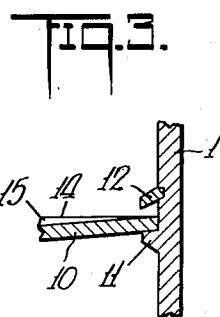
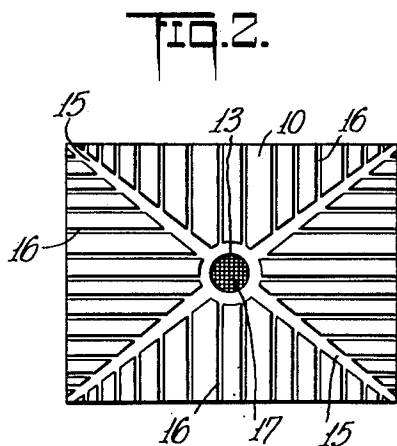
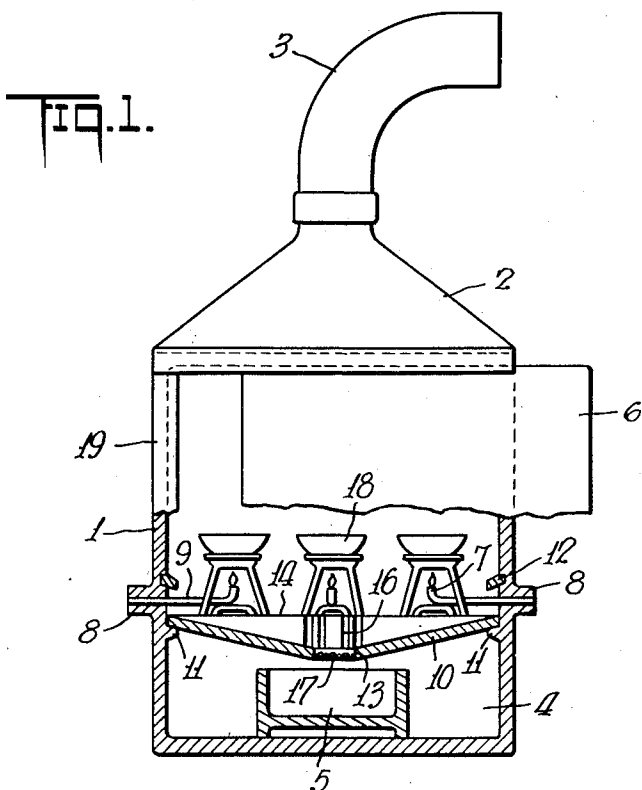


Dec. 12, 1950

G. DEIBEL

2,533,561

DEVICE FOR PRECIPITATING AND DRAWING OFF ANNOYING
AND HARMFUL VAPORS AND GASES DEVELOPING
DURING BOILING OF ACIDS
Filed Sept. 17, 1949



INVENTOR
Gottfried Deibel
BY
Dean Fairbank & Hirsch
ATTORNEYS

UNITED STATES PATENT OFFICE

2,533,561

DEVICE FOR PRECIPITATING AND DRAW-
ING OFF ANNOYING AND HARMFUL
VAPORS AND GASES DEVELOPING DURING
BOILING OF ACIDS

Gottfried Deibel, Dresden, Germany

Application September 17, 1949, Serial No. 116,231
In France March 15, 1948

4 Claims. (Cl. 98—115)

1

This invention relates to a device for precipitating and drawing off annoying and harmful vapors and gases, the device having the form of a bell or hood provided with an outlet pipe. In one of the known devices of this class a suitable bottom is interposed between the hood, which preferably is of acid-proof material, and a support therefore.

This intermediate bottom is fitted with an opening in such a way that the condensation water collecting and running down during digestion on the walls of the totally closed device is guided to the intermediate bottom and thence through the opening into the support formed and acting as receiver, the intermediate bottom sloping on all sides towards the opening arranged in the center.

Another known feature of this device is the provision of an additional intermediate bottom firmly or interchangeably arranged above the discharging bottom. This additional bottom has a horizontal surface possessing perforations and a central hole and is further fitted with draining grooves which are inclined towards the center and guide the condensate to the central hole mentioned.

The object of the invention is an improvement and further development of this known device.

It has been found in operation that an excessive amount of waste is produced during firing if the intermediate bottom and the bell or hood of acid-proof ceramic material are made in one piece. This is due to the fact that the intermediate bottom is relatively weak compared with the mass of the bell or hood and therefore unable to endure the stresses developing in firing.

Even if the intermediate bottom is made as an independent unit while retaining its funnel-shaped form, the wall thicknesses of the resulting profile will lack uniformity to such an extent that they are not equal to the stresses occurring during firing.

Compared with the known device, the invention consists in constructing the intermediate bottom itself as a solid plate constructionally separated from the hood or bell and in dispensing with the discharging bottom having a horizontal surface and hitherto placed on the intermediate bottom. The intermediate bottom according to the invention made as a solid plate has a horizontal surface and is provided with draining grooves sloping towards a central hole.

The plate thus formed is placed within the bell or hood on supporting ledges provided on the walls and secured by using acid-proof refractory

2

cement to prevent the condensate from passing to the lower space of the bell or hood.

To make sure that the condensate runs down from the walls and into the receiver draining ledges are arranged immediately above the edges of the discharge plate. These ledges are fixed in grooves of the side walls by means of acid-proof refractory cement, and the condensate drops from them on to the discharge plate.

This plate, however, serves not merely for catching the condensate running off from the walls of the casing, since dangerous and poisonous liquids passing to the plate when they boil over or are accidentally spilled are guided through the grooves of the intermediate bottom to the central opening and thence into the receiver. The arrangement is therefore such as to make sure that all liquids spilled or boiled over pass into the receiver.

In this way a plurality of burners and reagent dishes may be placed on the plane surface of the discharge bottom while simultaneously and in the same device a number of different decocting processes are carried out.

The device is so constructed, moreover, that the base, the receiver, the door frame and the top closure each consist of a single piece, and on the other hand the walls of the device are assembled from individual plates made of fire- and acid-proof material, the entire structure being held together at the corners by means of a strip with or without legs for setting up the device.

In case of smaller devices the bell or hood with all its parts may be made in one piece without causing too great losses during firing. If, however, devices are concerned which are intended for larger plants and require corresponding dimensions, the whole structure cannot be made any more in one single piece from ceramic material. Here the invention will be found helpful according to which the walls of the device may be combined from single plates.

Another feature of the invention is that the outlet or discharge pipe may be connected with a multiple-part branch member to permit the connection of several precipitating and drawing off devices to one and the same outlet pipe.

The invention is illustrated by way of example in the accompanying drawing, in which

Figure 1 is an elevation partly in vertical cross section;

Fig. 2, a top view of an intermediate bottom; and

Fig. 3, an enlarged sectional view of the point where the intermediate bottom rests on the ledge.

The casing 1 with the upper funnel-shaped hood closure 2 is made in one piece or composed of individual plates made of acid-proof refractory material, the device is provided on top with an outlet pipe 3 and in the base 4 with a receiver 5 for the condensate. 6 is a sliding door made of glass or similar transparent material for watching the boiling process going on inside the device.

For internal illumination an electric connection is provided, not shown. Gas for the burners 7 is supplied through the connections 8 in the wall of the device, through which the gas pipes 9 are passed.

For collecting and carrying off condensates precipitated and running off from the inner walls of the device to the receiver 5 a discharge plate or bottom 10 is provided above this receiver. The bottom 10 consists of a solid piece of ceramic material of corresponding strength, but may comprise also several parts. The bottom 10 rests on the dogs or lugs 11 and is united with them by acid-proof and refractory cementing or it may be inserted in notches on the inner wall of the device and sealed. Immediately above the edges of the bottom the cemented draining ledges 12 are located to make sure that the condensate drops from the inner walls on to the discharge bottom 10. In the bottom 10 a draining hole 13 is disposed. From the edges of the plate having a perfectly plane surface 14 draining channels 15, 16 slope on all sides towards the opening 13 and guide the condensate into the receiver 5. The channels thus are of progressively greater depth from the perimeter of the plate toward the center and the bottoms of the channels extend along the respective sides of the generally pyramidal lower face of discharge bottom 10.

In order to prevent objects from dropping from the space above the intermediate bottom into the lower space 4 of the receiver 5 the draining hole 13 is covered by a detachable screen 17. In this way a plurality of burners 7 and associated basins 18 can be placed on the plane surface of the plate 10 without requiring the formerly used funnel-shaped intermediate bottom and the discharge bottom arranged thereon.

I claim:

1. A device for precipitating and drawing off annoying and harmful vapors and gases de-

veloped during boiling of acids and the like, said device comprising a casing having a discharge plate therein adjacent the bottom thereof and spaced from said bottom and having a hood at the top thereof, said hood having an outlet pipe affixed thereto, said discharge plate having a horizontal top plane surface with a central discharge opening therein, and having a plurality of draining channels in the top surface thereof, said channels sloping downwardly from the outer periphery of said discharge plate to said discharge opening and being in communication therewith, and a receiver beneath said discharge plate beneath said discharge opening therein for the condensates precipitating and running down the inner wall of said hood and the draining channels in said discharge plate.

2. The combination set forth in claim 1 in which a draining ledge is affixed to the wall of said casing and extends inwardly therefrom over the periphery of said discharge plate.

3. The combination set forth in claim 1 in which the discharge opening in said discharge plate is covered by a screen.

4. A device of the character described comprising a casing having lateral walls and having a discharge plate therein adjacent the bottom thereof and spaced from said bottom, with its entire perimeter substantially in engagement with the lateral walls of the casing, said discharge plate having a horizontal plane upper surface with a discharge opening substantially in the middle thereof and having a plurality of draining channels through the upper surface thereof, said channels sloping downwardly from the outer periphery of said discharge plate to said discharge opening and being in communication therewith.

GOTTFRIED DEIBEL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,123,763	Lamb	Jan. 5, 1915
1,396,584	Kukulka	Nov. 8, 1921
1,407,011	Wolf	Feb. 21, 1922
2,085,297	Deibel	June 29, 1937