

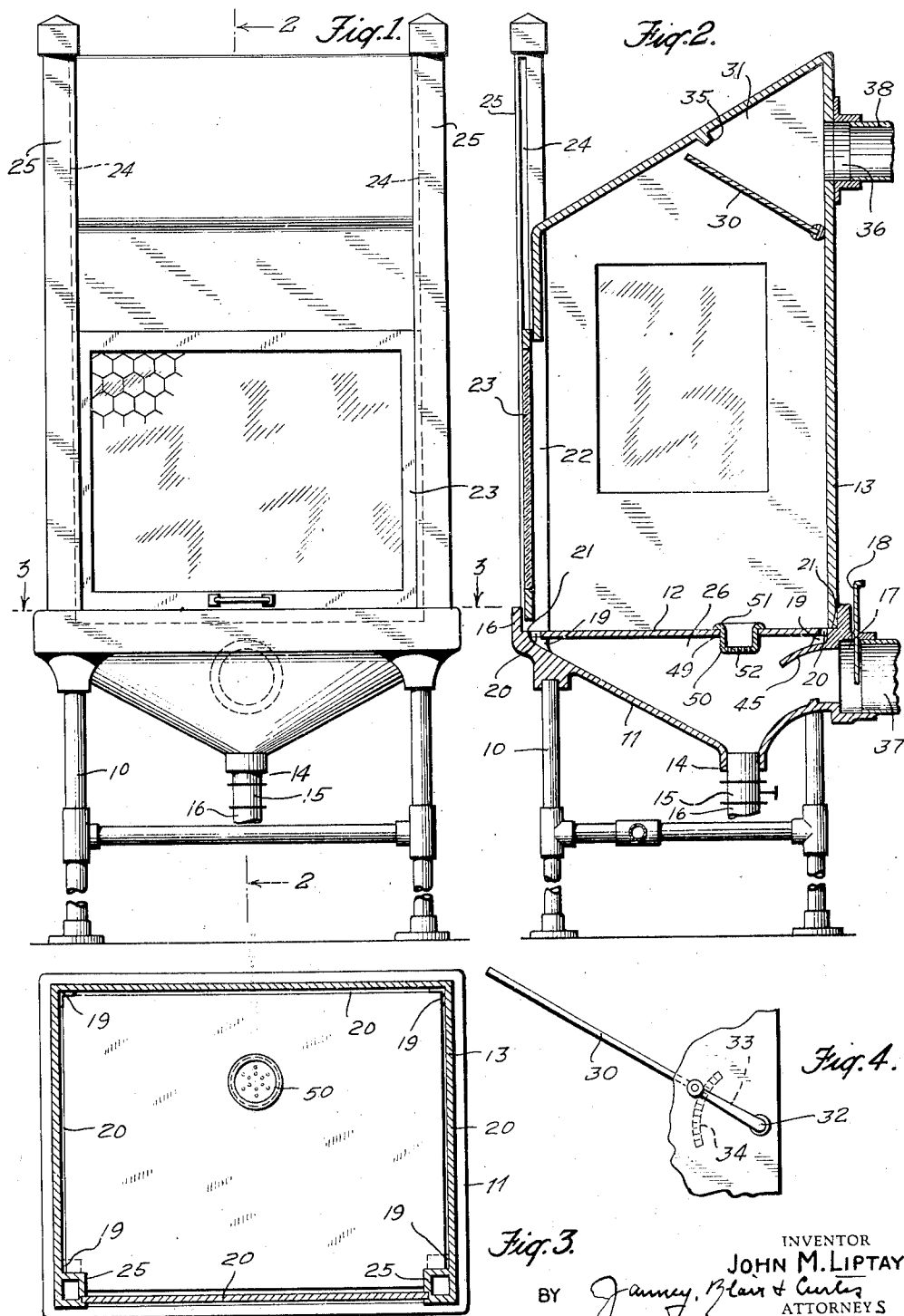
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DUAL DRAFT FUME HOOD

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DUAL DRAFT FUME HOOD

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11 Claims. (Cl. 98—115)

This invention relates to hoods of the cabinet type but more particularly chemical fume hoods such as are used in chemical laboratories and other places where gases, vapors or smoke generally of a noxious or disagreeable character are generated.

One of the objects of the invention is to provide a hood of this type which is simple and durable in construction, convenient to use and efficient in action. Another object is to provide improved ventilation within the hood and to insure the prompt and complete withdrawal of fumes therefrom. Another object is to provide improved facilities for the disposal of solid matter and liquids in the hood. Another object is to provide effective control of the ventilating currents. 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 the invention:—

Fig. 1 is a front elevation;

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

Fig. 3 is a horizontal sectional view substantially on the line 3—3 of Fig. 1 and

Fig. 4 is an enlarged detail view.

Referring to the drawing, the hood comprises in general a support 10, a basin 11, a working counter 12 and a cabinet 13.

The basin 11 rests directly on the support 10 and a drain 14 leads from this basin. This drain may be provided with a suitable control valve as 15. Communicating with the interior of the basin is a fume vent 17 and the size of this vent may be controlled by a damper as 18 or other suitable means.

Supported on the basin 11 by suitable lugs or brackets as 19 is the working counter 12 and the margin of this counter is spaced from the corresponding walls of the basin to provide openings as 20 through which fumes may pass from the cabinet into the basin. This counter may be constructed of stone or other suitable material which will effectively resist the action of chemicals and provide the necessary supporting strength. The lugs or brackets 19 are preferably located at or near the corners of the counter and these do not materially interfere with the

passage of the fumes through the openings 20. The rim 16 on the basin 11 projecting above the top face of the counter 12 effectively prevents any liquids spilled within the cabinet from flowing onto the floor or exterior of the cabinet.

The rim 16 of the basin 11 is provided with a shoulder 21 on which rests the cabinet 13. This cabinet may be constructed of any suitable material although glass panels permit any operations conducted therein to be readily observed from without. The cabinet is open at the bottom and the counter 12 forms the bottom wall thereof when the fume hood is assembled. The interior of this cabinet forms the working chamber and access to such chamber is provided through the open front 22 which may be closed by a sliding door as 23 or other suitable means. The door 23 is slidable in oppositely disposed grooves 24 in posts 25 and it may be provided with suitable counterweights (not shown) to facilitate the operation thereof. In the open type hood this door and the posts in which it operates would normally be omitted. The interior of the basin below the working counter forms the lower collection chamber 26.

Near the top of the working chamber may be provided a movable partition or fin 30 which forms with the adjoining walls of the cabinet the upper fume collection chamber 31. This fin 30 is mounted on a shaft 32 which is revoluble in suitable bearings in the opposing side walls of the cabinet. One end of this shaft 32 may be provided with a crank or handle 33 on the outside of the cabinet to permit the fin to be manually operated. A toothed arc as 34 (Fig. 4) or other suitable means may be provided to permit this handle to be set in any desired position. A stop as 35 (Fig. 2) limits the closing movement of this fin. A vent as 36 is provided in the cabinet wall to communicate with the collection chamber 31 and to permit the withdrawal through this chamber of fumes from the upper portion of the working chamber. The vents 17 and 36 are preferably connected by suitable pipes as 37 and 38 respectively with a source of suction (not shown).

Referring to Fig. 2 immediately below the working counter 12 at the right, a lip as 45 may be provided in the basin 11 above the vent 17 to cause the fumes entering the lower collection chamber 26 from the cabinet to be directed inwardly toward the center of such chamber. This lip also acts to cause any liquids or solid matter passing through the rear opening 20 to be directed away from the vent opening and thus to be deposited in the basin rather than to be drawn

directly by suction into the vent 17. Projecting through the counter 12 over the drain 14, is a waste bowl 50 having a supporting rim 51 and a perforated bottom 52.

5 When the hood is in use, suction in the vent pipes 37 and 38 causes the fumes within the working chamber to be quickly and effectively withdrawn therefrom. The fumes in the upper portion of the working chamber normally pass into
10 the chamber 31 and are withdrawn through the vent pipe 38. The fumes in the lower portion of this working chamber are normally drawn into the collection chamber 26 through the marginal openings 20 about the working counter 12 and
15 then pass into the vent pipe 37. The disposition of these venting openings 20 in the vicinity of the bottom of the cabinet, causes a well distributed down draft at least within the lower portion of the working chamber and this acts to prevent the
20 formation of dead pockets within this chamber in which fumes may collect. These marginal openings provide a complete and effective down draft barrier around the entire edge of the working counter. The raised edge or rim 16 surrounding
25 the counter insures the passage of any spilled liquids into the basin through the openings 20.

The suction action within the working chamber may be readily adjusted by means of the damper 18 and the fin 30. When the fin 30 near the top
30 of the cabinet is in closed position, communication between the working chamber and the vent 36 is cut off and all fumes will be drawn downwardly through the collection chamber 26 and the vent 17. Similarly closing of the vent 17
35 when the vent 36 is open causes all the fumes to be drawn upwardly through the vent 36. The drain 14 may be partially or completely closed by means of the valve 15. All liquids which may flow upon the working counter immediately pass
40 through the openings 20 into the basin 11 and then may be permitted to flow down the drain. The waste bowl enables broken tubes or other solid matter to be conveniently disposed of by the operator and any liquids deposited therein will
45 readily enter the drain. This results in a considerable saving of time and labor to the operator. The collection chambers 26 and 31 act to provide a cushioning effect on the fume laden air which is about to enter the respective vents.

50 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 fume hood without departing from
55 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 in an illustrative and not in a limiting sense.

I claim:

60 1. In a fume hood, in combination, a support, a cabinet on said support, a working counter within said cabinet substantially subdividing the interior of the cabinet into a working chamber
30 above and a collection chamber below said counter, and a portion of the margin of said
35 counter being spaced from said cabinet to permit fumes to pass downwardly from said working chamber into said collection chamber.

2. In a fume hood, in combination, a base having a fume collection chamber therein, a cabinet
70 mounted on said base, and a working counter supported in said cabinet over said collection chamber and having portions of its margin spaced from the corresponding wall of the cabinet
75 to permit the fumes in said cabinet to pass down-

wardly about said margin into said collection chamber.

3. In a fume hood, in combination, a base having a fume collection chamber therein, a cabinet
80 mounted on said base, a working counter supported in said cabinet over said collection chamber and having portions of its margin spaced from the corresponding wall of the cabinet to permit the fumes in said cabinet to pass downwardly
85 about said margin into said collection chamber, and a vent communicating with said collection chamber.

4. In a fume hood, in combination, a base having a fume collection chamber therein, a cabinet
90 mounted on said base, a working counter over said collection chamber and having portions of its margin spaced from the corresponding walls thereof to permit fumes in said cabinet to pass downwardly into said chamber, and means for
95 supporting said counter on said base.

5. In a fume hood, in combination, a cabinet, and a counter therein substantially dividing the interior of the cabinet horizontally into a working
100 chamber above and a fume collection chamber below the counter, a portion of the margin of said counter being spaced from the corresponding walls of the cabinet to provide one or more openings through which the fumes may pass from the
105 working chamber into the collection chamber.

6. In a fume hood, in combination, a cabinet, and a counter therein substantially dividing the interior of the cabinet horizontally into a working
110 chamber above and a fume collection chamber below the counter, a portion of the margin of said counter being spaced from the corresponding walls of the cabinet to provide one or more openings through which the fumes may pass from the
115 working chamber into the collection chamber, and the collection chamber being provided with a vent to enable the fumes to be withdrawn therefrom.

7. In a fume hood, a basin, a drain pipe leading from said basin, a control valve in said drain
120 pipe, a working counter supported on said basin with portions of its margin spaced from the corresponding walls of the basin to permit the passage of fumes therebetween, a cabinet over said
125 counter and supported by said basin, and a vent in said basin.

8. In a fume hood, a basin, a drain pipe leading from said basin, a working counter supported
130 on said basin with a portion of its margin spaced from the corresponding wall of the basin to provide an opening therebetween, a fume vent in said basin below said opening, and a lip on said
135 basin projecting inwardly under said opening.

9. In a fume hood, in combination, a cabinet, a working counter therein substantially dividing the interior of the cabinet horizontally into a
140 working chamber above and a basin chamber below the counter, the chambers being connected by one or more passages through which fumes and liquid may pass from the working chamber into the basin chamber, a vent communicating
145 with said basin chamber, and a drain communicating with said basin chamber for draining off liquids and a baffle over said vent for preventing liquid entering said chamber from being drawn
150 into said vent.

10. In a fume hood, a basin, a drain pipe leading from said basin, a control valve in said drain
155 pipe, a working counter supported on said basin with portions of its edges spaced from the corresponding walls of the basin to permit the passage of liquid and fumes therebetween, a cabinet over

said counter and supported by said basin, and a vent in said basin.

permit the passage of fumes therebetween, a cabinet over said counter supported by said basin and a vent in said basin whereby fumes may be drawn from the upper portion of said counter without producing a direct downward draft thereon.

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