

[SS 16] ..fi epodoc

 Database: EPODOC

[EPODOC: SS 16] (drain 3d grate) and (webbing or open+)

Results in EPODOC 102

[SS 17] * and PD<20140521

Results in EPODOC 81

[SS 18]

[SS 18] ..li 1-10



1/81 © EPODOC / EPO

PN - [CN203454384U](#) U 20140226

PR - CN20132415735U 20130714

AP - CN20132415735U 20130714

DT - I

PA - SUZHOU CUIZHI NEW TECH DEV CO

TI - Boiler

AB - The utility model relates to a boiler which comprises a boiler hood and a heat exchanger. An inner container is arranged in the boiler hood, a heat exchange cavity and a hearth are arranged in the inner container, the hearth is located under the heat exchange cavity, heat exchange pipes are arranged in the heat exchange cavity, a water storage cavity is formed between the boiler hood and the inner container, the lower end of the water storage cavity is communicated with a water inlet, the bottom of the water storage cavity is communicated with a water **drain** pipe, a fire **grate** is arranged under the hearth, the lower portion of the fire grate is communicated with a slag cavity, a slag port is formed in the side face of the slag cavity, the side face of the hearth is provided with a firing coal **opening** communicated with the outside world, the top of the heat exchange cavity is provided with a chimney communicated with the outside world, a water outlet is formed in the upper portion of the water storage cavity, a separation board is arranged between the hearth and the heat exchange cavity, a water supply cavity communicated with the water storage cavity is formed in the separation board, the heat exchange pipes tilt and enable the water storage cavity and the water supply cavity to be communicated, a flame path through which the hearth and the heat exchange cavity are communicated is arranged between the separation board and the inner container, and an ash cleaning **opening** communicated with the outside world is formed in the side face of the bottom of the heat exchange cavity. The heat exchange pipes are arranged in an inclined mode, and convex edges are arranged on the surfaces of the heat exchange pipes so that the heat exchange area is large; the heat exchange

cavity is separated from the hearth, and the heat efficiency is high.

2/81 © EPODOC / EPO

PN - [CN103556687](#) A 20140205

PR - CN20131525004 20131018

AP - CN20131525004 20131018

DT - I

CT - || STSE (A)

[EP0436094](#) A1 19910710 [A] (DALLMER GMBH & CO [DE])

[A] 1

* 全文 *;

[CN2387153Y](#) Y 20000712 [Y] (HANGSHEN IND & TRADE CO SHANGH [CN])

[Y] 1

* 说明书第1页及附图1 *;

[CN1553012](#) A 20041208 [A] (JI DAPENG [CN])

[A] 1

* 全文 *;

[CN2714643Y](#) Y 20050803 [A] (XIE XIANWEN [CN])

[A] 1

* 全文 *;

[CN202954432U](#) U 20130529 [Y] (SUN ZHENGMING)

[Y] 1

* 说明书第[0003]-[0013]段及附图1 *;

[CN203603227U](#) U 20140521 [R] (SUN ZHENGMING)

[R] 1

* 权利要求1 *

PA - SUNZHENGMING

TI - Floor drain with trap, detachable elastic body cap and screwing-out core

AB - The invention relates to a floor drain with a trap, a detachable elastic body, and a screwing-out core. The floor **drain** comprises a **grate**, a grate frame, a notch, a lug, a screwing-out core frame, an L-shaped groove, a bump, a detachable elastic body cap, a shaping ring, a lower **opening**, a fixed column, a fixed hole, vertical grooves, a trap, a screwing-out core, an upper **opening**, a diameter-changing connector and vertical bars. The floor drain is characterized in that the fixed hole on the detachable elastic body cap with the shaping ring is matched with the fixed column at the bottom surface of the screwing-out core, the top of the fixed column is circular and the column body of the fixed column is semicircular, the detachable elastic body cap is fixed at the lower **opening** of the screwing-out core, and the lower **opening** of the screwing-out core is sealed by the elasticity of the detachable elastic body cap, the upper part of the diameter-changing connector can be connected with a drain pipe of a washing machine, and the vertical bars at two sides of the diameter-changing connector are inserted into the vertical grooves of the upper **opening** and are rotated to screw out the screwing-out core. By adopting the above technical scheme, the floor drain is reasonable in structure, convenient for installation, smooth in drainage, simple in disassembling and convenient for cleaning, can improve the effects of preventing peculiar smell, backwater and pests, ensures the indoor environment to be clean and sanitary, and reduces the spreading opportunity of insect-borne infectious diseases and the harm of bad smell of

the sewer to human health.

3/81 © EPODOC / EPO

- PN - [CN203383294U](#) U 20140108
- PR - CN20132489051U 20130812
- AP - CN20132489051U 20130812
- DT - I
- PA - SHANDONG LU YA PHARMACEUTICAL CO LTD
- TI - Floor drain for clean area in pharmaceutical industry
- AB - The utility model provides a floor drain for a clean area in a pharmaceutical industry. The floor drain comprises a cylindrical floor drain shell with a top **opening** and a bottom, wherein a central hole is formed in the bottom of the floor drain shell; the central hole is connected with a top port of an S-shaped bent sewer pipe through a connecting pipe; a vertical pipe is positioned in the center of the floor drain shell; an external thread at the bottom end of the vertical pipe is matched with an external thread at the top end of the connecting pipe; an O-shaped sealing ring is arranged between the bottom end of the vertical pipe and the top end of the connecting pipe; a cylindrical fastening bowl with a bottom **opening** and a top is positioned in the floor drain shell, and the bottom end of the cylindrical fastening bowl is supported on the bottom of the floor drain shell; the vertical pipe is positioned in the fastening bowl; a through hole is formed in the barrel body of the fastening bowl; the top end of the vertical pipe is closer to the top of the fastening bowl compared with the through hole; a floor **drain grate** is positioned in the floor drain shell and arranged on the top of the fastening bowl; a floor drain cover is arranged at the top **opening** of the floor drain shell. When the floor drain is cleaned or checked, a first liquid seal is damaged, a second liquid seal also can prevent a clean room from being communicated with an outdoor sewer, and an effect of protecting a pharmaceutical clean area is achieved.

4/81 © EPODOC / EPO

- PN - [CN203375684U](#) U 20140101
- PR - CN20132456255U 20130730
- AP - CN20132456255U 20130730
- DT - I
- PA - BU ZHANMING
- TI - Boiler
- AB - The utility model relates to a boiler. An inner container is arranged inside a boiler hood. A heat exchanger and a hearth placed below the heat exchanger are arranged inside the inner container. A water storage cavity is formed between the boiler hood and the inner container, the lower end of the water storage cavity is communicated with a water inlet, and the bottom of the water storage cavity is communicated with a water **drain** pipe. A fire **grate** is arranged below the hearth, the lower portion of the fire grate is communicated with a slag cavity, and a slag **opening** is formed in the side face of the slag cavity. A boiler drying device is arranged above the hearth, and a heating cavity which is communicated with the water storage cavity is formed in the boiler drying device. A heat exchange cavity is arranged above the boiler drying device, the heat exchanger is arranged inside the heat exchange cavity, and the heat exchanger is

composed of heat exchange tubes which are vertically communicated with the water storage cavity and the heating cavity. A flame path which is communicated with the hearth and the heat exchange cavity is arranged between the boiler drying device and the inner container. A coal firing **opening** which is communicated with the outside is formed in the side face of the hearth, an ash cleaning **opening** which is communicated with the outside is formed in the side face of the bottom of the heat exchange cavity, and a chimney which is communicated with the outside is arranged on the top of the heat exchange cavity. A water outlet is formed in the upper portion of the water storage cavity. According to the boiler, the boiler drying device is used for gathering heat, the heat exchange tubes are vertically arranged, so that the heat exchange effect is good, and due to the fact that the heat exchange cavity is separated from the hearth, heat efficiency is high.

5/81 © EPODOC / EPO

PN - [CN103461086](#) A 20131225

PNFP - CN103461086B B 20150902

PR - CN20131466381 20131009

AP - CN20131466381 20131009

DT - I

CT - || STSE (A)

[CN2469693Y](#) Y 20020109 [A] (LAI WENQI [CN])

[A] 1-6

* 全文 *;

[CN202603326U](#) U 20121219 [A] (ZHANG JIACHEN)

[A] 1-6

* 全文 *;

[CN2278343Y](#) Y 19980415 [A] (LAI WENQI [CN])

[A] 1-6

* 全文 *;

[CN2346188Y](#) Y 19991103 [YX] (LAI WENQI [CN])

[Y] 1-3

* 说明书第2页第5段 *

[X] 4-6

CTNP - || STSE (A)

[Y] - 饶璐, "用塑料袋快速培育豆芽", 《农村实用工程技术》, (19961120), no. 11

[Y] 1-3

* 第12页左侧第3、6段以及右侧第4段 *

CCA - [Y02P60/216](#)

PA - (A)

ZOU DAIFA

TI - (A)

Bean sprout cultivation method and device

AB - (A)

The invention relates to a bean sprout cultivation method and a device used in the method, in particular to a bean sprout cultivation method and device. According to the bean sprout cultivation method, a soft plastic bag is used as a utensil for production of

bean sprouts and serves as a packaging bag of a manufacturer at the same time, and mature bean sprouts grow tightly in the bag in the same direction to form bean sprout stalks. The bean sprout cultivation device comprises a box, an **opening** is formed in the top of the box, the bottom of each side wall of the box is provided with a water **drain** hole, a suspension **grate** is installed at the **opening** of the top of the box, suspension beams arranged on the grate in a suspended mode are provided with suspension nails, and a suspension space used for suspending the soft plastic bag is formed between the suspension beams. By means of the structure, the bean sprout cultivation method and device have the advantages that breaking rate of the bean sprouts is lowered, the shelf life of the bean sprouts is prolonged, quantitative packaging of the bean sprouts is achieved, and industrialized production is facilitated.

6/81 © EPODOC / EPO

PN - [CN103411304](#) A 20131127

PR - CN20131293236 20130714

AP - CN20131293236 20130714

DT - I

PA - SUZHOU CUIZHI NEW TECH DEV CO

TI - Boiler

AB - The invention relates to a boiler which comprises a boiler cover and a heat exchanger. An inner container is arranged in the boiler cover, a heat exchange cavity and a hearth are formed in the inner container, the hearth is located below the heat exchange cavity, a heat exchange pipe is arranged in the heat exchange cavity, a water storage cavity is formed between the boiler cover and the inner container, the lower end of the water storage cavity is communicated with a water inlet, the bottom of the water storage cavity is communicated with a water **drain** pipe, a fire **grate** is arranged below the hearth, the lower portion of the fire gate is communicated with a slag cavity, a slag port is formed in the side face of the slag cavity, the side face of the hearth is provided with a firing coal **opening** communicated with the outside world, the top of the heat exchange cavity is provided with a chimney communicated with the outside world, a water outlet is formed in the upper portion of the water storage cavity, a separation board is arranged between the hearth and the heat exchange cavity, a water supply cavity communicated with the water storage cavity is formed in the separation board, the heat exchange pipe is communicated with the water storage cavity and the water supply cavity in an inclined mode, a flame path communicated with the hearth and the heat exchange cavity is arranged between the separation board and the inner container, and an ash cleaning **opening** communicated with the outside world is formed in the side face of the bottom of the heat exchange cavity. According to the boiler, the heat exchange pipe is arranged in the inclined mode, and convex edges are arranged on the surface of the heat exchange pipe, so that the heat exchange area is large; the heat exchange cavity is separated from the hearth, and the heat efficiency is high.

7/81 © EPODOC / EPO

PN - [CN203247662U](#) U 20131023

PR - CN2013290467U 20130228

AP - CN2013290467U 20130228

DT - I

PA - SANMING IND SCIENCE & TECHNOLOGY TIANJIN CO LTD

TI - Floor drain for preventing back flow of odors in sewer

AB - The utility model relates to a floor drain for preventing back flow of odors in a sewer. The floor drain comprises a floor **drain** body, a **grate** and a sealing liquid drainage device, wherein the sealing liquid drainage device comprises a liquid drainage channel and a film-shaped liquid drainage baffle; and two ends of a liquid drainage channel port are fixedly connected with the film-shaped liquid drainage baffle which can be **opened** and closed forwards and backwards. The floor drain is characterized in that the grate comprises a grate body and a movable grate, the movable grate and the sealing liquid drainage device are connected into a whole, and a pull handle is arranged in the center of the movable grate. The floor drain has the benefits as follows: a pull type disassembling and assembling tool is arranged in the center of the **grate**, when the floor **drain** having no residue is required to be cleaned, only the disassembling and assembling tool is pulled, so that the sealing liquid drainage device is lifted and taken out easily, and the floor drain is washed. No residue is guaranteed to be left in the floor drain, breeding of bacteria and insects is prevented farthest, the sealing performance of the floor drain is improved further, and back flow of the odors in the sewer is prevented; and the cost is lower, environmental protection is facilitated, and new national standard requirements are met.

8/81 © EPODOC / EPO

PN - [CN203200862U](#) U 20130918

PR - CN20132112570U 20130313

AP - CN20132112570U 20130313

DT - I

PA - SHANGHAI JIESHENG WATER TECHNOLOGY CO LTD

TI - Self-closing type multifunctional floor drain

AB - The utility model provides a self-closing type multifunctional floor drain. The self-closing type multifunctional floor drain comprises a floor drain main body, an internal elbow, a water inlet, a water outlet, an upper cover and a water inlet **grate**, wherein the floor **drain** main body comprises an upper port; the upper cover is covered on the upper port, the outside diameter of the upper cover is matched with the inside diameter of the upper port; the upper cover is connected with the upper port through a screw thread or by adhering through an adhesive; an **opening** is formed in the upper cover, and the water inlet grate is covered on the **opening** in the upper cover; the water outlet is formed in the sidewall of the floor drain main body; an **opening** in one end of the internal elbow is downward while an **opening** in the other end of the internal elbow is connected with the water outlet; a low-resistance tubular automatic sealer is arranged in the water outlet and is detachably connected with the internal wall elbow and the water outlet in a sealing manner. The self-closing type multifunctional floor drain can effectively prevent water from reflowing, preventing bad air from returning and preventing insect pests from climbing in a room; a plurality of drainers can share a water seal and also can be used as pipeline cleanouts; the installation height can be adjusted; panels with a plurality of specifications can be adopted; the self-closing type multifunctional floor drain can be applied to a draining system at the same layer and the draining system in another layer.

9/81 © EPODOC / EPO

- PN - [US8496405](#) B1 20130730
- PR - US20100798564 20100407; US20070890449 20070806; US20050212152 20050826; US20030459872 20030612; US20010826641 20010405
- AP - US20100798564 20100407
- DT - *
- CT - [US830112](#) A []; [US928481](#) A [];
[US961834](#) A []; [US3086655](#) A [];
[US3587239](#) A []; [US4713179](#) A [];
[US5037542](#) A []; [US5102537](#) A [];
[US6224292](#) B1 []; [US6447206](#) B1 [];
[US6595721](#) B2 []; [US6942425](#) B2 [];
[US7252458](#) B2 []; [US7695216](#) B2 []
- CCI - [E03F1/00](#) ; [E03F5/0404](#) ; [E03F5/06](#) ; [F16L55/1152](#)
- CCA - [E03F7/06](#) ; [E03F2005/061](#) ; [E03F2005/063](#)
- PA - KINCHELOE JOHN [US]
- TI - Mitred **grate** and **drain** cover
- AB - A drain cover and pipe combination comprises a drain cover including a substantially elliptical frame portion defining a space, the space having an axis substantially normal to the frame, and at least one cross piece located in the space so as to define a plurality of **openings** in the drain cover. The pipe comprises a substantially tubular member having a longitudinal axis, with the pipe having a substantially elliptical shaped rim at one end thereof with a rim axis which is other than parallel to the longitudinal axis of the tubular member. Securing means are provided for securing the drain cover over the rim of the pipe.

10/81 © EPODOC / EPO

- PN - [AU2011293077](#) A1 20130411
- PR - AU20100903767
20100823; WO2011AU00790
20110628; AU20110293077
20110628
- AP - AU20110293077 20110628
- DT - I
- CCI - [E03C1/288](#) ; [F16K15/147](#)
- PA - ECO GUARDIANS PTY LTD
- TI - Drain insert
- AB - A drain insert is provided for insertion in a **drain** beneath a **drain grate** (10) to prevent ingress of material, comprising: an elastomeric valve (16) disposed between the **drain grate** (10) and the **drain** that is closed

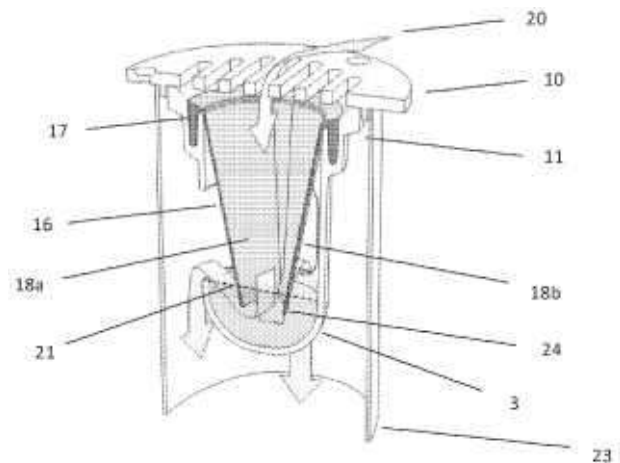


Fig 1b

in the absence of draining liquid
and **opens** due to its presence;
and a reservoir (13) that fills
and overflows with the draining
liquid passing through a drain
path outlet (24) that is below an
upper level (21) of the reservoir.

[SS 18]