

[EPODOC: SS 6] steam+ AND heat+ iron AND boiler

Results in EPODOC 0

EPODOC: No term found in index 'BI' for the truncation 'HEAT+ IRON'. WARNING(401)

[SS 7] steam+ AND heat+ AND iron AND boiler

Results in EPODOC 710

[SS 8] ..li



1/710 © EPODOC / EPO

PN - [CN207334766U](#) U 20180508

PR - CN201720690682U 20170614

AP - CN201720690682U 20170614

DT - I

PA - SHEN XINYU

TI - Environment -friendly **boiler**

AB - The utility model discloses an environment -friendly **boiler**, including **boiler** body, tail gas treatment room, water pipe, **boiler** body is vertical **boiler**, and **boiler** body is including the burning chamber and put the water cavity, and put the water cavity and wrap up the chamber of burning, last feed -hopper equipped neck and the maintenance hole of being equipped with of **boiler** body, weld in feed -hopper equipped neck and maintenance kong junyu burning chamber, and just run through and put the water cavity, the top welding in burning chamber has the **iron** chimney, and the winding has a water pipearound the chimney, the exit end of water pipe with put the water cavity and be connected, the top welding of putting the water cavity has **steam** -outlet pipe, the chimney passes through the air ductto be connected with the tail gas treatment room, and the top welding of tail gas treatment room has the outlet duct. The utility model discloses simple structure, reasonable in design, the resource has been practiced thrift to the **heat** of flue gas in the interior make full use of chimney of winding water pipe, and the tail gas treatment is indoor to be handled tail gas, prevents the harmful gas polluted environment, should use widely.

2/710 © EPODOC / EPO

PN - [CN207350307U](#) U 20180511

PR - CN201721304635U 20171011

AP - CN201721304635U 20171011

DT - I

PA - GAOTAI JUNENG RELI HIGH TECH DEV CO LTD

TI - Energy -saving and environment -friendly **boiler**

AB - The utility model discloses an energy -saving and environment -friendly **boiler**, including the cushion socket, a fixed base, electrical **heating** rod, an air inlet pipe, **steam heater**, the fire bars, the thermal energy conversion ware, the outlet duct, storage battery, thermal insulating plate, the control panel, **boiler** body, the fan, water storage tank, distance sensor, the **iron** sand, the sealing strip, the furnace gate, alarm and PLC controller, the **boiler** body number of pass has the control panel according to the line connection, the internally mounted of control panel has alarm and PLC controller, **boiler** body's externally mounted has thermal insulating plate, there is the furnace gate one side of **boiler** body through hinged joint, the sealing strip is installed to one side of furnace gate, the fixing base is installed to **boiler** body's bottom, the cushion socket is installed in the bottom correspondence of fixing base, **steam heater** is installed to one side of **boiler** body, and be connected with intake pipe and outlet duct between **steam heater** and the **boiler** body, this **boiler**, have the high characteristics of energy -conserving and environment -protective and intelligent degree.

3/710 © EPODOC / EPO

PN - [KR101848761B](#) B1 20180417

PR - KR20170120609 20170919

AP - KR20170120609 20170919

DT - I

CNOI - [B01D39/1623](#) ; [F23J15/025](#)

CNOA - [F23J2217/10](#)

PA - SON JEA YOUNG [KR]; SON TAE WOO [KR]

TI - DUST COLLECTING FILTER FOR **HEAT** RECOVERY **STEAM** GENERATOR AND MANUFACTURING METHOD THEREOF

AB - The present invention relates to a dust collecting filter for **iron** oxide of a **heat** recovery **boiler** and a method for manufacturing the same, wherein the dust collecting filter comprises: a nonwoven fabric filter woven with a mixed fiber comprising 50-70 wt% of PSET fiber and 30-50 wt% of aramid fiber; an adhesive layer which is formed by applying an adhesive composition on the nonwoven fabric filter, wherein the adhesive composition comprises 5-30 wt% of dispersed polyurethane resin, 5-10 wt% of starch, and 65-85 wt% of water; and a mesh reinforcing material combined with one surface of the nonwoven fabric filter to support the nonwoven fabric filter.

4/710 © EPODOC / EPO

PN - [CN207210462U](#) U 20180410

PR - CN20172455982U 20170427

AP - CN20172455982U 20170427

DT - I

PA - TIANJIN HUIJIN MINFENG NEW MATERIAL TECH CO LTD

TI - Surplus sensible **heat** recovery energy -saving power generation system of blast furnace casting field sediment molten **iron**

AB - The utility model discloses a surplus sensible **heat** recovery energy -saving power generation system of blast furnace casting field sediment molten **iron**, including furnace body, cooling system, waste **heat** recovery **boiler** system and saturated **steam** power generation system, the furnace body is connected with the tap drain, the tap drain is connected with the sediment **iron** runner, the sediment **iron** runner includes slag runner and indisputable zhigou, the tap drain through husky mouthful with the **iron** zhigou is connected, the upper portion of sediment **iron** runner is equipped with to remove preventscloud of dust cover box hat, the lower part of sediment **iron** runner is equipped with sediment **iron** runner box hat, the inboard of sediment **iron** runner box hat is equipped with the sediment **iron** runner permanent layer of nai the material, the sediment **iron** runner permanent layer's of nai material the inboard is equipped with the sediment **iron** runner protective layer of nai the material, the inboard of the sediment **iron** runner protective layer of nai the material is equipped with the sediment **iron** runner operational layer of nai the material, the sediment **iron** runner operational layer of nai the material with it corrodes detection device to be equipped with the sediment **iron** runner between the sediment **iron** runner permanent layer of nai the material. The utility model discloses can reach the surplus **heat** resource's of high temperature of sediment, the molten **iron** of abundant reutilization blast furnace casting field beneficial effect.

5/710 © EPODOC / EPO

PN - [CN207179607U](#) U 20180403
 PR - CN201721234414U 20170925
 AP - CN201721234414U 20170925
 DT - I
 PA - YUNNAN QU JING CHENG GANG IRON AND STEEL GROUP CO LTD
 TI - Power generation system is used multipurposely to waste **heat** of steel plant
 AB - The utility model discloses a power generation system is used multipurposely to waste **heat** of steel plant, including gas **boiler**, evaporative cooling device, sintering exhaust - **heat boiler**, **steam** mix ware, governing valve, **steam** turbine and generator, parallely connected on the pipeline between governing valve and the **steam** turbine have a cooler, and the **steam** turbine exit end is provided with backwater device, the utility model discloses retrieving the waste **heat** that each process produced among the **iron** and steel production, concentrating to produce high -temperature **steam** through the **boiler**, get into the **steam** mix ware after high -temperature **steam** converges, drive **steam** turbine power generation in carrying the **steam** turbine again, the **steam** after the electricity generation reuses in backwater device gets back to each **boiler**, reaches the purpose of recirculation use water resource and **steam** resource, has improved the utilization ratio of the energy, the utility model discloses wasteheat recovery rate is high, the waste **heat** recovery wide range, and system's operation is stable, has apparent economic value and social value.

6/710 © EPODOC / EPO

PN - [CN207066151U](#) U 20180302
 PR - CN20172904808U 20170725
 AP - CN20172904808U 20170725

DT - I

PA - TIANJIN JIANWEIZE SAVING AND NEW ENV TECH DEVELOPMENT CO LTD

TI - Complete alternation wind sintering machine cooler waste **heat** power generation system that can regulate and control

AB - The utility model discloses a complete alternation wind sintering machine cooler waste **heat** power generation system that can regulate and control, the system divide into the adjustable smoking control amount of wind and wind -warm syndrome, the cigarette wind circulation system of wind and the combination formula waste **heat** power generation system that can regulate and control **steam** condition are got to the multiple spot, cigarette wind circulation system includes that high temperature gets wind and smoke cover and pipeline, medium temperature one district can regulate and control to get wind and smoke cover and pipeline, medium temperature two districts can regulate and control to get wind and smoke cover and pipeline, sintering machine cooler sealing system etc, waste **heat** power generation system contains the big flue modular **boiler** of sintering machine, can regulate and control **steam** condition's the two exhaust **-heat boiler** of pressure of cooler modular, the **steam** turbine system, the chemistry water system, recirculating cooling water system, the automatic on-line monitoring control system of pressure measurement of soda temperature measurement and flow monitoring device and soda etc. This system of adoption can solve unstable, the undulant big problem of present **iron** and steel sintering machine cooler waste **heat** power generation system, this system have waste **heat** recovery rate height, calorific loss few, reduce advantage such as environmental pollution.

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PN - [CN207049905U](#) U 20180227

PR - CN20172927661U 20170728

AP - CN20172927661U 20170728

DT - I

PA - CHALING XINGBO GLUTINOUS RICE FLOUR FOOD CO LTD

TI - Glutinous rice powder reclamation of **steam** condensate device for drying equipment

AB - The utility model provides a glutinous rice powder reclamation of **steam** condensate device for drying equipment, glutinous rice powder reclamation of **steam** condensate device for drying equipment includes **boiler**, drain pipe, **heat** exchanger, insulating tube, steel pipe, polyester ammonia **heat** preservation, glass wool insulation layer, glass fiber reinforced plastic shell, retaining jar, filter screen, water storage chamber, first check valve, a high pressure water pump, filters jar, first basin, second basin, second check valve, the 2nd high pressure water pump, first filter plate, manganese sand layer, lime layer, activated carbon adsorption layer and second filter plate. The utility model provides a recovery unit can be to the **iron** ion in the condensation water, acidic material and oil dirty getting rid of to the effectual purifying effect who improves the condensation water, it can store to filter the water of accomplishing in the second basin for circulation water supply process can not suspend, the condensation water can be effectually slowed down and at the falling speed of recovery process moderate temperature, the waste **heat** recovery effect is improved.

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ironing board stops ejecting **steam** and changes the ventilation from blowing into suction: during this phase the residual **steam** is sucked and the garment is dried up, while the user flattens and folds it. The ironing mode with **steam iron** has a ventilation mechanism controlled by the **iron** that starts the ventilation either in blowing or suction mode according to the selection made each time **steam** is released. Each time the foot-pedal is operated, the ventilation changes from suction into blowing and at the same time **steam** is released from the ironing board, so that **steam** can come from the **iron** and the worktop for greater effect and penetration of **steam** into the item being ironed. When the foot-pedal is released, the ironing board stops ejecting **steam** and the ventilation is changed back into the previous mode. In the ironing mode with dry **iron**, the ventilation is set as continuous suction and the user irons with dry **iron** and the **heated** board in suction mode. In this case too, by pressing the foot-pedal **steam** is released from the board and the ventilation is changed from suction into blowing. When releasing the foot-pedal, the **steam** ejection from the board stops and the ventilation is changed back into suction.

9/710 © EPODOC / EPO
 PN - [CN206980683U](#) U 20180209
 PR - CN20172927518U 20170728
 AP - CN20172927518U 20170728
 DT - I
 PA - JIN CAIQIN
 TI - Industrial chemicals **heating** bath

AB - The utility model discloses an industrial chemicals **heating** bath, include: the industrial chemicals **iron** flask for the installation industrial chemicals, the pond is the rectangle form, high -temperature **steam** pipe installs the bottom in the pond, and high -temperature **steam** pipe communicates **steam boiler** through the valve, and high -temperature **steam** pipe is provided with a plurality of **steam** nozzle, the drive roll, its main center pin is installed on the lateral wall in pond, the driven roll, its passive center pin is installed on the lateral wall in pond, can place the industrial chemicalsiron flask on driven roll and the drive roll, the motor, the casing is fixed for the pond, electric motor rotating shaft and drive roll linkage, the motor rotational energy drives the drive roll and rotates to can drive industrial chemicals **iron** flask and driven roll rotates. High -temperature **steam** pipe places the bottom center in pond. The utility model has the advantages of simple structure, with low costs, convenient to use, thawing time are short, the **heat** energy loss less, the beneficial effect of the energy -conserving energy.

10/710 © EPODOC / EPO

PN - [CN206918984U](#) U 20180123

PR - CN20172679015U 20170612

AP - CN20172679015U 20170612

DT - I

PA - WU XINYING

TI - **Boiler** thermodynamicc oxygen removal system

AB - The utility model relates to a **boiler** thermodynamicc oxygen removal system, including **heating** power formula oxygen -eliminating device, cold condensate system pass through the pipeline with **heating** power formula oxygen -eliminating device connect, **heating** power formula oxygen -eliminating device still through the saturated **steam** system with make steel the vapourizing unit and be connected, the input of vapourizing unit of wherein making steel is connected with vapourizing unit water supply system. The utility model discloses a **boiler** thermodynamicc oxygen removal system has fully retrieved steelmaking **heat** recovery **steam** more than needed, introduces thermal power generation circulation system with outside **heat**, has effectively improved the operating efficiency of thermal power generation system, has also effectively improved the generated energy of waste **heat** complementary energy, has further improved the secondary energy of **iron** and steel enterprise recovery level, promotes circular economy to still reduce substantially diffusing of **steam**, obviously reduced environmental pollution from this.

11/710 © EPODOC / EPO

PN - [CN107543138](#) A 20180105

PR - CN20161480553 20160628

AP - CN20161480553 20160628

DT - I

PA - HARBIN JINJING BOILER CO LTD

TI - Small **steam boiler** for civil use

AB - A small **steam boiler** for civil use comprises a **boiler** body and a base. The bottom end

of the **boiler** body is connected with the base, a pressure relief valve is arranged on the right side of the top end of the **boiler** body, and a touch control screen is arranged at the upper end of the obverse side of the **boiler** body. A hot water outlet is formed in the left side of the lower end of the obverse side of the **boiler** body, and a **steam** outlet is formed in the middle end of the right side of the **boiler** body. A water inlet is formed in the lower end of the right side of the **boiler** body, and a wall hanging fixing frame is arranged at the upper end of the reverse side of the **boiler** body. A power line is arranged on the left side of the lower end of the wall hanging fixing frame, and a maintaining door is arranged on the left side of the **boiler** body. The **boiler** body is internally provided with a control box, an electric **heating** device and a water tank in sequence from top to bottom, and the bottom end of the base is provided with universal wheels. According to the small **steam boiler** for civil use, efficient and energy-saving effects are achieved, the **heat** efficiency is high, and **steam** can be rapidly produced; water can be **heated**, and the small **steam boiler** can further be connected with a **steaming** basket, a sterilizing cabinet, a **steam iron**, a **steaming** cabinet and various **steam** tools; the quality is stable, and the durable effect is achieved; operation is easy, and using is easy; and a vertical structure is adopted, movable base and wall hanging dual purposes are achieved, and the occupied space is small.

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- PN - [CN206858886U](#) U 20180109
- PR - CN20172623479U 20170525
- AP - CN20172623479U 20170525
- DT - I
- PA - CIXI FUSHIBAO ELECTRONIC TECH CO LTD
- TI - Novel take **steam** to **iron** and dual -purpose function of drying machine
- AB - The utility model discloses a novel take **steam** to **iron** and dual -purpose function of drying machine, including epitheca and inferior valve, to support through a plurality of spinal branch vaulting poles between epitheca and the inferior valve and is connected, the outside of a plurality of spinal branch vaulting poles is overlapped and is equipped with the wardrobe dustcoat, and the lower part horizontal installation of epitheca has the clothes hanger peg, has offered outer air outlet on the epitheca, the inferior valve in install and to dismantle the water tank, fan and **steam boiler**, the **heat**-generating body is installed to the wind channel lower part of fan, side air -out mouth on the wind channel is stretched out by the upper portion of inferior valve, the water inlet of water piping connection to **steam boiler** is led through the second to the water tank, **steam boiler** leads water piping connection through the third has the **steam** connector, the **steam** connector sets up the outside at the wardrobe dustcoat, **steam** even interface connection has inside spraying connector or handheld string boiling hot connector, inside spraying connector stretches into the inboard of wardrobe dustcoat, beneficial effect: the simple operation can be disinfected disinfection, stoving, automatic or manual ironing for the clothes and removed the wrinkle, and water stain collection is clean, the health.

13/710 © EPODOC / EPO

- PN - [RU2637840](#) C1 20171207
- PR - RU20160148882 20161213

AP - RU20160148882 20161213

DT - I

CT - || STSE (C1)
[RU2182603](#) C2 20020520 [] (ZAO NPOB ALGON, et al);
[RU2346056](#) C2 20090210 [] (BUROVOJ ISAAK ABRAMOVICH [RU], et al);
[US5480474](#) A 19960102 [] (MANNESMANN AG [DE])

CTNP - || STSE (C1)
 [] - КУРУНОВ И.Ф. и др. Состояние и перспективы бездоменной металлургии железа., М.: Черметинформация, 2002, сс.129-138.

CNOA - [C21B13/14](#)

PA - FEDERALNOEGOSUDARSTVENNOEAVTONOMNOEOBRAZOVATELNOEUCHREZHDENIE VYSSHEGO OBRAZOVANIYA NATSIONALNYJ [RU]

TI - METHOD FOR PRODUCING CAST **IRON** BY DUPLEX-PROCESS OF ROMELT (VERSIONS)

AB - FIELD: metallurgy.SUBSTANCE: invention relates to production of liquid **iron** from poor **iron** ores, containing 35-52% of total **iron** with FeO/FeO ratio higher than 1.5 in two bubbling-type furnaces connected to each other by a chute. **Iron** ore, coal and fluxes are continuously charged into slag bath of the first furnace. The resulting melt with partially reduced **iron** oxide flows into the second furnace for performing **iron** reduction and **iron** production. The gases leaving the slag bath are burnt in the above-slag space with oxygen supplied through tuyeres for afterburning. For implementation of the first version of the invention, the flue gases of the first and second furnaces are removed in separate flue ducts into waste-**heat** boilers for **steam** production. For implementation of the second version of the invention, the flue gases after the afterburning in the second furnace are supplied in gas flow to the first furnace, where they are burned in the above-slag space by oxygen supplied to the tuyeres additionally installed for afterburning. After mixing with gases of the first furnace, flue gases are removed into waste-**heat boiler** for **steam** production through the flue duct of the first furnace.EFFECT: increased **iron** oxide reduction rate, reduced loss of **iron** with slag by value less than 5 percent when melting highly oxidized materials.6 cl, 1 tbl, 1 dwg

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PN - [RU2637844](#) C1 20171207

PR - RU20170110066 20170327

AP - RU20170110066 20170327

DT - I

CT - || STSE (C1)
[RU2555293](#) C1 20150710 [] (NIPPON STEEL & SUMITOMO METAL CORP [JP]);
[RU2125110](#) C1 19990120 [] (TOVARISHCHESTVO S OGRANICHENNO, et al);
[US4093476](#) A 19780606 [] (SPECIAL METALS CORP);
[EP2743362](#) A1 20140618 [] (NIPPON STEEL & SUMITOMO METAL CORP [JP])

CNOI - [C22C19/056](#) ; [C22C30/00](#)

PA - AKTSIONERNOE OBSHCHESTVO NAUCHNO-PROIZVODSTVENNOE OBEDINENIE TSENTRALNYJ NAUCHNO-ISSLEDOVATELSKIY IN [RU]

TI - **HEAT** RESISTANT NICKEL-BASED ALLOY FOR PRODUCING **BOILER** PARTS AND **STEAM** TURBINES OPERATING UNDER ULTRA-SUPERCRITICAL **STEAM**PARAMETERS

AB - FIELD: metallurgy.SUBSTANCE: invention relates to the composition of **heat** resistant nickel-based corrosion resistant alloy for producing **boiler** parts and **steam** turbines (pipes, rotors, discs) operating under ultra-supercritical **steam** parameters at temperatures up to 760°C by casting methods followed by hot deformation or powder metallurgy methods. **Heat**-resistant nickel-based alloy for producing **boiler** parts and **steam** turbines contains, wt %: carbon 0.015-0.10; chromium 19.0-21.5; cobalt 18.0-20.0; molybdenum 4.1-4.8; aluminium 1.2-1.8; titanium 2.5-3.2; boron 0.003-0.05; zirconium 0.01-0.06; silicon 0.05-0.3; manganese 0.05-0.3; **iron** ≤0.5; sulfur ≤0.007; phosphorus ≤0.007; tungsten 1.1-1.8; niobium 0.15-0.35; hafnium 0.15-0.30; oxygen ≤20 ppm; copper ≤0.05; vanadium 0.1-0.25; nitrogen ≤30 ppm; scandium 0.002-0.005; barium and/or strontium 0.0001-0.01; the rest is nickel, the total content of titanium and aluminium is about ≤4.4 wt % and ratio of titanium to aluminium content is 1.9-2.1. EFFECT: alloy is characterized by increased structural stability for service life and high values of long-term strength of the products.3 cl, 2 tbl

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PN - [CN206692678U](#) U 20171201

PR - CN20172503813U 20170508

AP - CN20172503813U 20170508

DT - I

PA - ANHUI UNIV OF TECHNOLOGY

TI - Can retrieve high slag air cushion processing apparatus of high -quality waste **heat**

AB - The utility model discloses a can retrieve high slag air cushion processing apparatus of high -quality waste **heat** belongs to the blast furnace slag treating technical field among the **iron** and steel metallurgical industry. This processing apparatus includes water interlayer box, high -pressure foggy sprinkler head, air cushion board, **steam** conduit, slag entry and sediment water collector, liquid high slag is blown and is broken to pieces into the tiny particle on flowing the air cushion board, the foggy sprinkler head spun water smoke of air cushion board top further cools off the slag granule that forms, constituted gas the effect of carrying the slag granule is still played in the dual cooling of fog formula, air cushion board, and the slag is transported out the device, is the thermal drop to 300 700 DEG C be used for the exhaust -**heat boiler** electricity generation, the side of water interlayer box sets up the **steam** conduit interface, the hot -air recycle that will produce in will handling. The utility model has the characteristics of cooling speed is high, glass looks content is high, the close nature of matter reaches the device controllability well than the high -technology, increase substantially the waste **heat** utilization of blast furnace slag treating in -process, improved the product quality of solid -state high slag, be favorable to the energy saving and emission reduction of **iron** and steel enterprise.

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PN - [CN107400742](#) A 20171128

PR - CN201610334457 20160520

AP - CN201610334457 20160520

DT - I

CT - || STSE (A)

[CN104975117](#) A 20151014 [X] (NANJING TRIUMPH KAINENG ENVIRONMENT & ENERGY CO LT)

[X] 1-4

* 说明书第19-25段 *;

[CN205115504U](#) U 20160330 [A] (BERIS ENG AND RES (QINHUANGDAO) CORP)

[A] 1-4

* 全文 *

- CNOI - [C21B3/06](#) ; [F27D17/004](#)
- CCA - [Y02W30/543](#)
- CNOA - [F27D2017/006](#)
- PA - WANG HONGWEI
- TI - Recovery and comprehensive-utilization process for waste **heat** in dry-process treatment of **iron**-making slag in blast furnace
- AB - The invention provides a recovery and comprehensive-utilization process for waste **heat** in dry-process treatment of **iron**-making slag in a blast furnace. The recovery and comprehensive-utilization process comprises the following steps: (S1) the blast-furnace slag enters a buffering tank through a slag drying trough, the **heat** of the slag is recovered by hot air in the buffering tank, and then the temperature of the slag is reduced; (S2) flue gas carrying the **heat** of the slag enters a waste-**heat boiler** through a pipeline, water **steam** is **heated** by **heat** exchange in the waste-**heat boiler**, and enters power generation equipment to be converted into electric energy; (S3) after **heat** exchange, the flue gas enters a dust remover for dust removal, and after dust removal, the flue gas enters a blow-off tower for exhaustion by a fan; and (S4) after temperature reduction, the slag enters a brick casting chain belt for casting and molding, and then enters a cold bed for package and storage. The recovery and comprehensive-utilization process provided by the invention has the advantages of safety, reliability, stability and benefit, and can create economic benefit while realizing recovery of the waste **heat** of the slag.
- 17/710** © EPODOC / EPO
- PN - [CN107372446](#) A 20171124
- PR - CN20171784926 20170904
- AP - CN20171784926 20170904
- DT - I
- CNOI - [A01M17/00](#)
- PA - CHIZHOU HENGSEN ECOLOGICAL AGRICULTURE CO LTD
- TI - Novel high temperature insect killing device for vegetable planting
- AB - The invention discloses a novel high temperature insect killing device for vegetable planting. The novel high temperature insect killing device comprises a fixed base, a push rod is fixedly arranged at one side of the top of the fixed base, a **steam boiler** is fixedly installed in the middle of the top of the fixed rod, a battery cover is fixedly arranged at one side of the **steam boiler**, a switch panel is fixedly installed at the lateral of the battery cover, a **steam boiler** control switch, a **steam** pump control switch, a first electric telescopic rod control switch, a second electric telescopic control switch and an electric **heating** rod control switch are arranged at the surface of the switch panel separately, and a storage battery is fixedly installed inside the battery cover.

According to the novel high temperature insect killing device for vegetable planting, a first fixing pipe and a second fixing pipe are fixedly connected to the bottom of the first electric telescopic rod and the second electric telescopic rod, through an **iron** cone head both in threaded connection with the bottoms of the first fixing pipe and the second fixing pipe, the first fixing pipe and the second fixing pipe are inserted inside soil, high temperature insect killing deep in the soil is achieved, and the situation that pests deep in the soil cannot be killed when high temperature pest killing is conducted on the surface of the soil is avoided.

18/710 © EPODOC / EPO

PN - [CN206609839U](#) U 201711103
 PR - CN20172202763U 20170303
 AP - CN20172202763U 20170303
 DT - I
 PA - JIANGSU PROVINCE METALLURGICAL DESIGN INST CO LTD
 TI - Testing equipment of reduced **iron**
 AB - The utility model discloses a testing equipment of reduced **iron**. This equipment includes **heating** furnace, reaction tube, intake pipe, distributing device, water **steam boiler** unit, weighing device and temperature measuring device, water **steam boiler** unit includes gaseous water washing unit, accuse temperature unit and check weighing unit, the gaseous water washing unit of unit connection, control of gases water washing unit's temperature is reviewed in the accuse, the gaseous water washing unit of check weighing unit connection measures gaseous water washing unit's weight, the reaction tube sets up in the **heating** furnace, and gaseous water washing unit air inlet is connected to the distributing device gas outlet, and intake -tube connection reaction tube air inlet is passed through to gaseous water washing unit gas outlet, weighing device ligation pipe, and temperature measuring device sets up the inside of reaction tube. The utility model discloses a testing equipment increases vapor in crude gas still, both can electronation reaction that is virtually reality like reality, and can eliminate again and analyse the carbon phenomenon.

19/710 © EPODOC / EPO

PN - [CN206593490U](#) U 201711027
 PR - CN20172192398U 20170301
 AP - CN20172192398U 20170301
 DT - I
 PA - DONGGUAN DONGSHI KAINENG ENERGY CO LTD; GUANGDONG KAINENG ENVIRONMENTAL PROT & ENERGY CO LTD; YANGJIANG KAINENG ENVIRONMENTAL PROT ENERGY CO LTD
 TI - Hot kiln gas waste **heat** integrated power production system in AOD stove and ore deposit
 AB - The utility model relates to an energy -conserving environmental protection technology field of **iron** and steel metallurgical industry, in particular to hot kiln gas waste **heat** integrated power production system in AOD stove and ore deposit. During this hot kiln gas waste **heat** integrated power production system in AOD stove and ore deposit carried the low -pressure saturated **steam** of the AOD grate cigarette X's of system vaporization flue production to the hot grate cigarette Y's of system in ore deposit

exhaust -**heat boiler**, low -pressure saturated **steam** got into the power generation system E electricity generation after exhaust -**heat boiler** further adds thermosetting superheated **steam**, and the relative low -pressure saturated **steam** of superheated **steam** has higher temperature and pressure, has promoted power generation system E's generating efficiency. Utilize exhaust -**heat boiler** to improve the low -pressure saturated **steam** 's of vaporization flue production quality, and then improved power generation system E's whole generated energy. The hot grate cigarette Y of system in AOD grate cigarette X of system and the ore deposit power generation system E that shares, the cost input of having reduced flue gas waste **heat** power generating equipment.

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- PN - [CN206581051U](#) U 20171024
- PR - CN201621109905U 20161001
- AP - CN201621109905U 20161001
- DT - I
- PA - LAO YINGKE
- TI - Energy -efficient, green's **steam boiler**
- AB - The utility model belongs to the technical field of garment **steamer**, electric **iron**, beauty salon utensil, a energy -efficient, green's **steam boiler** is disclosed, including **heat** -generating body and the **heat** sink profile of cover in the **heat** -generating body outside, **heat** sink profile's surface is equipped with the fin, **heat** sink profile's top is equipped with the block that adopts screw thread or welded connection, and the bottom is equipped with the base that adopts screw thread or welded connection, block, **heat** sink profile and base are constituted one and are sealed wholly. The beneficial effect of the utility model: increase **heat** radiating area, high -efficient **heat** conduction reaches energy -conserving purpose, avoiding the emission of sewage and dirty gas, keeping the cleanness of clothing and air, accomplish green, there is the technical problem that life is short, produce pollution, slow in **heat** dissipation in the effectual **steam boiler** who has solved prior art garment **steamer**.

21/710 © EPODOC / EPO

- PN - [CN107233850](#) A 20171010
- PR - CN20171627521 20170728
- AP - CN20171627521 20170728
- DT - I
- CNOI - [B01J6/005](#)
- PA - JIN CAIQIN
- TI - Chemical raw material **heating** tank
- AB - The invention discloses a chemical raw material **heating** tank. The chemical raw material **heating** tank comprises chemical raw material **iron** tanks, a water tank, a high-temperature **steam** pipe, a driving roll, driven rolls and a motor, wherein the chemical raw material **iron** tanks are used for mounting of chemical raw materials; the water tank is rectangular; the high-temperature **steam** pipe is mounted at the bottom in the water tank and is communicated with a **steam boiler** through a valve, and a plurality

of **steam** jet holes are formed in the high-temperature **steam** pipe; a main central shaft of the driving roll is mounted on the side wall of the water tank; driven central shafts of the driven rolls are mounted on the side wall of the water tank, and the chemical raw material **iron** tanks can be placed on the driven rolls and the driving roll; a shell of the motor is fixed relative to the water tank, a rotating shaft of the motor is linked with the driving roll, and the motor can rotate to drive the driving roll to rotate so as to drive the chemical raw material **iron** tanks and the driven rolls to rotate; and the high-temperature **steam** pipe is placed in the center of the bottom of the water tank. The chemical raw material **heating** tank has the beneficial effects that the structure is simple, the cost is low, the use is convenient, the melting time is short, the loss of thermal energy is low, and the energy sources are saved.

22/710 © EPODOC / EPO

PN - [CN205975126U](#) U 20170222
 PR - CN20162882539U 20160816
 AP - CN20162882539U 20160816
 DT - I
 PA - MEC (SUZHOU) ELECTRIC CO LTD
 TI - Can produce high -temperature **steam's iron** table body
 AB - The utility model discloses a can produce high -temperature **steam's iron** table body contains a base, the top of base is equipped with a **heat** insulating board, is equipped with a water tank, a **boiler** and a water pump in the base, the water suction **boiler heating** of water pump in with the water tank, and the boiled aquatic products of **boiler** is given birth to high -temperature **steam** and is discharged, still is equipped with a solenoid valve in the base, the solenoid valve is used for controlling the switching that vapor discharge pipe said, the base on still be equipped with a **steam** control valve, **steam** control valve is used for adjusting the size of overboard **steam** drain. The utility model discloses a cooperation of can produce high -temperature **steam's iron** table body and ordinary **steam iron** is used, and this stage body does not need to remove when the flatiron irones the clothing, so that the volume of stage body can design is great, the inside water tank more water of can once only maring can once only **iron** a large amount of clothings continually for the flatiron provides high - temperature **steam** like this, lets **iron** become more simply more high -efficient.

23/710 © EPODOC / EPO

PN - [CN107191309](#) A 20170922
 PR - CN20171531676 20170703
 AP - CN20171531676 20170703
 DT - I
 CNOI - [F03B7/003](#) ; [F03B7/006](#) ; [F03B13/06](#) ; [F04F1/08](#)
 CCA - [Y02E10/223](#) ; [Y02E10/20](#) ; [Y02E10/22](#) ; [Y02E60/17](#)
 PA - MAHONGFENG
 TI - Thermal energy water lifting energy storage power generation equipment
 AB - The invention discloses thermal energy water lifting energy storage power generation equipment, and aims to provide water lifting energy storage power generation

equipment which is high in thermal energy utilization efficiency. The thermal energy water lifting energy storage power generation equipment comprises **heat** pipes of waste **heat** of a solar thermal energy **heat** collector, geothermal energy, a chemical plant, a cement plant, an **iron** and steel plant, a thermal power plant and a nuclear power station, a **steam boiler**, a power generator, and grid-connected terminal equipment. The thermal energy water lifting energy storage power generation equipment is characterized in that the **heat** pipes communicate with a **heat** exchanger inside the **boiler**, a hot **steam** pressure pipe of the **boiler** communicates with a first water extrusion tank containing water, and a water lifting pipe of the first water extrusion tank communicates with a water storage container located in the higher position; a gravity rotating waterwheel composed of a plurality of water receiving and containing hoppers is arranged below a water outlet of the water storage container; a backwater receiving and collecting disc is arranged below the waterwheel and communicates with a second empty water extrusion tank; backwater entering the second water extrusion tank generates pressure to press hot **steam** into a reflux condensation meter cold water tank; the **steam** is condensed and leaves **heat** to another meter cold water tank so that water can be supplied to the **boiler**; an output shaft of the gravity rotating waterwheel is connected with the power generator; and the power generator is connected with an electricity load and the grid-connected terminal equipment.

24/710 © EPODOC / EPO

PN - [CN107120672](#) A 20170901

PR - CN20171448450 20170614

AP - CN20171448450 20170614

DT - I

CNOI - [B01D47/00](#) ; [B01D53/04](#) ; [B01D53/60](#) ; [B01D53/78](#) ; [F23J15/02](#) ; [F23J15/04](#) ; [F23J15/06](#) ; [F22D1/16](#)

CNOA - [B01D2257/304](#) ; [B01D2257/40](#) ; [B01D2258/0283](#) ; [F23J2215/10](#) ; [F23J2215/20](#) ; [F23J2219/30](#)

PA - SHEN GUOQING

TI - Environment-friendly **boiler**

AB - The invention discloses an environment-friendly **boiler**. The environment-friendly **boiler** comprises a **boiler** body, a tail gas treatment chamber and a water pipe. The **boiler** body is a vertical **boiler** and comprises a combustion cavity and a water storage cavity, and the combustion cavity is wrapped with the water storage cavity. The **boiler** body is provided with a charging door and a service hatch. Both the charging door and the service hatch are welded to the combustion cavity and penetrate through the water storage cavity. An **iron** chimney is welded to the top of the combustion cavity, the water pipe is wound around the chimney, and the outlet end of the water pipe is connected with the water storage cavity. A **steam** outlet pipe is welded to the top of the water storage cavity. The chimney is connected with the tail gas treatment chamber through a gas guiding pipe. A gas outlet pipe is welded to the top of the tail gas treatment chamber. The environment-friendly **boiler** is simple in structure and reasonable in design; **heat** in smoke in the chimney is sufficiently used in the water pipe wound around the chimney, and thus resources are saved; and tail gas is treated in the tail gas treatment chamber, so that the environment is prevented from being polluted by harmful gas, and the environment-friendly **boiler** is suitable for application and

popularization.

25/710 © EPODOC / EPO

- PN - [US2017241069](#) A1 20170824
- PR - FR20140051218 20140217; WO2015FR50390 20150217
- AP - US201515312101 20150217
- DT - **
- CT - || R141 (A1)
[US1625535](#) A 19270419 [] (ADLPH GRAFT);
[US2152502](#) A 19390328 [] (SCHMIDT ALFRED C, et al);
[US2522247](#) A 19500912 [] (ASTA DAVID N);
[US2749633](#) A 19560612 [] (SECK WERNER G);
[US3192654](#) A 19650706 [] (WEAVER JOHN S);
[US3403463](#) A 19681001 [] (STANLEY LOUIE L);
[US3407521](#) A 19681029 [] (ENGLISH WILLIAM A);
[US4274588](#) A 19810623 [] (SCHWOB PIERRE);
[US5651201](#) A 19970729 [] (FARLEY BRENT LEE [US]);
[US6895632](#) B2 20050524 [] (MURRAY CHRISTOPHER J [US]);
[US6986217](#) B2 20060117 [] (LEUNG ANTHONY KIT LUN [CN], et al)
- CCI - [D06F75/20](#) ; [D06F75/38](#) ; [D06F87/00](#)
- PA - ECODROP [FR]
- TI - **STEAM IRON** DEVICE FOR IRONING AND REMOVING CREASES
- AB - A **steam iron** device for ironing and removing creases, intended for smoothing operations, in particular vertical, includes a **heating** body, a **boiler** for producing **steam**, a water tank, and a metal soleplate pierced with holes to allow the **steam** to pass. An outer wall of the soleplate has a partially curved shape and includes two parts: a flat front part, and a convex curved rear part. The flat front part is tangent to the convex curved rear part.

26/710 © EPODOC / EPO

- PN - [CN107060919](#) A 20170818
- PR - CN20171401181 20170531
- AP - CN20171401181 20170531
- DT - I
- CT - || STSE (A)
[RU2166692](#) C1 20010510 [A] (UL JANOVSKIJ G TEKHN UNIVERS)
[A] 1-10
* 全文 *;
[JP2012102711](#) A 20120531 [A] (CHUGOKU ELECTRIC POWER)
[A] 1-10
* 全文 *;
[CN203744208U](#) U 20140730 [A] (FENG WEIZHONG)
[A] 1-10
* 全文 *;
[CN104566331](#) A 20150429 [A] (ZHEJIANG ELECTRIC POWER DESIGN INST)
[A] 1-10

* 全文 *;

[CN105823035](#) A 20160803 [A] (UNIV KUNMING SCIENCE & TECH)

[A] 1-10

* 全文 *

- CNOI - [F01K13/006](#) ; [F01K13/02](#)
- CCA - [Y02P80/154](#)
- CNOA - [F05D2260/85](#)
- PA - HANGANG GROUP HANBAO IRON & STEEL CO LTD
- TI - Quick-starting and energy-saving device and method for power generation of **steam** turbine of gas-fired **boiler**
- AB - The invention discloses a quick-starting and energy-saving device and method for power generation of a **steam** turbine of a gas-fired **boiler**, and belongs to the technical field of coal-fired **boiler steam** turbine power generation equipment and methods. The quick-starting and energy-saving device and method are used for quickly starting the power generation of the **steam** turbine of the gas-fired **boiler**. According to the technical scheme of the quick-starting and energy-saving device and method, a quick-start **boiler** lower-part **heating** device is added, in the starting process, the steps of low-pressure circulating **heating** through an atmospheric type deaerator, low-pressure circulating **heating** through a high-pressure type deaerator, direct **heating** of the bottom of the **boiler** through external **steam** and low-pressure sliding parameter starting of the **steam** turbine are adopted, and the total time of igniting and pressurizing, pipeline **heating** through main **steam**, sliding parameter starting of the **steam** turbine and grid-connected loading of the **boiler** is 9 hours. According to the quick-starting and energy-saving device and method, the starting time of a generator set of the **steam** turbine of the gas-fired **boiler** can be greatly shortened, a large amount of **steam** discharged in the starting process of the **boiler** can be reduced, the starting cost of the generator set can be reduced, the safety of quickly starting the gas-fired **boiler** and the **steam** turbine can be perfected, pollution to surrounding residents due to **steam** noise of the generator set before grid connection can be avoided, and the phenomenon that coal gas open fire of **iron** and steel enterprises is discharged can be reduced.

27/710 © EPODOC / EPO

- PN - [CN206369348U](#) U 20170801
- PR - CN201621331201U 20161127
- AP - CN201621331201U 20161127
- DT - I
- CCA - [Y02E10/40](#)
- PA - YUHUAYANG
- TI - Tower solar electric system
- AB - The utility model relates to a tower solar electric system belongs to solar energy and uses. Include: **iron** tower (1) interior hot type receiver (2), heliostat (3), **heat** reservoir, circulating pump (7), **steam boiler** (8), **steam** turbine (9), generator (10), wherein: hot type receiver in setting up on the **iron** tower, ground set up the heliostat, the heliostat with sunshine reflection and focusing in the receiver the inside, **heated** air, high temperature air get into the **heat** reservoir, give energy storage medium with **heat** transfer after, get back to receiver, component thermal -arrest **heat** -retaining

circulation circuit by the circulating pump forced lubrication, water in the **heat heating steam boiler** of **heat** reservoir makes water become **steam** and promotes the **steam** turbine rotation, drives the generator electricity generation, the interior hot type receiver airtight space that to be quartz window constitute with the **heat** preservation drum, the inside are the three -dimensional metal meshes that comprises the tungsten filament, should the net in the focus department of heliostat. This system keeps warm, and the **heat** radiation loss is little, and the thermal efficiency is high, and the energy storage expense is low, and system economy is profitable.

28/710 © EPODOC / EPO

PN - [WO2018011301](#) A1 20180118

PR - EP20160179114 20160712

AP - WO2017EP67613 20170712

DT - **

CT - |EP| ISR (A1)
[US2004109784](#) A1 20040610 [I] (ARBAB ALIREZA [FR], et al)
 [I] 1-15
 * paragraphs [0001] - [0003] - [0031] - [0047] - [0068] - [0071] - [0106] - [0111] - [128]
 , [147] - [0149] - [156] , [0157]; example 2; claims 1-11; tables 1,4-6,9 *;
[DE19941411](#) A1 20000309 [I] (JAPAN VERTRETEN DURCH DEN GENE [JP])
 [I] 1-15
 * abstract *
 * page 7, lines 8-30 *
 * page 8, lines 26, 51-64; claims 1,3,4; table 1 *;
[US2012160376](#) A1 20120628 [A] (YAMADA MASAYUKI [JP], et al)
 [A] 1-15
 * paragraphs [0005] - [0009] - [0029] - [0045] - [0070] , [0071] , [0077] , [0079] , [0084]
 - [0086]; examples TS57, TS68,TS69; claim 1; tables 1,2 *;
[WO9408063](#) A1 19940414 [A] (BUCK ROBERT F [US])
 [A] 1-15
 * page 1, lines 1-7 *
 * page 21, line 19 - page 22, line 22; example 2 *
 * claims 1-6 *;
[JPH1192881](#) A 19990406 [A] (NAT RES INST METALS, et al)
 [A] 1-15
 * abstract *
 * claims 1-4; table 1 *

CCI - [C22C38/001](#) ; [C22C38/02](#) ; [C22C38/04](#) ; [C22C38/105](#) ; [C22C38/12](#) ; [C22C38/14](#) ;
[C22C38/18](#) ; [C22C38/44](#) ; [C22C38/46](#) ; [C22C38/48](#) ; [C22C38/50](#) ; [C22C38/52](#) ;
[C22C38/54](#)

CUI - [C21D8/0226](#) ; [C21D8/0263](#) ; [C21D8/105](#) ; [C21D9/08](#) ; [C21D9/085](#) ; [C21D9/46](#)

CUA - [C21D2211/008](#)

PA - VALLOURECTUBES FRANCE [FR]; VALLOUREC DEUTSCHLAND GMBH [DE]

TI - HIGH CHROMIUM MARTENSITIC **HEAT**-RESISTANT STEEL WITH COMBINED HIGH CREEP RUPTURE STRENGTH AND OXIDATION RESISTANCE

AB - Martensitic **heat**-resistant steel for **boiler** applications with a unique combination of

enhanced creep strength and excellent oxidation resistance upon high temperature exposure in **steam** containing environments., having the following melt analysis (in wt.-%): C: 0.10 to 0.16%, Si: 0.20 to 0.60%, Mn: 0.30 to 0.80%, P ≤0.020%, S ≤0.010%, Al ≤0.020%, Cr: 10.5 to 12.00%, Mo: 0.10 to 0.60%, V: 0.15 to 0.30%, Ni: 0.10 to 0.40%, B: 0.008 to 0.015%, N :0.002 to 0.020%, Co: 1.50 to 3.00%, W: 1.50 to 2.50%, Nb: 0.02 to 0.07%, Ti: 0.001-0.020%. The balance of the steel consists of **iron** and unavoidable impurities. The steel is normalized for a period of about 10 to about 120 minutes in the temperature range between 1050 °C and 1170°C and cooled down in air or water to room temperature, and then tempered for at least one hour in the temperature range between 750°C and 820°C. It exhibits martensitic microstructure with average δ-ferrite content of less than 5 vol.-%.

29/710 © EPODOC / EPO

- PN - [CN206247404U](#) U 20170613
- PR - CN201621141927U 20161019
- AP - CN201621141927U 20161019
- DT - I
- PA - ZHEJIANG ACADEMY FORESTRY
- TI - Multipurpose energy -saving pot kitchen
- AB - The utility model provides a multipurpose energy -saving pot kitchen, by ground warm up water valve, kitchen base, grid melter, warm water tank, warm water intake the switch, open tap, water tank water level control tap, boiling water drain tube, **steam** takeover, **steam** valve, **iron** pan, annular boiling water case, inlet tube, the switch of intaking, chimney, stack damper, furnace gate, furnace and air intake and form. The **iron** pan is put directly over furnace and is in its central point and puts, around the boiling water case is arranged the **iron** pan below in and is in the bottom of a **boiler**, ground warm water tank arrange in below the boiling water case with furnace around, set up water inlet and **steam** outlet on the side upper portion of boiling water case, water inlet and inlet tube hookup, **steam** outlet take over with **steam** and the water tank water level control tap links, side bottom at the boiling water case sets up the delivery port, can boiled water in the dish of cooking or the **steam** raising evaporate the thing to other **steamer**, the water of **heatable** simultaneously warms up with being used for, control combustion fire can be required according to the flavor of meal, culinary art speed is adjusted, this pot and stove has the multi -purpose function of a kitchen.

30/710 © EPODOC / EPO

- PN - [CN106702146](#) A 20170524
- PR - CN20151766875 20151112
- AP - CN20151766875 20151112
- DT - I
- PA - HARBIN CITY HONGTIAN RUIDA TECH CO LTD
- TI - Energy-saving environment-protecting method for steel and **iron** plant sintering
- AB - The invention discloses an energy-saving environment-protecting method for steel and **iron** plant sintering. The energy-saving environment-protecting method for steel and **iron** plant sintering comprises the following steps that (1) solid fuel consumption is reduced by adopting thick bed sintering; (2) solid fuel consumption is reduced

through recycling production and the burning effect and performance of solid fuels improvement; (3) the burning effect and performance of solid fuels are improved; (4) the temperature of a sintering material can be improved through hot returning ores and quick lime and hot gas sintering and by injecting **steam** through a drum mixer before the fuels are mixed, and thus waste **heat** can be utilized; (5) energy consumption of ignition is reduced by applying an energy-saving type igniter and by means of the method of preheating combustion air; (6) electricity consumption is reduced by reducing air leakage and by adopting a frequency conversion technology; and (7) waste **heat** is recycled by applying a waste **heat boiler** and by adopting a waste **heat boiler** and a waste gas sintering technology. Energy saving and environment protection of the sintering process is actually achieved through the energy-saving environment-protecting method for steel and **iron** plant sintering provided by the invention.

31/710 © EPODOC / EPO

PN - [CN206204652U](#) U 20170531
 PR - CN201621283102U 20161125
 AP - CN201621283102U 20161125
 DT - I
 PA - NINGBO KAIBO GROUP CO LTD
 TI - **Boiler** and **steam** brush with scald function futilely
 AB - The utility model discloses a **boiler** and **steam** brush with scald function futilely belongs to clothes ironing equipment, and the phenomenon of dripping is brushed to prior art's **steam** when ubiquitous ironers, the unable hot **iron** of realizing, the utility model discloses a disposing futilely the dough made with boiling water board around at **steam** outlet, scalding **heating** element for dry dough made with boiling water board disposes futilely, the during operation scalds **heat** high efficiency ground conduction that **heating** element produced futilely produces high temperature for dry dough made with boiling water board, avoids from go out the blowout of a vapour panel after and goes out the vapour panel low temperature **steam** on every side formation comdenstion water that meets when **steam**, realize doing scalding and the drip proof efficiency from this.

32/710 © EPODOC / EPO

PN - [RU2619658](#) C1 20170517
 PR - UAA201510152 20151019
 AP - RU20160102813 20160128
 DT - I
 CT - || STSE (C1)
[RU2304251](#) C1 20070810 [] (KULIKOV BORIS GEORGIEVICH [RU], et al);
[MD4181](#) B1 20120831 [] (GLORIN GRUP [US], et al);
[RU2168111](#) C1 20010527 [] (NPO SPETSMONTAZH AOZT);
[RU2546370](#) C1 20150410 [] (DOROZHENKO ALEKSANDR VLADIMIROVICH [RU]);
[RU2161755](#) C2 20010110 [] (CATALYTICA INC [US], et al)
 CNOA - [F23L7/005](#) ; [F23B90/00](#) ; [F23C13/08](#)
 PA - COMPANY PALMETTINO S A [CH]

TI - METHOD OF EFFICIENT FUEL COMBUSTION AND DEVICE FOR ITS IMPLEMENTATION

AB - FIELD: power industry.SUBSTANCE: combustion method includes supplying fuel to a combustion chamber, it arson in the presence of atmospheric air, followed by catalytic combustion without access of air. Fuel combustion is carried out in two stages, the first stage comprises burning a fuel-air mixture to form saturated vapour in the **steam** generator, the second stage comprises pyrolysis of water **steam** while burning fuel without air access. Water **steam** is fed into the **boiler** combustion chamber at a temperature of 400-960°C and atmospheric pressure, and **iron**, nickel and / or oxides is used as a catalyst of **iron**, nickel and/or their oxides placed on the grate.EFFECT: intensification of combustion and **heat** exchange processes, increased fuel combustion efficiency with reduced harmful emissions into atmosphere.3 cl, 3 dwg

33/710 © EPODOC / EPO

PN - [CN206129729U](#) U 20170426

PR - CN201621185945U 20161028

AP - CN201621185945U 20161028

DT - I

PA - DAQING HAIXIAO MACHINERY
AND EQUIPMENT MFG CO LTD

TI - Vacuum negative pressure oily
loading attachment that ages

AB - The utility model belongs to the
technical field of oilfield
equipment, concretely relates to
vacuum negative pressure oily
loading attachment that ages.
Including a jar body, defeated
pump and vacuum pump
outward, a jar body bottom is
equipped with **heating** device,
and a jar body top is equipped
with the feed inlet, and defeated
pump is connected with a jar
body bottom through defeated
oil pipe outward, and the
vacuum pump passes through
negative pressure pipe and jar
and personally experiences sth.
Part of the body a top and be
connected, **heating** device is one
kind among electric **heating**
device, **steam heating** device or
the coil pipe water **heating**
device, and wherein
electric **heating** device
includes **iron** box and is
located **iron** box's



electrical **heating** rod, **steam heating** device includes **steam boiler** and **steam** coil pipe, coil pipe water **heating** device includes **boiler** and hydrologic cycle coil pipe, jar internal temperature sensor and the baroreceptor of being equipped with, temperature sensor lie in a jar body bottom, and the baroreceptor lies in a jar body top, the external portion of jar is equipped with the **heat** preservation. The utility model has the advantages of simple structure, reasonable in design raises the efficiency, convenient to use, safe and reliable, low cost.

34/710 © EPODOC / EPO

PN - [WO2017059710](#) A1 20170413
 PR - CN20152780761U 20151008
 AP - WO2016CN89396 20160708
 DT - *; Rep
 CT - |CN| ISR (A1)
[AU2006202065](#) A1 20070111
 [XY] (SUNBEAM CORP)
 [X] 1-5
 * , description, page 5. line 5 to page 6. line 27 and page 8, lines 4-9. and figures 1-7, description, page 5, line 5 to page 6, line 27 and page 8, lines 4-9, and figures 1-7 *
 [Y] 6-8;
[CN202881724U](#) U 20130417
 [Y] (XU JIANMING)
 [Y] 6-8
 * , description, paragraph [0018], and figures 1-2 *;
[CN2869089Y](#) Y 20070214
 [X] (CHEN JUNJUN [CN])
 [X] 1
 * , description, page 2, last paragraph to page 3, paragraph 2, and figures 1-3 *;
[US5279054](#) A 19940118



[X] (CHASEN JAMES E [US])
[X] 1
* , description, column 3, line 8
to column 4, line 64, and figures
1-4 *;
[CN201183911Y](#) Y 20090121
[X] (WENQING LI [CN])
[X] 1
* , description, page 4,
paragraph 2 to page 6,
paragraph 4, and figures 1-4 *;
[CN204982482U](#) U 20160120
[PX] (GD XINBAO ELEC APPL
HOLDINGS)
[PX] 1-8
* , claims 1-8 *

CUI - [D06F75/16](#) ; [D06F75/20](#) ;
[D06F75/24](#)

PA - GD XINBAO ELEC APPL HOLDINGS
[CN]

TI - ELECTRIC **IRON**

AB - An electric **iron**, forming an
ironing base by means of three
layers of aluminum plates,
forming a vaporization **boiler**
(50) and a vaporizing chamber
(60) arranged over and under in
the ironing base, the
vaporization **boiler** (50) and the
vaporizing chamber (60)
communicating directly by
means of a seamless connection
structure, avoiding the use of
tube connection, such that
a **steam** produced in the
vaporization **boiler** (50) directly
enters the vaporizing chamber
(60) for further **heating**, without
energy loss, and achieving a
higher temperature of the **steam**
and a better ironing effect.

35/710 © EPODOC / EPO

PN - [CN206092091U](#) U 20170412

PR - CN201621079294U 20160926

AP - CN201621079294U 20160926

DT - I



CCA	- Y02P80/154 ; Y02P80/15
PA	- HANGANG GROUP HANBAO IRON & STEEL CO LTD
TI	- Wet saturated steam is used for device of sintering cogeneration
AB	- The utility model provides a wet saturated steam is used for device of sintering cogeneration, belongs to the steam energy - saving equipment technical field of iron and steel enterprise. Its technical scheme is: the steam heat accumulator is strained clean ware through pipeline and steam and is linked to each other, and steam is strained clean ware and is connected with gas formula superheater, and it is continuous with the gas -distributing cylinder that superheated steam that gas formula superheater produced passes through the pipeline, and the gas -distributing cylinder passes through steam main pipe and is connected with pair pressure steam turbines. The utility model discloses a wet saturated steam is stabilized in steam heat accumulator output, carries dry saturated strain the steam -water separation of clean ware through steam after, and dry saturated sends into gas formula superheater, becomes superheated steam after the heating , and superheated steam delivers to the gas -distributing cylinder through the steam conduit, send two pressure steam turbines actings to generate electricity with the waste heat mixture that the sintering produced. The utility model discloses open up the new way of the wet saturated steam electricity

generation that utilizes the **iron** and steel enterprise, solved sintering cogeneration and do not have the difficult problem that conventional **boiler** support led to the fact frequent shut down, had apparent economic benefits and social.

36/710 © EPODOC / EPO

PN - [RU2613356](#) C1 20170316

PR - RU20150154377 20151218

AP - RU20150154377 20151218

DT - I

CT - || STSE (C1)
[RU2190630](#) C2 20021010 [] (COMMW EDISON CO [US], et al);
[RU2500835](#) C1 20131210 [] (OOO NPF TRAVERS OOO NPF TRAVERS [RU]);
[RU99109U](#) U1 20101110 [];
[CN1557746](#) A 20041229 [] (ZHANG WENLI [CN]);
[US2524757](#) A 19501010 [] (DOW CHEMICAL CO)

CNOI - [C02F5/00](#) ; [F22B27/00](#) ; [F22D5/00](#)

PA - OBSHCHESTVO S OGRANICHENNOJ OTVETSTVENNOSTYU TEPL-ENERGOSERVIS [RU]

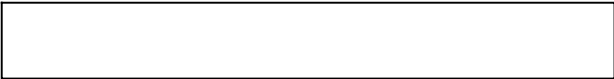
TI - METHOD OF FEED WATER PREPARATION FOR LOW PRESSURE COIL **STEAM** GENERATORS

AB - FIELD: chemistry.SUBSTANCE: chemicals are added to the feed water, at that, two chemical reactant are added to this water: Aminat™CO-2 for final removal of oxygen from the feed water and Aminat™CO-3P to prevent scaling and adjust pH of the feed water, at that, the dose of the chemical reagent Aminat™CO 2 is calculated by the formula:



$D=8 \times O + i$, mg/dm³, where O is oxygen content in the feed water in mg/dm; i is the excess of reagent Aminat™CO-2, mg/dm, which is in the range of 5-15 mg/dm for the feed water and in the range of 10-25 mg/dm for the **boiler** water, and the dose of the chemical reagent Aminat™CO-3P is calculated by the formula: $D=186 \times (H-H) + 6.7C$, mg/dm, where: H is feed water hardness, mg-Eq/dm; H is residual hardness, mg-Eq/dm; C is **iron** content in the feed water in mg/dm. EFFECT: prevention of scale formation and corrosion processes on the **heat** transfer surfaces of low pressure coil **steam** generators.

37/710 © EPODOC / EPO
 PN - [CN206073669U](#) U 20170405
 PR - CN20162757531U 20160718
 AP - CN20162757531U 20160718
 DT - I
 PA - SHANGLIN ZHONGXING SILK IND CO LTD
 TI - Exhaust gas of **boiler** afterheat recycling device
 AB - The utility model discloses an exhaust gas of **boiler** afterheat recycling device. It includes **boiler**, waste **heat heater**, silkworm chrysalis drying -machine, first baking house, second baking house, hot water retrieval and utilization ware, water film deduster, chimney and **iron** pipe, and the flue gas passageway of **boiler** links to each other with the waste **heat heater**, and the waste **heat heater** links to each other with silkworm chrysalis drying -machine, first baking house respectively, and first



baking house, second baking house are consecutive, and wears to be equipped with the **iron** pipe of six strands of waste gas in first baking house and the second baking house, and the second baking house links to each other with hot water retrieval and utilization ware, and it is continuous with the chimney that hot water retrieval and utilization ware passes through water film deduster. The utility model discloses utilize **boiler** flue waste gas waste **heat heat** through roast silkworm chrysalis of stoving and the silk floss of loosening, use the **steam** method of toasting before changing, saved the **steam** use amount, play energy saving and emission reduction's effect.

38/710 © EPODOC / EPO

PN

- [CN106498688](#) A 20170315

PR

- CN20161813448 20160911

AP

- CN20161813448 20160911

DT

- I

CT

- || STSE (A)
[CN102159762](#) A 20110817
[Y] (LAURASTAR SA)
[Y] 1-9
* 说明书第0004-0013段及图1-2
*;
[CN203132105U](#) U 20130814
[Y] (OTLAN ELECTRICAL
GUANGZHOU CO LTD)
[Y] 3-6
* 参见说明书第0017-0029段及
图1 *;
[CN205245553U](#) U 20160518
[Y] (JIANGSU XINLAI ENERGY
PERFORMANCE CONTRACTING CO
LTD)
[Y] 1-9
* 说明书第0004-0019段及图1-2
*



CTNP	- STSE (A) [A] - 董诚春,《废轮胎回收加工利用》,(20080831) [A] 1-9 * 第385-386页 *
CNOI	- D06F79/04
PA	- HUZHOU POWER SUPPLY CO OF STATE GRID ZHEJIANG ELECTRIC POWER CO; STATE GRID CORP CHINA
TI	- Energy saving method using electric boiler to provide gas for ironing equipment
AB	- The invention discloses an energy saving method using an electric boiler to provide gas for ironing equipment; the ironing equipment is provided, and connected with the electric boiler; the electric boiler comprises a heating furnace and an insulation furnace connected with the heating furnace; the ironing equipment comprises an ironing plate and an evaporation container; a steam pipe is arranged between the evaporation container and the ironing plate; heat conductive fluid is placed in the heating furnace and heated; the heated heat conductive fluid is conveyed to the evaporation container, so the evaporation container is heated up; the water in the evaporation container is heated and evaporated, and the steam is conveyed to the ironing plate through the steam pipe so as to iron clothes; after heat exchange with the heat conductive fluid, the steam returns to the insulation furnace for insulation; when the heat conductive fluid in the heating furnace is reduced, the heat conductive fluid in the

insulation furnace is conveyed to the **heating** furnace for reheating. The energy saving method is high in thermal efficiency and less in pollution.

39/710 © EPODOC / EPO

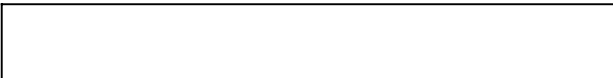
PN - [CN205782842U](#) U 20161207
PR - CN20162646820U 20160622
AP - CN20162646820U 20160622
DT - I
PA - TIANJINANLIANTIANYUAN
ENERGY SAVING TECH CO LTD
TI - **Steam** condensate water
recovery unit
AB - The utility model provides
a **steam** condensate water
recovery unit, including
the **boiler**, gas -distributing
cylinder and **steam** equipment,
still include the **heat** exchanger,
the pond is handled to the
deoiling desalination, the
deironing filter, oxygen -
eliminating device and water
quality testing pond, the last
port in the water quality testing
pond **boiler** that flows back, the
lower port in water quality
testing pond is connected with
the deposit pond, flow back the
deoiling desalination and
handle the pond in the deposit
pond, detect the sensor including
the control and management unit
and with the grease of control
and management unit
connection in the water quality
testing pond, **iron** detects the
sensor, salt content testing
sensor, oxygen content testing
sensor, first control valve and
second control valve, the first
control valve sets up the last
port in the water quality testing
pond, the second control valve
sets up the lower port in the



water quality testing pond. The beneficial effects are that can carry out water quality testing with the **steam** condensate water of collecting to can retreatment purify condensate water not up to standard, help prolonging **boiler** life, whole collection circulation is more reasonable.

40/710 © EPODOC / EPO

PN - [CN205987420U](#) U 20170222
PR - CN20162882868U 20160816
AP - CN20162882868U 20160816
DT - I
PA - MEC (SUZHOU) ELECTRIC CO LTD
TI - **Steam iron boiler heating rod**
AB - The utility model discloses a **steam iron boiler heating rod** contains a body, be full of the conduction oil in the body, the one end of body is equipped with a sealing plug, is equipped with a first electrode, a second electrode and a reserve electrode on the sealing plug, still is equipped with a **heating** wire in the body, the **heating** wire is connected with first electrode, second electrode and reserve electrode, the body make by the copper alumel, the conduction oil be mineral type conduction oil, sealing plug and body between be elastic connection, the **heating** wire be nichrome wire. The utility model discloses a during **steam iron boiler heating rod** dipped the **heating** wire conduction oil, the **heat** that the **heating** wire produced passed through the surface that the conduction oil transmitted the **heating** rod, and this has just been avoided the **heating** of **heating** wire to the directness



of **boiler**, and the conduction oil is in the effect of wherein having played the buffering **heat** transfer to improved the **heat** stability of **heating** rod, this **heating** rod uses with the **boiler** cooperation, and the **boiler** is difficult to damage.

41/710 © EPODOC / EPO

PN - [CN205975135U](#) U 20170222
PR - CN20162882870U 20160816
AP - CN20162882870U 20160816
DT - I
PA - MEC (SUZHOU) ELECTRIC CO LTD
TI - A electric **heat** piece for **steam iron boiler**
AB - The utility model discloses an electric **heat** piece for **steam iron boiler** contains an oven paster of being made by insulating material, be equipped with a first terminal and a second terminal on the paster of oven, the surface of oven paster is equipped with a pair of embedded electrode, be equipped with a plurality of **heating** wire between embedded electrode, **heating** wire and embedded electrode are less than the surface of oven paster, the oven paster by ceramic grinding, the thickness of oven paster be 2 4mm, the quantity of **heating** wire be no less than 4, the **heating** wire be siderochrome aluminium **heating** wire. The utility model discloses an electric **heat** piece for **steam iron boiler** uses the integrated inside to the paster body of **heating** wire, this paster body directly attached outer wall at the **boiler**, and the concrete structure to the **boiler** requires just very



simply like this to simplify the design and casting flow of **boiler** greatly, improved work efficiency.

42/710 © EPODOC / EPO

PN - [CN205975127U](#) U 20170222

PR - CN20162882832U 20160816

AP - CN20162882832U 20160816

DT - I

PA - MEC (SUZHOU) ELECTRIC CO LTD

TI - **Steam iron** of stage body is connected in area

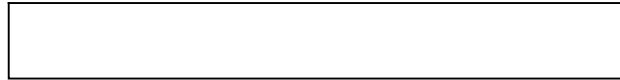
AB - The utility model discloses a **steam iron** of stage body is connected in area contains a **steam iron**, **steam iron** is connected with a stage body, the top of stage body is equipped with a **heat** insulating board, still is equipped with a water tank, a **boiler** and a water pump in the stage body, the water suction **boiler heating** of water pump in with the water tank, and the **boiler** is **heated** up water the **steam** that produces and is passed through the leading - in **steam iron** of pipeline, the stage body on still be equipped with a **steam** control valve, **heat** insulating board and stage body bottom surface between be 30 degrees contained angles, but the **steam iron** exclusive use. The utility model discloses a **steam iron** of stage body is connected in area uses general **steam iron** and a stage body cooperation, and the stage body does not need to remove in the time of the use, so the volume of stage body can be great, inside water tank can once only add more water, and **steam iron** does not just need frequently to add water when ironing a large amount of clothings like this, and



convenient to use is
efficient. **Steam iron** can also
regard as ordinary flatiron
exclusive use, supplies the
family to **iron** nimble
convenience.

43/710 © EPODOC / EPO

PN - [CN205978677U](#) U 20170222
PR - CN20162882833U 20160816
AP - CN20162882833U 20160816
DT - I
PA - MEC (SUZHOU) ELECTRIC CO LTD
TI - **Steam iron** relief valve
AB - The utility model discloses
a **steam iron** relief valve
contains a grafting pipe, it is
equipped with a plurality of
inserting grooves to peg graft to
manage, the terminal of pipe of
pegging graft is connected with a
safety guard, is equipped with a
baffle of upwards digging in the
safety guard, the baffle seals the
mouth of pipe of the pipe of
pegging graft, is connected
through an elastomer between
baffle and safety guard, is
equipped with drainage lid on
the open -top of safety guard
semi -closedly, and high -
pressure **steam** is discharged
downwards under the effect of
drainage lid, grafting pipe and
safety guard between for the
screw rod connection, the baffle
be double -deck hollow
structure, the baffle make
by **heat** -resisting plastic, the
elastomer be the spring. The
utility model discloses a **steam**
iron relief valve seals the
grafting mouth of pipe with a
baffle of being connected with
the elastomer, and under the
great condition of pressure in
the **boiler**, **steam** can be pushed



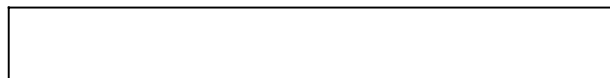
the baffle open and discharge,
the unnecessary
overboard **steam** drain
backplate closed grafting mouth
of pipe once more under the
effect of elastomer, and the
device simple structure
manufacturing cost is lower.

44/710 © EPODOC / EPO

PN - [TW350799B](#) B 19990121
PR - TW19960107470 19960621
AP - TW19960107470 19960621
DT - I
PA - HUANG BA-ZHOU [TW]
TI - Micro-wave **heating** method and
apparatus for polluted earth
AB - A micro-wave **heating** apparatus
for polluted earth, available on a
trailer, featuring 3 units: unit 1
being a screen device and a
crushing device; unit 2 being a
rotary furnace; unit 3 being an
atomized gas processor, where:
the screen separator and the
crushing device: for feeding of
polluted earth in bulldozers to
the funnel, which has a movable
cover of 4-inch **iron** grille for
separation of rocks and
impurities, and the earth being
screened in the funnel being sent
by the funnel to a vibrating
screen, while the removed rocks
flowing into the crushing device
for crushing and then into the
funnel for feeding of the crushed
earth by the conveyor into the
rotary furnace inlet; the rotary
furnace: with earth sent in going
first by a vibrator for feeding in 2
stages of the earth into the
rotary furnace, in front of which
there is a seat, having an inlet, a
funnel and 3 sets of solenoid
tubes and a rear seat on the rear
of the rotary furnace, having 3



sets of solenoid tubes and a blower as well as a vibrator discharge and pure gas inlet; in the midst of the furnace there are gears and chains driven by a motor and between the 2 waists of the furnace there is a circular track and pulley in 3D support; and inside the rotary furnace there is a triangle steel pipe, with a microwave conductor for introduction of the microwave from the solenoid tube and injection from the discharge, disposed each of the discharge at 1/3 of the steel pipe and in different angle from the face, with a microwave baffle at the discharge and the rotary furnace having a curved mixing blade for the earth on the microwave **heat** solution; the atomizing processor: is provided to send the smoke from the **heat** solution into the dust collector from the funnel for use in the branch of the selective smoke switch and sending dense smoke into the cooler for cooling and liquidization before being fed by the control valve into the collector, while the residual gas shall be mixed with the oil pipe and injected into the **boiler** or the generator for combustion of the waste gas, with water in the **boiler** for cooling, for hot **steam** or combustion in the generator for power generation, in the **boiler** or the generator where the released smoke entering into the rinse tower for cleaning of the smoke and discharge of CO₂.



AP - CN20161494393 20160629

DT - I

CCI - [D06F75/16](#) ; [D06F75/20](#)

CNOI - [D06F75/14](#) ; [D06F75/24](#) ;
[D06F75/265](#)

CCA - [D06F75/24](#) ; [D06F75/26](#) ;
[D06F75/265](#)

PA - DE'LONGHI APPLIANCES S R L DIV
COMMERCIALE ARIETE

TI - IMPROVED **IRON** STRUCTURE

AB - There is described an improved **iron** structure comprising a soleplate provided with through holes for **steam** adapted to come into contact with the fabrics to be treated, a **boiler** adapted to produce **steam** fluidly connected to the soleplate, a duct for introducing water into the **boiler**, **heating** means and a control button functionally connected to the **boiler** and arranged to obtain the delivery of **steam** through the through holes of the soleplate. In particular, the **boiler** is produced as fluid-tight coupling between the soleplate and a cover portion to form a **boiler** compartment in which the water is boiled and in which during use of the **iron** the hot water **steam** balance is established.

46/710 © EPODOC / EPO

PN - [CN205909244U](#) U 20170125

PR - CN20162650153U 20160628

AP - CN20162650153U 20160628

DT - I

PA - HARBIN JINJING BOILER CO LTD

TI - Civilian small -size **steam boiler**

AB - The utility model provides a civilian small -size **steam boiler**, includes furnace body, base, bottom end of furnace body connects the base, and end



device touch control screen is
openly gone up to furnace body
top right -hand unit relief valve,
furnace body, the export of
furnace body front lower extreme
left -hand unit hot water, and
end device **steam** outlet in the
furnace body right side, end
device water inlet under the
furnace body right side, the last
end device hanging mount of
back of furnace body, hanging
mount lower extreme left -hand
unit power cord, furnace body
left side equipment maintenance
door, furnace body inside from
top to bottom device control
case, electric **heater** unit and
water tank in proper order, base
bottom device universal wheel.
The utility model discloses a
civilian small -size **steam boiler**,
energy -efficient, the thermal
efficiency is higher, fast
the **steam** raising, both but hot
water can also be connected
food **steamer**, sterilizer, **steam**
iron, evaporate cabinet and the
various utensil that evaporates,
and the steady quality, durable,
simple operation is realized.
Vertical structure, movable base
and hanging are dual -purpose,
and occupation space is little.

47/710 © EPODOC / EPO
PN - [US2017016174](#) A1 20170119
PNFP - US10036117 B2 20180731
PR - IT2015UB02147 20150714
AP - US201615171761 20160602
DT - **
CT - || STSE (B2)
[US1830875](#) A 19311110 [
] (MATA IZUMIYA);
[US2188011](#) A 19400123 [
] (MILLER FRED A);
[US2189709](#) A 19400206 [
] (DEEMS DONALD A);



	US2278370 A 19420331 [] (LOUIS HOFFMAN); US4206340 A 19800603 [] (LEBAIGUE JACQUES L [US], et al); US4496826 A 19850129 [] (OSROW LEONARD [US])
CCI	- D06F75/16 ; D06F75/20
CCA	- D06F75/24 ; D06F75/26 ; D06F75/265
PA	- (A1) DE' LONGHI APPLIANCES S R L DIV COMMERCIALE ARIETE [IT] - (B2) DE' LONGHI APPLIANCES S R L DIV COMMERCIALE ARIETE [IT]; DE LONGHI APPLIANCES S R L DIV COMMERCIALE [IT]
TI	- (A1) IRON STRUCTURE - (B2) Iron structure
AB	- (A1 B2) There is described an improved iron structure comprising a soleplate provided with through holes for steam adapted to come into contact with the fabrics to be treated, a boiler adapted to produce steam fluidly connected to the soleplate, a duct for introducing water into the boiler, heating means and a control button functionally connected to the boiler and arranged to obtain the delivery of steam through the through holes of the soleplate. In particular, the boiler is produced as fluid-tight coupling between the soleplate and a cover portion to form a boiler compartment in which the water is boiled and in which during use of the iron the hot water-steam balance is established.

PN	- CN106285810 A 20170104
PNFP	- CN106285810B B 20170825
PR	- CN20161849557 20160926
AP	- CN20161849557 20160926
DT	- I
CT	- STSE (A) CN101245911 A 20080820 [A] (CAPITAL ENG & RES INC LTD [CN]) [A] 1-9 * 全文 *; CN101672578 A 20100317 [A] (ZHONGYE CHANGTIAN INT ENG CO) [A] 1-9 * 全文 *; CN102410740 A 20120411 [A] (DALIAN EAST NEW ENERGY DEV CO) [A] 1-9 * 全文 *; DE102010050090 A1 20120503 [A] (LINDE AG [DE]) [A] 1-9 * 全文 *; CN104153832 A 20141119 [A] (KUNMING IRON & STEEL GROUP CO LTD) [A] 1-9 * 全文 *; CN206092091U U 20170412 [R] (HANGANG GROUP HANBAO IRON & STEEL CO LTD) [R] 1-7 * 权利要求1-7 * CNOI - (A) F01D15/10 ; F01K3/24 ; F01K27/02 ; F22G1/00 ; F22G5/00 CCA - Y02P80/154 PA - (A) HANGANG GROUP HANBAO IRON & STEEL CO LTD TI - (A) Device and method for sintering waste heat power generation by utilization of wet

saturated **steam**

AB

- (A)

The invention discloses a device and a method for sintering waste **heat** power generation by utilization of wet saturated **steam**, and belongs to the technical fields of **iron-and-steel** enterprise **steam** energy-saving equipment and utilization methods. The technical scheme is as follows: a **steam heat** accumulator is connected with a **steam** filtering cleaner through a pipe; the **steam** filtering cleaner is connected with a gas-type superheating device; superheated **steam** generated by the gas-type superheating device is connected with a gas distributing cylinder through the pipe; the gas distributing cylinder is connected with a dual-pressure **steam** turbine through a main **steam** pipe. The device and the method disclosed by the invention have the advantages that the **heat** accumulator outputs stable wet saturated **steam**, dry saturated **steam** is conveyed after the stable wet saturated **steam** is suffered from gas-water separation by the **steam** filtering cleaner, the dry saturated **steam** is fed into the gas-type superheating device and is converted into the superheated **steam** after **heating**, the superheated **steam** is conveyed to the gas distributing cylinder through the **steam** pipe, and the superheated **steam** is mixed with sintering waste **heat** and then is fed to the dual-pressure **steam** turbine for realizing power generation by means of doing work. The device and the method disclosed by the

invention have the advantages that a new way for generating power by utilization of the wet saturated **steam** of an **iron**-and-steel enterprise is developed, the problem of frequent shutdown due to the fact that the sintering waste **heat** power generation is not supported by any ordinary **boiler** is solved, and significant economic benefits and social benefits are obtained.

49/710 © EPODOC / EPO

PN - [CN205878931U](#) U 20170111

PR - CN20162590833U 20160616

AP - CN20162590833U 20160616

DT - I

CCA - [Y02P10/265](#) ; [Y02P10/283](#)

PA - BEIJING BOBON BESTECH ENERGY CONSERVATION & ENV PROT CO LTD

TI - High temperature gas cleaning and waste **heat** recovery system

AB - The utility model provides a high temperature gas cleaning and waste **heat** recovery system, include: evaporative cooling flue 2, gas bag 3, pipe network 12, high temperature filter 4, exhaust - **heat boiler** 5, fan 7, auto -change over device 8, diffuse chimney 9, recovery system 11, does high temperature filter 4 adopt **iron** aluminium intermetallic compound filtration membrane filters, and core parts are porous membrane material filter core. Compared with the prior art, the utility model discloses the amount of **steam** withdrawn can increase by 30% at least, through high temperature filter (diaphragm type dust remover) dedusting function, gas cleaning efficiency has been improved.



50/710 © EPODOC / EPO

PN - [CN205824998U](#) U 20161221

PR - CN20162730026U 20160712

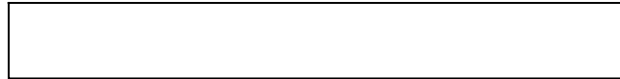
AP - CN20162730026U 20160712

DT - I

PA - UNIV JIANGSU

TI - Small -size coal fired **boiler**
combination formula economizer

AB - The utility model provides a
small -size coal fired **boiler**
combination formula
economizer, including low
temperature **heat** transfer
subtotal high temperature **heat**
transfer part, low
temperature **heat** transfer part
including evaporator tube bank,
downtake, closed tube, **steam**
pocket, the snakelike nest of
tubes of the first order, level
gauge, bypass pipe, temperature
measuring device, controller,
play water collection case pipe,
control valve, economizer inlet
tube and album case pipe of
intaking, in evaporator tube
bank located the flue, evaporator
tube bank's upper end and **steam**
pocket were linked together,
evaporator tube bank's top is
located to the **steam** pocket, is
equipped with the blast pipe on
the **steam** pocket, is equipped
with discharge valve on the blast
pipe, high temperature **heat**
transfer part is including the
snakelike nest of tubes in the
second level, economizer outlet
pipe and connecting pipe, in the
flue is located to the snakelike
nest of tubes in the second level,
second level coiled pipe
histotope in the snakelike nest of
tubes upper reaches of the first
order, the snakelike nest of tubes
in the second level is by at least



2 coiled pipes. The utility model relates to a combination steel economizer replaces cast iron gilled tube economizer, has simplified the manufacture craft greatly, has saved the cost of manufacture.

51/710 © EPODOC / EPO

PN - [CN106232893](#) A 20161214

PR - FR20140051218
 20140217; WO2015FR50390
 20150217

AP - CN20158019709 20150217

DT - I

CT - || STSE (A)
 [US3403463](#) A 19681001
 [A] (STANLEY LOUIE L)
 [A] 1-6
 * 全文 *;
 [JP2002035496](#) A 20020205
 [A] (MATSUSHITA ELECTRIC IND
 CO LTD)
 [A] 1-6
 * 全文 *;
 [US6986217](#) B2 20060117
 [A] (LEUNG ANTHONY KIT LUN
 [CN], et al)
 [A] 1-6
 * 全文 *;
 [CN201678886U](#) U 20101222
 [A] (TSANN KUEN ZHANGZHOU
 ENTPR CO)
 [A] 1-6
 * 全文 *;
 [CN202440703U](#) U 20120919
 [A] (CUORI ELECTRICAL
 APPLIANCE GROUP CO LTD)
 [A] 1-6
 * 全文 *

CCI - [D06F75/20](#) ; [D06F75/38](#) ;
 [D06F87/00](#)

CNOI - [D06F75/20](#) ; [D06F75/38](#) ;
 [D06F87/00](#)

PA - ECODROP

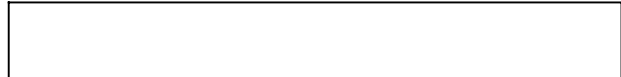
TI - **Steam iron** device for ironing
 and removing creases



AB - The invention relates to a **steam iron** device for ironing and removing creases, for especially vertical crease removal operations, comprising a **heating** body (3), a **boiler** or the like for producing **steam** (V), a water reservoir, and a metal sole (2) pierced with holes (23) for the passage of **steam** (J). The outer wall (20) of the sole (2) has a partially curved shape, comprising two parts, a front flat part (21) and a rear curved convex part (22) to which said flat part (21) is tangential.

52/710 © EPODOC / EPO

PN - [CN106152092](#) A 20161123
PR - CN201610697291 20160822
AP - CN201610697291 20160822
DT - I
CT - || STSE (A)
[CN101865454](#) A 20101020
[A] (UNIV SHANGHAI ELECTRIC POWER)
[A] 1-6
* 全文 *;
[CN201621975U](#) U 20101103
[A] (HUNAN YONKER ENVIRONMENTAL PROT CO LTD)
[A] 1-6
* 全文 *;
[CN103615908](#) A 20140305
[Y] (BEIJING ZNXY ENERGY & ENVIRONMENT TECHNOLOGY CO LTD)
[Y] 3-6
* 说明书第21段、说明书附图1 *;
[CN204665224U](#) U 20150923
[YX] (JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD)
[Y] 3-6
* 说明书第13-16段、说明书附图3-5 *
[X] 1、2;
[CN205939059U](#) U 20170208
[R] (JIANGSU ZHONGTIAN ENERGY



EQUIPMENT CO LTD)

[R] 1-6

* 权利要求1-6 *

- CNOI - [F22B1/1869](#) ; [F27D17/004](#)
- CCA - [Y02P10/283](#) ; [Y02P80/154](#)
- CNOA - [F27D2017/006](#)
- PA - JIANGSU ZHONGTIAN ENERGY
EQUIPMENT CO LTD
- TI - Modular residual **heat boiler**
system having regulation
functions and internally
arranged in smoke flue of
sintering machine
- AB - The invention discloses a
modular residual **heat boiler**
system having regulation
functions and internally
arranged in a smoke flue of a
sintering machine, and belongs
to the technical field of **iron** and
steel smelting equipment. The
modular residual **heat boiler**
system comprises a big smoke
flue, a small smoke flue, a **steam**
pocket, a water supply system
and **heat** exchanging modules,
wherein the **heat** exchanging
modules comprise evaporator
modules, overheater modules
and coal economizer modules;
the big smoke flue and the small
smoke flue are provided with
multiple pipe joints respectively;
each of the overheater modules,
the evaporator modules and the
coal economizer modules are
arranged between every two pipe
joins respectively; each
evaporator-module water inlet
pipeline is provided with an
evaporator-module water inlet
regulating valve respectively;
and each evaporator-module gas
outlet pipeline is provided with
an evaporator-module gas outlet
regulating valve respectively. By
using the system, a residual **heat**
resource, which is recovered at

an existing field for the sintering machine, from the sintering machine is sufficiently utilized; the reasonable, effective and stepped utilization of an energy source is achieved; the equipment investment is saved; the floor area is small; generated overheated **steam** is used for power generation; and the modular residual **heat boiler** system has obvious economic benefit and social benefit.

53/710 © EPODOC / EPO

PN - [CN205697152U](#) U 20161123
PR - CN20162327731U 20160419
AP - CN20162327731U 20160419
DT - I
PA - HEBEI CHUIHUA CASTING CO LTD
TI - Casting **iron** pan
AB - The utility model discloses a casting **iron** pan relates to the kitchen utensil field. The utility model discloses a pot body and pot cover, the pot body is gone up and is equipped with a pair of curved handle along outside symmetry, the border upper bend of pot cover forms the arch ring, the arch ring is the cavity in the inboard of pot cover, the centre of pot cover is the pot cover concave surface that corresponds with the bottom of a **boiler** of the pot body, the outside of the free end of arch ring is equipped with the hem that the level is turned up, the free end of arch ring forms the block ring that can close with the pot flap of the pot body from the hem downwardly extending of department, be equipped with a plurality of smoothly protruding on the internal surface of pot cover concave surface, a



plurality of smooth protruding distributions on the concentric circles of center as the centre of a circle that uses the pot cover. The utility model discloses can firmly pin the moisture of pot inner loop, make the interior **steam** of pot fully circulate, reduce water loss, guarantee that food is genuine, can reduce the energy consumption simultaneously, reduction **heat** time.

54/710 © EPODOC / EPO

PN - [CN106091047](#) A 20161109

PR - CN20161445625 20160620

AP - CN20161445625 20160620

DT - I

CT - || STSE (A)
[CN2045082U](#) U 19890927
[A] (JIANG ZHANGHENG [CN])
[A] 1-5
* 全文 *;
[CN2056959U](#) U 19900509
[A] (FU DAQING [CN])
[A] 1-5
* 全文 *;
[CN2075312U](#) U 19910417
[X] (YANG GUANGHUI [CN])
[X] 1-5
* 权利要求1-5, 附图1-2 *;
[CN86208420U](#) U 19871118 [A]
[A] 1-5
* 全文 *

CNOI - [F24B1/183](#) ; [F24B1/19](#) ;
[F24B1/197](#) ; [F24B5/02](#) ;
[F24C11/00](#)

PA - ZHENJIANGGANGHUAMULTI-PURPOSE COOKING RANGE CO LTD

TI - Combined type efficient black-smoke-free stove

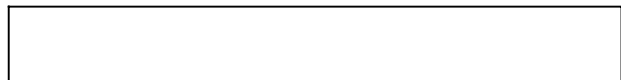
AB - The invention provides a combined type efficient black-smoke-free stove which comprises an **iron** stove body of a steel structure and a vertical



water **boiler**. The combined type efficient black-smoke-free stove is characterized in that a flue connector is arranged above a hearth of the vertical water **boiler** and communicates with a flue outlet of the **iron** stove body in a butt joint mode; an annular concave air duct is arranged in the **iron** stove body; and bottom air and high-temperature side air support combustion simultaneously, in this way, fuel can be combusted sufficiently, and black smoke is avoided. The combined type efficient black-smoke-free stove is simple in structure, low in manufacturing cost, small in occupied space, high in **heat** utilization efficiency, and capable of saving fuel and reducing smoke pollution, multiple purposes can be achieved through one stove, **steaming**, boiling, frying and boiled water supplying can be conducted at the same time if a collective canteen is equipped with one combined type efficient black-smoke-free stove, and using is safe and convenient.

55/710 © EPODOC / EPO

PN - [CN106090933](#) A 20161109
 PR - CN20161432002 20160617
 AP - CN20161432002 20160617
 DT - I
 CT - || STSE (A)
[CN1376546](#) A 20021030
 [A] (FANG HUAJIE [CN])
 [A] 1-8
 * 全文 *;
[JP2012002424](#) A 20120105
 [A] (NIPPON STEEL ENG CO LTD)
 [A] 1-8
 * 全文 *;
[CN104006390](#) A 20140827



[Y] (CHONGQING WENYUAN
ENVIRONMENTAL PROT
ENGINEERING CO LTD)

[Y] 1-8

* 说明书第[0020]-[0025]段，附图1 *;

[CN104607440](#) A 20150513

[Y] (BEIJING GEOENVIRON
ENGINEERING & TECHNOLOGY
INC)

[Y] 1-8

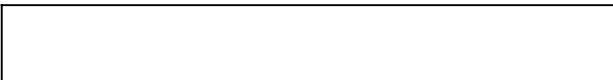
* 说明书第[0025]-[0032]段，附图1 *

- CNOI - [F01D15/10](#) ; [F23J15/00](#) ;
[F22B1/1807](#) ; [F23G5/033](#) ;
[F23G5/05](#) ; [F23G5/44](#) ;
[F23G5/46](#)
- CCA - [Y02E20/12](#)
- PA - BEIJING GEOENVIRON
ENGINEERING & TECHNOLOGY INC
- TI - Method and device for power
generation through household
garbage incineration
- AB - The invention discloses a
method and device for power
generation through household
garbage incineration. The
method comprises the following
steps that (1) bio-drying is
conducted, specifically,
household garbage is put in a
closed bio-drying chamber, an
air blower is started for aerobic
fermentation to make the
moisture content of the
household garbage be lowered to
25% or below, and the lower
calorific value is larger than
2500 Kcal/kg; (2) bio-drying
products obtained in the step (1)
are screened into **iron** metal,
nonmagnetic metal, inert
materials, plastics and dried
garbage, the dried garbage
enters a stoker incinerator for
incineration, and the rest is
subjected to landfill treatment;
and (3) high-temperature flue

gas generated after incineration of the stoker incinerator of the step (2) **heats** water in a gas waste **heat steam boiler**, and generated **steam** drives a **steam** turbine generator unit to generate power. According to the method and device for power generation through household garbage incineration, after subjected to bio-drying, the originally generated city household garbage enters the stoker incinerator for incineration, the high-temperature **steam** generated by waste **heat** drives a **steam** turbine generator to generate power, and thus quantity reduction, recycling and harmless treatment of the household garbage are achieved.

56/710 © EPODOC / EPO

PN - [CN106051660](#) A 20161026
 PR - CN20161456937 20160607
 AP - CN20161456937 20160607
 DT - I
 CNOI - [D06F75/10](#) ; [F03G6/06](#) ;
[F22B1/006](#) ; [F22G1/06](#) ;
[F24S80/60](#) ; [F24S23/30](#)
 CCA - [Y02E10/46](#)
 PA - NINGBO HIGH-TECH ZONE SHIDAI
 ENERGY TECH CO LTD
 TI - Solar **steam iron**
 AB - The invention provides a solar **steam iron**. The solar **steam iron** comprises N lens gathering groups, intelligent control centers, boilers, one-way conducting valves, an insulation tank, an insulation buffer tank, a **heat** supply center, **steam iron** users, insulation connecting pipelines and an information connecting wire, wherein each lens gathering group comprises



a group of focusing lenses which are perpendicular to solar rays and synchronously rotate along with the solar rays; the foci of the focusing lenses are gathered in the **heating** centers of the boilers all the time; when water temperature and pressure in the boilers reach certain values, the one-way conducting valves are opened, and overheating vapor enters the next **boiler** so as to be further **heated**; when the temperature and the pressure are reduced to certain values along with the output of the overheating vapor, the one-way conducting valves are closed, repeatedly, the overheating vapor with high temperature and pressure is produced, and finally, the overheating vapor with specified temperature and pressure is generated to enter the insulation tank through the one-way conducting valve (8), so as to be stored. The solar **steam iron** has the advantages of high efficiency, greenness, energy conservation, emission reduction, cost saving, environmental friendliness and no pollution.

57/710 © EPODOC / EPO
 PN - [CN106016240](#) A 20161012
 PR - CN20161547213 20160712
 AP - CN20161547213 20160712
 DT - I
 CT - || STSE (A)
[CN102607010](#) A 20120725
 [A] (CHANGCHUN DANGDAI
 INFORMATION INDUSTRY GROUP
 CO LTD)
 [A] 1-3
 * 全文 *;
[CN103994458](#) A 20140820
 [X] (SHANGHAIZHONGYUAN

KEYANGENERGYSAVING
TECHNOLOGY CO LTD)
[X] 1-3
* 说明书第0007-0030段以及附图1 *;
[CN202947122U](#) U 20130522
[A] (HANGZHOU STATE POWER
MACHINERY DESIGN INST CO LTD)
[A] 1-3
* 全文 *;
[CN204665244U](#) U 20150923
[A] (HANGZHOU HUADIAN
ENERGY ENGINEERING CO LTD)
[A] 1-3
* 全文 *;
[CN205824998U](#) U 20161221
[R] (UNIV JIANGSU)
[R] 1-3
* 权利要求1-3 *

- CNOI - [F22B1/18](#) ; [F22D1/02](#) ; [F22D1/12](#)
- PA - UNIV JIANGSU
- TI - Combined coal economizer of small coal-fired **boiler**
- AB - The invention provides a combined coal economizer of a small coal-fired **boiler**. The combined coal economizer comprises a low-temperature **heat** exchange part and a high-temperature **heat** exchange part; the low-temperature **heat** exchange part includes an evaporation pipe bundle, a descending pipe, a communicating pipe, a **steam** pocket, a first-grade snake-shaped pipe set, a liquid level meter, a bypass pipe, a temperature measuring device, a controller, a water outlet collecting box pipe, a control valve, a coal economizer water inlet pipe and a water inlet collecting box pipe; the evaporation pipe bundle is arranged in a flue; the upper end of the evaporation pipe bundle is communicated with the **steam**

pocket; the **steam** pocket is arranged above the evaporation pipe bundle, and is provided with an exhaust pipe; an exhaust valve is arranged on the exhaust pipe; the high-temperature **heat** exchange part includes a second-grade snake-shaped pipe set, a coal economizer water outlet pipe and a connecting pipe; the second-grade snake-shaped pipe set is arranged in the flue, and is positioned at the upstream of the first-grade snake-shaped pipe set; and the second-grade snake-shaped pipe set has at least two snake-shaped pipes. The combined steel coal economizer replaces a cast **iron** coal economizer, largely simplifies a manufacturing process, and saves the manufacturing cost.

Interruption by user...

[SS 8] ..li



1/710 © EPODOC / EPO

PN - [CN207334766U](#) U 20180508
PR - CN201720690682U 20170614
AP - CN201720690682U 20170614
DT - I
PA - SHEN XINYU
TI - Environment -friendly **boiler**
AB - The utility model discloses an environment -friendly **boiler**, including **boiler** body, tail gas treatment room, water pipe, **boiler** body is vertical **boiler**, and **boiler** body is including the burning chamber and put the water cavity, and put the water cavity and wrap up the chamber of burning, last feed - hopper equipped neck and the maintenance hole of being

equipped with of **boiler** body, weld in feed -hopper equipped neck and maintenance kong junyu burning chamber, and just run through and put the water cavity, the top welding in burning chamber has the **iron** chimney, and the winding has a water pipearound the chimney, the exit end of water pipe with put the water cavity and be connected, the top welding of putting the water cavity has **steam** -outlet pipe, the chimney passes through the air ductto be connected with the tail gas treatment room, and the top welding of tail gas treatment room has the outlet duct. The utility model discloses simple structure, reasonable in design, the resource has been practiced thrift to the **heat** of flue gas in the interior make full use of chimney of winding water pipe, and the tail gas treatment is indoor to be handled tail gas, prevents the harmful gas polluted environment, should use widely.

2/710 © EPODOC / EPO

PN - [CN207350307U](#) U 20180511
 PR - CN201721304635U 20171011
 AP - CN201721304635U 20171011
 DT - I
 PA - GAOTAI JUNENG RELI HIGH TECH
 DEV CO LTD
 TI - Energy -saving and environment -
 friendly **boiler**
 AB - The utility model discloses an
 energy -saving and environment -
 friendly **boiler**, including the
 cushion socket, a fixed base,
 electrical **heating** rod, an air
 inlet pipe, **steam heater**, the fire
 bars, thethermal energy



conversion ware, the outlet duct, storage battery, thermal insulating plate, the control panel, **boiler** body, the fan, water storage tank, distance sensor, the **iron** sand, the sealing strip, the furnace gate, alarm and PLC controller, the **boiler** body number of pass has the control panel according to the line connection, the internally mounted of control panel has alarm and PLC controller, **boiler** body's externally mounted has thermal insulating plate, there is the furnace gate one side of **boiler** body through hinged joint, the sealing strip is installed to one side of furnace gate, the fixing base is installed to **boiler** body's bottom, the cushion socket is installed in the bottom correspondence of fixing base, **steam heater** is installed to one side of **boiler** body, and be connected with intake pipe and outlet duct between **steam heater** and the **boiler** body, this **boiler**, have the high characteristics of energy - conserving and environment - protective and intelligent degree.

3/710 © EPODOC / EPO

PN - [KR101848761B](#) B1 20180417

PR - KR20170120609 20170919

AP - KR20170120609 20170919

DT - I

CNOI - [B01D39/1623](#) ; [F23J15/025](#)

CNOA - [F23J2217/10](#)

PA - SON JEA YOUNG [KR]; SON TAE WOO [KR]

TI - DUST COLLECTING FILTER
FOR **HEAT RECOVERY STEAM**
GENERATOR AND
MANUFACTURING METHOD
THEREOF

AB - The present invention relates to a dust collecting filter for **iron** oxide of a **heat** recovery **boiler** and a method for manufacturing the same, wherein the dust collecting filter comprises: a nonwoven fabric filter woven with a mixed fiber comprising 50-70 wt% of PSET fiber and 30-50 wt% of aramid fiber; an adhesive layer which is formed by applying an adhesive composition on the nonwoven fabric filter, wherein the adhesive composition comprises 5-30 wt% of dispersed polyurethane resin, 5-10 wt% of starch, and 65-85 wt% of water; and a mesh reinforcing material combined with one surface of the nonwoven fabric filter to support the nonwoven fabric filter.

4/710 © EPODOC / EPO

PN - [CN207210462U](#) U 20180410

PR - CN20172455982U 20170427

AP - CN20172455982U 20170427

DT - I

PA - TIANJIN HUIJIN MINFENG NEW MATERIAL TECH CO LTD

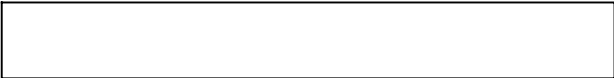
TI - Surplus sensible **heat** recovery energy -saving power generation system of blast furnace casting field sediment molten **iron**

AB - The utility model discloses a surplus sensible **heat** recovery energy -saving power generation system of blast furnace casting field sediment molten **iron**, including furnace body, cooling system, waste **heat** recovery **boiler** system and saturated **steam** power generation system, the furnace body is connected with the tap drain, the tap drain is connected with the sediment **iron** runner,

the sediment **iron** runner includes slag runner and indisputable zhigou, the tap drain through husky mouthful with the **iron** zhigou is connected, the upper portion of sediment **iron** runner is equipped with to remove preventscloud of dust cover box hat, the lower part of sediment **iron** runner is equipped with sediment **iron** runner box hat, the inboard of sediment **iron** runner box hat is equipped with the sediment **iron** runner permanent layer of nai the material, the sediment **iron** runner permanent layer's of nai material the inboard is equipped with the sediment **iron** runner protective layer of nai the material, the inboard of the sediment **iron** runner protective layer of nai the material is equipped with the sediment **iron** runner operational layer of nai the material, the sediment **iron** runner operational layer of nai the material with it corrodes detection device to be equipped with the sediment **iron** runner between the sediment **iron** runner permanent layer of nai the material. The utility model discloses can reach the surplus **heat** resource's of high temperature of sediment, the molten **iron** of abundant reutilization blast furnace casting field beneficial effect.

5/710 © EPODOC / EPO

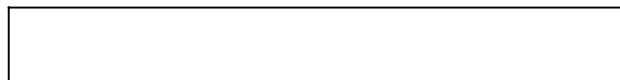
PN	-	CN207179607U U 20180403
PR	-	CN201721234414U 20170925
AP	-	CN201721234414U 20170925
DT	-	I
PA	-	YUNNAN QU JING CHENG GANG IRON AND STEEL GROUP CO LTD
TI	-	Power generation system is used



multipurposely to waste **heat** of steel plant
 AB - The utility model discloses a power generation system is used multipurposely to waste **heat** of steel plant, including gas **boiler**, evaporative cooling device, sintering exhaust - **heat boiler**, **steam** mix ware, governing valve, **steam** turbine and generator, parallely connected on the pipeline between governing valve and the **steam** turbine have a cooler, and the **steam** turbine exit end is provided with backwater device, the utility model discloses retrieving the waste **heat** that each process produced among the **iron** and steel production, concentrating to produce high - temperature **steam** through the **boiler**, get into the **steam** mix ware after high - temperature **steam** converges, drive **steam** turbine power generation in carrying the **steam** turbine again, the **steam** after the electricity generation reuses in backwater device gets back to each **boiler**, reaches the purpose of recirculation use water resource and **steam** resource, has improved the utilization ratio of the energy, the utility model discloses wasteheat recovery rate is high, the waste **heat** recovery wide range, and system's operation is stable, has apparent economic value and social value.

6/710 © EPODOC / EPO

PN - [CN207066151U](#) U 20180302
 PR - CN20172904808U 20170725
 AP - CN20172904808U 20170725
 DT - I
 PA - TIANJIN JIANWEIZE SAVING AND



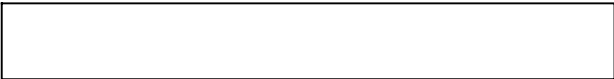
NEW ENV TECH DEVELOPMENT CO
LTD

- TI - Complete alternation wind sintering machine cooler waste **heat** power generation system that can regulate and control
- AB - The utility model discloses a complete alternation wind sintering machine cooler waste **heat** power generation system that can regulate and control, the system divide into the adjustable smoking control amount of wind and wind -warm syndrome, the cigarette wind circulation system of wind and the combination formula waste **heat** power generation system that can regulate and control **steam** condition are got to the multiple spot, cigarette wind circulation system includes that high temperature gets wind and smoke cover and pipeline, medium temperature one district can regulate and control to get wind and smoke cover and pipeline, medium temperature two districts can regulate and control to get wind and smoke cover and pipeline, sintering machine cooler sealing system etc, waste **heat** power generation system contains the big flue modular **boiler** of sintering machine, can regulate and control **steam** condition's the two exhaust **-heat boiler** of pressure of cooler modular, the **steam** turbine system, the chemistry water system, recirculating cooling water system, the automatic on-line monitoring control system of pressure measurement of soda temperature measurement and flow monitoring device and soda etc. This system of adoption can

solve unstable, the undulant big problem of present **iron** and steel sintering machine cooler waste **heat** power generation system, this system have waste **heat** recoveryrate height, calorific loss few, reduce advantage such as environmental pollution.

7/710 © EPODOC / EPO

PN - [CN207049905U](#) U 20180227
 PR - CN20172927661U 20170728
 AP - CN20172927661U 20170728
 DT - I
 PA - CHALING XINGBO GLUTINOUS RICE FLOUR FOOD CO LTD
 TI - Glutinous rice powder reclamation of **steam** condensate device for drying equipment
 AB - The utility model provides a glutinous rice powder reclamation of **steam** condensate device for drying equipment, glutinous rice powder reclamation of **steam** condensate device for drying equipment includes **boiler**, drain pipe, **heat** exchanger, insulating tube, steel pipe, polyester ammonia **heat** preservation, glass wool insulation layer, glass fiber reinforced plastic shell, retaining jar, filter screen, water storage chamber, first check valve, a high pressure water pump, filters jar, first basin, second basin, second check valve, the 2nd high pressure water pump, first filter plate, manganese sandlayer, lime layer, activated carbon adsorption layer and second filter plate. The utility model provides a recovery unit can be to the **iron** ion in the



condensation water, acidic material and oil dirty getting rid of to the effectual purifying effect who improves the condensation water, it can store to filter the water of accomplishing in the second basin for circulation water supply process can not suspend, the condensation water can be effectually slowed down and at the falling speed of recovery process moderate temperature, the waste **heat** recovery effect is improved.

8/710 © EPODOC / EPO

PN - [AU2016296421](#) A1 20180308

PR - IT2015UB02967
20150723; WO2016IT00180
20160721

AP - AU20160296421 20160721

DT - I

CCI - [D06F75/12](#) ; [D06F81/08](#)

PA - MILANESE ANTONIO

TI - Ironing board with **steam**-releasing board for domestic use with various ironing modes

AB - Ironing board for domestic use with **heated** and ventilated board with **steam**-release function and built-in **boiler**. Said ironing board has several ironing modes and automatic mechanisms that make it especially easy and intuitive to use. In particular, the three following ironing modes: ironing by hand only (without using any **iron**); ironing with **steam iron** and release of **steam** from the board at the same time; ironing with dry **iron** and release of **steam** from the board at the same time. The by-hand-only ironing mode (without any **iron**) has to a new automatic system of ventilation change from

Fig. 1



suction to blowing and the contemporary release of **steam** from the ironing board by simply operating a foot-pedal control. This enables the user to keep his/her hands completely free to flatten the item to be ironed on the board by exploiting the air suction first and then pressing the foot- pedal to obtain the blowing function and **steam** release. The user can then **iron** the item by using air and **steam** and eliminate any creases by using his/her hands only. After releasing the foot-pedal, the ironing board stops ejecting **steam** and changes the ventilation from blowing into suction: during this phase the residual **steam** is sucked and the garment is dried up, while the user flattens and folds it. The ironing mode with **steam iron** has a ventilation mechanism controlled by the **iron** that starts the ventilation either in blowing or suction mode according to the selection made each time **steam** is released. Each time the foot-pedal is operated, the ventilation changes from suction into blowing and at the same time **steam** is released from the ironing board, so that **steam** can come from the **iron** and the worktop for greater effect and penetration of **steam** into the item being ironed. When the foot-pedal is released, the ironing board stops ejecting **steam** and the ventilation is changed back into the previous mode. In the ironing mode with dry **iron**, the ventilation is set as continuous suction and the user irons with dry **iron** and the **heated** board in suction mode. In this case too, by pressing the foot-pedal **steam**

is released from the board and the ventilation is changed from suction into blowing. When releasing the foot-pedal, the **steam** ejection from the board stops and the ventilation is changed back into suction.

9/710 © EPODOC / EPO

PN - [CN206980683U](#) U 20180209
PR - CN20172927518U 20170728
AP - CN20172927518U 20170728
DT - I
PA - JIN CAIQIN
TI - Industrial chemicals **heating** bath
AB - The utility model discloses an industrial chemicals **heating** bath, include: the industrial chemicals **iron** flask for the installation industrial chemicals, the pond is the rectangle form, high - temperature **steam** pipe installs the bottom in the pond, and high - temperature **steam** pipe communicates **steam boiler** through the valve, and high - temperature **steam** pipe is provided with a plurality of **steam** nozzle, the drive roll, its main center pin is installed on the lateral wall in pond, the driven roll, its passive center pin is installed on the lateral wall in pond, can place the industrial chemicalsiron flask on driven roll and the drive roll, the motor, the casing is fixed for the pond, electric motor rotating shaft and drive roll linkage, the motor rotational energy drives the drive roll and rotates to can drive industrial chemicals **iron** flask and driven roll rotates. High -temperature **steam** pipe places the bottom center in



pond. The utility model has the advantages of simple structure, with low costs, convenient to use, thawing time are short, the **heat** energy loss less, the beneficial effect of the energy - conserving energy.

10/710 © EPODOC / EPO

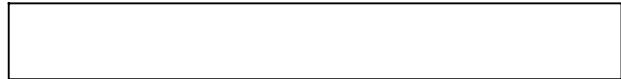
PN - [CN206918984U](#) U 20180123
PR - CN20172679015U 20170612
AP - CN20172679015U 20170612
DT - I
PA - WU XINYING
TI - **Boiler** thermodynamicc oxygen removal system
AB - The utility model relates to a **boiler** thermodynamicc oxygen removal system, including **heating** power formula oxygen -eliminating device, cold condensate system pass through the pipeline with **heating** power formula oxygen -eliminating device connect, **heating** power formula oxygen -eliminating device still through the saturated **steam** system with make steel the vapourizing unit and be connected, the input of vapourizing unit of wherein making steel is connected with vapourizing unit water supply system. The utility model discloses a **boiler** thermodynamicc oxygen removal system has fully retrieved steelmaking **heat** recovery **steam** more than needed, introduces thermal power generation circulation system with outside **heat**, has effectively improved the operating efficiency of thermal power generation system, has also effectively improved the generated energy of waste **heat**



complementary energy, has further improved the secondary energy of **iron** and steel enterprise recovery level, promotes circular economy to still reduce substantially diffusing of **steam**, obviously reduced environmental pollution from this.

11/710 © EPODOC / EPO

- PN - [CN107543138](#) A 20180105
- PR - CN20161480553 20160628
- AP - CN20161480553 20160628
- DT - I
- PA - HARBIN JINJING BOILER CO LTD
- TI - Small **steam boiler** for civil use
- AB - A small **steam boiler** for civil use comprises a **boiler** body and a base. The bottom end of the **boiler** body is connected with the base, a pressure relief valve is arranged on the right side of the top end of the **boiler** body, and a touch control screen is arranged at the upper end of the obverse side of the **boiler** body. A hot water outlet is formed in the left side of the lower end of the obverse side of the **boiler** body, and a **steam** outlet is formed in the middle end of the right side of the **boiler** body. A water inlet is formed in the lower end of the right side of the **boiler** body, and a wall hanging fixing frame is arranged at the upper end of the reverse side of the **boiler** body. A power line is arranged on the left side of the lower end of the wall hanging fixing frame, and a maintaining door is arranged on the left side of the **boiler** body. The **boiler** body is internally provided with a control box, an electric **heating** device and a water tank in sequence from top



to bottom, and the bottomend of the base is provided with universal wheels. According to the small **steam boiler** for civil use, efficient and energy-saving effects are achieved, the **heat** efficiency is high, and **steam** can be rapidly produced; water can be **heated**, and the small **steam boiler** can further be connected with a **steaming** basket, a sterilizing cabinet, a **steam iron**, a **steaming** cabinet and various **steam** tools; the quality is stable, and the durable effect is achieved; operation is easy, and using is easy; and a vertical structure is adopted, movable base and wall hanging dual purposes are achieved, and the occupied space is small.

12/710 © EPODOC / EPO

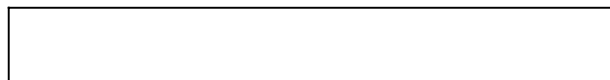
PN - [CN206858886U](#) U 20180109
 PR - CN20172623479U 20170525
 AP - CN20172623479U 20170525
 DT - I
 PA - CIXI FUSHIBAO ELECTRONIC TECH
 CO LTD
 TI - Novel take **steam** to **iron** and
 dual -purpose function of drying
 machine
 AB - The utility model discloses a
 novel take **steam** to **iron** and
 dual -purpose function of drying
 machine, including epitheca and
 inferior valve, to support
 through a plurality of spinal
 branch vaulting poles between
 epitheca and the inferior valve
 and is connected, the outside of
 a plurality of spinal branch
 vaulting poles is overlapped and
 is equipped with the wardrobe
 dustcoat, and the lower part
 horizontal installation of
 epitheca has the clothes hanger



peg, has offered outer air outlet on the epitheca, the inferior valve in install and to dismantle the water tank, fan and **steam boiler**, the **heat**-generating body is installed to the wind channel lower part of fan, side air -out mouth on the wind channel is stretched out by the upper portion of inferior valve, the water inlet of water piping connection to **steam boiler** is led through the second to the water tank, **steam boiler** leads water piping connection through the third has the **steam** connector, the **steam** connector sets up the outside atthe wardrobe dustcoat, **steam** even interface connection has inside spraying connector or handheld string boiling hot connector, inside spraying connector stretches into the inboard of wardrobe dustcoat, beneficial effect: the simple operation can be disinfected disinfection, stoving, automatic or manual ironing for the clothes and removed the wrinkle, and water stain collection is clean, the health.

13/710 © EPODOC / EPO

PN - [RU2637840](#) C1 20171207
 PR - RU20160148882 20161213
 AP - RU20160148882 20161213
 DT - I
 CT - || STSE (C1)
[RU2182603](#) C2 20020520 [
] (ZAO NPOB ALGON, et al);
[RU2346056](#) C2 20090210 [
] (BUROVOJ ISAAK ABRAMOVICH
 [RU], et al);
[US5480474](#) A 19960102 [
] (MANNESMANN AG [DE])
 CTNP - || STSE (C1)
 [] - КУРУНОВ И.Ф. и др.
 Состояние и перспективы



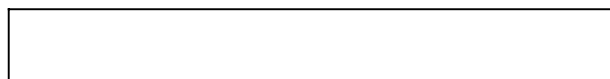
бездоменной металлургии
железа., М.:
Черметинформация, 2002, сс.
129-138.

- CNOA - [C21B13/14](#)
- PA - FEDERALNOEGOSUDARSTVENNOE
AVTONOMNOEOBRAZOVATELNOE
UCHREZHDENIE VYSSHEGO
OBRAZOVANIYA NATSIONALNYJ
[RU]
- TI - METHOD FOR PRODUCING
CAST **IRON** BY DUPLEX-PROCESS
OF ROMELT (VERSIONS)
- AB - FIELD: metallurgy.SUBSTANCE:
invention relates to production
of liquid **iron** from poor **iron**
ores, containing 35-52% of
total **iron** with FeO/FeO ratio
higher than 1.5 in two bubbling-
type furnaces connected to each
other by a chute. **Iron** ore, coal
and fluxes are continuously
charged into slag bath of the
first furnace. The resulting melt
with partially reduced **iron** oxide
flows into the second furnace for
performing **iron** reduction
and **iron** production. The gases
leaving the slag bath are burnt in
the above-slag space with
oxygen supplied through tuyeres
for afterburning. For
implementation of the first
version of the invention, the flue
gases of the first and second
furnaces are removed in
separate flue ducts into waste-
heat boilers for **steam**
production. For implementation
of the second version of the
invention, the flue gases after the
afterburning in the second
furnace are supplied in gas flow
to the first furnace, where they
are burned in the above-slag
space by oxygen supplied to the
tuyeres additionally installed for
afterburning. After mixing with

gases of the first furnace, flue gases are removed into waste-
heat boiler for **steam** production through the flue duct of the first furnace.EFFECT: increased **iron** oxide reduction rate, reduced loss of **iron** with slag by value less than 5 percent when melting highly oxidized materials.6 cl, 1 tbl, 1 dwg

14/710 © EPODOC / EPO

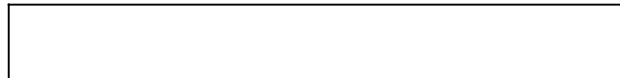
- PN - [RU2637844](#) C1 20171207
- PR - RU20170110066 20170327
- AP - RU20170110066 20170327
- DT - I
- CT - || STSE (C1)
[RU2555293](#) C1 20150710 [] (NIPPON STEEL & SUMITOMO METAL CORP [JP]);
[RU2125110](#) C1 19990120 [] (TOVARISHCHESTVO S OGRANICHENNO, et al);
[US4093476](#) A 19780606 [] (SPECIAL METALS CORP);
[EP2743362](#) A1 20140618 [] (NIPPON STEEL & SUMITOMO METAL CORP [JP])
- CNOI - [C22C19/056](#) ; [C22C30/00](#)
- PA - AKTSIONERNOE OBSHCHESTVO NAUCHNO-PROIZVODSTVENNOE OBEDINENIETSENTRALNYJ NAUCHNO-ISSLEDOVATELSKIJ IN [RU]
- TI - **HEAT** RESISTANT NICKEL-BASED ALLOY FOR PRODUCING **BOILER** PARTS AND **STEAM** TURBINES OPERATING UNDER ULTRA-SUPERCritical **STEAM** PARAMETERS
- AB - FIELD: metallurgy.SUBSTANCE: invention relates to the composition of **heat** resistant nickel-based corrosion resistant alloy for producing **boiler** parts and **steam** turbines (pipes, rotors, discs) operating under



ultra-supercritical **steam** parameters at temperatures up to 760°C by casting methods followed by hot deformation or powder metallurgy methods. **Heat**-resistant nickel-based alloy for producing **boiler** parts and **steam** turbines contains, wt %: carbon 0.015-0.10; chromium 19.0-21.5; cobalt 18.0-20.0; molybdenum 4.1-4.8; aluminium 1.2-1.8; titanium 2.5-3.2; boron 0.003-0.05; zirconium 0.01-0.06; silicon 0.05-0.3; manganese 0.05-0.3; **iron** ≤0.5; sulfur ≤0.007; phosphorus ≤0.007; tungsten 1.1-1.8; niobium 0.15-0.35; hafnium 0.15-0.30; oxygen ≤20 ppm; copper ≤0.05; vanadium 0.1-0.25; nitrogen ≤30 ppm; scandium 0.002-0.005; barium and/or strontium 0.0001-0.01; the rest is nickel, the total content of titanium and aluminium is about ≤4.4 wt % and ratio of titanium to aluminium content is 1.9-2.1. EFFECT: alloy is characterized by increased structural stability for service life and high values of long-term strength of the products.3 cl, 2 tbl

15/710 © EPODOC / EPO

PN - [CN206692678U](#) U 20171201
 PR - CN20172503813U 20170508
 AP - CN20172503813U 20170508
 DT - I
 PA - ANHUI UNIV OF TECHNOLOGY
 TI - Can retrieve high slag air cushion processing apparatus of high -quality waste **heat**
 AB - The utility model discloses a can retrieve high slag air cushion processing apparatus of high -quality waste **heat** belongs to the blast furnace slag treating



technical field among the **iron** and steel metallurgical industry. This processing apparatus includes water interlayer box, high -pressure foggy sprinkler head, air cushion board, **steam** conduit, slag entry and sediment water collector, liquid high slag is blown and is broken to pieces into the tiny particle on flowing the air cushion board, the foggy sprinkler head spun water smoke of air cushion board top further cools off the slag granule that forms, constituted gas the effect of carrying the slag granule is still played in the dual cooling of fog formula, air cushion board, and the slag is transported out the device, is the thermal drop to 300 700 DEG C be used for the exhaust - **heat boiler** electricity generation, the side of water interlayer box sets up the **steam** conduit interface, the hot -air recycle that will produce in will handling. The utility model has the characteristics of cooling speed is high, glass looks content is high, the close nature of matter reaches the device controllability well than the high -technology, increase substantially the waste **heat** utilization of blast furnace slag treating in -process, improved the product quality of solid - state high slag, be favorable to the energy saving and emission reduction of **iron** and steel enterprise.

16/710 © EPODOC / EPO

PN - [CN107400742](#) A 20171128

PR - CN201610334457 20160520

AP - CN201610334457 20160520

DT - I

CT - || STSE (A)



[CN104975117](#) A 20151014

[X] (NANJING TRIUMPH KAINENG
ENVIRONMENT & ENERGY CO LT)

[X] 1-4

* 说明书第19-25段 *;

[CN205115504U](#) U 20160330

[A] (BERIS ENG AND RES
(QINHUANGDAO) CORP)

[A] 1-4

* 全文 *

- CNOI - [C21B3/06](#) ; [F27D17/004](#)
- CCA - [Y02W30/543](#)
- CNOA - [F27D2017/006](#)
- PA - WANG HONGWEI
- TI - Recovery and comprehensive-
utilization process for
waste **heat** in dry-process
treatment of **iron**-making slag in
blast furnace
- AB - The invention provides a
recovery and comprehensive-
utilization process for
waste **heat** in dry-process
treatment of **iron**-making slag in
a blast furnace. The recovery and
comprehensive-utilization
process comprises the following
steps: (S1) the blast-furnace slag
enters a buffering tank through a
slag drying trough, the **heat** of
the slag is recovered by hot air
in the buffering tank, and then
the temperature of the slag is
reduced; (S2) flue gas carrying
the **heat** of the slag enters a
waste-**heat boiler** through a
pipeline, water **steam** is **heated**
by **heat** exchange in the waste-
heat boiler, and enters power
generation equipment to be
converted into electric energy;
(S3) after **heat** exchange, the flue
gas enters a dust remover for
dust removal, and after dust
removal, the flue gas enters a
blow-off tower for exhaustion by
a fan; and (S4) after temperature
reduction, the slag enters a brick

casting chain belt for casting and molding, and then enters a cold bed for package and storage. The recovery and comprehensive-utilization process provided by the invention has the advantages of safety, reliability, stability and benefit, and can create economic benefit while realizing recovery of the waste **heat** of the slag.

17/710 © EPODOC / EPO

PN - [CN107372446](#) A 20171124
PR - CN20171784926 20170904
AP - CN20171784926 20170904
DT - I
CNOI - [A01M17/00](#)
PA - CHIZHOU HENGSEN ECOLOGICAL AGRICULTURE CO LTD
TI - Novel high temperature insect killing device for vegetable planting
AB - The invention discloses a novel high temperature insect killing device for vegetable planting. The novel high temperature insect killing device comprises a fixed base, a push rod is fixedly arranged at one side of the top of the fixed base, a **steam boiler** is fixedly installed in the middle of the top of the fixed rod, a battery cover is fixedly arranged at one side of the **steam boiler**, a switch panel is fixedly installed at the lateral of the battery cover, a **steam boiler** control switch, a **steam** pump control switch, a first electric telescopic rod control switch, a second electric telescopic control switch and an electric **heating** rod control switch are arranged at the surface of the switch panel separately, and a storage battery is fixedly installed inside the



battery cover. According to the novel high temperature insect killing device for vegetable planting, a first fixing pipe and a second fixing pipe are fixedly connected to the bottom of the first electric telescopic rod and the second electric telescopic rod, through an **iron** cone head both in threaded connection with the bottoms of the first fixing pipe and the second fixing pipe, the first fixing pipe and the second fixing pipe are inserted inside soil, high temperature insect killing deep in the soil is achieved, and the situation that pests deep in the soil cannot be killed when high temperature pest killing is conducted on the surface of the soil is avoided.

18/710 © EPODOC / EPO

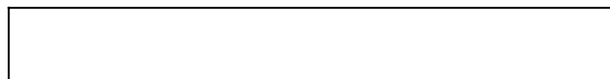
PN - [CN206609839U](#) U 201711103
PR - CN20172202763U 20170303
AP - CN20172202763U 20170303
DT - I
PA - JIANGSU PROVINCE
METALLURGICAL DESIGN INST CO
LTD
TI - Testing equipment of
reduced **iron**
AB - The utility model discloses a
testing equipment of
reduced **iron**. This equipment
includes **heating** furnace,
reaction tube, intake pipe,
distributing device, water **steam**
boiler unit, weighing device and
temperature measuring device,
water **steam boiler** unit includes
gaseous water washing unit,
accuse temperature unit and
check weighing unit, the gaseous
water washing unit of unit
connection, control of gases
water washing unit's



temperature is reviewed in the
accuse, the gaseous water
washing unit of check weighing
unit connection measures
gaseous water washing unit's
weight, the reaction tube sets up
in the **heating** furnace, and
gaseous water washing unit air
inlet is connected to the
distributing device gas outlet,
and intake -tube connection
reaction tube air inlet is passed
through to gaseous water
washing unit gas outlet,
weighing device ligation pipe,
and temperature measuring
device sets up the inside of
reaction tube. The utility model
discloses a testing equipment
increases vapor in crude gas
still, both can electronation
reaction that is virtually reality
like reality, and can eliminate
again and analyse the carbon
phenomenon.

19/710 © EPODOC / EPO

PN - [CN206593490U](#) U 20171027
PR - CN20172192398U 20170301
AP - CN20172192398U 20170301
DT - I
PA - DONGGUAN DONGSHI KAINENG
ENERGY CO LTD; GUANGDONG
KAINENG ENVIRONMENTAL PROT
& ENERGY CO LTD; YANGJIANG
KAINENG ENVIRONMENTAL PROT
ENERGY CO LTD
TI - Hot kiln gas waste **heat**
integrated power production
system in AOD stove and ore
deposit
AB - The utility model relates to an
energy -conserving
environmental protection
technology field of **iron** and steel
metallurgical industry, in
particular to hot kiln gas



waste **heat** integrated power production system in AOD stove and ore deposit. During this hot kiln gas waste **heat** integrated power production system in AOD stove and ore deposit carried the low -pressure saturated **steam** of the AOD grate cigarette X's of system vaporization flue production to the hot grate cigarette Y's of system in ore deposit exhaust -**heat boiler**, low -pressure saturated **steam** got into the power generation system E electricity generation after exhaust -**heat boiler** further adds thermosetting superheated **steam**, and the relative low -pressure saturated **steam** of superheated **steam** has higher temperature and pressure, has promoted power generation system E's generating efficiency. Utilize exhaust -**heat boiler** to improve the low -pressure saturated **steam** 's of vaporization flue production quality, and then improved power generation system E's whole generated energy. The hot grate cigarette Y of system in AOD grate cigarette X of system and the ore deposit power generation system E that shares, the cost input of having reduced flue gas waste **heat** power generating equipment.

20/710 © EPODOC / EPO
 PN - [CN206581051U](#) U 20171024
 PR - CN201621109905U 20161001
 AP - CN201621109905U 20161001
 DT - I
 PA - LAO YINGKE
 TI - Energy -efficient, green's **steam boiler**

AB - The utility model belongs to the technical field of garment **steamer**, electric **iron**, beauty salon utensil, a energy - efficient, green's **steam boiler** is disclosed, including **heat** - generating body and the **heat** sink profile of cover in the **heat** - generating body outside, **heat** sink profile's surface is equipped with the fin, **heat** sink profile's top is equipped with the block that adopts screw thread or welded connection, and the bottom is equipped with the base that adopts screw thread or welded connection, block, **heat** sink profile and base are constituted one and are sealed wholly. The beneficial effect of the utility model: increase **heat** radiating area, high - efficient **heat** conduction reaches energy -conserving purpose, avoiding the emission of sewage and dirty gas, keeping the cleanness of clothing and air, accomplish green, there is the technical problem that life is short, produce pollution, slow in **heat** dissipation in the effectual **steam boiler** who has solved prior art garment **steamer**.

21/710 © EPODOC / EPO

PN - [CN107233850](#) A 20171010

PR - CN20171627521 20170728

AP - CN20171627521 20170728

DT - I

CNOI - [B01J6/005](#)

PA - JIN CAIQIN

TI - Chemical raw material **heating** tank

AB - The invention discloses a chemical raw material **heating** tank. The chemical raw

material **heating** tank comprises chemical raw material **iron** tanks, a water tank, a high-temperature **steam** pipe, a driving roll, driven rolls and a motor, wherein the chemical raw material **iron** tanks are used for mounting of chemical raw materials; the water tank is rectangular; the high-temperature **steam** pipe is mounted at the bottom in the water tank and is communicated with a **steam boiler** through a valve, and a plurality of **steam** jet holes are formed in the high-temperature **steam** pipe; a main central shaft of the driving roll is mounted on the side wall of the water tank; driven central shafts of the driven rolls are mounted on the side wall of the water tank, and the chemical raw material **iron** tanks can be placed on the driven rolls and the driving roll; a shell of the motor is fixed relative to the water tank, a rotating shaft of the motor is linked with the driving roll, and the motor can rotate to drive the driving roll to rotate so as to drive the chemical raw material **iron** tanks and the driven rolls to rotate; and the high-temperature **steam** pipe is placed in the center of the bottom of the water tank. The chemical raw material **heating** tank has the beneficial effects that the structure is simple, the cost is low, the use is convenient, the melting time is short, the loss of thermal energy is low, and the energy sources are saved.

PR - CN20162882539U 20160816

AP - CN20162882539U 20160816

DT - I

PA - MEC (SUZHOU) ELECTRIC CO LTD

TI - Can produce high -
temperature **steam**'s **iron** table
body

AB - The utility model discloses a can
produce high -
temperature **steam**'s **iron** table
body contains a base, the top of
base is equipped with a **heat**
insulating board, is equipped
with a water tank, a **boiler** and a
water pump in the base, the
water suction **boiler heating** of
water pump in with the water
tank, and the boiled aquatic
products of **boiler** is given birth
to high -temperature **steam** and
is discharged, still is equipped
with a solenoid valve in the
base, the solenoid valve is used
for controlling the switching that
vapor discharge pipe said, the
base on still be equipped with
a **steam** control valve, **steam**
control valve is used for
adjusting the size of
overboard **steam** drain. The
utility model discloses a
cooperation of can produce high
-temperature **steam**'s **iron** table
body and ordinary **steam iron** is
used, and this stage body does
not need to remove when the
flatiron irones the clothing, so
that the volume of stage body
can design is great, the inside
water tank more water of can
once only maring can once
only **iron** a large amount of
clothings continually for the
flatiron provides high -
temperature **steam** like this,
lets **iron** become more simply
more high -efficient.

23/710 © EPODOC / EPO

PN - [CN107191309](#) A 20170922

PR - CN20171531676 20170703

AP - CN20171531676 20170703

DT - I

CNOI - [F03B7/003](#) ; [F03B7/006](#) ;
[F03B13/06](#) ; [F04F1/08](#)

CCA - [Y02E10/223](#) ; [Y02E10/20](#) ;
[Y02E10/22](#) ; [Y02E60/17](#)

PA - MAHONGFENG

TI - Thermal energy water lifting
energy storage power generation
equipment

AB - The invention discloses thermal
energy water lifting energy
storage power generation
equipment, and aims to provide
water lifting energy storage
power generation equipment
which is high in thermal energy
utilization efficiency. The
thermal energy water lifting
energy storage power generation
equipment comprises **heat** pipes
of waste **heat** of a solar thermal
energy **heat** collector,
geothermal energy, a chemical
plant, a cement plant, an **iron**
and steel plant, a thermal power
plant and a nuclear power
station, a **steam boiler**, a power
generator, and grid-connected
terminal equipment. The thermal
energy water lifting energy
storage power generation
equipment is characterized in
that the **heat** pipes communicate
with a **heat** exchanger inside
the **boiler**, a hot **steam** pressure
pipe of the **boiler** communicates
with a first water extrusion tank
containing water, and a water
lifting pipe of the first water
extrusion tank communicates
with a water storage container
located in the higher position; a
gravity rotating waterwheel

composed of a plurality of water receiving and containing
hoppers is arranged below a
water outlet of the water storage
container; a backwater receiving
and collecting disc is arranged
below the waterwheel and
communicates with a second
empty water extrusion tank;
backwater entering the second
water extrusion tank generates
pressure to press hot **steam** into
a reflux condensation meter cold
water tank; the **steam** is
condensed and leaves **heat** to
another meter cold water tank so
that water can be supplied to
the **boiler**; an output shaft of the
gravity rotating waterwheel is
connected with the power
generator; and the power
generator is connected with an
electricity load and the grid-
connected terminal equipment.

24/710 © EPODOC / EPO
 PN - [CN107120672](#) A 20170901
 PR - CN20171448450 20170614
 AP - CN20171448450 20170614
 DT - I
 CNOI - [B01D47/00](#) ; [B01D53/04](#) ;
[B01D53/60](#) ; [B01D53/78](#) ;
[F23J15/02](#) ; [F23J15/04](#) ;
[F23J15/06](#) ; [F22D1/16](#)
 CNOA - [B01D2257/304](#) ; [B01D2257/40](#) ;
[B01D2258/0283](#) ; [F23J2215/10](#) ;
[F23J2215/20](#) ; [F23J2219/30](#)
 PA - SHEN GUOQING
 TI - Environment-friendly **boiler**
 AB - The invention discloses an
 environment-friendly **boiler**. The
 environment-friendly **boiler**
 comprises a **boiler** body, a tail
 gas treatment chamber and a
 water pipe. The **boiler** body is a
 vertical **boiler** and comprises a
 combustion cavity and a water

storage cavity, and the combustion cavity is wrapped with the water storage cavity. The **boiler** body is provided with a charging door and a service hatch. Both the charging door and the service hatch are welded to the combustion cavity and penetrate through the water storage cavity. An **iron** chimney is welded to the top of the combustion cavity, the water pipe is wound around the chimney, and the outlet end of the water pipe is connected with the water storage cavity. A **steam** outlet pipe is welded to the top of the water storage cavity. The chimney is connected with the tail gas treatment chamber through a gas guiding pipe. A gas outlet pipe is welded to the top of the tail gas treatment chamber. The environment-friendly **boiler** is simple in structure and reasonable in design; **heat** in smoke in the chimney is sufficiently used in the water pipe wound around the chimney, and thus resources are saved; and tail gas is treated in the tail gas treatment chamber, so that the environment is prevented from being polluted by harmful gas, and the environment-friendly **boiler** is suitable for application and popularization.

25/710 © EPODOC / EPO
 PN - [US2017241069](#) A1 20170824
 PR - FR20140051218
 20140217; WO2015FR50390
 20150217
 AP - US201515312101 20150217
 DT - **
 CT - || R141 (A1)
[US1625535](#) A 19270419 [

] (ADLPH GRAFT);
[US2152502](#) A 19390328 [
] (SCHMIDT ALFRED C, et al);
[US2522247](#) A 19500912 [] (ASTA
 DAVID N);
[US2749633](#) A 19560612 [] (SECK
 WERNER G);
[US3192654](#) A 19650706 [
] (WEAVER JOHN S);
[US3403463](#) A 19681001 [
] (STANLEY LOUIE L);
[US3407521](#) A 19681029 [
] (ENGLISH WILLIAM A);
[US4274588](#) A 19810623 [
] (SCHWOB PIERRE);
[US5651201](#) A 19970729 [
] (FARLEY BRENT LEE [US]);
[US6895632](#) B2 20050524 [
] (MURRAY CHRISTOPHER J [US]);
[US6986217](#) B2 20060117 [
] (LEUNG ANTHONY KIT LUN [CN],
 et al)

- CCI - [D06F75/20](#) ; [D06F75/38](#) ;
[D06F87/00](#)
- PA - ECODROP [FR]
- TI - **STEAM IRON** DEVICE FOR
 IRONING AND REMOVING CREASES
- AB - A **steam iron** device for ironing
 and removing creases, intended
 for smoothing operations, in
 particular vertical, includes
 a **heating** body, a **boiler** for
 producing **steam**, a water tank,
 and a metal soleplate pierced
 with holes to allow the **steam** to
 pass. An outer wall of the
 soleplate has a partially curved
 shape and includes two parts: a
 flat front part, and a convex
 curved rear part. The flat front
 part is tangent to the convex
 curved rear part.

26/710 © EPODOC / EPO

- PN - [CN107060919](#) A 20170818
- PR - CN20171401181 20170531
- AP - CN20171401181 20170531

DT	- I
CT	- STSE (A) RU2166692 C1 20010510 [A] (UL JANOVSKIJ G TEKHN UNIVERS) [A] 1-10 * 全文 *; JP2012102711 A 20120531 [A] (CHUGOKU ELECTRIC POWER) [A] 1-10 * 全文 *; CN203744208U U 20140730 [A] (FENG WEIZHONG) [A] 1-10 * 全文 *; CN104566331 A 20150429 [A] (ZHEJIANG ELECTRIC POWER DESIGN INST) [A] 1-10 * 全文 *; CN105823035 A 20160803 [A] (UNIV KUNMING SCIENCE & TECH) [A] 1-10 * 全文 *
CNOI	- F01K13/006 ; F01K13/02
CCA	- Y02P80/154
CNOA	- F05D2260/85
PA	- HANGANG GROUP HANBAO IRON & STEEL CO LTD
TI	- Quick-starting and energy-saving device and method for power generation of steam turbine of gas-fired boiler
AB	- The invention discloses a quick-starting and energy-saving device and method for power generation of a steam turbine of a gas-fired boiler, and belongs to the technical field of coal-fired boiler steam turbine power generation equipment and methods. The quick-starting and energy-saving device and method are used for quickly starting the power generation of the steam turbine of the gas-fired boiler. According to the technical

scheme of the quick-starting and energy-saving device and method, a quick-start **boiler** lower-part **heating** device is added, in the starting process, the steps of low-pressure circulating **heating** through an atmospheric type deaerator, low-pressure circulating **heating** through a high-pressure type deaerator, direct **heating** of the bottom of the **boiler** through external **steam** and low-pressure sliding parameter starting of the **steam** turbine are adopted, and the total time of igniting and pressurizing, pipeline **heating** through main **steam**, sliding parameter starting of the **steam** turbine and grid-connected loading of the **boiler** is 9 hours. According to the quick-starting and energy-saving device and method, the starting time of a generator set of the **steam** turbine of the gas-fired **boiler** can be greatly shortened, a large amount of **steam** discharged in the starting process of the **boiler** can be reduced, the starting cost of the generator set can be reduced, the safety of quickly starting the gas-fired **boiler** and the **steam** turbine can be perfected, pollution to surrounding residents due to **steam** noise of the generator set before grid connection can be avoided, and the phenomenon that coal gas open fire of **iron** and steel enterprises is discharged can be reduced.

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PN - [CN206369348U](#) U 20170801
 PR - CN201621331201U 20161127
 AP - CN201621331201U 20161127
 DT - I

- CCA - [Y02E10/40](#)
- PA - YUHUAYANG
- TI - Tower solar electric system
- AB - The utility model relates to a tower solar electric system belongs to solar energy and uses. Include: **iron** tower (1) interior hot type receiver (2), heliostat (3), **heat** reservoir, circulating pump (7), **steam boiler** (8), **steam** turbine (9), generator (10), wherein: hot type receiver in setting up on the **iron** tower, ground set up the heliostat, the heliostat with sunshine reflection and focusing in the receiver the inside, **heated** air, high temperature air get into the **heat** reservoir, give energy storage medium with **heat** transfer after, get back to receiver, component thermal - arrest **heat** -retaining circulation circuit by the circulating pump forced lubrication, water in the **heat heating steam boiler** of **heat** reservoir makes water become **steam** and promotes the **steam** turbine rotation, drives the generator electricity generation, the interior hot type receiver airtight space that to be quartz window constitute with the **heat** preservation drum, the inside are the three -dimensional metal meshes that comprises the tungsten filament, should the net in the focus department of heliostat. This system keeps warm, and the **heat** radiation loss is little, and the thermal efficiency is high, and the energy storage expense is low, and system economy is profitable.

28/710 © EPODOC / EPO

PN - [WO2018011301](#) A1 20180118

PR - EP20160179114 20160712

AP - WO2017EP67613 20170712

DT - **

CT - |EP| ISR (A1)
[US2004109784](#) A1 20040610
 [I] (ARBAB ALIREZA [FR], et al)
 [I] 1-15
 * paragraphs [0001] - [0003] -
 [0031] - [0047] - [0068] - [0071] -
 [0106] - [0111] - [128] , [147] -
 [0149] - [156] , [0157]; example
 2; claims 1-11; tables 1,4-6,9 *;
[DE19941411](#) A1 20000309
 [I] (JAPAN VERTRETEN DURCH
 DEN GENE [JP])
 [I] 1-15
 * abstract *
 * page 7, lines 8-30 *
 * page 8, lines 26, 51-64; claims
 1,3,4; table 1 *;
[US2012160376](#) A1 20120628
 [A] (YAMADA MASAYUKI [JP], et
 al)
 [A] 1-15
 * paragraphs [0005] - [0009] -
 [0029] - [0045] - [0070] , [0071] ,
 [0077] , [0079] , [0084] - [0086];
 examples TS57, TS68,TS69; claim
 1; tables 1,2 *;
[WO9408063](#) A1 19940414
 [A] (BUCK ROBERT F [US])
 [A] 1-15
 * page 1, lines 1-7 *
 * page 21, line 19 - page 22,
 line 22; example 2 *
 * claims 1-6 *;
[JPH1192881](#) A 19990406
 [A] (NAT RES INST METALS, et al)
 [A] 1-15
 * abstract *
 * claims 1-4; table 1 *

CCI - [C22C38/001](#) ; [C22C38/02](#) ;
[C22C38/04](#) ; [C22C38/105](#) ;
[C22C38/12](#) ; [C22C38/14](#) ;
[C22C38/18](#) ; [C22C38/44](#) ;
[C22C38/46](#) ; [C22C38/48](#) ;
[C22C38/50](#) ; [C22C38/52](#) ;
[C22C38/54](#)

CUI - [C21D8/0226](#) ; [C21D8/0263](#) ;

	C21D8/105 ; C21D9/08 ; C21D9/085 ; C21D9/46
CUA	- C21D2211/008
PA	- VALLOURECTUBES FRANCE [FR]; VALLOURECDEUTSCHLANDGMBH [DE]
TI	- HIGH CHROMIUM MARTENSITIC HEAT -RESISTANT STEEL WITH COMBINED HIGH CREEP RUPTURE STRENGTH AND OXIDATION RESISTANCE
AB	- Martensitic heat -resistant steel for boiler applications with a unique combination of enhanced creep strength and excellent oxidation resistance upon high temperature exposure in steam containing environments., having the following melt analysis (in wt.-%): C: 0.10 to 0.16%, Si: 0.20 to 0.60%, Mn: 0.30 to 0.80%, P ≤0.020%, S ≤0. 010%, Al ≤0.020%, Cr: 10.5 to 12.00%, Mo: 0.10 to 0.60%, V: 0.15 to 0.30%, Ni: 0.10 to 0.40%, B: 0.008 to 0.015%, N :0.002 to 0.020%, Co: 1.50 to 3.00%, W: 1.50 to 2.50%, Nb: 0.02 to 0.07%, Ti: 0.001-0.020%. The balance of the steel consists of iron and unavoidable impurities. The steel is normalized for a period of about 10 to about 120 minutes in the temperature range between 1050 °C and 1170°C and cooled down in air or water to room temperature, and then tempered for at least one hour in the temperature range between 750°C and 820°C. It exhibits martensitic microstructure with average δ-ferrite content of less than 5 vol.-%.

29/710 © EPODOC / EPO

PN - [CN206247404U](#) U 20170613

PR - CN201621141927U 20161019

AP	- CN201621141927U 20161019
DT	- I
PA	- ZHEJIANG ACADEMY FORESTRY
TI	- Multipurpose energy -saving pot kitchen
AB	- The utility model provides a multipurpose energy -saving pot kitchen, by ground warm up water valve, kitchen base, grid melter, warm water tank, warm water intake the switch, open tap, water tank water level control tap, boiling water drain tube, steam takeover, steam valve, iron pan, annular boiling water case, inlet tube, the switch of intaking, chimney, stack damper, furnace gate, furnace and air intake and form. The iron pan is put directly over furnace and is in its central point and puts, around the boiling water case is arranged the iron pan below in and is in the bottom of a boiler, ground warm water tank arrange in below the boiling water case with furnace around, set up water inlet and steam outlet on the side upper portion of boiling water case, water inlet and inlet tube hookup, steam outlet take over with steam and the water tank water level control tap links, side bottom at the boiling water case sets up the delivery port, can boiled water in the dish of cooking or the steam raising evaporate the thing to other steamer, the water of heatable simultaneously warms up with being used for, control combustion fire can be required according to the flavor of meal, culinary art speed is adjusted, this pot and stove has the multi -purpose function of a kitchen.

30/710 © EPODOC / EPO

PN - [CN106702146](#) A 20170524

PR - CN20151766875 20151112

AP - CN20151766875 20151112

DT - I

PA - HARBIN CITY HONGTIAN RUIDA
TECH CO LTD

TI - Energy-saving environment-
protecting method for steel
and **iron** plant sintering

AB - The invention discloses an
energy-saving environment-
protecting method for steel
and **iron** plant sintering. The
energy-saving environment-
protecting method for steel
and **iron** plant sintering
comprises the following steps
that (1) solid fuel consumption
is reduced by adopting thick bed
sintering; (2) solid fuel
consumption is reduced through
recycling production and the
burning effect and performance
of solid fuels improvement; (3)
the burning effect and
performance of solid fuels are
improved; (4) the temperature of
a sintering material can be
improved through hot returning
ores and quick lime and hot gas
sintering and by injecting **steam**
through a drum mixer before the
fuels are mixed, and thus
waste **heat** can be utilized; (5)
energy consumption of ignition
is reduced by applying an energy-
saving type igniter and by means
of the method of preheating
combustion air; (6) electricity
consumption is reduced by
reducing air leakage and by
adopting a frequency conversion
technology; and (7) waste **heat** is
recycled by applying a
waste **heat boiler** and by
adopting a waste **heat boiler** and

a waste gas sintering technology. Energy saving and environment protection of the sintering process is actually achieved through the energy-saving environment-protecting method for steel and **iron** plant sintering provided by the invention.

31/710 © EPODOC / EPO

PN - [CN206204652U](#) U 20170531
 PR - CN201621283102U 20161125
 AP - CN201621283102U 20161125
 DT - I
 PA - NINGBO KAIBO GROUP CO LTD
 TI - **Boiler** and **steam** brush with scald function futilely
 AB - The utility model discloses a **boiler** and **steam** brush with scald function futilely belongs to clothes ironing equipment, and the phenomenon of dripping is brushed to prior art's **steam** when ubiquitous irones, the unable hot **iron** of realizing, the utility model discloses a disposing futilely the dough made with boiling water board around at **steam** outlet, scalding **heating** element for dry dough made with boiling water board disposes futilely, the during operation scalds **heat** high efficiency ground conduction that **heating** element produced futilely produces high temperature for dry dough made with boiling water board, avoids from go out the blowout of a vapour panel after and goes out the vapour panel low temperature **steam** on every side formation comdenstion water that meets when **steam**, realize doing scalding and the drip proof efficiency from this.

32/710 © EPODOC / EPO

PN - [RU2619658](#) C1 20170517

PR - UAA201510152 20151019

AP - RU20160102813 20160128

DT - I

CT - || STSE (C1)
[RU2304251](#) C1 20070810 [
] (KULIKOV BORIS GEORGIEVICH
 [RU], et al);
[MD4181](#) B1 20120831 [
] (GLORIN GRUP [US], et al);
[RU2168111](#) C1 20010527 [
] (NPO SPETSMONTAZH AOZT);
[RU2546370](#) C1 20150410 [
] (DOROZHENKO ALEKSANDR
 VLADIMIROVICH [RU]);
[RU2161755](#) C2 20010110 [
] (CATALYTICA INC [US], et al)

CNOA - [F23L7/005](#) ; [F23B90/00](#) ;
[F23C13/08](#)

PA - COMPANY PALMETTINO S A [CH]

TI - METHOD OF EFFICIENT FUEL
 COMBUSTION AND DEVICE FOR
 ITS IMPLEMENTATION

AB - FIELD: power industry.
 SUBSTANCE: combustion method
 includes supplying fuel to a
 combustion chamber, it arson in
 the presence of atmospheric air,
 followed by catalytic
 combustion without access of
 air. Fuel combustion is carried
 out in two stages, the first stage
 comprises burning a fuel-air
 mixture to form saturated
 vapour in the **steam** generator,
 the second stage comprises
 pyrolysis of water **steam** while
 burning fuel without air access.
 Water **steam** is fed into
 the **boiler** combustion chamber
 at a temperature of 400-960°C
 and atmospheric pressure,
 and **iron**, nickel and / or oxides
 is used as a catalyst of **iron**,
 nickel and/or their oxides placed
 on the grate.EFFECT:

intensification of combustion
and **heat** exchange processes,
increased fuel combustion
efficiency with reduced harmful
emissions into atmosphere.3 cl,
3 dwg

33/710 © EPODOC / EPO

PN - [CN206129729U](#) U 20170426
PR - CN201621185945U 20161028
AP - CN201621185945U 20161028
DT - I
PA - DAQING HAIXIAO MACHINERY
AND EQUIPMENT MFG CO LTD
TI - Vacuum negative pressure oily
loading attachment that ages
AB - The utility model belongs to the
technical field of oilfield
equipment, concretely relates to
vacuum negative pressure oily
loading attachment that ages.
Including a jar body, defeated
pump and vacuum pump
outward, a jar body bottom is
equipped with **heating** device,
and a jar body top is equipped
with the feed inlet, and defeated
pump is connected with a jar
body bottom through defeated
oil pipe outward, and the
vacuum pump passes through
negative pressure pipe and jar
and personally experiences sth.
Part of the body a top and be
connected, **heating** device is one
kind among electric **heating**
device, **steam heating** device or
the coil pipe water **heating**
device, and wherein
electric **heating** device
includes **iron** box and is
located **iron** box's
electrical **heating** rod, **steam**
heating device includes **steam**
boiler and **steam** coil pipe, coil
pipe water **heating** device
includes **boiler** and hydrologic

cycle coil pipe, jar internal temperature sensor and the baroreceptor of being equipped with, temperature sensor lie in a jar body bottom, and the baroreceptor lies in a jar body top, the external portion of jar is equipped with the **heat** preservation. The utility model has the advantages of simple structure, reasonable in design raises the efficiency, convenient to use, safe and reliable, low cost.

34/710 © EPODOC / EPO

PN - [WO2017059710](#) A1 20170413

PR - CN20152780761U 20151008

AP - WO2016CN89396 20160708

DT - *; Rep

CT - |CN| ISR (A1)
[AU2006202065](#) A1 20070111
 [XY] (SUNBEAM CORP)
 [X] 1-5
 * , description, page 5. line 5 to page 6. line 27 and page 8, lines 4-9. and figures 1-7, description, page 5, line 5 to page 6, line 27 and page 8, lines 4-9, and figures 1-7 *
 [Y] 6-8;
[CN202881724U](#) U 20130417
 [Y] (XU JIANMING)
 [Y] 6-8
 * , description, paragraph [0018], and figures 1-2 *;
[CN2869089Y](#) Y 20070214
 [X] (CHEN JUNJUN [CN])
 [X] 1
 * , description, page 2, last paragraph to page 3, paragraph 2, and figures 1-3 *;
[US5279054](#) A 19940118
 [X] (CHASEN JAMES E [US])
 [X] 1
 * , description, column 3, line 8 to column 4, line 64, and figures 1-4 *;

[CN201183911Y](#) Y 20090121

[X] (WENQING LI [CN])

[X] 1

* , description, page 4,

paragraph 2 to page 6,

paragraph 4, and figures 1-4 *;

[CN204982482U](#) U 20160120

[PX] (GD XINBAO ELEC APPL

HOLDINGS)

[PX] 1-8

* , claims 1-8 *

- CUI - [D06F75/16](#) ; [D06F75/20](#) ;
[D06F75/24](#)
- PA - GD XINBAO ELEC APPL HOLDINGS
[CN]
- TI - ELECTRIC **IRON**
- AB - An electric **iron**, forming an
ironing base by means of three
layers of aluminum plates,
forming a vaporization **boiler**
(50) and a vaporizing chamber
(60) arranged over and under in
the ironing base, the
vaporization **boiler** (50) and the
vaporizing chamber (60)
communicating directly by
means of a seamless connection
structure, avoiding the use of
tube connection, such that
a **steam** produced in the
vaporization **boiler** (50) directly
enters the vaporizing chamber
(60) for further **heating**, without
energy loss, and achieving a
higher temperature of the **steam**
and a better ironing effect.

35/710 © EPODOC / EPO

- PN - [CN206092091U](#) U 20170412
- PR - CN201621079294U 20160926
- AP - CN201621079294U 20160926
- DT - I
- CCA - [Y02P80/154](#) ; [Y02P80/15](#)
- PA - HANGANG GROUP HANBAO IRON
& STEEL CO LTD
- TI - Wet saturated **steam** is used for

AB

device of sintering cogeneration

- The utility model provides a wet saturated **steam** is used for device of sintering cogeneration, belongs to the **steam** energy - saving equipment technical field of **iron** and steel enterprise. Its technical scheme is: the **steam heat** accumulator is strained clean ware through pipeline and **steam** and is linked to each other, and **steam** is strained clean ware and is connected with gas formula superheater, and it is continuous with the gas -distributing cylinder that superheated **steam** that gas formula superheater produced passes through the pipeline, and the gas -distributing cylinder passes through **steam** main pipe and is connected with pair pressure **steam** turbines. The utility model discloses a wet saturated **steam** is stabilized in **steam heat** accumulator output, carries dry saturated strain the **steam** -water separation of clean ware through **steam** after, and dry saturated sends into gas formula superheater, becomes superheated **steam** after the **heating**, and superheated **steam** delivers to the gas -distributing cylinder through the **steam** conduit, send two pressure **steam** turbines actings to generate electricity with the waste **heat** mixture that the sintering produced. The utility model discloses open up the new way of the wet saturated **steam** electricity generation that utilizes the **iron** and steel enterprise, solved sintering cogeneration and do not have the difficult problem that conventional **boiler** support

led to the fact frequent shut down, had apparent economic benefits and social.

36/710 © EPODOC / EPO

PN - [RU2613356](#) C1 20170316

PR - RU20150154377 20151218

AP - RU20150154377 20151218

DT - I

CT - || STSE (C1)
[RU2190630](#) C2 20021010 [] (COMMW EDISON CO [US], et al);
[RU2500835](#) C1 20131210 [] (OOO NPF TRAVERS OOO NPF TRAVERS [RU]);
[RU99109U](#) U1 20101110 [];
[CN1557746](#) A 20041229 [] (ZHANG WENLI [CN]);
[US2524757](#) A 19501010 [] (DOW CHEMICAL CO)

CNOI - [C02F5/00](#) ; [F22B27/00](#) ; [F22D5/00](#)

PA - OBSHCHESTVO S OGRANICHENNOJ OTVETSTVENNOSTYU TEPLO-ENERGOSERVIS [RU]

TI - METHOD OF FEED WATER PREPARATION FOR LOW PRESSURE COIL **STEAM** GENERATORS

AB - FIELD: chemistry.SUBSTANCE: chemicals are added to the feed water, at that, two chemical reactant are added to this water: Aminat™CO-2 for final removal of oxygen from the feed water and Aminat™CO-3P to prevent scaling and adjust pH of the feed water, at that, the dose of the chemical reagent Aminat™CO 2 is calculated by the formula: $D=8 \times O+i$, mg/dm³, where O is oxygen content in the feed water in mg/dm³; i is the excess of reagent Aminat™CO-2, mg/dm³, which is in the range of 5-15

mg/dmfor the feed water and in the range of 10-25 mg/dmfor the **boiler** water, and the dose of the chemical reagent Aminat™CO-3P is calculated by the formula: $D=186 \times (H-H)+6.7C$, mg/dm, where: His feed water hardness, mg-Eq/dm; His residual hardness, mg-Eq/dm; Cis **iron** content in the feed water in mg/dm.EFFECT: prevention of scale formation and corrosion processes on the **heat** transfer surfaces of low pressure coil **steam** generators.

37/710 © EPODOC / EPO

- PN - [CN206073669U](#) U 20170405
- PR - CN20162757531U 20160718
- AP - CN20162757531U 20160718
- DT - I
- PA - SHANGLIN ZHONGXING SILK IND CO LTD
- TI - Exhaust gas of **boiler** afterheat recycling device
- AB - The utility model discloses an exhaust gas of **boiler** afterheat recycling device. It includes **boiler**, waste **heat heater**, silkworm chrysalis drying -machine, first baking house, second baking house, hot water retrieval and utilization ware, water film deduster, chimney and **iron** pipe, and the flue gas passageway of **boiler** links to each other with the waste **heat heater**, and the waste **heat heater** links to each other with silkworm chrysalis drying -machine, first baking house respectively, and first baking house, second baking house are consecutive, and wears to be equipped with the **iron** pipe of six strands of waste gas in first baking house

and the second baking house,
 and the second baking house
 links to each other with hot
 water retrieval and utilization
 ware, and it is continuous with
 the chimney that hot water
 retrieval and utilization ware
 passes through water film
 deduster. The utility model
 discloses utilize **boiler** flue
 waste gas waste **heat heat**
 through roast silkworm
 chrysalis of stoving and the silk
 floss of losing, use the **steam**
 method of toasting before
 changing, saved the **steam** use
 amount, play energy saving and
 emission reduction's effect.

- 38/710** © EPODOC / EPO
- PN - [CN106498688](#) A 20170315
- PR - CN20161813448 20160911
- AP - CN20161813448 20160911
- DT - I
- CT - || STSE (A)
 [CN102159762](#) A 20110817
 [Y] (LAURASTAR SA)
 [Y] 1-9
 * 说明书第0004-0013段及图1-2
 *;
 [CN203132105U](#) U 20130814
 [Y] (OTLAN ELECTRICAL
 GUANGZHOU CO LTD)
 [Y] 3-6
 * 参见说明书第0017-0029段及
 图1 *;
 [CN205245553U](#) U 20160518
 [Y] (JIANGSU XINLAI ENERGY
 PERFORMANCE CONTRACTING CO
 LTD)
 [Y] 1-9
 * 说明书第0004-0019段及图1-2
 *
- CTNP - || STSE (A)
 [A] - 董诚春,《废轮胎回收加
 工利用》, (20080831)
 [A] 1-9
 * 第385-386页 *

CNOI	- D06F79/04
PA	- HUZHOU POWER SUPPLY CO OF STATE GRID ZHEJIANG ELECTRIC POWER CO; STATE GRID CORP CHINA
TI	- Energy saving method using electric boiler to provide gas for ironing equipment
AB	- The invention discloses an energy saving method using an electric boiler to provide gas for ironing equipment; the ironing equipment is provided, and connected with the electric boiler ; the electric boiler comprises a heating furnace and an insulation furnace connected with the heating furnace; the ironing equipment comprises an ironing plate and an evaporation container; a steam pipe is arranged between the evaporation container and the ironing plate; heat conductive fluid is placed in the heating furnace and heated ; the heated heat conductive fluid is conveyed to the evaporation container, so the evaporation container is heated up; the water in the evaporation container is heated and evaporated, and the steam is conveyed to the ironing plate through the steam pipe so as to iron clothes; after heat exchange with the heat conductive fluid, the steam returns to the insulation furnace for insulation; when the heat conductive fluid in the heating furnace is reduced, the heat conductive fluid in the insulation furnace is conveyed to the heating furnace for reheating. The energy saving method is high in thermal efficiency and less in pollution.

39/710 © EPODOC / EPO

- PN - [CN205782842U](#) U 20161207
- PR - CN20162646820U 20160622
- AP - CN20162646820U 20160622
- DT - I
- PA - TIANJINANLIANTIANYUAN
ENERGY SAVING TECH CO LTD
- TI - **Steam** condensate water
recovery unit
- AB - The utility model provides
a **steam** condensate water
recovery unit, including
the **boiler**, gas -distributing
cylinder and **steam** equipment,
still include the **heat** exchanger,
the pond is handled to the
deoiling desalination, the
deironing filter, oxygen -
eliminating device and water
quality testing pond, the last
port in the water quality testing
pond **boiler** that flows back, the
lower port in water quality
testing pond is connected with
the deposit pond, flow back the
deoiling desalination and
handle the pond in the deposit
pond, detect the sensor including
the control and management unit
and with the grease of control
and management unit
connection in the water quality
testing pond, **iron** detects the
sensor, salt content testing
sensor, oxygen content testing
sensor, first control valve and
second control valve, the first
control valve sets up the last
port in the water quality testing
pond, the second control valve
sets up the lower port in the
water quality testing pond. The
beneficial effects are that can
carry out water quality testing
with the **steam** condensate water
of collecting to can retreatment

purify condensate water not up to standard, help prolonging **boiler** life, whole collection circulation is more reasonable.

40/710 © EPODOC / EPO

PN - [CN205987420U](#) U 20170222
PR - CN20162882868U 20160816
AP - CN20162882868U 20160816
DT - I
PA - MEC (SUZHOU) ELECTRIC CO LTD
TI - **Steam iron boiler heating rod**
AB - The utility model discloses a **steam iron boiler heating rod** contains a body, be full of the conduction oil in the body, the one end of body is equipped with a sealing plug, is equipped with a first electrode, a second electrode and a reserve electrode on the sealing plug, still is equipped with a **heating wire** in the body, the **heating wire** is connected with first electrode, second electrode and reserve electrode, the body make by the copper alumel, the conduction oil be mineral type conduction oil, sealing plug and body between be elastic connection, the **heating wire** be nichrome wire. The utility model discloses a during **steam iron boiler heating rod** dipped the **heating wire** conduction oil, the **heat** that the **heating wire** produced passed through the surface that the conduction oil transmitted the **heating rod**, and this has just been avoided the **heating** of **heating wire** to the directness of **boiler**, and the conduction oil is in the effect of wherein having played the buffering **heat** transfer to improved the **heat** stability of **heating rod**,

this **heating** rod uses with
the **boiler** cooperation, and
the **boiler** is difficult to damage.

41/710 © EPODOC / EPO

- PN - [CN205975135U](#) U 20170222
- PR - CN20162882870U 20160816
- AP - CN20162882870U 20160816
- DT - I
- PA - MEC (SUZHOU) ELECTRIC CO LTD
- TI - A electric **heat** piece for **steam iron boiler**
- AB - The utility model discloses an electric **heat** piece for **steam iron boiler** contains an oven paster of being made by insulating material, be equipped with a first terminal and a second terminal on the paster of oven, the surface of oven paster is equipped with a pair of embedded electrode, be equipped with a plurality of **heating** wire between embedded electrode, **heating** wire and embedded electrode are less than the surface of oven paster, the oven paster by ceramic grinding, the thickness of oven paster be 2-4mm, the quantity of **heating** wire be no less than 4, the **heating** wire be siderochrome aluminium **heating** wire. The utility model discloses an electric **heat** piece for **steam iron boiler** uses the integrated inside to the paster body of **heating** wire, this paster body directly attached outer wall at the **boiler**, and the concrete structure to the **boiler** requires just very simply like this to simplify the design and casting flow of **boiler** greatly, improved work efficiency.

42/710 © EPODOC / EPO

PN - [CN205975127U](#) U 20170222

PR - CN20162882832U 20160816

AP - CN20162882832U 20160816

DT - I

PA - MEC (SUZHOU) ELECTRIC CO LTD

TI - **Steam iron** of stage body is connected in area

AB - The utility model discloses a **steam iron** of stage body is connected in area contains a **steam iron, steam iron** is connected with a stage body, the top of stage body is equipped with a **heat** insulating board, still is equipped with a water tank, a **boiler** and a water pump in the stage body, the water suction **boiler heating** of water pump in with the water tank, and the **boiler** is **heated** up water the **steam** that produces and is passed through the leading - in **steam iron** of pipeline, the stage body on still be equipped with a **steam** control valve, **heat** insulating board and stage body bottom surface between be 30 degrees contained angles, but the **steam iron** exclusive use. The utility model discloses a **steam iron** of stage body is connected in area uses general **steam iron** and a stage body cooperation, and the stage body does not need to remove in the time of the use, so the volume of stage body can be great, inside water tank can once only add more water, and **steam iron** does not just need frequently to add water when ironing a large amount of clothings like this, and convenient to use is efficient. **Steam iron** can also regard as ordinary flatiron exclusive use, supplies the family to **iron** nimble convenience.

43/710 © EPODOC / EPO

PN - [CN205978677U](#) U 20170222
PR - CN20162882833U 20160816
AP - CN20162882833U 20160816
DT - I
PA - MEC (SUZHOU) ELECTRIC CO LTD
TI - **Steam iron** relief valve
AB - The utility model discloses a **steam iron** relief valve contains a grafting pipe, it is equipped with a plurality of inserting grooves to peg graft to manage, the terminal of pipe of pegging graft is connected with a safety guard, is equipped with a baffle of upwards digging in the safety guard, the baffle seals the mouth of pipe of the pipe of pegging graft, is connected through an elastomer between baffle and safety guard, is equipped with drainage lid on the open -top of safety guard semi -closedly, and high - pressure **steam** is discharged downwards under the effect of drainage lid, grafting pipe and safety guard between for the screw rod connection, the baffle be double -deck hollow structure, the baffle make by **heat** -resisting plastic, the elastomer be the spring. The utility model discloses a **steam iron** relief valve seals the grafting mouth of pipe with a baffle of being connected with the elastomer, and under the great condition of pressure in the **boiler**, **steam** can be pushed the baffle open and discharge, the unnecessary overboard **steam** drain backplate closed grafting mouth of pipe once more under the effect of elastomer, and the

device simple structure
manufacturing cost is lower.

44/710 © EPODOC / EPO

- PN - [TW350799B](#) B 19990121
- PR - TW19960107470 19960621
- AP - TW19960107470 19960621
- DT - I
- PA - HUANG BA-ZHOU [TW]
- TI - Micro-wave **heating** method and apparatus for polluted earth
- AB - A micro-wave **heating** apparatus for polluted earth, available on a trailer, featuring 3 units: unit 1 being a screen device and a crushing device; unit 2 being a rotary furnace; unit 3 being an atomized gas processor, where: the screen separator and the crushing device: for feeding of polluted earth in bulldozers to the funnel, which has a movable cover of 4-inch **iron** grille for separation of rocks and impurities, and the earth being screened in the funnel being sent by the funnel to a vibrating screen, while the removed rocks flowing into the crushing device for crushing and then into the funnel for feeding of the crushed earth by the conveyor into the rotary furnace inlet; the rotary furnace: with earth sent in going first by a vibrator for feeding in 2 stages of the earth into the rotary furnace, in front of which there is a seat, having an inlet, a funnel and 3 sets of solenoid tubes and a rear seat on the rear of the rotary furnace, having 3 sets of solenoid tubes and a blower as well as a vibrator discharge and pure gas inlet; in the midst of the furnace there are gears and chains driven by a motor and between the 2 waists

of the furnace there is a circular track and pulley in 3D support; and inside the rotary furnace there is a triangle steel pipe, with a microwave conductor for introduction of the microwave from the solenoid tube and injection from the discharge, disposed each of the discharge at 1/3 of the steel pipe and in different angle from the face, with a microwave baffle at the discharge and the rotary furnace having a curved mixing blade for the earth on the microwave **heat** solution; the atomizing processor: is provided to send the smoke from the **heat** solution into the dust collector from the funnel for use in the branch of the selective smoke switch and sending dense smoke into the cooler for cooling and liquidization before being fed by the control valve into the collector, while the residual gas shall be mixed with the oil pipe and injected into the **boiler** or the generator for combustion of the waste gas, with water in the **boiler** for cooling, for hot **steam** or combustion in the generator for power generation, in the **boiler** or the generator where the released smoke entering into the rinse tower for cleaning of the smoke and discharge of CO₂.

45/710 © EPODOC / EPO
 PN - [CN106350981](#) A 20170125
 PR - IT2015UB02147 20150714
 AP - CN20161494393 20160629
 DT - I
 CCI - [D06F75/16](#) ; [D06F75/20](#)
 CNOI - [D06F75/14](#) ; [D06F75/24](#) ;
[D06F75/265](#)

- CCA - [D06F75/24](#) ; [D06F75/26](#) ;
[D06F75/265](#)
- PA - DE'LONGHI APPLIANCES S R L DIV
COMMERCIALE ARIETE
- TI - IMPROVED **IRON** STRUCTURE
- AB - There is described an improved **iron** structure comprising a soleplate provided with through holes for **steam** adapted to come into contact with the fabrics to be treated, a **boiler** adapted to produce **steam** fluidly connected to the soleplate, a duct for introducing water into the **boiler**, **heating** means and a control button functionally connected to the **boiler** and arranged to obtain the delivery of **steam** through the through holes of the soleplate. In particular, the **boiler** is produced as fluid-tight coupling between the soleplate and a cover portion to form a **boiler** compartment in which the water is boiled and in which during use of the **iron** the hot water **steam** balance is established.

46/710 © EPODOC / EPO

- PN - [CN205909244U](#) U 20170125
- PR - CN20162650153U 20160628
- AP - CN20162650153U 20160628
- DT - I
- PA - HARBIN JINJING BOILER CO LTD
- TI - Civilian small -size **steam boiler**
- AB - The utility model provides a civilian small -size **steam boiler**, includes furnace body, base, bottom end of furnace body connects the base, and end device touch control screen is openly gone up to furnace body top right -hand unit relief valve, furnace body, the export of furnace body front lower extreme left -hand unit hot water, and

end device **steam** outlet in the furnace body right side, end device water inlet under the furnace body right side, the last end device hanging mount of back of furnace body, hanging mount lower extreme left -hand unit power cord, furnace body left side equipment maintenance door, furnace body inside from top to bottom device control case, electric **heater** unit and water tank in proper order, base bottom device universal wheel. The utility model discloses a civilian small -size **steam boiler**, energy -efficient, the thermal efficiency is higher, fast the **steam** raising, both but hot water can also be connected food **steamer**, sterilizer, **steam iron**, evaporate cabinet and the various utensil that evaporates, and the steady quality, durable, simple operation is realized. Vertical structure, movable base and hanging are dual -purpose, and occupation space is little.

47/710 © EPODOC / EPO
 PN - [US2017016174](#) A1 20170119
 PNFP - US10036117 B2 20180731
 PR - IT2015UB02147 20150714
 AP - US201615171761 20160602
 DT - **
 CT - || STSE (B2)
[US1830875](#) A 19311110 [
] (MATA IZUMIYA);
[US2188011](#) A 19400123 [
] (MILLER FRED A);
[US2189709](#) A 19400206 [
] (DEEMS DONALD A);
[US2278370](#) A 19420331 [
] (LOUIS HOFFMAN);
[US4206340](#) A 19800603 [
] (LEBAIGUE JACQUES L [US], et al);
[US4496826](#) A 19850129 [
] (OSROW LEONARD [US])

CCI	- D06F75/16 ; D06F75/20
CCA	- D06F75/24 ; D06F75/26 ; D06F75/265
PA	- (A1) DE' LONGHI APPLIANCES S R L DIV COMMERCIALE ARIETE [IT] - (B2) DE' LONGHI APPLIANCES S R L DIV COMMERCIALE ARIETE [IT]; DE LONGHI APPLIANCES S R L DIV COMMERCIALE [IT]
TI	- (A1) IRON STRUCTURE - (B2) Iron structure
AB	- (A1 B2) There is described an improved iron structure comprising a soleplate provided with through holes for steam adapted to come into contact with the fabrics to be treated, a boiler adapted to produce steam fluidly connected to the soleplate, a duct for introducing water into the boiler , heating means and a control button functionally connected to the boiler and arranged to obtain the delivery of steam through the through holes of the soleplate. In particular, the boiler is produced as fluid-tight coupling between the soleplate and a cover portion to form a boiler compartment in which the water is boiled and in which during use of the iron the hot water- steam balance is established.

48/710 © EPODOC / EPO

PN	- CN106285810 A 20170104
PNFP	- CN106285810B B 20170825
PR	- CN20161849557 20160926
AP	- CN20161849557 20160926
DT	- I

CT	- STSE (A) CN101245911 A 20080820 [A] (CAPITAL ENG & RES INC LTD [CN]) [A] 1-9 * 全文 *; CN101672578 A 20100317 [A] (ZHONGYE CHANGTIAN INT ENG CO) [A] 1-9 * 全文 *; CN102410740 A 20120411 [A] (DALIAN EAST NEW ENERGY DEV CO) [A] 1-9 * 全文 *; DE102010050090 A1 20120503 [A] (LINDE AG [DE]) [A] 1-9 * 全文 *; CN104153832 A 20141119 [A] (KUNMING IRON & STEEL GROUP CO LTD) [A] 1-9 * 全文 *; CN206092091U U 20170412 [R] (HANGANG GROUP HANBAO IRON & STEEL CO LTD) [R] 1-7 * 权利要求1-7 *
CNOI	- (A) F01D15/10 ; F01K3/24 ; F01K27/02 ; F22G1/00 ; F22G5/00
CCA	- Y02P80/154
PA	- (A) HANGANG GROUP HANBAO IRON & STEEL CO LTD
TI	- (A) Device and method for sintering waste heat power generation by utilization of wet saturated steam
AB	- (A) The invention discloses a device and a method for sintering waste heat power generation by utilization of wet

saturated **steam**, and belongs to the technical fields of **iron-and-steel** enterprise **steam** energy-saving equipment and utilization methods. The technical scheme is as follows: a **steam heat** accumulator is connected with a **steam** filtering cleaner through a pipe; the **steam** filtering cleaner is connected with a gas-type superheating device; superheated **steam** generated by the gas-type superheating device is connected with a gas distributing cylinder through the pipe; the gas distributing cylinder is connected with a dual-pressure **steam** turbine through a main **steam** pipe. The device and the method disclosed by the invention have the advantages that the **heat** accumulator outputs stable wet saturated **steam**, dry saturated **steam** is conveyed after the stable wet saturated **steam** is suffered from gas-water separation by the **steam** filtering cleaner, the dry saturated **steam** is fed into the gas-type superheating device and is converted into the superheated **steam** after **heating**, the superheated **steam** is conveyed to the gas distributing cylinder through the **steam** pipe, and the superheated **steam** is mixed with sintering waste **heat** and then is fed to the dual-pressure **steam** turbine for realizing power generation by means of doing work. The device and the method disclosed by the invention have the advantages that a new way for generating power by utilization of the wet saturated **steam** of an **iron-and-steel** enterprise is developed, the problem of frequent shutdown

due to the fact that the sintering waste **heat** power generation is not supported by any ordinary **boiler** is solved, and significant economic benefits and social benefits are obtained.

49/710 © EPODOC / EPO

- PN - [CN205878931U](#) U 20170111
- PR - CN20162590833U 20160616
- AP - CN20162590833U 20160616
- DT - I
- CCA - [Y02P10/265](#) ; [Y02P10/283](#)
- PA - BEIJING BOBON BESTECH ENERGY CONSERVATION & ENV PROT CO LTD
- TI - High temperature gas cleaning and waste **heat** recovery system
- AB - The utility model provides a high temperature gas cleaning and waste **heat** recovery system, include: evaporative cooling flue 2, gas bag 3, pipe network 12, high temperature filter 4, exhaust - **heat boiler** 5, fan 7, auto -change over device 8, diffuse chimney 9, recovery system 11, does high temperature filter 4 adopt **iron** aluminium intermetallic compound filtration membrane filters, and core parts are porous membrane material filter core. Compared with the prior art, the utility model discloses the amount of **steam** withdrawn can increase by 30% at least, through high temperature filter (diaphragm type dust remover) dedusting function, gas cleaning efficiency has been improved.

50/710 © EPODOC / EPO

- PN - [CN205824998U](#) U 20161221
- PR - CN20162730026U 20160712
- AP - CN20162730026U 20160712

DT	- I
PA	- UNIV JIANGSU
TI	- Small -size coal fired boiler combination formula economizer
AB	- The utility model provides a small -size coal fired boiler combination formula economizer, including low temperature heat transfer subtotal high temperature heat transfer part, low temperature heat transfer part including evaporator tube bank, downtake, closed tube, steam pocket, the snakelike nest of tubes of the first order, level gauge, bypass pipe, temperature measuring device, controller, play water collection case pipe, control valve, economizer inlet tube and album case pipe of intaking, in evaporator tube bank located the flue, evaporator tube bank's upper end and steam pocket were linked together, evaporator tube bank's top is located to the steam pocket, is equipped with the blast pipe on the steam pocket, is equipped with discharge valve on the blast pipe, high temperature heat transfer part is including the snakelike nest of tubes in the second level, economizer outlet pipe and connecting pipe, in the flue is located to the snakelike nest of tubes in the second level, second level coiled pipe histotope in the snakelike nest of tubes upper reaches of the first order, the snakelike nest of tubes in the second level is by at least 2 coiled pipes. The utility model relates to a combination steel economizer replaces cast iron gilled tube economizer, has simplified the manufacture craft greatly, has saved the cost of

manufacture.

51/710 © EPODOC / EPO

PN - [CN106232893](#) A 20161214

PR - FR20140051218
20140217; WO2015FR50390
20150217

AP - CN20158019709 20150217

DT - I

CT - || STSE (A)
[US3403463](#) A 19681001
[A] (STANLEY LOUIE L)
[A] 1-6
* 全文 *;
[JP2002035496](#) A 20020205
[A] (MATSUSHITA ELECTRIC IND
CO LTD)
[A] 1-6
* 全文 *;
[US6986217](#) B2 20060117
[A] (LEUNG ANTHONY KIT LUN
[CN], et al)
[A] 1-6
* 全文 *;
[CN201678886U](#) U 20101222
[A] (TSANN KUEN ZHANGZHOU
ENTPR CO)
[A] 1-6
* 全文 *;
[CN202440703U](#) U 20120919
[A] (CUORI ELECTRICAL
APPLIANCE GROUP CO LTD)
[A] 1-6
* 全文 *

CCI - [D06F75/20](#) ; [D06F75/38](#) ;
[D06F87/00](#)

CNOI - [D06F75/20](#) ; [D06F75/38](#) ;
[D06F87/00](#)

PA - ECODROP

TI - **Steam iron** device for ironing
and removing creases

AB - The invention relates to a **steam
iron** device for ironing and
removing creases, for especially
vertical crease removal
operations, comprising a **heating**
body (3), a **boiler** or the like for

producing **steam** (V), a water reservoir, and a metal sole (2) pierced with holes (23) for the passage of **steam** (J). The outer wall (20) of the sole (2) has a partially curved shape, comprising two parts, a front flat part (21) and a rear curved convex part (22) to which said flat part (21) is tangential.

52/710 © EPODOC / EPO

PN - [CN106152092](#) A 20161123
 PR - CN201610697291 20160822
 AP - CN201610697291 20160822
 DT - I
 CT - || STSE (A)
[CN101865454](#) A 20101020
 [A] (UNIV SHANGHAI ELECTRIC POWER)
 [A] 1-6
 * 全文 *;
[CN201621975U](#) U 20101103
 [A] (HUNAN YONKER ENVIRONMENTAL PROT CO LTD)
 [A] 1-6
 * 全文 *;
[CN103615908](#) A 20140305
 [Y] (BEIJING ZNXY ENERGY & ENVIRONMENT TECHNOLOGY CO LTD)
 [Y] 3-6
 * 说明书第21段、说明书附图1 *;
[CN204665224U](#) U 20150923
 [YX] (JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD)
 [Y] 3-6
 * 说明书第13-16段、说明书附图3-5 *
 [X] 1、2;
[CN205939059U](#) U 20170208
 [R] (JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD)
 [R] 1-6
 * 权利要求1-6 *
 CNOI - [F22B1/1869](#) ; [F27D17/004](#)
 CCA - [Y02P10/283](#) ; [Y02P80/154](#)

CNOA	- F27D2017/006
PA	- JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD
TI	- Modular residual heat boiler system having regulation functions and internally arranged in smoke flue of sintering machine
AB	- The invention discloses a modular residual heat boiler system having regulation functions and internally arranged in a smoke flue of a sintering machine, and belongs to the technical field of iron and steel smelting equipment. The modular residual heat boiler system comprises a big smoke flue, a small smoke flue, a steam pocket, a water supply system and heat exchanging modules, wherein the heat exchanging modules comprise evaporator modules, overheater modules and coal economizer modules; the big smoke flue and the small smoke flue are provided with multiple pipe joints respectively; each of the overheater modules, the evaporator modules and the coal economizer modules are arranged between every two pipe joints respectively; each evaporator-module water inlet pipeline is provided with an evaporator-module water inlet regulating valve respectively; and each evaporator-module gas outlet pipeline is provided with an evaporator-module gas outlet regulating valve respectively. By using the system, a residual heat resource, which is recovered at an existing field for the sintering machine, from the sintering machine is sufficiently utilized; the reasonable, effective and stepped utilization of an energy

source is achieved; the equipment investment is saved; the floor area is small; generated overheated **steam** is used for power generation; and the modular residual **heat boiler** system has obvious economic benefit and social benefit.

53/710 © EPODOC / EPO

PN - [CN205697152U](#) U 20161123
PR - CN20162327731U 20160419
AP - CN20162327731U 20160419
DT - I
PA - HEBEI CHUIHUA CASTING CO LTD
TI - Casting **iron** pan
AB - The utility model discloses a casting **iron** pan relates to the kitchen utensil field. The utility model discloses a pot body and pot cover, the pot body is gone up and is equipped with a pair of curved handle along outside symmetry, the border upper bend of pot cover forms the arch ring, the arch ring is the cavity in the inboard of pot cover, the centre of pot cover is the pot cover concave surface that corresponds with the bottom of a **boiler** of the pot body, the outside of the free end of arch ring is equipped with the hem that the level is turned up, the free end of arch ring forms the block ring that can close with the pot flap of the pot body from the hem downwardly extending of department, be equipped with a plurality of smoothly protruding on the internal surface of pot cover concave surface, a plurality of smooth protruding distributions on the concentric circles of center as the centre of a circle that uses the pot cover. The utility model discloses can

firmly pin the moisture of pot inner loop, make the interior **steam** of pot fully circulate, reduce water loss, guarantee that food is genuine, can reduce the energy consumption simultaneously, reduction **heat** time.

54/710 © EPODOC / EPO

PN - [CN106091047](#) A 20161109
 PR - CN20161445625 20160620
 AP - CN20161445625 20160620
 DT - I
 CT - || STSE (A)
 [CN2045082U](#) U 19890927
 [A] (JIANG ZHANGHENG [CN])
 [A] 1-5
 * 全文 *;
 [CN2056959U](#) U 19900509
 [A] (FU DAQING [CN])
 [A] 1-5
 * 全文 *;
 [CN2075312U](#) U 19910417
 [X] (YANG GUANGHUI [CN])
 [X] 1-5
 * 权利要求1-5, 附图1-2 *;
 [CN86208420U](#) U 19871118 [A]
 [A] 1-5
 * 全文 *
 CNOI - [F24B1/183](#) ; [F24B1/19](#) ;
 [F24B1/197](#) ; [F24B5/02](#) ;
 [F24C11/00](#)
 PA - ZHENJIANGGANGHUAMULTI-
 PURPOSE COOKING RANGE CO LTD
 TI - Combined type efficient black-
 smoke-free stove
 AB - The invention provides a
 combined type efficient black-
 smoke-free stove which
 comprises an **iron** stove body of
 a steel structure and a vertical
 water **boiler**. The combined type
 efficient black-smoke-free stove
 is characterized in that a flue
 connector is arranged above a
 hearth of the vertical

water **boiler** and communicates with a flue outlet of the **iron** stove body in a butt joint mode; an annular concave air duct is arranged in the **iron** stove body; and bottom air and high-temperature side air support combustion simultaneously, in this way, fuel can be combusted sufficiently, and black smoke is avoided. The combined type efficient black-smoke-free stove is simple in structure, low in manufacturing cost, small in occupied space, high in **heat** utilization efficiency, and capable of saving fuel and reducing smoke pollution, multiple purposes can be achieved through one stove, **steaming**, boiling, frying and boiled water supplying can be conducted at the same time if a collective canteen is equipped with one combined type efficient black-smoke-free stove, and using is safe and convenient.

55/710 © EPODOC / EPO

PN - [CN106090933](#) A 20161109

PR - CN20161432002 20160617

AP - CN20161432002 20160617

DT - I

CT - || STSE (A)
 [CN1376546](#) A 20021030
 [A] (FANG HUAJIE [CN])
 [A] 1-8
 * 全文 *;
 [JP2012002424](#) A 20120105
 [A] (NIPPON STEEL ENG CO LTD)
 [A] 1-8
 * 全文 *;
 [CN104006390](#) A 20140827
 [Y] (CHONGQING WENYUAN
 ENVIRONMENTAL PROT
 ENGINEERING CO LTD)
 [Y] 1-8
 * 说明书第[0020]-[0025]段, 附

图1 *;
[CN104607440](#) A 20150513
[Y] (BEIJING GEOENVIRON
ENGINEERING & TECHNOLOGY
INC)
[Y] 1-8
* 说明书第[0025]-[0032]段, 附
图1 *

- CNOI - [F01D15/10](#) ; [F23J15/00](#) ;
[F22B1/1807](#) ; [F23G5/033](#) ;
[F23G5/05](#) ; [F23G5/44](#) ;
[F23G5/46](#)
- CCA - [Y02E20/12](#)
- PA - BEIJING GEOENVIRON
ENGINEERING & TECHNOLOGY INC
- TI - Method and device for power
generation through household
garbage incineration
- AB - The invention discloses a
method and device for power
generation through household
garbage incineration. The
method comprises the following
steps that (1) bio-drying is
conducted, specifically,
household garbage is put in a
closed bio-drying chamber, an
air blower is started for aerobic
fermentation to make the
moisture content of the
household garbage be lowered to
25% or below, and the lower
calorific value is larger than
2500 Kcal/kg; (2) bio-drying
products obtained in the step (1)
are screened into **iron** metal,
nonmagnetic metal, inert
materials, plastics and dried
garbage, the dried garbage
enters a stoker incinerator for
incineration, and the rest is
subjected to landfill treatment;
and (3) high-temperature flue
gas generated after incineration
of the stoker incinerator of the
step (2) **heats** water in a gas
waste **heat steam boiler**, and
generated **steam** drives a **steam**

turbine generator unit to generate power. According to the method and device for power generation through household garbage incineration, after subjected to bio-drying, the originally generated city household garbage enters the stoker incinerator for incineration, the high-temperature **steam** generated by waste **heat** drives a **steam** turbine generator to generate power, and thus quantity reduction, recycling and harmless treatment of the household garbage are achieved.

56/710 © EPODOC / EPO

PN - [CN106051660](#) A 20161026

PR - CN20161456937 20160607

AP - CN20161456937 20160607

DT - I

CNOI - [D06F75/10](#) ; [F03G6/06](#) ;
 [F22B1/006](#) ; [F22G1/06](#) ;
 [F24S80/60](#) ; [F24S23/30](#)

CCA - [Y02E10/46](#)

PA - NINGBO HIGH-TECH ZONE SHIDAI
 ENERGY TECH CO LTD

TI - Solar **steam iron**

AB - The invention provides a solar **steam iron**. The solar **steam iron** comprises N lens gathering groups, intelligent control centers, boilers, one-way conducting valves, an insulation tank, an insulation buffer tank, a **heat** supply center, **steam iron** users, insulation connecting pipelines and an information connecting wire, wherein each lens gathering group comprises a group of focusing lenses which are perpendicular to solar rays and synchronously rotate along with the solar rays; the foci of the focusing lenses are gathered

in the **heating** centers of the boilers all the time; when water temperature and pressure in the boilers reach certain values, the one-way conducting valves are opened, and overheating vapor enters the next **boiler** so as to be further **heated**; when the temperature and the pressure are reduced to certain values along with the output of the overheating vapor, the one-way conducting valves are closed, repeatedly, the overheating vapor with high temperature and pressure is produced, and finally, the overheating vapor with specified temperature and pressure is generated to enter the insulation tank through the one-way conducting valve (8), so as to be stored. The solar **steam iron** has the advantages of high efficiency, greenness, energy conservation, emission reduction, cost saving, environmental friendliness and no pollution.

57/710 © EPODOC / EPO

PN - [CN106016240](#) A 20161012

PR - CN20161547213 20160712

AP - CN20161547213 20160712

DT - I

CT - || STSE (A)

[CN102607010](#) A 20120725

 [A] (CHANGCHUN DANGDAI

 INFORMATION INDUSTRY GROUP

 CO LTD)

 [A] 1-3

 * 全文 *;

[CN103994458](#) A 20140820

 [X] (SHANGHAIZHONGYUAN

 KEYANGENERGYSAVING

 TECHNOLOGY CO LTD)

 [X] 1-3

 * 说明书第0007-0030段以及附

 图1 *;

[CN202947122U](#) U 20130522
 [A] (HANGZHOU STATE POWER
 MACHINERY DESIGN INST CO LTD)
 [A] 1-3
 * 全文 *;
[CN204665244U](#) U 20150923
 [A] (HANGZHOU HUADIAN
 ENERGY ENGINEERING CO LTD)
 [A] 1-3
 * 全文 *;
[CN205824998U](#) U 20161221
 [R] (UNIV JIANGSU)
 [R] 1-3
 * 权利要求1-3 *

- | | |
|------|---|
| CNOI | - F22B1/18 ; F22D1/02 ; F22D1/12 |
| PA | - UNIV JIANGSU |
| TI | - Combined coal economizer of
small coal-fired boiler |
| AB | - The invention provides a
combined coal economizer of a
small coal-fired boiler . The
combined coal economizer
comprises a low-
temperature heat exchange part
and a high-temperature heat
exchange part; the low-
temperature heat exchange part
includes an evaporation pipe
bundle, a descending pipe, a
communicating pipe, a steam
pocket, a first-grade snake-
shaped pipe set, a liquid level
meter, a bypass pipe, a
temperature measuring device, a
controller, a water outlet
collecting box pipe, a control
valve, a coal economizer water
inlet pipe and a water inlet
collecting box pipe; the
evaporation pipe bundle is
arranged in a flue; the upper end
of the evaporation pipe bundle is
communicated with the steam
pocket; the steam pocket is
arranged above the evaporation
pipe bundle, and is provided
with an exhaust pipe; an exhaust
valve is arranged on the exhaust |

pipe; the high-temperature **heat** exchange part includes a second-grade snake-shaped pipe set, a coal economizer water outlet pipe and a connecting pipe; the second-grade snake-shaped pipe set is arranged in the flue, and is positioned at the upstream of the first-grade snake-shaped pipe set; and the second-grade snake-shaped pipe set has at least two snake-shaped pipes. The combined steel coal economizer replaces a cast **iron** coal economizer, largely simplifies a manufacturing process, and saves the manufacturing cost.

58/710 © EPODOC / EPO

PN - [CN105972580](#) A 20160928

PR - CN20161477796 20160622

AP - CN20161477796 20160622

DT - I

CT - || STSE (A)

[CN103017142](#) A 20130403

[X] (GUIZHOU ANSHUN JIAYU NEW MATERIALS CO LTD)

[X] 1-5

* 说明书第[0006]-[0045]段, 附图1 *;

[CN104391099](#) A 20150304

[A] (STATE GRID SHANGHAI MUNICIPAL ELECTRIC POWER CO, et al)

[A] 1-5

* 全文 *;

[CN104964267](#) A 20151007

[A] (LINHUAN COKING & CHEMICAL CO LTD)

[A] 1-5

* 全文 *;

[CN203295307U](#) U 20131120

[A] (HUEYAENVIRONMENTAL EQUIPMENT CO LTD)

[A] 1-5

* 全文 *;

[CN205227287U](#) U 20160511

[A] (SICHUAN GAODA SCIENCE &

TECH CO LTD)

[A] 1-5

* 全文 *;

[CN205782842U](#) U 20161207

[R] (TIANJIN ANLIAN TIANYUAN
ENERGY SAVING TECH CO LTD)

[R] 1-5

* 权利要求1-5 *

- CNOI - [F22D11/06](#) ; [G01N33/18](#) ;
[G01N33/1833](#) ; [G01N33/1853](#)
- PA - TIANJIN ANLIAN TIANYUAN
ENERGY-SAVING TECH CO LTD
- TI - Recycling device capable of
detecting **steam** condensate
water quality
- AB - The invention provides a
recycling device capable of
detecting **steam** condensate
water quality. The recycling
device capable of detecting
the **steam** condensate water
quality comprises a **boiler**,
a **steam** manifold, a **steam**
utilization device, a **heat**
exchanger, a deoiling and
desalting treating pond, a
deironing filter, a deaerator and
a water quality detecting
pond. **Steam** condensate water
backflows from an upper end
port of the water quality
detecting pond to the **boiler**; a
lower end port of the water
quality detecting pond is
connected with a reserve pond;
the **steam** condensate water
backflows to the deoiling and
desalting treating pond from the
reserve pond; the water quality
detecting pond is internally
provided with a control
management unit, a grease
detecting sensor, an **iron**
detecting sensor, a salt content
detecting sensor, an oxygen
content detecting sensor, a first
control valve and a second
control valve, wherein the grease

detecting sensor, the **iron**
detecting sensor, the salt content
detecting sensor, the oxygen
content detecting sensor, the
first control valve and the
second control valve are
connected with the control
management unit; the first
control valve is arranged on the
upper end port of the water
quality detecting pond; and the
second control valve is arranged
on the lower end port of the
water quality detecting pond. The
recycling device capable of
detecting the **steam** condensate
water quality has the beneficial
effects that the quality of the
collected **steam** condensate
water can be detected;
substandard condensate water
can be treated and purified; the
service life of the **boiler** can be
advantageously prolonged; and
the whole collection cycle is
more reasonable.

59/710 © EPODOC / EPO
PN - [WO2017013689](#) A1 20170126
PR - IT2015UB02967 20150723
AP - WO2016IT00180 20160721
DT - *; Rep
CT - |EP| ISR (A1)
[KR200447292Y](#) Y1 20100118
[A] (PARK)
[A] 1-3
* abstract *;
[GB1519356](#) A 19780726
[A] (SIMMONDS M)
[A] 1-3
* page 2, line 65 - page 2,
line 106 *
* page 3, line 72 - page 3,
line 84 *
* page 4, line 64 - page 5,
line 6; figures 1,4 *;
[DE3633087](#) A1 19880331
[A] (NORMBAU GMBH [DE])

[A] 1-3
 * column 2, line 26 - column 3,
 line 1; claim 1 *
 * column 3, line 35 - column 3,
 line 46 *
 * column 4, line 53 - column 4,
 line 66 *
 * column 5, line 42 - column 6,
 line 20; figures 1-3 *;
[US2229260](#) A 19410121
 [A] (SMITH ALVA T)
 [A] 1-3
 * column 2, line 12 - column 2,
 line 31 *
 * column 3, line 2 - column 3,
 line 11; figures 1-3 *;
[US2213042](#) A 19400827
 [A] (LOUIS ILLMER)
 [A] 1-3
 * column 3, line 20 - column 5,
 line 58; figures 1-3 *;
[GB693534](#) A 19530701
 [A] (KLEINDIENST HANS, et al)
 [A] 1-3
 * page 1, line 92 - page 2,
 line 42; figures 1-5 *

- CCI - [D06F75/12](#) ; [D06F81/08](#)
- PA - MILANESE PIER ANTONIO [IT]
- TI - IRONING BOARD WITH **STEAM**-
 RELEASING BOARD FOR
 DOMESTIC USE WITH VARIOUS
 IRONING MODES
- AB - Ironing board for domestic use
 with **heated** and ventilated
 board with **steam**-release
 function and built-in **boiler**. Said
 ironing board has several
 ironing modes and automatic
 mechanisms that make it
 especially easy and intuitive to
 use. In particular, the three
 following ironing modes: ironing
 by hand only (without using
 any **iron**); ironing with **steam**
iron and release of **steam** from
 the board at the same time;
 ironing with dry **iron** and release
 of **steam** from the board at the

same time. The by-hand-only ironing mode (without any **iron**) has to a new automatic system of ventilation change from suction to blowing and the contemporary release of **steam** from the ironing board by simply operating a foot-pedal control. This enables the user to keep his/her hands completely free to flatten the item to be ironed on the board by exploiting the air suction first and then pressing the foot- pedal to obtain the blowing function and **steam** release. The user can then **iron** the item by using air and **steam** and eliminate any creases by using his/her hands only. After releasing the foot-pedal, the ironing board stops ejecting **steam** and changes the ventilation from blowing into suction: during this phase the residual **steam** is sucked and the garment is dried up, while the user flattens and folds it. The ironing mode with **steam iron** has a ventilation mechanism controlled by the **iron** that starts the ventilation either in blowing or suction mode according to the selection made each time **steam** is released. Each time the foot-pedal is operated, the ventilation changes from suction into blowing and at the same time **steam** is released from the ironing board, so that **steam** can come from the **iron** and the worktop for greater effect and penetration of **steam** into the item being ironed. When the foot-pedal is released, the ironing board stops ejecting **steam** and the ventilation is changed back into the previous mode. In the ironing mode with dry **iron**, the ventilation is set as continuous

suction and the user irons with dry **iron** and the **heated** board in suction mode. In this case too, by pressing the foot-pedal **steam** is released from the board and the ventilation is changed from suction into blowing. When releasing the foot-pedal, the **steam** ejection from the board stops and the ventilation is changed back into suction.

60/710 © EPODOC / EPO

- PN - [CN205568659U](#) U 20160914
- PR - CN201521017021U 20151209
- AP - CN201521017021U 20151209
- DT - I
- PA - ZHEJIANG HOTSUN ALUMINIUM
IND CO LTD
- TI - Minute -pressure
multilayer **steamer**
- AB - The utility model relates to a
culinary art kitchen utensils and
appliances, in particular to
minute -pressure
multilayer **steamer**. The utility
model discloses a realize
through following technical
scheme: a minute -pressure
multilayer **steamer**, includes
be **heated** pot and **steamer**,
the **steamer** is banked up
directly over the pot that
is **heated**, wherein: it sets up the
at least two -layer thermosphere
that receives to be **heated**
bottom of a **boiler** portion,
comprises aluminum sheet
and **iron** sheet, and the
aluminum sheet setting just is
provided with a plurality of thru
holes the most surperficial,
the **steamer** is the clear glass
material, and the bottom is
provided with a plurality of
vapour hand -holes, and the
vapour hand -hole coats and is

stamped the ear lid that equate
 quantity with the vapour hand -
 hole, and ear lid
 protrusion **steamer** bottom just
 sets up the gas pocket, and a gas
 pocket positive inverted
 staggered type sets up,
 the **steamer** top still is provided
 with the **steamer** pot
 cover, **steamer** pot cover top is
 provided with the minute -
 pressure air lock, the minute -
 pressure air lock is cylindrical,
 and the top has the cap shell,
 and cap shell lower part is
 buckleing the circle, goes up knot
 circle lower part and is gas -
 permeable section, setting up
 ventilative stopper on gas -
 permeable section's the outer
 wall.

61/710 © EPODOC / EPO
 PN - [CN105919407](#) A 20160907
 PR - CN20161554400 20160714
 AP - CN20161554400 20160714
 DT - I
 CT - || STSE (A)
 [JPS5988050](#) A 19840521
 [A] (SANSI KK)
 [A] 1-4
 * 全文 *;
 [JPS642287](#) A 19890106
 [A] (MATSUSHITA ELECTRIC IND
 CO LTD)
 [A] 1-4
 * 全文 *;
 [CN2099528U](#) U 19920325
 [Y] (WANG MEGONG [CN])
 [Y] 1-4
 * 说明书第1-6页及附图1-6) *;
 [JPH07148063](#) A 19950613
 [A] (ISHIDA EISUKE, et al)
 [A] 1-4
 * 全文 *;
 [CN2300357Y](#) Y 19981216
 [A] (HUANG WENRAN [CN])
 [A] 1-4

* 全文 *;

[CN204133123U](#) U 20150204

[Y] (TIANJIN KANGLI
KITCHENWARE MANUFACTURE CO
LTD)

[Y] 1-4

* 说明书第【0001】 - 【0025】
段及图1-2） *;

[CN206080101U](#) U 20170412

[R] (TIANJIN KANGLI
KITCHENWARE MFT CO LTD)

[R] 1-4

* 权利要求1-4 *

- CNOI - [A47J36/04](#) ; [A47J36/06](#) ;
[A47J27/002](#)
- PA - TIANJIN KANGLI KITCHENWARE
MFT CO LTD
- TI - Cast **iron steam** collecting **boiler**
- AB - The invention relates to a
cast **iron steam** collecting **boiler**.
The cast **iron steam**
collecting **boiler** comprises
a **boiler** body and a **boiler** cover
both of which are made of
cast **iron**, and is characterized in
that a boss is formed on
the **boiler** body; a blocking edge
is arranged on the outer ring of
the boss; the inner ring of the
boss is provided with a
downwardly-inclined inclined
wall; the **boiler** cover covers on
the boss; the **boiler** cover is a
conical **boiler** cover which is
larger in the lower-end aperture
and smaller in the upper-end
aperture; a gripping head is
formed on the upper part of the
conical **boiler** cover; a baffle
plate is arranged inside the
gripping head; space above the
baffle plate and below the top of
the gripping head is filled
with **heat**-insulating filler; the
outer wall and the top end of the
gripping head above the baffle
plate are provided with bumps;
silicon rubber cases wrap the

bumps; the inner walls of the silicon rubber cases are provided with concave-convex structures into which the bumps on the gripping head are embedded. The cast **iron steam** collecting **boiler** has the advantages of being scientific and reasonable in structural design, being beneficial to generation of condensed water, keeping the original taste and flavor of cooked foods, being easy in taking the **boiler** cover, realizing **heat** insulation, sliding resistance and attractive appearance, and being easy in implementation.

62/710 © EPODOC / EPO

PN - [CN205514046U](#) U 20160831
 PR - CN20162242645U 20160328
 AP - CN20162242645U 20160328
 DT - I
 PA - QINGDAO KAIMEI HOUSEHOLD CO LTD
 TI - On -stick frying pan
 AB - The utility model discloses an on -stick frying pan, including digester shell, corresponding handle and supplemental handle are installed to digester shell's lateral surface, and annular spacing groove has been seted up at the top of digester shell medial surface, the overflow launder is still left at digester shell's top, and this digester shell's bottom integrated into one piece has a discoid bottom of a **boiler**, the bottom of a **boiler** includes the cast **iron** layer, and the bottom die -casting on cast **iron** layer has an aluminium quality guarantee sheath, the upper surface on cast **iron** layer is provided with intercrossing's

parting bead. This on -stick frying pan, side at net grating groove sets up ARC through groove, and make ARC through groove's the bottom and the upper surface of nano -ceramics coating be located same horizontal plane, make edible oil and **steam** between the net grating groove circulate each other, then, the food that makes bottom of a **boiler** surface is **heated** and receives the oil level comparatively even when frying in shallow oil the stir -fry, the emergence of sticking with paste end phenomenon has been reduced, non -viscous mesh has really been reached, the cooperation of parting bead and bump, can protect the nano -ceramics coating, avoid the nano -ceramics coating to shovel and the scratch.

63/710 © EPODOC / EPO

- PN - [CN205529603U](#) U 20160831
- PR - CN2016273607U 20160126
- AP - CN2016273607U 20160126
- DT - I
- PA - CUORI ELECTRICAL APPLIANCE GROUP CO LTD
- TI - Hand -held type pressure **steam iron**
- AB - The utility model provides a hand -held type pressure **steam iron**, including the casing and set up the bottom plate that has a **steam** outlet at least at the casing lower extreme, be equipped with the bottom plate electrothermal tube in the bottom plate, the bottom plate temperature controller, the bottom plate electrothermal tube is connected with bottom plate temperature controller

electricity, be equipped with the **boiler** in the casing, the **boiler** bottom is equipped with the **boiler** electrothermal tube, the **boiler** adopts split type **heating** with the bottom plate, the low temperature that makes the bottom plate can be in 100 degrees to 130 degrees irones, the damage to the clothing has been avoided, be equipped with the filler on the **boiler**, be equipped with **boiler** safety valve on the filler, still be equipped with on the **boiler** and carry **steam** to the **steam** pipe of bottom plate. The inside **boiler** that makes sealed completely of **boiler** produces high -pressure **steam**. The utility model discloses **steam** volume greatly increased compares in ordinary **steam iron steam** volume and has promoted 5 times, and **steam** explosion dynamics greatly increased can produce the high - temperature **steam** who lasts and realize hanging a boiling hot function, has avoided having avoided the liquid drop to be infected with on the clothing simple structure convenient to use to the damage of clothing.

64/710 © EPODOC / EPO
 PN - [CN105883931](#) A 20160824
 PR - CN20161366545 20160530
 AP - CN20161366545 20160530
 DT - I
 CT - || STSE (A)
[CN102191349](#) A 20110921
 [X] (SHENG ZHU)
 [X] 1
 * 说明书第0007-0014段 *;
[CN103146917](#) A 20130612
 [A] (JIANG TIANYONG)

[A] 1

* 全文 *;

[CN103305701](#) A 20130918

[A] (BEIJING SHENWU
ENVIRONMEN & ENERGY
TECHNOLOGY CO LTD)

[A] 1

* 全文 *

- CNOI - [C01G49/06](#) ; [C01G49/08](#)
- PA - ZHAIYUAN YONGXIN MINING
INVEST HOLDINGS (SHANGHAI) CO
LTD
- TI - Method for producing ferric
oxide fine powder through high-
temperature sulfuric-acid
residues in fluidized bed
combustion **boiler**
- AB - The invention discloses a
method for producing ferric
oxide fine powder through high-
temperature sulfuric-acid
residues in a fluidized bed
combustion **boiler**, and relates to
the technical field of metallurgy.
The technical problems of
increasing the **iron** recovery rate,
the compactness and the
compression resistance index of
products are solved. By means of
the method, sulfuric-acid
residues are **heated** to 250 DEG
C or above through a roasting
reduction furnace, and a
reduction agent is added to
sulfuric-acid residues; **heat**
energy of sulfuric-acid residues
is recovered through a **steam**
boiler; sulfuric-acid residues are
smashed with water, ball-milled
and decomposed in sequence
through a smashing machine
and a ball mill and then sent
into a primary magnetic
separator for primary magnetic
separation, tailing slurry
subjected to primary magnetic
separation is subjected to
secondary magnetic separation

through a secondary magnetic separator, and ferric oxide fine powder is selected through primary magnetic separation and secondary magnetic separation. By means of the method, high-quality ferric oxide fine powder can be produced.

65/710 © EPODOC / EPO

PN - [MY157419](#) A 20160615

PR - US201113107013 20110513

AP - MY2013PI702139 20110526

DT - I

CCI - [C21B13/02](#)

CCA - [Y02P10/136](#) ; [Y02P10/143](#) ;
[Y02P10/132](#) ; [Y02P10/122](#) ;
[Y02P10/128](#) ; [Y02P10/126](#) ;
[C21B2100/44](#) ; [C21B2100/66](#) ;
[C21B2100/282](#) ; [C21B2100/26](#) ;
[C21B2100/60](#)

PA - MIDREX TECHNOLOGIES INC [US]

TI - SYSTEM AND METHOD FOR
REDUCING **IRON** OXIDE TO
METALLIC **IRON** USING COKE
OVEN GAS AND OXYGEN
STEELMAKING FURNACE GAS

AB - A PROCESS FOR THE DIRECT
REDUCTION OF **IRON** ORE WHEN
THE EXTERNAL SOURCE OF
REDUCTANTS IS ONE OR BOTH OF
COKE OVEN GAS (COG) AND BASIC
OXYGEN FURNACE GAS (BOFG).
CARBON DIOXIDE (CO₂) IS
REMOVED FROM A MIXTURE OF
SHAFT FURNACE OFF GAS,
OBTAINED FROM A
CONVENTIONAL DIRECT
REDUCTION SHAFT FURNACE (10),
AND BOFG. THIS CO₂ LEAN GAS IS
MIXED WITH CLEAN COG,
HUMIDIFIED, AND **HEATED** IN AN
INDIRECT **HEATER** (70). OXYGEN
(O₂) IS INJECTED INTO
THE **HEATED** REDUCING GAS. THIS
HOT REDUCING GAS FLOWS TO
THE DIRECT REDUCTION SHAFT

FURNACE (10) FOR USE. THE SPENT HOT REDUCING GAS EXITS THE DIRECT REDUCTION SHAFT FURNACE (10) AS SHAFT FURNACE OFF GAS, PRODUCES **STEAM** IN A WASTE **HEAT BOILER** (18), IS CLEANED IN A COOLER SCRUBBER (20), AND IS COMPRESSED AND RECYCLED TO JOIN FRESH BOFG. A PORTION OF THE SHAFT FURNACE OFF GAS IS SENT TO THE **HEATER** BURNERS. THE BOFG AND COG ARE ALSO EMPLOYED FOR A VARIETY OF OTHER PURPOSES IN THE PROCESS.

- 66/710** © EPODOC / EPO
- PN - [CN105819590](#) A 20160803
- PR - CN20161229495 20160414
- AP - CN20161229495 20160414
- DT - I
- CNOI - [C02F9/00](#)
- CNOA - [C02F1/001](#) ; [C02F1/32](#) ;
[C02F1/441](#) ; [C02F1/68](#) ;
[C02F1/78](#)
- PA - ANHUIYELING BEVERAGE AND
FOOD CO LTD
- TI - Method for making summer **heat**
clearing and relieving mineral
water
- AB - The invention relates to the field
of mineral water production, in
particular to a method for
making summer **heat** clearing
and relieving mineral water. The
method comprises the following
steps: (1) selecting high-quality
mountain spring water; (2)
performing reverse osmosis
filtration on water treated in the
step (1); (3) removing **iron** by a
manganese sand filtering device;
(4) mixing 2-5 parts of
honeysuckle, 3-4 parts of lycium
barbarum root barks, 2-4 parts
of dried tangerine or orange peel
and 1-3 parts of bamboo cores

according to a ratio, and performing water-fire processing **boiler steaming** so as to generate a distilled mixed decoction; (5) sufficiently mixing the distilled mixed decoction obtained in the step (4) with raw water treated in the step (3) according to the weight ratio of 1: 3000 in a stirring manner; (6) sterilizing with ozone; (7) performing sterile filling on the water.

67/710 © EPODOC / EPO

- PN - [CN205392029U](#) U 20160727
- PR - CN20162136997U 20160224
- AP - CN20162136997U 20160224
- DT - I
- PA - XUJINGGANG
- TI - High -efficient electricity spouts except that haze dust remover
- AB - The utility model relates to a high -efficient electricity spouts except that haze dust remover, its characterized in that: there are two kinds of structural style in reinforced concrete structure or the steel construction, be equipped with system fog storehouse and dry storehouse in housing of the dust collector, flue gas inlet sets up the one end at housing of the dust collector, and purified gas outlet and purification gaseous emission ware set up the other end at housing of the dust collector, be equipped with a set of electric shower nozzle at the top of making the fog storehouse, the circulating pump passes through the electronic fuel injection system pipe connection with electric shower nozzle, forms electronic fuel injection system. Separate into 2~10 system fog

storehouses and the multistage dust removal of dry storehouse formation through dust remover stationary barrier and the dust remover A movable partition who sets up with it in housing of the dust collector. The utility model discloses can be applied to that **heating boiler, steam boiler** and coal -fired power plant remove dust, the desulfurization, but wide application in the industrial dust removal in fields such as chemical industry, **iron** and steel, building materials, pottery, metallurgical mine still realizes that the high -efficient haze that removes removes dust and removes harmful gas, has: characteristics such as the dust collection efficiency is high, the power consumption is low, the maintenance cost is low, with low costs.

68/710 © EPODOC / EPO

- PN - [CN205402655U](#) U 20160727
- PR - CN20162183859U 20160310
- AP - CN20162183859U 20160310
- DT - I
- PA - HUNAN PROVINCIAL PUBLIC
SECURITY DEPT LABOUR SERVICE
COMPANY XIANG'AN CLOTHING
FACTORY
- TI - **Steam** recycle device irones
- AB - The utility model relates to
a **steam** recycle device irones,
the **steam** output of **boiler** pass
through connecting pipe and
check valve and full **steam iron**
intercommunication, and
full **steam iron's steam** output
passes through connecting pipe
and **steam** flow divider
intercommunication, and the
right -hand member output

of **steam** flow divider passes through connecting pipe and **boiler** connected, and the lower extreme output of **steam** flow divider is linked together through connecting pipe and check valve and water tank, the upper end of water tank is provided with the **heating** pot that keeps warm, and the lower extreme of water tank passes through ball valve and booster pump and shower spray thrower intercommunication, and the water tank right -hand member is provided with the water inlet, is provided with ball valve and booster pump on the water inlet. Can in the time of reduce environmental pollution, people's daily life have been made things convenient for so that full **steam iron** exhaust exhaust **steam** passes through to utilize the inside water of temperature **heating** the water tank of **steam**, then utilize the hot water in the water tank further to utilize in the connecting pipe retrieves the water tank through the device.

69/710 © EPODOC / EPO

PN - [EP3269831](#) A1 20180117
 PR - EP20160179114 20160712
 AP - EP20160179114 20160712
 DT - *; Rep
 CT - || STSE (A1)
[US2012160376](#) A1 20120628
 [IY] (YAMADA MASAYUKI [JP], et al)
 [I] 1-12
 * paragraphs [0005] - [0009] - [0029] - [0045] - [0070] , [0071] , [0077] , [0079] , [0084] - [0086]; examples TS57, TS68, TS69; claim 1; tables 1,2 *
 [Y] 13-16;

[US2004109784](#) A1 20040610
 [YA] (ARBAB ALIREZA [FR], et al)
 [Y] 13-16
 * paragraphs [0001] - [0003] -
 [0031] - [0047] - [0068] - [0071] -
 [0106] - [0111] - [128] , [147] -
 [0149]; example 2; claims 1-11;
 tables 1,4,5,9 *
 [A] 1-12;
[WO9408063](#) A1 19940414
 [A] (BUCK ROBERT F [US])
 [A] 1-16
 * page 1, lines 1-7 *
 * page 21, line 19 - page 22,
 line 22; example 2 *
 * claims 1-6 *;
[EP1621643](#) A1 20060201
 [A] (NAT INST FOR MATERIALS
 SCIENCE [JP], et al)
 [A] 1-16
 * paragraphs [0001] - [0002];
 claim 1; table 1 *;
[JPH1192881](#) A 19990406
 [A] (NAT RES INST METALS, et al)
 [A] 1-16
 * abstract *
 * claims 1-4; table 1 *

- CCI - [C22C38/001](#) ; [C22C38/02](#) ;
[C22C38/04](#) ; [C22C38/105](#) ;
[C22C38/12](#) ; [C22C38/14](#) ;
[C22C38/18](#) ; [C22C38/44](#) ;
[C22C38/46](#) ; [C22C38/48](#) ;
[C22C38/50](#) ; [C22C38/52](#) ;
[C22C38/54](#)
- CUI - [C21D8/0226](#) ; [C21D8/0263](#) ;
[C21D8/105](#) ; [C21D9/08](#) ;
[C21D9/085](#) ; [C21D9/46](#)
- CUA - [C21D2211/008](#)
- PA - VALLOURECTUBES FRANCE [FR];
 VALLOURECDEUTSCHLANDGMBH
 [DE]
- TI - HIGH CHROMIUM
 MARTENSITIC **HEAT**-RESISTANT
 STEEL WITH COMBINED HIGH
 CREEP RUPTURE STRENGTH AND
 OXIDATION RESISTANCE
- AB - Martensitic **heat**-resistant steel
 for **boiler** applications with a

unique combination of enhanced creep strength and excellent oxidation resistance upon high temperature exposure in **steam** containing environments., having the following melt analysis (in wt.-%): C: 0.10 to 0.16%, Si: 0.20 to 0.60%, Mn: 0.30 to 0.80%, P $\leq$ 0.020%, S $\leq$ 0.010%, Al $\leq$ 0.020%, Cr: 10.5 to 12.00%, Mo: 0.10 to 0.60%, V: 0.15 to 0.30%, Ni: 0.10 to 0.40%, B: 0.008 to 0.015%, N: 0.002 to 0.020%, Co: 1.50 to 3.00%, W: 1.50 to 2.50%, Nb: 0.02 to 0.07%, Ti: 0.001-0.020%. The balance of the steel consists of **iron** and unavoidable impurities. The steel is normalized for a period of about 10 to about 120 minutes in the temperature range between 1050 °C and 1170°C and cooled down in air or water to room temperature, and then tempered for at least one hour in the temperature range between 750°C and 820°C. It exhibits martensitic microstructure with average α' -ferrite content of less than 5 vol.-%.

- 70/710** © EPODOC / EPO
- PN - [CN105695649](#) A 20160622
- PNFP - CN105695649B B 20170630
- PR - CN20161240713 20160415
- AP - CN20161240713 20160415
- DT - I
- CT - || STSE (A)
 [JPH0979046](#) A 19970325
 [A] (MITSUBISHI HEAVY IND LTD)
 [A] 第1-8项
 * 全文 *;
 [JPH09317499](#) A 19971209
 [A] (KAWASAKI STEEL CO)
 [A] 第1-8项
 * 全文 *;
 [CN1434132](#) A 20030806
 [A] (CENTRAL IRON AND STEEL RES

INS [CN])
 [A] 第1-8项
 * 全文 *;
[CN101709918](#) A 20100519
 [A] (UNIV ZHEJIANG)
 [A] 第1-8项
 * 全文 *;
[CN103045786](#) A 20130417
 [A] (KASTO ENVIRONMENTAL
 PROT EQUIPMENT CO LTD)
 [A] 第1-8项
 * 全文 *;
[CN202928377U](#) U 20130508
 [A] (HUATIAN ENG & TECH CORP
 MCC)
 [A] 第1-8项
 * 全文 *;
[CN203848266U](#) U 20140924
 [A] (HUATIAN NANJING
 ENGINEERING & TECHNOLOGY
 CORP MCC)
 [A] 第1-8项
 * 全文 *;
[CN205501337U](#) U 20160824
 [R] (HUATIAN ENG AND TECH
 CORP MCC)
 [R] 第1-8项
 * 权利要求第1-8项 *

CNOI	- (A) C21B7/00 ; C21B9/00
PA	- (A) HUATIAN ENG & TECH CORP MCC
TI	- (A) Distributed energy source system based on blast furnace iron making
AB	- (A) The invention discloses a distributed energy source system based on blast furnace iron making. The distributed energy source system is mainly designed for conducting unified supply on multiple energy resources such as cold, heat , electricity and power according to actual energy using conditions of a blast

furnace **iron** making zone.

According to the distributed energy source system, a coal gas turbine is adopted for using waste coal gas pressure for pushing a blast furnace blower to do work, a combustion gas turbine is adopted for using burning chemical energy of blast furnace gas, a **steam** turbine is used in a combined manner to jointly drive a gas compression pump and an air compressor, and the redundant work is converted into electric energy; and water serves as a **heat** exchange medium to recycle sensible **heat** of blast-furnace slag, waste **heat** of smoke of a hot blast **heater** and waste **heat** of smoke exhausted from a **heat** recovery **boiler** of the combustion gas turbine, high-temperature hot water is made, a hot-water type absorption refrigerating unit is used in a combined manner, a **heat** source can be provided outwards, a cold source can also be provided, the energy comprehensive using rate of the system is improved, and thermodynamic performance optimization of the system is achieved.

71/710 © EPODOC / EPO

PN - [CN205351293U](#) U 20160629

PR - CN20152858200U 20151102

AP - CN20152858200U 20151102

DT - I

PA - ZHANG DEZHI

TI - Novel energy -efficient superheated **boiler**

AB - The utility model relates to a novel energy -efficient superheated **boiler**, including

over **heater** export collection case, over **heater**, over **heater** import collection case, input **heat** recovery **steam** and low temperature **steam** pipe, saturated **steam** pipe, drum, tedge, downtake, evaporimeter, hot -water line, economizer and **boiler** feed water pipe. Over **heater** export collection case links to each other with the over **heater**, the over **heater** links to each other with over **heater** import collection case, over **heater** import collection case and input **heat** recovery **steam** and low temperature **steam** pipe are said continuously with saturated **steam** pipe, saturated **steam** pipe links to each other with the drum, the drum links to each other with tedge, downtake and hot -water line, tedge and downtake link to each other with the evaporimeter, the hot -water line links to each other with the economizer, the economizer links to each other with the feed pipe. The beneficial effect of the utility model: the high -efficient **heating** of solving **heat** recovery **steam** and low temperature **steam** is with overheated, the latent **heat** of vaporization of avoiding and having reduced water, a large amount of saturated **steam** that solve in the **iron** and steel industry production process are overheated.

72/710 © EPODOC / EPO
 PN - [CN205349451U](#) U 20160629
 PR - CN20152772031U 20151008
 AP - CN20152772031U 20151008
 DT - I
 PA - ZHANG DEZHI

- TI - Energy -conserving waste **heat** power generation system of **iron** and steel novel synthesis of industry
- AB - The utility model relates to an energy -conserving waste **heat** power generation system of **iron** and steel novel synthesis of industry, high temperature cross **heat** low exhaust -**heat boiler** and be equipped with high temperature and cross **heat** low exhaust - **heat boiler** over **heater** import and cross **heat** low exhaust - **heat boiler** over **heater** with high temperature and export, low temperature and low pressure exhaust - **heat boiler** be connected with low temperature and low pressure **steam** pipe one end, the low temperature and low pressure **steam** pipe other end and high temperature cross **heat** low exhaust -**heat boiler** over **heater** access connection, high temperature cross **heat** low exhaust -**heat boiler** over **heater** import and high temperature and cross **heat** low exhaust -**heat boiler** and pass through high temperature and cross **heat** low exhaust - **heat boiler** saturated **steam** pipe connection, high temperature cross **heat** low exhaust -**heat boiler** over **heater** export and be connected with high temperature low pressure waste **heat steam** turbine, high temperature low pressure waste **heat steam** turbine and electricity generation (drive) machine and the condensation of high temperature low pressure unit be connected with deoxidization system. The beneficial effects of the utility model are that: improve the blast furnace gas power rate of unit, practice thrift

consumption such as soil,
resource.

73/710 © EPODOC / EPO

- PN - [US2016160304](#) A1 20160609
- PR - US201414905680
20140722; US201361857182P
20130722; WO20141B02508
20140722
- AP - US201414905680 20140722
- DT - **
- CT - || R141 (A1)
[US2016002744](#) A1 20160107 [
] (BECERRA-NOVOA JORGE
OCTAVIO [MX], et al);
[US2017002434](#) A1 20170105 [
] (GRANT MICHAEL [DE])
- CCI - [C01B3/348](#) ; [C21B13/0073](#) ;
[C21B13/14](#)
- CUI - [C21B13/146](#)
- CCA - [Y02P10/136](#) ; [Y02P10/122](#) ;
[Y02P10/128](#) ; [Y02P10/126](#) ;
[C21B2100/44](#) ; [C21B2100/66](#) ;
[C21B2100/60](#)
- PA - SAUDI BASIC IND CORP [SA]
- TI - USE OF TOP GAS IN DIRECT
REDUCTION PROCESSES
- AB - In one aspect, the invention
relates to a system for producing
direct reduced **iron** wherein a
portion of the top gas from a
first module for reducing **iron**
oxide by a direct reduction
process is utilized as fuel in the
thermal equipment of a second
module for reducing **iron** oxide
by a direct reduction process,
wherein the second module
comprises a process gas **heating**
unit. In various aspects, the
thermal equipment of the second
module is a reducing gas **heater**
and/or a **steam boiler**. In a
further aspect, the top gas from
multiple instances of the first
module can be utilized

collectively as fuel in the thermal equipment of the second module. This abstract is intended as a scanning tool for purposes of searching in the particular art and is not intended to be limiting of the present invention.

74/710 © EPODOC / EPO

PN - [EP3118369](#) A1 20170118
 PNFP - EP3118369 B1 20180801
 PR - IT2015UB02147 20150714
 AP - EP20160173145 20160606
 DT - **
 CCI - [D06F75/16](#) ; [D06F75/20](#)
 CCA - [D06F75/24](#) ; [D06F75/26](#) ;
[D06F75/265](#)
 PA - (A1)
 DE'LONGHI APPLIANCES S R L DIV
 COMMERCIALE ARIETE [IT]
 - (B1)
 DELONGHI APPLIANCES S R L DIV
 COMMERCIALE ARIETE [IT]
 TI - (A1 B1)
 IMPROVED **IRON** STRUCTURE
 AB - (A1)
 There is described an improved **iron** structure comprising a soleplate (2) provided with through holes (19) for **steam** adapted to come into contact with the fabrics to be treated, a **boiler** (12) adapted to produce **steam** fluidly connected to the soleplate (2), a duct (10) for introducing water into the **boiler** (12), **heating** means (7) and a control button (4, 9) functionally connected to the **boiler** (12) and arranged to obtain the delivery of **steam** through the through holes (19) of the soleplate (2). In particular, the **boiler** (12) is produced as fluid-tight coupling between the

soleplate (2) and a cover portion (6) to form a **boiler** compartment (12') in which the water is boiled and in which during use of the **iron** the hot water-**steam** balance is established.

75/710 © EPODOC / EPO

PN - [CN205199498U](#) U 20160504
 PR - CN20152893427U 20151111
 AP - CN20152893427U 20151111
 DT - I
 PA - NANYANG ORIENTAL APPLICATION
 CHEMICAL RES INST
 TI - Ammonia process
 preparation **iron** is multi -
 functional oxidation reactor of
 industry pigment
 AB - The utility model discloses a (b)
 multi -functional oxidation
 reactor of ammonia process
 preparation **iron** (b) (b) of system
 industry pigment, wherein:
 oxidation reactor has, oxidation
 reactor's the internal wall of jar
 is equipped with coil **heat**
 exchanger, and refrigerating unit
 and **boiler steam** are connected
 respectively to the **heat**
 exchanger, the inverter type
 speed reducer is equipped with
 at oxidation reactor's jar body
 upper portion center, inverter
 type speed reducer connection
 agitator, oxidation reactor's jar
 body bottom is equipped with
 the air distribution ware, and
 oxidation roots fan is connected
 to the air distribution ware, and
 the internal wall of retort has the
 baffling board, ammonia water
 metering groove upper portion
 installation pressure device, and
 a jar body bottom is stretched
 into through aqueous ammonia
 conveyer pipe to the bottom
 export, and ferrous salt solution

metering tank passes through
 pipeline intercommunication
 oxidation reactor, and the export
 of magma delivery pump
 pipeline is located oxidation
 reactor's jar body bottom.
 Reduce the production sequence,
 practiced thrift the equipment
 investment, can produce **iron**
 such as **iron** oxide red,
 yellow **iron** oxide, **iron** oxide
 black, **iron** oxide are green, **iron**
 oxide brown is industry pigment,
 has realized the multi -
 functionalization of oxidation
 reactor.

76/710 © EPODOC / EPO

PN - [CN105525500](#) A 20160427
 PR - CN2016150525 20160126
 AP - CN2016150525 20160126
 DT - I
 CT - || STSE (A)
[CN2848911Y](#) Y 20061220
 [A] (SONG GUIRONG [CN])
 [A] 1-10
 * 全文 *;
[CN101082173](#) A 20071205
 [Y] (ZHEJIANG YUELI ELECTRICAL
 APPL [CN])
 [Y] 1-10
 * 说明书第3页第2-19行, 附图1-
 5 *;
[CN201080569Y](#) Y 20080702
 [A] (ZHEJIANG YUELI ELECTRIC
 APPLIA [CN])
 [A] 1-10
 * 全文 *;
[WO2008151966](#) A1 20081218
 [A] (BSH BOSCH SIEMENS
 HAUSGERAETE [DE], et al)
 [A] 1-10
 * 全文 *;
[CN201762593U](#) U 20110316
 [A] (TSANN KUEN ZHANGZHOU
 ENTPR CO)
 [A] 1-10
 * 全文 *;

[CN203583241U](#) U 20140507
 [A] (NINGBO HEIGER ELECTRICAL APPLIANCES CO LTD)
 [A] 1-10
 * 全文 *;
[CN104831511](#) A 20150812
 [Y] (XIAMEN YOUO ELECTRIC APPLIANCES LTD)
 [Y] 1-10
 * 说明书第[0016]、[0023]-[0026]段, 附图1 *;
[CN205529603U](#) U 20160831
 [R] (CUORI ELECTRICAL APPLIANCE GROUP CO LTD)
 [R] 1-10
 * 权利要求1-10 *

- | | |
|------|--|
| CNOI | - D06F75/16 ; D06F75/20 ;
D06F75/26 |
| PA | - CUORI ELECTRICAL APPLIANCE GROUP CO LTD |
| TI | - Handheld pressure steam iron |
| AB | - A handheld pressure steam iron comprises a casing and a bottom plate, wherein the bottom plate is arranged at the lower end of the casing and provided with at least one steam outlet, a bottom plate electric heating tube and a bottom plate temperature controller are arranged in the bottom plate, the bottom plate electrical heating tube is electrically connected with the bottom plate temperature controller, a boiler is arranged in the casing, a boiler electric heating tube is arranged at the bottom of the boiler , the boiler and the bottom plate adopt split type heating , the bottom plate can realize low-temperature ironing at the temperature of 100-130 DEG C, damage to clothes is avoided, a water inlet is arranged on the boiler , a boiler safety valve is arranged at the water inlet, and a steam tube for |

conveying **steam** to the bottom plate is also arranged on the **boiler**. The inside of the **boiler** is completely sealed, so that the **boiler** produces high-pressure **steam**. The **steam** amount is greatly increased and is 6 times that of common **steam** irons, the **steam** ejection force is greatly increased, continuous high-temperature **steam** can be produced to realize a **steaming** function, clothes are prevented from being damaged and stained with droplets, and the **iron** is simple in structure and convenient to use.

77/710 © EPODOC / EPO

PN - [CN105506306](#) A 20160420

PNFP - CN105506306B B 20180626

PR - CN20151941512 20151216

AP - CN20151941512 20151216

DT - I

CNOI - (A)
[C21B3/04](#) ; [C22B19/30](#)

CCA - [Y02W30/542](#) ; [Y02P10/232](#) ;
[Y02P10/242](#)

CNOA - (A)
[C21B2200/00](#)

PA - (A)
UNIV BEIJING SCIENCE & TECH

TI - (A)
Device for recovering zinc by using zinc-contained dust of steel and **iron** works and recovery method thereof

AB - (A)
The invention relates to a device for recovering zinc by using zinc-contained dust of steel and **iron** works and a recovery method thereof. The zinc-contained dust of the steel and **iron** works is sprayed into an enriching furnace, or is added in the

enriching furnace after being caked; zinc in the dust is reduced to zinc **steam** in the enriching furnace; generated zinc-contained smoke is leaded into a cloth bag dust collector after rough dust removal and afterheat recovery of a **heat** exchanger; zinc is oxidized as zinc oxide, and is captured on the cloth bag dust collector to obtain high-zinc dust; the high-zinc dust is sprayed into a recovery furnace; zinc in the dust is reduced as zinc **steam** in the recovery furnace; high-zinc smoke generated in the recovery furnace is captured by lead liquid in a condensation separation device; and liquid-stage rough zinc is obtained after separating liquid-state zinc from liquid-state lead. The high-zinc smoke generated in the recovery furnace also can be cooled by water in a spray washing tower, oxidized, captured and precipitated as zinc oxide mud after rough dust removal and afterheat recovery of an afterheat **boiler** and the **heat** exchanger; and the zinc oxide mud is centrifugally dried to obtain zinc oxide.

78/710 © EPODOC / EPO

PN - [CN105492376](#) A 20160413

PR - WO2014IB02508
20140722; US201361857182P
20130722

AP - CN2014847131 20140722

DT - I

CT - || STSE (A)
[GB1428590](#) A 19760317

[X] (FIERRO ESPONJA)

[X] 1,17

* 第1页10-25行, 第1页第83行
到第2页第35行, 第2页第69-98

行, 第3页第1-114行, 第4页第1-9行 *;

[WO0188207](#) A1 20011122

[X] (VOEST ALPINE IND ANLAGEN

[AT], et al)

[X] 1,17

* 第1-3页、第5页、第7页 *;

[CN102203298](#) A 20110928

[A] (SIEMENS VAI METALS TECH
GMBH [AT])

[A] 1-20

* 全文 *;

[CN102232119](#) A 20111102

[X] (LUOSSAVAARA

KIIRUNAVAARA AB)

[X] 1-20

* 权利要求1-15 *;

[WO2012059255](#) A1 20120510

[X] (SIEMENS VAI METALS TECH
GMBH [AT], et al)

[X] 1-20

* 说明书第1页、第3页、第8
页、第13页、第16页、第21页、
第25页 *

- CCI - [C01B3/348](#) ; [C21B13/0073](#) ;
[C21B13/14](#)
- CUI - [C21B13/146](#)
- CCA - [Y02P10/136](#) ; [Y02P10/122](#) ;
[Y02P10/128](#) ; [Y02P10/126](#) ;
[C21B2100/44](#) ; [C21B2100/66](#) ;
[C21B2100/60](#)
- PA - SAUDI BASIC IND CORP
- TI - Use of top gas in direct reduction
processes
- AB - In one aspect, the invention
relates to a system for producing
direct reduced **iron** wherein a
portion of the top gas from a
first module for reducing **iron**
oxide by a direct reduction
process is utilized as fuel in the
thermal equipment of a second
module for reducing **iron** oxide
by a direct reduction process,
wherein the second module
comprises a process gas **heating**
unit. In various aspects, the
thermal equipment of the second

module is a reducing gas **heater** and/or a **steam boiler**. In a further aspect, the top gas from multiple instances of the first module can be utilized collectively as fuel in the thermal equipment of the second module. This abstract is intended as a scanning tool for purposes of searching in the particular art and is not intended to be limiting of the present invention.

79/710 © EPODOC / EPO

PN - [CN205062531U](#) U 20160302
 PR - CN20152613904U 20150814
 AP - CN20152613904U 20150814
 DT - I
 PA - CUORI ELECTRICAL APPLIANCE GROUP CO LTD
 TI - Two washing scale removal formula **steam** ironing device
 AB - The utility model provides a two washing scale removal formula **steam** ironing device, **iron** terminal, **boiler**, pump, water tank, reach control system including the disconnect - type, two washing scale removal formula **steam** ironing device still includes the purge valve, washes box and collecting box, the one end of purge valve is connected to the **boiler**, the first branch road of the other end via the disconnect -type irones terminal connection to wasing the box, the second branch road direct with a collecting box is connected, just that is used for directly collecting **boiler** sewage the purge valve with control system connects. The utility model discloses a make full use of **boiler** technique combination disconnect -type **steam** irones

the independent **steam** passage **heating** technology at terminal, has not only improved the **steam** volume and the availability factor of equipment, has solved the technological problem except that calcium, scale removal that **steam** generator and disconnect -type ironed the terminal simultaneously in the lump effectively.

80/710 © EPODOC / EPO

PN - [KR20160006513](#) A 20160119

PNFP - KR101622027B B1 20160517

PR - KR20140086197 20140709

AP - KR20140086197 20140709

DT - I

CNOI - (A)
[F22B1/28](#) ; [F22B33/18](#) ;
[F22D11/06](#)

CNOA - (A)
[D06F75/12](#)

PA - (A)
KIM SEOK HEE [KR]

TI - (A)
A DRAIN RECOVERY **STEAM BOILER**
- (B1)
A Drain Recovery **Steam Boiler**

AB - (A)
The present invention relates to a **steam boiler**, capable of maximizing the efficiency of a **boiler** with an increase in the temperature of water supply by performing ironing with high temperature **steam** through a **steam iron** in a business place such as a laundry, and by collecting and resupplying the discharged high temperature **steam**. To achieve the purpose, the present invention includes: a water supply tank supplying water to

generate **steam** by external water supply; a **steam** tank including a **heating** unit to generate high temperature **steam** by receiving the water from the water supply tank; a **steam iron** for ironing by receiving the high temperature **steam** supplied from the **steam** tank; a **steam** supply line supplying the **steam** to the **steam iron**; a drain collection line collecting a **steam** drain; a collection container storing condensate by collecting a high temperature **steam** drain by being connected to the drain collection line; and a supply line supplying the condensate, stored in the collection container, to the **steam** tank in order to supply the high temperature condensate to the **steam** tank.

81/710 © EPODOC / EPO

PN - [CN205023998U](#) U 20160210
 PR - CN20152719710U 20150917
 AP - CN20152719710U 20150917
 DT - I
 PA - TAIXING ZHENQING CHEMICAL CO LTD
 TI - Filter device
 AB - The utility model relates to a filter device of condensation water, concretely relates to filter device who is used for **steam boiler** condensate recovery utilization processing. The utility model discloses a level filter device's filter core adopts duolite to make, and through PLC the control unit control electric **heater** unit, PLC the control unit gathers the detection temperature that comes from temperature - detecting device, if high

temperature PLC the control unit in time stops electric **heater** unit's work, PLC the control unit in time opens electric **heater** unit when low if the temperature is crossed, has greatly improved getting rid of of in header tank condensation water **iron** ion, guarantees one -level filter device's work efficiency, the utility model discloses increase and adopt the filterable second grade filter device of filter membrane, strengthened the further filtration to the condensation water, realized the recycle of condensation water, also be favorable to environmental protection and water conservation simultaneously, the utility model discloses simple structure, the water treatment is effectual, long service life, job stabilization does benefit to and uses widely on a large scale.

82/710	© EPODOC / EPO
PN	- CN205013064U U 20160203
PR	- CN20152699416U 20150910
AP	- CN20152699416U 20150910
DT	- I
CCA	- Y02P10/283 ; Y02P80/154 ; Y02P80/152
PA	- HANZHONG HUAUFU NEW ENERGY CO LTD
TI	- Low temperature and low pressure steam superheating power generation system of iron and steel enterprise
AB	- The utility model discloses an about low temperature and low pressure steam superheating power generation system of iron and steel enterprise's technical scheme, it contains the steelmaking heat recovery steam

pipeline that is used for
 collecting the low
 pressure **steam**'s of steel
 rolling **heating** furnace
 vaporization cooling production
 steel rolling **heat** recovery **steam**
 pipeline and is used for
 collecting the low temperature
 and low pressure
 saturated **steam** of steelmaking
 converter vaporization cooling
 production, after connecting in
 parallel, steel rolling **heat**
 recovery **steam** pipeline inserts
 exhaust - **heat boiler** with
 steelmaking **heat** recovery **steam**
 pipeline, all be provided with
 the **heat** accumulator on steel
 rolling **heat** recovery **steam**
 pipeline and the
 steelmaking **heat** recovery **steam**
 pipeline, exhaust - **heat boiler**'s
 fuel port passes through tube
 coupling to blast furnace gas
 pipe network, exhaust -**heat**
boiler's **steam** outlet passes
 through tube coupling to **steam**
 turbine, the **steam** turbine is
 connected with the generator,
 tube coupling to demineralized
 water pipe network is passed
 through to the condensate water
 outlet of **steam** turbine.

83/710 © EPODOC / EPO

- PN - [CN205002092U](#) U 20160127
- PR - CN20152662265U 20150828
- AP - CN20152662265U 20150828
- DT - I
- PA - PUTIAN YOUJIU FOOD CO LTD
- TI - **Boiler** system
- AB - The utility model relates to
 a **boiler** system, comprising
 a **boiler** body, flourishing water
 pot has been installed on **boiler**
 body's upper portion.
 Flourishing water pot's top is

equipped with **steam** and collects the cover, and this **steam** is collected the cover and is connected the **steam** conduit. Be equipped with chimney room, first combustion chamber, second combustion chamber in the **boiler** body. Separate with first **iron** net between first combustion chamber and the second combustion chamber, the both sides of first combustion chamber are equipped with the passageway of ventilating, the path connection of should ventilating the chimney room with the second combustion chamber. The chimney room is equipped with the logical mouth that is used for leading to the cigarette, and this expert's mouth is connected with logical tobacco pipe way, this lead to cigarette pipe setup in flourishing water pot's outside. The utility model discloses a lead to cigarette pipe setup in flourishing water pot's outside to but make full use of flue gas waste **heat heats** flourishing water pot. The utility model discloses the burning formed in first combustion chamber fuel bits piece drops the second combustion chamber and can continue the burning to make fuel fully burn **heat** make full use of.

84/710 © EPODOC / EPO
 PN - [CN105275616](#) A 20160127
 PR - CN20151705570 20151027
 AP - CN20151705570 20151027
 DT - I
 CT - || STSE (A)
[US4199961](#) A 19800429
 [A] (CARTER LARRY D [US], et al)

	[A] 1-6 * 全文 *; CN101806445 A 20100818 [A] (UNIV SOUTHEAST) [A] 1-6 * 全文 *; CN102992427 A 20130327 [A] (ZHONGHE SEAWATER DESALINATION ENGINEERING CO LTD) [A] 1-6 * 全文 *
CTNP	- STSE (A) [Y] - 徐迎超 等, "燃气—蒸汽联合循环 (CCPP) 发电在首钢迁钢公司中的应用", 《冶金动力》, [Y] 1-6 * 第27-29页 * [Y] - 王伟业、刘恩辉, "首钢京唐公司循环经济应用实践", 《冶金动力》, [Y] 1-6 * 第68-70页 *
CCA	- Y02E20/14 ; Y02E20/16 ; Y02P80/154 ; Y02P80/15
PA	- SHOUGANG JINGTANG UNITED IRON & STEEL CO LTD
TI	- Combined heat, water and power system
AB	- The invention discloses a combined heat, water and power system. The combined heat, water and power system comprises a gas turbine sub- system, a waste heat boiler, a steam turbine, a low- temperature multi-effect evaporator and a generator unit, wherein the gas turbine sub- system is connected with the generator unit, and used for combusting coal gas to generate high-temperature smoke, and converting heat energy in the high-temperature smoke to mechanical energy and then driving the generator unit to generate power. The

combined **heat**, water and power system provided by the invention utilizes the surplus coal gas of **iron** and steel plants for combined cyclic power generation based on a gas turbine, and the smoke recovered **heat** discharged by the gas turbine is supplied to the waste **heat boiler** to be utilized, and **steam** is generated for power generation based on the **steam** turbine; and an environment-friendly co-production cyclic economic chain for resource comprehensive utilization is provided, energy utilization forms are various, a resource utilization degree is high, and the targets of energy conservation, emission reduction and cyclic economy are realized.

85/710 © EPODOC / EPO

PN - [CN204982482U](#) U 20160120

PR - CN20152780761U 20151008

AP - CN20152780761U 20151008

DT - I

CUI - [D06F75/16](#) ; [D06F75/20](#) ; [D06F75/24](#)

PA - GD XINBAO ELEC APPL HOLDINGS

TI - Electric **iron**

AB - The utility model relates to a technical field is pressed to the electricity, indicates an electric **iron** very much, constitute through three -layer aluminum plate and **iron** the base, about forming in ironing the base side by side the vaporization **boiler** with change the **steam** chest, the vaporization **boiler** with change the structure that the **steam** chest adopted seamless

combination and directly be linked together, avoid adopting the pipeline to link to each other, the **steam** that makes production in the vaporization **boiler** directly of the entering into **steam** chest further **heats**, does not have energy loss, **steam** temperature is higher, ironing efficiency is better.

86/710 © EPODOC / EPO

- PN - [CN204981932U](#) U 20160120
- PR - CN20152731488U 20150921
- AP - CN20152731488U 20150921
- DT - I
- CCA - [Y02P10/265](#) ; [Y02P10/283](#) ; [Y02P10/212](#)
- PA - BAOSTEEL DEV CO LTD
- TI - Directly reduced **iron heat** retrieval and utilization device
- AB - The utility model provides a directly reduced **iron heat** retrieval and utilization device, including exhaust - **heat boiler**, exhaust - **heat boiler's** water inlet and water supply equipment intercommunication, its **steam** ports and **heat** equipment intercommunication, the exhaust -**heat boiler** below is equipped with **heating** carousel, the feed inlet of **heating** carousel and the directly reduced **iron** bin outlet intercommunication of rotary hearth furnace, its discharge gate and directly reduced **iron** materials equipment intercommunication, have defeated feed channel in the **heating** carousel, the feed inlet feeds through with defeated feed channel both ends respectively with the discharge gate, defeated feed channel is equipped with a plurality of, is equipped with material way

distribution device in the feed inlet, the feed inlet is through the directly reduced **iron** bin outlet intercommunication of sealed conveying mechanism with the rotary hearth furnace, feed inlet department is equipped with nitrogen gas spraying and blowing organ, and nitrogen gas spraying and blowing organ's nozzle stretches into in the defeated feed channel, the discharge gate is equipped with ejection of compact scraper blade through screening mechanism and directly reduced **iron** materials equipment intercommunication in the discharge gate, discharge gate department is equipped with gaseous surplus enthalpy exchanger, gaseous surplus enthalpy exchanger and exhaust - **heat boiler's** inlet channel contact.

87/710 © EPODOC / EPO

- PN - [CN204901723U](#) U 20151223
- PR - CN20152620946U 20150818
- AP - CN20152620946U 20150818
- DT - I
- PA - YUNNAN HAOXIANG CLOTHING CO LTD
- TI - **Steam** energy -conservation of clothing factory utilizes system
- AB - The utility model discloses a **steam** energy -conservation of clothing factory utilizes system, comprising a water tank, the **boiler**, gas -distributing cylinder and **steam** pipe, be equipped with the water pump between water tank and the **boiler**, the water pump front end links to each other with the water tank through the filter, the rear end is connected with

the **boiler** through the valve, the top of **boiler** is equipped with the pipe of always discharging fume, the gas -distributing cylinder links to each other with the **boiler** through going out the **steam** pipe, the import of **steam** pipe links to each other with the gas -distributing cylinder, exit linkage a plurality of **steam iron**, the **steam** pipe includes main **steam** pipe and reserve **steam** pipe, **steam iron** passes through branch **steam** pipe and links to each other with main **steam** pipe and reserve **steam** pipe simultaneously, end at the **steam** pipe is equipped with the **heating** installation, the **heating** installation passes through the return tube and links to each other with the **heat** exchanger. The utility model provides a **steam** energy -conservation of clothing factory utilizes system can satisfy the high peak that a plurality of **steam iron** used simultaneously, guarantees normally to produce, can also effectively utilize the waste **heat** of **steam iron** institute exhaust **steam** waste **heat** and **boiler** flue gas, fully improves the utilization ratio of the energy.

88/710	© EPODOC / EPO
PN	- CN204825454U U 20151202
PR	- CN20152620513U 20150817
AP	- CN20152620513U 20150817
DT	- I
PA	- GD XINBAO ELEC APPL HOLDINGS
TI	- Boiler subassembly structure and electric iron steam station of using this boiler subassembly
AB	- The utility model relates to a

clothes presses utensil technical field, refers in particular to a **boiler** subassembly structure, **boiler** subassembly bottom is equipped with **heat** transfer aluminum plate, **heat** transfer aluminum plate goes up the fixed **heating** tube that is equipped with through fixing device. **Heat** transfer aluminum plate is connected with the **heating** tube through fixing device, avoids effectively that the **heating** tube relapses under the condition of the high pressure of **boiler**, high temperature, in the long-term use, separates with **heat** transfer aluminum plate to avoid touching the plastic casing and produce the potential safety hazard.

89/710 © EPODOC / EPO

PN - [CN105112593](#) A 20151202
 PR - CN20151602791 20150921
 AP - CN20151602791 20150921
 DT - I
 CT - || STSE (A)
[CN2426078Y](#) Y 20010404
 [A] (LUO WENKE [CN])
 [A] 1-10
 * 全文 *;
[DE102010006270](#) A1 20110804
 [A] (BRUECK ALEXANDRA [DE])
 [A] 1-10
 * 全文 *;
[CN102183154](#) A 20110914
 [Y] (BAOSTEEL ENG & TECH GROUP CO)
 [Y] 1-10
 * 说明书第0008-0009段、0013段-0014段以及图1 *;
[CN104515119](#) A 20150415
 [Y] (WANG ZHIKAI)
 [Y] 1-10
 * 说明书第0010段以及图1 *;
[CN204630395U](#) U 20150909

[Y] (ZHONGYE CHANGTIAN INT
ENG CO)

[Y] 1-8

* 说明书第0005、0009、0031、
0033-0034段以及图2 *

- PA - BAOSTEEL DEV CO LTD
- TI - DIR energy recovery system for rotary hearth furnace
- AB - The invention provides a DIR (Direct Reduced **Iron**) energy recovery system for a rotary hearth furnace. The DIR energy recovery system comprises a waste **heat boiler**, wherein the water inlet of the waste **heat boiler** is communicated with water supply equipment; the **steam** outlet of the waste **heat boiler** is communicated with **heat** using equipment; a **heating** rotary table is arranged below the waste **heat boiler**; the feed inlet of the **heating** rotary table is communicated with the DIR discharging opening of the rotary hearth furnace; the material outlet of the **heating** rotary table is communicated with DIR using equipment; feed conveying passages are arranged in the **heating** rotary table; the feed inlet and the feed outlet are respectively communicated with the two ends of the plurality of feed conveying passages; a feed passage distributing device is arranged in the feed inlet; the feed inlet is communicated with the DIR discharging opening of the rotary hearth furnace through a seal conveying device; a nitrogen blowing device is arranged at the feed inlet; nozzles of the nitrogen blowing device stretch into the feed conveying passages; the material outlet is communicated

with the DIR using equipment through a screening device; a discharging scraping blade is arranged in the feed outlet; a gas waste **heat** exchanger is arranged at the feed outlet; the gas waste **heat** exchanger is in contact with a water inlet pipeline of the waste **heat boiler**; a water cooling device is arranged at the bottom of the **heating** rotary table; the water outlet of the water cooling device is communicated with the waste **heat boiler**.

90/710 © EPODOC / EPO

- PN - [CN204803655U](#) U 20151125
- PR - CN20152221288U 20150408
- AP - CN20152221288U 20150408
- DT - I
- PA - WANG JUN
- TI - **Steam boiler** assembly for electric **iron** that has water level monitoring vocal music prompt facility
- AB - **Steam boiler** assembly for electric **iron** that has water level monitoring vocal music prompt facility relates to and is applied to electric **steaming steam boiler** electric **iron**, the utility model discloses by level sensor, water level electronic monitoring and pronunciation sound production circuit and **steam boiler** subassembly are constituted. The suggestion of its available various language and music you when add water and water adds and puts in place, prevent effectively that the **steam boiler** water -logging from dryouting and water add the abundance. The sphere bottom of a **boiler** and the outer convex spherical's of the **steam boiler** indent of

innovation electricity
generate **heat** the dish through
annular clamping ring, the
inseparable pressfitting of
spider spring keeper plate of
steel together, good mechanical
contact makes fabulous, the
great electricity set life that
generates **heat** that has
prolonged of **heat** -conduction
ability, the system response is
the sensitivity very, has
improved electric **iron** complete
machine safety, reliability. The
utility model discloses design
and the technology of innovation
are unique, and in use's **steam
boiler** assembly has had the
change of matter quite at
present, used the promotion that
this kind of **steam boiler**
assembly electric **iron**
performance grade can be very
big, and how many its costs do
not exceed, will replace the new
lover who has **steam boiler**
electric **iron** now and become
market.

91/710 © EPODOC / EPO
PN - [CN105063259](#) A 20151118
PNFP - CN105063259B B 20171020
PR - CN20151448998 20150728
AP - CN20151448998 20150728
DT - I
CT - || STSE (A)
[CN1920380](#) A 20070228
[A] (UNIV NORTHEASTERN [CN])
[A] 1-6
* 全文 *;
[CN103320553](#) A 20130925
[Y] (UNIV NORTHEASTERN)
[Y] 4-6
* 说明书第7段 *;
[CN204779634U](#) U 20151118
[R] (HEBEI IRON & STEEL CO LTD)
[R] 1-3
* 权利要求1-3 *

CTNP	- STSE (A) [Y] - 高宏适, "“钢渣显热回收技术开发”", 《世界金属导报》 [Y] 4-6 * 第1-2页 *
CCA	- Y02P10/283 ; Y02P10/242
PA	- (A)
TI	- (A) - Blast furnace slag heat recovery device and application method
AB	- (A) - The invention discloses a blast furnace slag heat recovery device and an application method, and belongs to the technical field of blast furnace slag treatment equipment and methods. The device is characterized in that a water port device at the bottom of a slag tank is opposite to an upper port of a slag collecting tank; multiple sets of cooling rollers are arranged in the slag collecting tank; an opening in the bottom of the slag collecting tank is opposite to an annular cooling trolley; an air blower for cooling is arranged at the lower section of the annular cooling trolley; and an air bellow is mounted at the upper part of the annular cooling trolley. The application method comprises the following steps: after blast furnace slag enters the slag collecting tank, the water cooling is performed in the cooling rollers to continuously condense the slag to slag pieces; the condensed slag pieces drop on the annular cooling trolley for cooling; the air blower for cooling supplies cold air from the bottom of the annular cooling trolley; the cold air is heated after penetrating

through a hot dry slag layer; and generated hot smoke is leaded out through the air bellow to supply to an afterheat **boiler** for generating **steam**. The blast furnace slag **heat** can be recovered with high quality; the energy consumption in a blast furnace **iron** making procedure is largely reduced; the water resource is saved; the environmental pollution is not generated; and the economical benefit and the social benefit are prominent.

92/710 © EPODOC / EPO

PN - [IN1824MUMNP2014](#) A 20150703

PR - JP20120043802
20120229; WO2013JP53923
20130219

AP - IN2014MUMNP1824 20140917

DT - I

CCI - [F01K7/40](#)

CUI - [F01K7/38](#)

CCA - [C02F1/20](#) ; [C02F1/42](#) ;
[C02F1/444](#) ; [C02F1/488](#) ;
[C02F2101/203](#) ; [C02F2303/22](#)

PA - KURITA WATER IND LTD [JP]

TI - TURBINE FACILITY AND WATER
TREATMENT METHOD
FOR **HEATER** DRAINAGE WATER

AB - Provided are a turbine facility and a water treatment method for **heater** drainage water in the turbine facility with which **iron** oxide particle scale that adheres to the inner surface of **boiler** pipes and impedes the transfer of **heat** can be efficiently removed from the **heater** drainage water. The present invention has: a **boiler** (9); **steam** turbines (12 16); a condenser (1); water supply **heaters** (5 8) which are interposed in water supply lines (4 6) that supply the

condensate condensed by the condenser (1) to the **boiler** (9) and which extract as bleed air a portion of the **steam** supplied from the **steam** turbine (12) to a reheater and use this to **heat** the aforementioned supplied water; and a filter device (19) that recovers water by filtering the **heater** drainage water discharged from the low pressure water supply **heater** (5) and sending the water to the aforementioned supply lines. The filter device (19) has a filter with a hole diameter of 1.5 [mm].

93/710 © EPODOC / EPO

PN - [CN204708603U](#) U 20151021
 PR - CN20152267921U 20150429
 AP - CN20152267921U 20150429
 DT - I
 PA - ZHANG YONGZHI
 TI - Vapour cooking pot
 AB - The utility model provides an individual technical scheme is: an utilize **steam** for the boiling pan of **heat** source, includes: the pot body, handle, annular **steam** flow path, the dispersed aperture of **steam** energy, **steam** admission interface, check valve, interface, **steam** hose, **steam** valve, base soon. The **steam** pot body similar with the ordinary pot body, available ordinary **iron** and steel, stainless steel, aluminium etc. Are made, have two kinds kick shapes, flat shapes, can select pot shape according to different use, can directly reequip with ordinary pot, the adoption is welded annular U-shaped groove and is become **steam** flow path with the pot body form outside the bottom of a **boiler** to the

countless extremely tiny apertures of annular position brill that cover in bottom of a **boiler** U-shaped groove, wash so a pot internal flush lay the grain is smooth as **steam** outlet easily, can not hinder cooking of food, and tiny food waste also is difficult for getting into the **steam** aperture. Because adopt in the pot **steaming** as the **heat** source food of cooking, the evaporation of moisture is replenished by the **steam** that lets in in the pot, so moisture is difficult reduces. Connect a check valve at annular **steam** flow path's air inlet, moisture in the time of can preventing not supply vapour cooking food in the pot is in can not palirrhea entering **steam** pipe. Use interface soon, make things convenient for the dismounting of **steam** pipe and the pot body to wash.

94/710 © EPODOC / EPO

PN - [CN104988255](#) A 20151021

PNFP - CN104988255B B 20171121

PR - CN20151302929 20150606

AP - CN20151302929 20150606

DT - I

CT - || STSE (A)

[CN101413037](#) A 20090422

[A] (SHOUGANG GROUP [CN])

[A] 1-15

* 全文 *;

[CN202297623U](#) U 20120704

[A] (WUXI DOGFANG ENVIRONMENTAL ENGINEERING DESIGN INST CO LTD)

[A] 1-9

* 说明书第0024-0025段 *;

[CN103614497](#) A 20140305

[A] (SICHUAN CRUN CO LTD)

[A] 1-15

* 全文 *;

[CN103966372](#) A 20140806

[A] (SHOUGANG CORP)

[A] 1-15

* 全文 *;

[CN104561405](#) A 20150429

[A] (PANZHIHUA JINXI ENERGY

ENVIRONMENTAL PROT

TECHNOLOGY CO LTD)

[A] 1-9

* 权利要求1-12 *

- CCA - [Y02W30/543](#) ; [Y02P10/242](#)
- PA - (A)
LIAO HONGQIANG
- TI - (A)
Method and equipment system
for recycling liquid slag
waste **heat** and super-
micronizing tailings
- AB - (A)
The invention provides a method
and an equipment system for
recycling liquid slag waste **heat**
and super-micronizing tailings,
wherein the method comprises
the following steps: firstly,
mixing the liquid slag with cold
slag to obtain a mixture, and
solidifying and granulating the
mixture; then, carrying out
direct **heat** exchange on the solid
mixture and gas, and super-
micronizing the **heat**-exchanged
mixture after screening, crushing
and **iron** separation, thereby
preparing a supermicropowder
product; enabling **heat**-
exchanged high temperature gas
to indirectly exchange **heat** with
a waste **heater boiler** to
generate **steam**; firstly using
the **steam** as a power medium
for super-micronizing tailings
and then using the **steam** as
a **heat** source for pre-heating
supplied water of the waste **heat**
boiler; and enabling the **heat**-
exchanged gas to enter a
slag **heat** exchange system by a

circulating fan to directly cool hot slag after dust removal is carried out on the **heat**-exchanged gas by a cloth bag. The equipment system comprises a liquid slag **heat** storage and curing system, the slag **heat** exchange system, a waste **heat** recycling system, a super micropowder preparation system and a gas dust removal and circulating system. According to the method and the equipment system, the waste **heat** recycling of liquid high-temperature smelting slag and super-micronizing resource utilization of the tailings can be simultaneously realized, energy conservation and emission reduction and cleanness and high efficiency of steel metallurgical production are facilitated, and the popularization and the application are easy.

- 95/710** © EPODOC / EPO
- PN - [CN204665225U](#) U 20150923
 - PR - CN20152298803U 20150511
 - AP - CN20152298803U 20150511
 - DT - I
 - CCA - [Y02P10/265](#) ; [Y02P10/283](#)
 - PA - JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD
 - TI - It is external in fin pipe type waste **heat boiler** of sintering machine opium roadside system
 - AB - The utility model provides an it is external in fin pipe type waste **heat boiler** of sintering machine opium roadside system, relates to steel smelting equipment technical field, including big flue, by -pass flue, first big flue **steam** superheater, second largest flue **steam**

superheater, first big flue one - level finned tube evaporimeter, second largest flue one -level finned tube evaporimeter, first big flue second grade finned tube evaporimeter, second largest flue second grade finned tube evaporimeter, **steam** pocket, the water supply system of sintering machine, the big flue of sintering machine includes and first big flue and second largest flue is equipped with a plurality of air ducts on first big flue and second largest flue. The utility model discloses because of directly arranging fin pipe type waste **heat boiler** at sintering machine opium roadside, the current place of make full use of sintering machine retrieves the sintering machine residual **heat** resources, accomplishes reasonable effective, the cascade utilization of the energy, and low equipment investment, area are little, and produced superheated **steam** is used for the electricity generation, has apparent economic benefits and social, but wide application in sintering machine of **iron** and steel enterprise trade.

96/710 © EPODOC / EPO
 PN - [CN204665224U](#) U 20150923
 PR - CN20152298741U 20150511
 AP - CN20152298741U 20150511
 DT - I
 CCA - [Y02P10/265](#) ; [Y02P10/283](#)
 PA - JIANGSU ZHONGTIAN ENERGY
 EQUIPMENT CO LTD
 TI - Interior water pipe **heating** pipe
 exhaust - **heat boiler** system that
 places in on sintering machine
 flue
 AB - The utility model provides an

interior water pipe **heating** pipe exhaust - **heat boiler** system that places in on sintering machine flue, relates to steel smelting equipment technical field, and big flue, bottom flue, the big hot tube -type evaporator of flue, the hot tube -type evaporator of bottom flue, big flue one -level water tube -type evaporator, big flue second grade water tube -type evaporator, bottom flue one -level water tube -type evaporator, bottom flue second grade water tube -type evaporator, **steam** pocket, water supply system including the sintering machine set up a plurality of air ducts respectively on big flue, bottom flue. The utility model discloses directly arranging on the big bottom flue of sintering machine because of dividing into a plurality of **heat** transfer module with water tube -type evaporator and hot tube -type evaporator, having accomplished the equitable effective cascade utilization of the energy, low equipment investment, area are little, in the use, and full play water pipe formula, the respective advantage of hot tubular **heat** exchanger, furthest retrieves the flue gas waste **heat**, can not influence sintering machine production simultaneously, but wide application in sintering machine of **iron** and steel enterprise trade.

97/710 © EPODOC / EPO
 PN - [CN204665222U](#) U 20150923
 PR - CN20152298657U 20150511
 AP - CN20152298657U 20150511
 DT - I
 CCA - [Y02P10/265](#) ; [Y02P10/283](#)

- PA - JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD
- TI - It is external in hot pipe type waste **heat boiler** system of sintering machine opium roadside
- AB - The utility model provides an it is external in hot pipe type waste **heat boiler** system of sintering machine opium roadside, relates to steel smelting equipment technical field, including the hot tube -type evaporator of big flue, by -pass flue, **steam** superheater, one - level, the hot tube -type evaporator of second grade, **steam** pocket, the water supply system of sintering machine, is equipped with a plurality of air ducts on big flue, the utility model discloses because of directly arranging hot pipe type waste **heat boiler** at sintering machine opium roadside, the current place of make full use of sintering machine retrieves the sintering machine residual **heat** resources, accomplishes that the energy is reasonable, effective, cascade utilization, and low equipment investment, area are little, and produced superheated **steam** is used for the electricity generation, has apparent economic benefits and social. Can not influence simultaneously sintering machine production, but this patent wide application in sintering machine of **iron** and steel enterprise trade.

98/710 © EPODOC / EPO

PN - [CN104832900](#) A 20150812

PNFP - CN104832900B B 20161130

PR - CN20151235273 20150511

AP - CN20151235273 20150511

DT - I

CT - || STSE (A)
[JPS56142831](#) A 19811107
 [A] (SUMITOMO HEAVY INDUSTRIES)
 [A] 1
 * 全文 *;
[CN202149473U](#) U 20120222
 [A] (JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD)
 [A] 1
 * 全文 *;
[CN202393251U](#) U 20120822
 [A] (HAIXIANG SUN)
 [A] 1
 * 全文 *;
[CN203011162U](#) U 20130619
 [A] (WUXI BRANCH NO 703 INST OF CHINA SHIPBUILDING INDUSTRY CORP)
 [A] 1
 * 全文 *;
[CN103292605](#) A 20130911
 [A] (SUN MUWEN)
 [A] 1
 * 全文 *;
[CN204665225U](#) U 20150923
 [R] (JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD)
 [R] 1
 * 权利要求1 *

CCA - [Y02P10/265](#) ; [Y02P10/283](#) ;
[Y02P80/154](#)

PA - (A)
 JIANGSU ZHONGTIAN ENERGY EQUIPMENT CO LTD

TI - (A)
 Finned tube type residual **heat boiler** system besides large flue of sintering machine

AB - (A)
 The invention relates to a finned tube type residual **heat boiler** system besides a large flue of a sintering machine, and relates to the technical field of steel and **iron** smelting equipment. The

finned tube type residual **heat boiler** system comprises the large flue of the sintering machine, a bypass flue, a first large flue **steam** overheater, a second large flue **steam** overheater, a first large flue first-stage finned tube evaporator, a second large flue first-stage finned tube evaporator, a first large flue second-stage finned tube evaporator, a second large flue second-stage finned tube evaporator, a **steam** drum and a water supply system, wherein the large flue of the sintering machine comprises a first large flue and a second large flue; a plurality of air guide tubes are arranged on the first large flue and the second large flue. The finned tube type residual **heat boiler** system has the advantages that the finned tube type residual **heat boiler** system is directly arranged besides the large flue of the sintering machine, so the existing site of the sintering machine is sufficiently utilized, the residual **heat** resource of the sintering machine is recycled, and the energy source is reasonably and effectively used in a gradient way; the investment of equipment is saved, and the land occupation area is small; the generated overheat **steam** is used for generating power, the economic benefits and social benefits are obvious, and the finned tube type residual **heat boiler** system is widely applied to the sintering machine industry of steel and **iron** enterprises.

PR	- CN20151242253 20150513
AP	- CN20151242253 20150513
DT	- I
CT	- STSE (A) KR20050103325 A 20051031 [A] (SON DOO YOUL [KR]) [A] 1-39 * 全文 *; CN102536361 A 20120704 [A] (SUUNPOWER CO LTD) [A] 1-39 * 全文 *; CN202734583U U 20130213 [A] (BEIJING ZNXY ENERGY & ENVIRONMENT TECHNOLOGY CO LTD) [A] 1-39 * 全文 *; CN203148247U U 20130821 [A] (HEBEI ENERGY ENGINEERING DESIGN CO LTD) [A] 1-39 * 全文 *; CN104153832 A 20141119 [X] (KUNMING IRON & STEEL GROUP CO LTD) [X] 1-39 * 说明书第0002至0027段, 图1 和图2 *
CCA	- Y02P10/283
PA	- HUNANZHONGYECHANGTIAN ENERGYSAVINGENVIRONMENTAL PROT TECHNOLOGY CO LTD
TI	- Coal gas, converter steam and sintering waste heat combined power generation device and waste heat utilization method
AB	- The invention relates to a coal gas, converter steam and sintering waste heat combined power generation device which comprises a generator 1, a turbine 2, a condenser 3, an over- heat compensation combustion furnace 4, a waste heat boiler 5 of a sintered smoke exhaust pipe, a waste heat boiler 6 of a

circular cooler, a steel converter drum 9 and a **steam** accumulator 8 of the converter, wherein low parameter over-**heated steam** generated by the waste **heat boiler** 6 of the circular cooler is connected with a **steam** compensation opening 202 of the turbine, high parameter saturated **steam** generated by the waste **heat boiler** 5 of the sintered smoke exhaust pipe and the **steam** accumulator 8 of the converter enters into a main **steam** inlet 201 of the turbine through the over-**heat** compensation combustion furnace 4, and a rotary shaft 204 of the turbine 2 is connected with or drives a rotary shaft of the generator 1. The coal gas, converter **steam** and sintering waste **heat** combined power generation device provided by the invention has the advantages that residual coal gas, sintered waste **heat** and converter **steam** of an **iron** and steel plant are comprehensively utilized, the utilization ratio of waste **heat** is high, the system is flexible, the outage rate of a **steam** turbine unit is low, and the investment and operation costs are low.

100/710 © EPODOC / EPO
 PN - [CN204457896U](#) U 20150708
 PR - CN20152113222U 20150217
 AP - CN20152113222U 20150217
 DT - I
 CCA - [Y02P80/154](#)
 PA - TANGSHAN IRON & STEEL
 INTERNATENGINEERING
 TECHNOLOGY CO LTD
 TI - **Iron** and steel plant waste **heat steam** power generating device

AB

- The utility model discloses an **iron** and steel plant waste **heat steam** power generating device and belongs to the technical field of power generating facilitates. The **iron** and steel plant waste **heat steam** power generating device is used for generating power through waste **heat steam** in an **iron** and steel plant. According to the technical scheme, the **iron** and steel plant waste **heat steam** power generating device comprises a gas **boiler**, a steelmaking evaporation cooling device, a sintering waste **heat boiler**, a desuperheater, a **steam** mixer and a **steam** turbine; a **steam** output pipeline of the gas **boiler** is connected with a main air inlet of the **steam** turbine, a **steam** output pipeline of the steelmaking evaporation cooling device and a **steam** output pipeline of the sintering waste **heat boiler** are connected with the **steam** mixer, an output pipeline of the **steam** mixer is connected with an air supplementing inlet of the **steam** turbine, a **steam** output pipeline of the sintering waste **heat boiler** is internally provided with the desuperheater. According to the **iron** and steel plant waste **heat steam** power generating device, the **steam** turbine can be used for generating power through various kinds of **steam**, repeated construction of power generating devices in the plant is avoided, the utilization ratio of energy sources is increased, capital is saved, the number of staff is reduced, the production cost is lowered, and remarkable economic benefits are achieved.

101/710 © EPODOC / EPO

PN - [CN204438284U](#) U 20150701

PR - CN20142855382U 20141230

AP - CN20142855382U 20141230

DT - I

PA - HUADIANZHENGZHOU
MECHANICAL DESIGN INST CO LTD

TI - **Heating** supply system of thermal power plant

AB - The utility model relates to a **heating** supply system of a thermal power plant. The **heating** supply system comprises a **heating steam** pipeline, a **heating** network **heater**, a drainage pump, an **iron** separator, a deaerator and a deoxygenization water tank. An outlet of the drainage pump is connected with an inlet of the **iron** separator through a pipeline. An outlet of the **iron** separator is connected with an inlet in the upper end of the deaerator through a pipeline. An outlet in the lower end of the deaerator is connected with an inlet of the deoxygenization water tank. An outlet pipeline of the **heating** network **heater** and an inlet of the drainage pump are each provided with an electric valve. An electrical conductivity measuring apparatus is arranged on one side of the outlet of the **heating** network **heater**. A water quality measuring apparatus is arranged on one side of the outlet of the **iron** separator. A flow orifice plate I and a control component I are sequentially arranged on the outlet pipeline of the **iron** separator. A buffer water tank is arranged on a pipeline between the control

component I and the deaerator.
 The **heating** supply system is simple, running and operation are convenient, the **heat** economy and reliability of the **heating** supply system are improved, and it is ensured that a concurrent **boiler** obtains good **heating** economic benefits.

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 PN - [CN204421655U](#) U 20150624
 PR - CN20142858713U 20141230
 AP - CN20142858713U 20141230
 DT - I
 CCA - [Y02P10/283](#)
 PA - HANZHONG HUAFU NEW ENERGY CO LTD
 TI - Sintering waste **heat boiler** and coal gas **boiler** combined power generating device
 AB - The utility model discloses a sintering waste **heat boiler** and coal gas **boiler** combined power generating device. The sintering waste **heat boiler** and coal gas **boiler** combined power generating device comprises a chemical water treatment device (1), wherein a water outlet of the chemical water device is connected with a desalting water tank (100) by virtue of a pipeline, a water outlet trunk of the desalting water tank is connected with a coal gas **boiler** (201), a sintering machine waste **heat boiler** (301) and a circular cooling machine waste **heat boiler** (401) respectively by virtue of a plurality of branch pipelines; a smoke inlet of the coal gas **boiler**, a smoke inlet of the sintering machine waste **heat boiler** and a smoke inlet of the circular cooling machine

waste **heat boiler** are respectively and sequentially connected with a blast furnace **iron** making device (2), a sintering machine (3) and a circular cooling machine (4) by virtue of pipelines; a **steam** outlet of the circular cooling machine waste **heat boiler** is connected with a middle pressure **steam** collection box (5) and a low pressure **steam** collection box (6) in two paths, a **steam** outlet of the coal gas **boiler** and a **steam** outlet of the sintering machine waste **heat boiler** are connected with the middle pressure **steam** collection box, a mixed **steam** outlet of the middle pressure **steam** collection box and a mixed **steam** outlet of the low pressure **steam** collection box are connected with a **steam** turbine (7), and the **steam** turbine is connected with a generator (8).

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PN	- RU2013155113 A 20150620
PNFP	- RU2561573 C2 20150827
PR	- US201113107013 20110513; WO2011US38040 20110526
AP	- RU20130155113 20110526
DT	- I
CCI	- C21B13/02
CCA	- Y02P10/136 ; Y02P10/143 ; Y02P10/132 ; Y02P10/122 ; Y02P10/128 ; Y02P10/126 ; C21B2100/44 ; C21B2100/66 ; C21B2100/282 ; C21B2100/26 ; C21B2100/60
PA	- (C2) MIDREX TECHNOLOGIES INC [US]
TI	- (C2) SYSTEM AND METHOD OF

REDUCTION OF **IRON** OXIDE TO
METAL **IRON** USING COKE GAS
AND GAS OF STEEL-SMELTING
OXYGEN FURNACE

AB

- (C2)
FIELD: metallurgy. SUBSTANCE:
invention relates to the system
and the method of reduction
of **iron** oxide to metal **iron** using
coke gas and gas of steel-
smelting oxygen furnace. From
the mix of flue gas of the shaft
furnace obtained from the direct
reduction shaft furnace, and
BOFG carbon dioxide is removed.
The obtained gas, with low
CO content, is mixed with pure
COG, humidified and **heated** in
the **heater** with the **heat**
exchanger. Oxygen is added
to **heated** reduction gas and the
obtained hot reduction gas is
supplied into the direct
reduction shaft furnace. The
spent hot reduction gas leaves
the direct reduction shaft
furnace in the form of the shaft
furnace flue gas with formation
of **steam** in the **heat**
recovery **boiler** of excess **heat**, it
is purified in a scrubber
refrigerator, compressed and
recirculated to merge with fresh
BOFG. A part of flue gas of the
shaft furnace is supplied
to **heating** burners. EFFECT:
invention is aimed at maximizing
amount of produced direct
reduction **iron** when using the
external source of reducers that
are coke gas (COG) and/or the
basic oxygen furnace gas (BOFG).
22 cl, 2 dwg, 1 tbl

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PN - [CN204404813U](#) U 20150617

PR - CN20142772324U 20141210

AP - CN20142772324U 20141210

DT	- I
CCA	- Y02P10/283 ; Y02P80/152
PA	- UNIVZHEJIANG
TI	- Sintering waste heat power generation system adopting screw expander to drag
AB	- The utility model discloses a sintering waste heat power generation system adopting a screw expander to drag. The sintering waste heat power generation system adopting the screw expander to drag comprises a sinter vertical cooling device, a sintering machine, an air box, a main flue, a dust remover, a first electric fan, a first fan, a first screw expander, a hot pipe waste heat boiler , a supplement steam condensing steam turbine, a chimney, an electric generator, a condenser, a first water pump, a second water pump, a third water pump, a deaerator, a fourth water pump, a fifth water pump, a dual air inlet dual pressure waste heat boiler , a cold air inlet valve, a second electric fan, a second screw expander, a second fan, a blow off valve, a dust remover, a sinter vertical cooling device air inlet chamber, a sinter vertical cooling device low temperature air outlet chamber, a sinter vertical cooling device medium temperature air outlet chamber and a sinter vertical cooling device high temperature air outlet chamber. The sintering waste heat power generation system adopting the screw expander to drag can effectively recycle sintering waste heat energy, improves generating efficiency, greatly saves required energy consumption for

equipment operation, and has important significance for energy conservation and emission reduction of **iron** and steel enterprises.

Interruption by user...

[SS 8]