

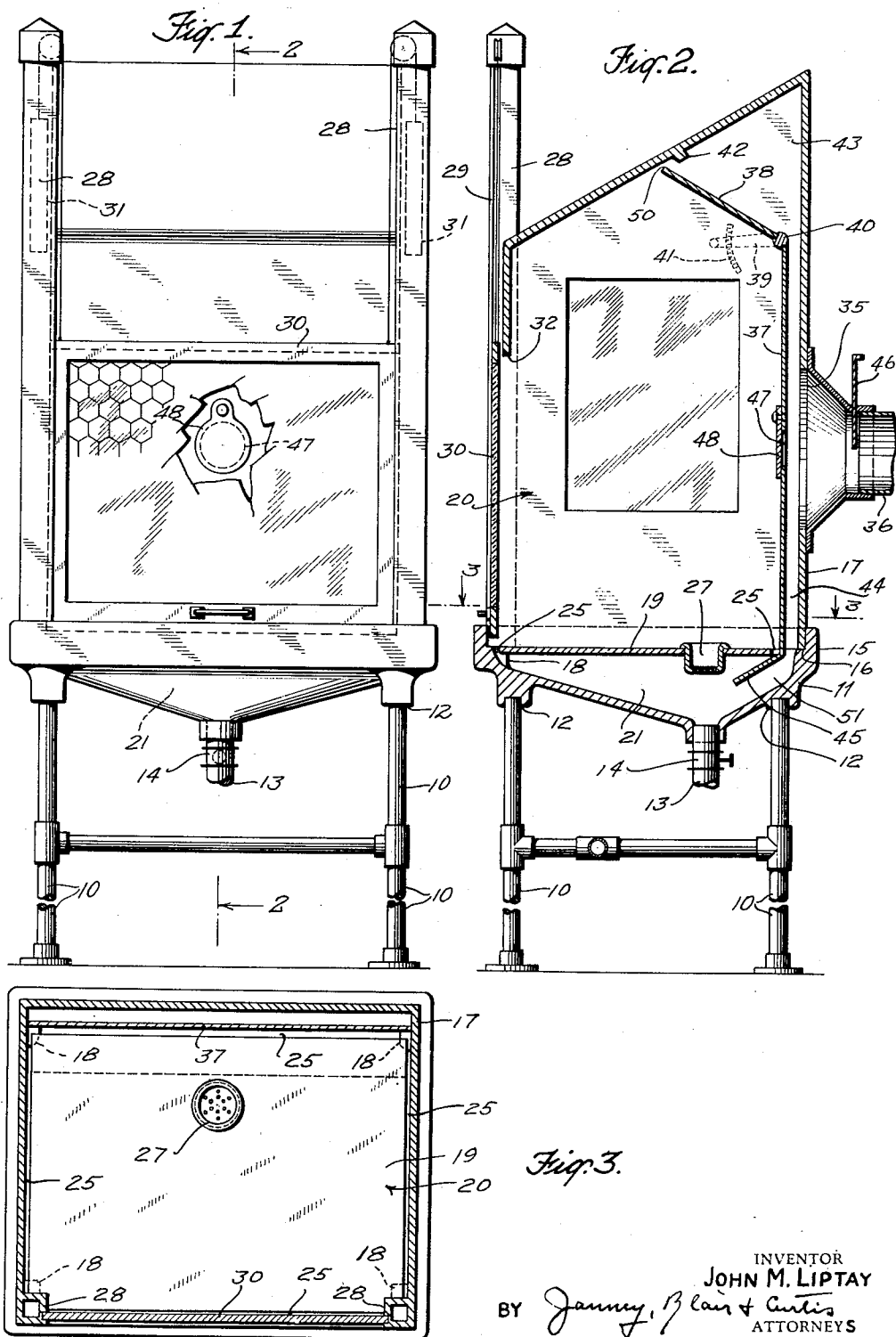
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SINGLE DRAFT FUME HOOD

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SINGLE DRAFT FUME HOOD

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This invention relates to fume hoods but more particularly to the cabinet type used in chemical laboratories and in other places where more or less noxious or disagreeable fumes are developed in the course of chemical operations.

One of the objects of the invention is to provide a fume hood which is durable in construction, convenient in use and efficient in action. Another object is to provide an effective system of ventilation within the hood. Another object is to facilitate the discharge of particularly powerful or poisonous fumes. Other objects will be in part evident and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangements of parts all as will be herein illustratively described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawing in which are shown the features of a selected embodiment of this invention:

Fig. 1 is a front elevation;

Fig. 2 is a vertical sectional view substantially on the line 2—2 of Fig. 1, and

Fig. 3 is a horizontal sectional view substantially on the line 3—3 of Fig. 2.

Referring to the drawing, the fume hood is mounted on a support 10 which may be made of piping or other suitable material. The base of the hood consists of a basin 11 which is provided on its under face with sockets as 12 in which are seated the upper extremities of the legs of the support. This basin is provided with a trapped drain 13 in which may be placed a control valve 14 of suitable type. The rim 15 of the basin is provided with a shoulder 16 on which the cabinet 17 of the fume hood rests. At various points within the basin near the rim are formed lugs or brackets 18 on which rests the working counter 19. The interior of the cabinet forms the working chamber 20. Likewise the space within the basin below the counter 19 forms the lower collection chamber 21.

The margins of the counter 19 or portions thereof may be spaced from the corresponding walls of the basin so as to provide openings 25 therebetween through which the fumes may enter the collection chamber 21 from the working chamber 20. The lugs or brackets 18 are preferably constructed and arranged to interfere as little as possible with these openings and a convenient location therefore is in the vicinity of the corners of the counter. Seated in a convenient

orifice in the working counter is a bowl 27 having a perforated bottom and adapted to receive broken tubes or other waste matter. Any liquids deposited therein will drain into the basin beneath. Furthermore, any liquids spilled upon the counter 19 are prevented by the rim 15 from escaping from the cabinet and these will flow through the openings to the basin 11.

The cabinet 17 may be formed of any suitable material although glass panels are usually provided to permit full observation of any operations conducted therein. This cabinet is provided at its front corners with posts 28 in the inner face of which are formed oppositely disposed grooves 29. A slidable door 30 operates in these grooves and this door may be provided with suitable counterweights as 31 to enable it to be readily lifted and maintained in its raised position. This door forms a closure for the usual front opening 32 through which access to working chamber 20 is obtained. In the open type of hood this door and the posts in which it operates would normally be omitted.

The cabinet 17 is provided in its rear wall with a vent 35 which communicates with a vent pipe 36 normally provided with or connected to some suction means such as a fan (not shown). This suction acts to withdraw the fumes from the hood. The vent 35 may be provided with a suitable damper as 46 to enable the size of the opening to be adjusted. In front of the vent opening 35 and at an interval from the rear wall of the cabinet there is provided a baffle plate 37 having pivotally connected to its upper margin a fin or movable section 38. This fin 38 may be manually adjusted by suitable means such as a handle 39 which may be located on the outside of the cabinet. The handle 39 is mounted on or integral with shaft 40 forming the pivotal connection of the fin with the baffle plate. Suitable means such as an arc 41 may be provided to enable the fin to be held in any adjusted position. A stop 42 may be provided on the top wall of the cabinet to limit the upward or closing movement of the fin.

The fin 38 acts with the adjoining walls of the cabinet to form the upper fume collection chamber 43 which communicates with the fume passage 44 leading to the vent opening 35. The lower extremity of the baffle plate 37 extends through the corresponding opening 25 between the rear margin of the counter 19 and the corresponding wall of the basin and then may be turned inwardly beneath the working counter as indicated at 45. In order to provide adequate space for the downward passage of fumes between the baffle

plate and the counter and their subsequent upward passage between the baffle plate and the rear wall of the basin, the opening 25 on this margin of the counter may be made wider than about the other margins.

In front of the vent opening 35, an opening 47 may be provided in the baffle plate 37 to enable particularly powerful or poisonous fumes to be directly conducted into the vent pipe. Suitable means such as the self-closing lid 48 may be provided to normally maintain this opening closed.

In the operation of the hood the fumes in the upper portion of the cabinet are normally drawn upwardly through the opening 50 over the fin 38 into the collection chamber 43 and then downwardly in the passage 44 behind the baffle plate 37 into the vent opening 35. The size of the opening 50 may be adjusted by means of the handle 39 and in the extreme upward position of the fin this opening is completely closed.

The fumes in the lower portion of the cabinet are drawn downwardly through the openings 25 into the lower collection chamber 21 and from this chamber pass upwardly through the passage 51 into the passage 44 and then into the vent opening 35. The portion of the baffle plate 37 projecting into the chamber 21 causes the fumes entering this chamber through the rear opening 25 to be conducted well toward the center of the chamber and away from such opening before entering the passage 51. This insures adequate suction in all the openings 25 and the complete withdrawal of the fumes from this collection chamber.

The arrangement of openings about the working counter provides an effective down draft in the cabinet and eliminates any dead pockets therein in which fumes might collect. Furthermore where such openings extend about substantially the entire margin of the counter, as shown, this down draft of air completely envelopes and forms a barrier about any gases generated on the counter so that escape of such gases to the room is rendered practically impossible. Adjustment of the fin 38 and thus of the opening 50 enables the suction in the top and bottom portions of the cabinet to be relatively varied. The suction in the entire cabinet may be varied at will by the damper 46.

The hood is durable in construction, convenient in use and efficient in action. An effective system of ventilation is provided within the hood which may be adjusted in accordance with the particular operations being performed therein. Particularly powerful or poisonous fumes may be conducted directly into the vent and thus not permitted to circulate within the hood.

It will be seen that there is provided a construction of an essentially practical nature in which the several objects of this invention are attained.

As many other embodiments may be made of the features of the above construction without departing from the scope of the invention, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. A fume hood comprising a working counter, a working chamber above said counter, a fume collection chamber beneath said counter communicating with said working chamber through openings therebetween, a vent in said working chamber and a passage connecting the top of

said working chamber and said collection chamber with said vent; and a baffle in said fume collection chamber over said passage for offsetting any tendency of liquid entering said fume collection chamber from passing into said passage.

2. A fume hood comprising a working counter, a working chamber above said counter, a fume collection chamber beneath said counter communicating with said working chamber through an opening therebetween, a vent in said working chamber, and a baffle plate disposed in said working chamber opposite said vent and extending through said opening into said collection chamber.

3. A fume hood comprising a working counter, a working chamber above said counter, a fume collection chamber beneath said counter communicating with said working chamber through one or more openings formed between the edges of said counter and the corresponding walls of the hood, a vent in one wall of said working chamber, and a baffle plate disposed in said working chamber opposite said vent and extending through one of said openings into said collection chamber.

4. A fume hood comprising a working counter, a working chamber above said counter, a fume collection chamber beneath said counter, a vent in said working chamber, and a baffle plate in said working chamber in front of said vent and extending past one edge of said counter into said collection chamber, said baffle plate being spaced from said edge to provide an opening therebetween through which fumes in the lower part of the working chamber may pass to said collection chamber.

5. A fume hood comprising a working counter, a working chamber above said counter, a fume collection chamber beneath said counter, a vent in said working chamber, and a baffle plate in said working chamber opposite said vent and extending past one edge of said counter into said collection chamber, said baffle plate being spaced from said edge and the corresponding wall of the hood to permit fumes in the lower portion of the working chamber to pass downwardly between the baffle plate and the counter into the collection chamber and then upwardly between the baffle plate and the hood wall to the vent.

6. In a fume hood, in combination, a cabinet, a working counter in said cabinet having a portion of its margin spaced from the corresponding wall of the cabinet to provide an opening therebetween, a working chamber above said counter, a fume collection chamber below said counter communicating with said working chamber through said opening, a vent in one wall of said cabinet above said counter, and a baffle plate located in said working chamber opposite said vent and extending through said opening into said collection chamber.

7. In a fume hood, in combination, a basin, a working counter over said basin, a portion of the edges of the counter spaced from the corresponding wall of the basin to form an opening therebetween, a cabinet over said counter having a working chamber therein, said chamber communicating with the interior of the basin through said opening, a vent in one wall of said cabinet, and a baffle plate in said working chamber opposite said vent said baffle plate having its lower portion projecting downwardly through said opening into said basin, the portion of said baffle plate projecting therethrough being spaced from said edge and said wall.

8. In a fume hood, in combination, a basin, 150

- a working counter over said basin having a portion of at least one of its edges spaced from the corresponding wall of the basin to provide an opening therebetween, a cabinet over said counter having a working chamber therein communicating with the interior of the basin through said opening, a vent in one wall of said cabinet, and a baffle plate in said working chamber opposite said vent with its lower portion projecting through said opening into said basin and then inwardly under said counter, the portion of the baffle plate in said opening being spaced from said edge and said wall.
9. In a fume hood, in combination, a cabinet, a working counter in said cabinet having at least a portion of its edges spaced from the corresponding walls of the cabinet to form an opening therebetween, a working chamber above said counter, a fume collection chamber below said counter communicating with said working chamber through said opening, a vent in one wall of said cabinet above said counter, a baffle plate located in said working chamber opposite said vent and having its lower portion extending through said opening into said collection chamber, and an adjustable fin mounted on the upper portion of said plate.
10. A fume hood comprising a working counter, a working chamber above said counter, a fume collection chamber beneath said counter communicating with said working chamber through openings therebetween, a vent in said working chamber, and a passage connecting the top of said working chamber and said collection chamber with said vent.
11. A fume hood comprising a working counter, a working chamber above said counter, a fume collection chamber beneath said counter, and said counter having passages therepast whereby communication is established between said working chamber and said fume collection chamber, a vent in one wall of said working chamber, and a baffle plate disposed in front of said vent and extending substantially to the top of said working chamber and into said fume collection chamber, whereby said baffle plate forms a passage from the top of said working chamber and said fume collection chamber to said vent.
12. A fume hood comprising a working counter, a working chamber above said counter, a fume collection chamber beneath said counter, said counter having passages therepast whereby communication is established between the lower part of said working chamber and said fume collection chamber, a vent in one wall of said working chamber, and a baffle plate disposed in front of said vent, said baffle plate extending to the opposite sides of said hood and extending to a point near the top of said working chamber and into said fume collection chamber.
13. In a fume hood, in combination, a basin, a working counter over said basin, said working counter having passages therepast to provide communication between the top of said working counter and said basin, a cabinet over said counter having a working chamber therein said working chamber having communication with said basin through said passages, a vent in one wall of said cabinet, a baffle plate in said working chamber opposite said vent, the lower portion of said baffle plate projecting through one of said passages into said basin, and then inwardly under said counter, and the portion of the baffle plate in said passage being spaced from said counter whereby a passage is left between said baffle plate and counter.
14. A cabinet hood comprising a working counter, a working chamber above said counter, a fluid and fume collection chamber beneath said counter, said counter having passages therepast connecting said working and collection chambers, a vent in said working chamber, a drain in said collection chamber, and a baffle plate disposed in front of said vent, said plate extending to a point near the top of said working chamber and into said collection chamber, whereby fumes are drawn from the top of said working chamber into said vent, and from the bottom of said chamber down through said passages into said collection chamber and from said collection chamber into said vent, and liquid is drained from said counter into said collection chamber.
15. A fume hood comprising a basin having a top rim therearound, a working counter in said basin, a working chamber above said working counter, said working counter having passages therepast for communication between said working chamber and basin, a vent in said working chamber, a baffle plate disposed in front of said vent, said baffle plate extending up to a location near the top of the working chamber and down into said basin, said working counter being positioned substantially below said top rim of said basin, whereby heavy fumes in said working chamber are surrounded by walls on four sides, and are drawn directly downwardly into said basin.
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