June 24, 1958 R. PRYNE 2,839,987

VENTILATING HOOD CONSTRUCTION

Filed March 3, 1954 2 Sheets-Sheet 1

FIG. 1.

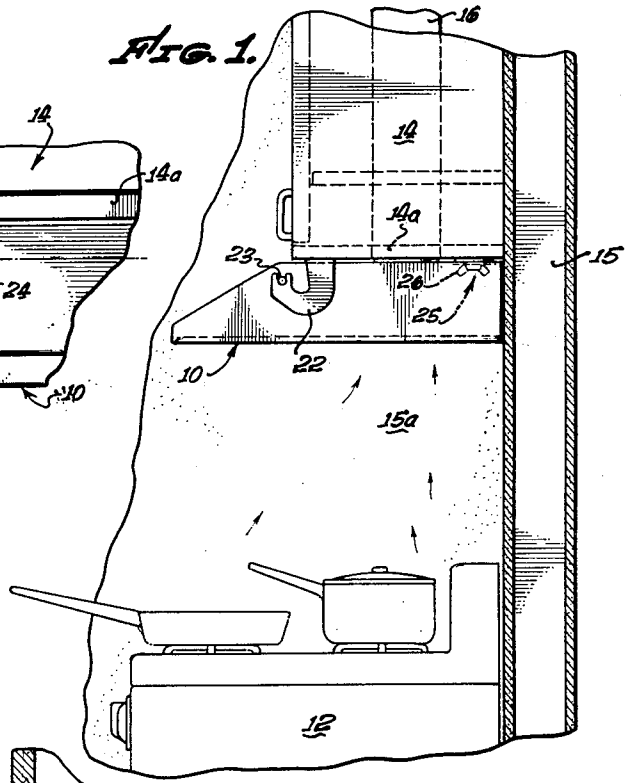


FIG. 3.

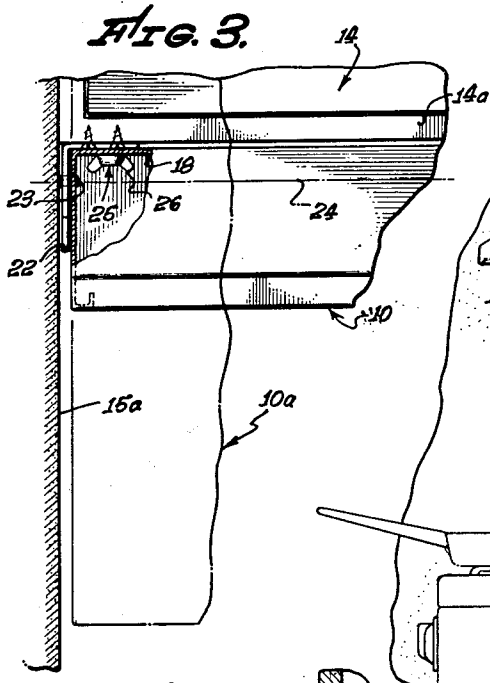


FIG. 2.

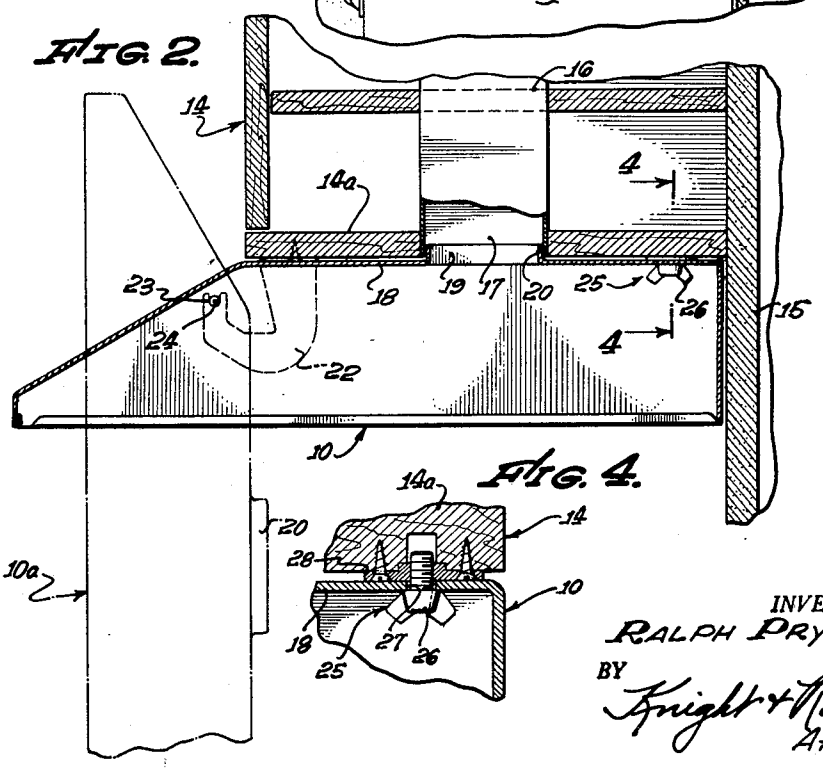


FIG. 4.

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Filed March 3, 1954 2 Sheets-Sheet 2

FIG. 5.

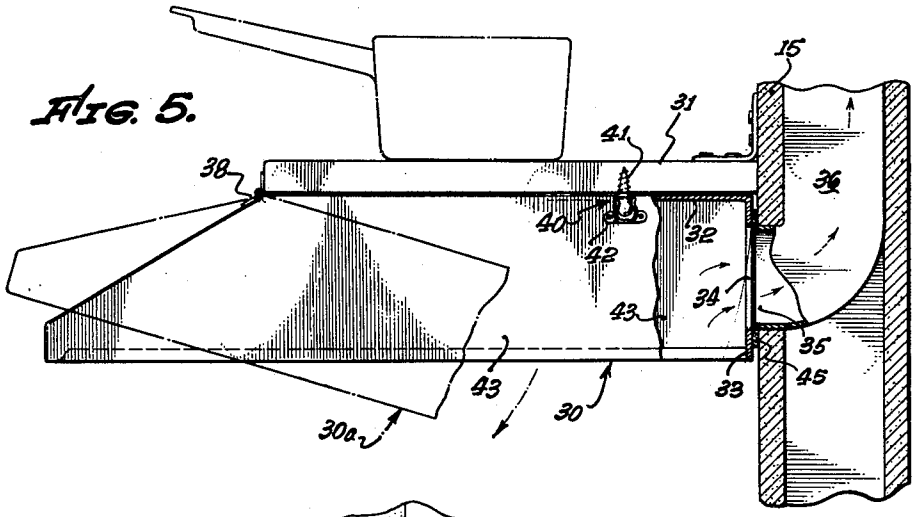


FIG. 6.

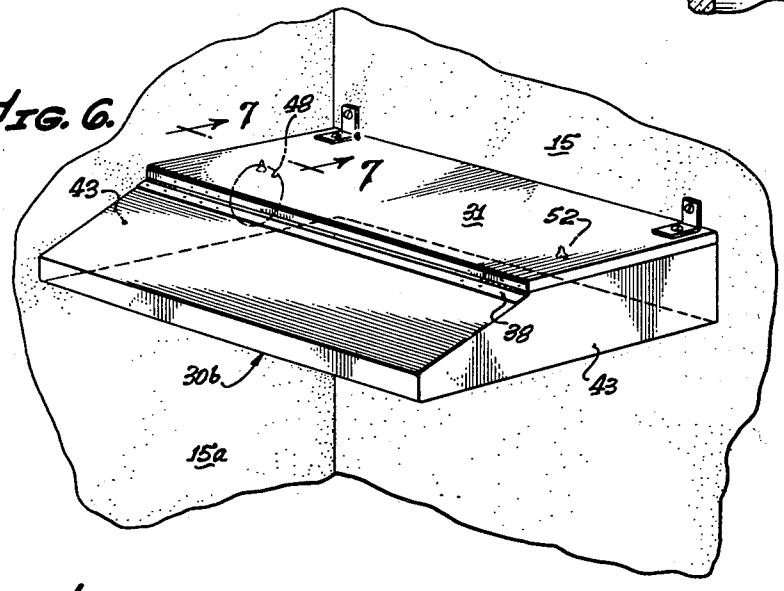
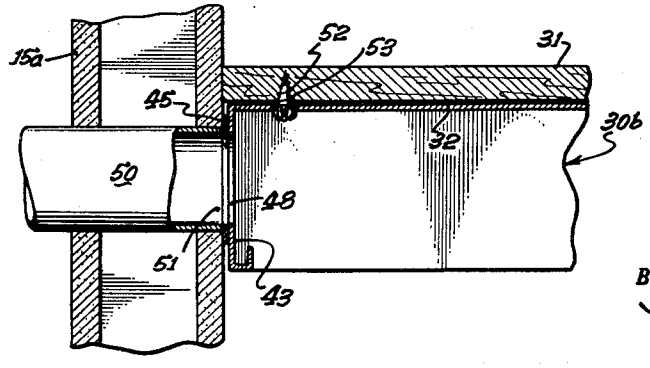


FIG. 7.



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2,839,987

VENTILATING HOOD CONSTRUCTION

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Application March 3, 1954, Serial No. 413,925

6 Claims. (Cl. 98—115)

The present invention relates generally to ventilating equipment and more especially to hoods which are mounted over stoves or the like in order to gather fumes and vapors and direct them into a ventilating duct.

Many different types of hoods and similar members are widely known in connection with ventilating ducts. These hoods are commonly located over stoves, steam tables or similar equipment and some are provided with an opening in the top or in a side or end wall which registers with a ventilating duct. Fumes and vapors rising from underneath the hood are directed by the hood into this opening and thence into the ventilating duct for removal from a room. In order to maintain the registration between the opening in the wall of the hood and the open end of the ventilating duct, hoods of this character have generally been fixed in position. These hoods have customarily been rigidly attached to a wall or other supporting structure.

The inside surfaces of hoods over stoves or other cooking equipment accumulate a coating of dirt and grease after they have been in use for a while so that they require cleaning from time to time. In homes, restaurants, and the like it is desirable to keep the hoods as clean as possible, but cleaning is often an awkward if not a difficult job because of the shape and location of the hood. The presence of a stove or other equipment underneath the hood makes it impossible to move a ladder to a position where a person can climb up under the hood. Likewise the upper walls of the hood being in an overhead position are awkward to reach and clean.

For this reason, it is a general object of my invention to mount a ventilating hood movably in such a manner that it can be moved easily from the normal or operating position to another position in which the interior or under surfaces of the hood are easily accessible for cleaning or other maintenance.

It is another object of my invention to pivotally mount a ventilating hood upon a supporting structure so that the hood may swing between a raised position in which the exhaust opening in the hood is in registration with the open end of the ventilating duct and a lowered position which is reached by swinging the hood downwardly and away from the supporting structure to render the interior surfaces of the hood easily accessible while still supporting the hood.

These and other objects of my invention have been accomplished by mounting upon a suitable structure a ventilating hood which is preferably of the type having a wall in which there is an exhaust opening. The hood is mounted on the supporting structure by suitable mounting means to move between a normal raised position in which said exhaust opening is in registration with the open end of a ventilating duct, and a lowered position in which the hood is moved away from the end of the duct while still supporting weight of the hood.

In a preferred embodiment, the mounting means includes fixed arms typically mounted on a cabinet or

other similar support structure immediately above the hood. The arms are located at opposite sides of the hood, and pins on the hood engage these arms so that the hood is adapted to swing about a generally horizontal axis. This axis is so located toward the front of the hood that the hood may swing to a lowered position generally forwardly of or at one side of the supporting structure. In this lowered position the hood is easily accessible for cleaning. Any suitable type of releasable fastener is normally located near the rear of the hood and assists in holding the hood in the raised position but is releasable to allow the hood to move to said lowered position.

How the above and other objects of my invention are attained will be more readily understood by reference to the following description and to the annexed drawings in which:

Fig. 1 is a side view of preferred form of my invention in which a ventilating hood is mounted according to my invention underneath a cabinet, the hood being in normal raised position with its exhaust opening in registration with the ventilating duct;

Fig. 2 is an enlarged vertical median section through the hood, showing the lowered or cleaning position of the hood in broken lines;

Fig. 3 is a fragmentary front elevation of the hood with a portion of the hood broken away to show the pivotal supporting means at one corner of the hood;

Fig. 4 is an enlarged fragmentary section showing the releasable fastening means at the rear of the hood taken on line 4—4 of Fig. 2;

Fig. 5 is an end elevation and vertical section of a variational form of my invention in which the hood has the exhaust opening in the rear wall;

Fig. 6 is a perspective view of another form of my invention showing a hood with an exhaust opening in an end wall mounted in a corner; and

Fig. 7 is a fragmentary vertical section on line 7—7 of Fig. 6.

Referring now to the drawings, there is shown in Figs. 1–4 a preferred form of my invention. Generally indicated at **10** is a ventilating hood which is placed over stove **12** in order to gather and conduct from the room the fumes and cooking vapors which rise from the stove. As is typical of many residential installations at the present time, cabinet **14** is placed above hood **10** in order to make the maximum use of the space available in the room, and it provides a convenient structure upon which to mount the hood. Cabinet **14** is placed against wall **15**. The hood is mounted on the bottom wall or shelf **14***a* of the cabinet. Cabinet **14** is typical of any superposed structure to which the hood may be attached. The specific type of cabinet illustrated is shown for purposes of description only and it will be realized that it may be replaced in actual practice by any of a number of other support structures.

In accordance with common practice a ventilating duct **16** is located within the cabinet which encloses and conceals the duct. Duct **16** is preferably vertically extending and the open end of the duct has a downwardly facing opening as seen at **17** in Fig. 2. The duct may be rectangular or round in cross-section. The exact shape, arrangement, or location of the ventilating duct is not critical and may vary widely from one installation to another since it is usually designed to fit a particular installation.

The ventilating hood is of course open on its under side to receive the vapors to be removed from the room and is provided with a top wall **18** in which is located exhaust opening **19** through which the vapors pass to reach the ventilating duct. In the particular form of hood shown in the drawings, top wall **18** is a flat, hori-

zontal wall in order to conform to the under surface of cabinet **14**; but it will be understood that it is within the scope of the invention to use other conventional shapes of hoods, for example pyramidal or conical in which the top wall may be inclined with the exhaust opening either at the apex of the hood or in a plane inclined to the horizontal. In this particular construction, the open end **17** of the ventilating duct faces downwardly and the hood, when in the normal operating position, has its exhaust opening **19** in registration with the end **17** of the duct, the two openings lying closely adjacent each other in order to direct air and vapors from the hood out the exhaust openings and into the ventilating duct without any appreciable leakage or escape of these vapors at the point of entry into the ventilating duct.

As will be seen more particularly from the following description, one of the advantages of this preferred form of my invention is the fact that exhaust opening **19** may be surrounded by a short upstanding flange **20** which fits within the open end **17** of the duct and has the effect of improving the seal between the two members at this point. The collar reduces or eliminates the necessity for a gasket or the like to obtain a gas-tight fit or engagement between the hood and the duct in order to eliminate the escape of vapors at this point because of the effect of the collar in directing the vapors into the ventilating duct.

Mounting means, for mounting the hood on the support means, is provided which is adapted to position the hood when in its raised or normal position, as shown in solid lines in Fig. 2, with the exhaust opening in registration with the open end of the ventilating duct. This mounting means includes a pair of brackets or arms **22** which are located one at each of opposite sides of the hood. Each arm **22** is attached to any suitable part of the support structure, as for example to the underside of the bottom wall or shelf **14***a* of cabinet **14**. The two arms **22** are thus stationary and are able to support the weight of the hood. It will be obvious from this description that the arms may be so modified in shape that they may be attached instead to other stationary structural elements, as for example wall **15**, in which case wall **15** is the support structure. At each side of hood **10** there is attached a pivot pin **23**, the two pins **23** being coaxial with each other and each adapted to engage one of the stationary arms **22**. For this purpose, each arm **22** is provided with a slot or aperture to receive a pin.

In order to hold the hood in its normal raised position and to restrain it against swinging about axis **24** established by pins **23**, there is also provided any suitable type of releasable fastener spaced from pins **23** as by being located near the side of the hood opposite pins **23**. Pins **23** are located near one side of the hood, which in this case is the forward side or the side removed from wall **15**. Accordingly, fastening means **25** is located preferably near the rear of the hood or relatively closer to wall **15**.

Fastening means **25** is here shown (Fig. 4) as comprising one or more bolts **26** which pass through an opening **27** in the top wall **18** and are screwed in to a nut or plate **28** fastened to cabinet bottom **14***a*. By tightening the bolt, the hood and plate **28** are brought tightly together, thus holding up the hood. Normally two such bolts are provided, each near one side of the hood. Bolts **26** are preferably located as shown to eliminate the need for clearance at the sides of the hood between it and walls or other cabinets. If such clearance is available, fastening means **25** may be located outside the hood if desired.

When the fastening means at **25** is released by unscrewing bolts **26** the hood is no longer supported at these points, and the hood is free to swing clockwise, when viewed as in Fig. 2, about axis **24** which is normally horizontal. This axis may be located slightly below support structure **14** and preferably is slightly to one side of it, as seen in Fig. 2, in order that the part of the hood which

projects forwardly of the cabinet may swing upwardly without engaging the cabinet, allowing the hood to be swung to the lowered or cleaning position indicated at **10***a* by the broken lines in Figs. 2 and 3. In this position, the full weight of the hood is still supported upon arms **22**. By rotating the hood at least 90° the interior or upper surfaces of the hood have, in general, not only been lowered but they have been moved forward with respect to the position they occupy when the hood is in its normal position. As a result, these surfaces are easily reached by a person standing in front of stove **12** without the necessity of getting upon the stove or having a ladder in the position of the stove so that they can climb up underneath the hood. These interior surfaces are now readily accessible for cleaning or any type of maintenance.

Arms **22** are shown in Fig. 1 as being each provided with a recess open on its top side so that the hood may be disengaged from these arms when in the broken line position of Fig. 2 by merely lifting the hood bodily upwardly and slightly forwardly, permitting the hood to be easily detached entirely from its supporting means. However, this feature for easily detaching pins **23** from arms **22** is entirely optional.

It will be noticed that the hood can be lowered from its normal position to a cleaning position and even removed from the supporting arms **22** without any lateral movement of the hood or movement towards the rear. This makes it possible for the hood to be installed in close proximity to a wall to the rear, as wall **15**, and also to a wall at one or both sides as indicated at **15***a* in Fig. 3.

There is shown in Fig. 5 a variational form of hood in which the exhaust opening for the hood is in the rear wall. Basically, the construction and arrangement of the hood are the same as already described, except for variational forms of certain elements that are shown and will be described now in connection with this embodiment of my invention. The hood indicated generally at **30** is supported from shelf **31** which in turn is mounted upon wall **15**. Hood **30** has a flat top wall **32** which conforms to the under side of shelf **31** and also has a flat, vertically extending rear wall **33** in which is located exhaust opening **34**. This exhaust opening, when the hood is in a normal raised position, is in registration with the horizontally facing open end **35** of exhaust duct **36** which extends upwardly within wall **15**.

The means for movably supporting hood **30** from shelf **31** is hinge **38** which is attached to the forward edge of the shaft and to the hood to establish an axis of pivotal movement of the hood which, like axis **24**, is horizontal. The axis of the hinge is substantially at the forward edge of the shelf and permits the hood to swing downwardly in a clockwise direction about the hinge, as indicated by the broken line showing **30***a* of the hood in Fig. 5. Since this axis is forward of the shelf, the hood can swing to a position in which the hood is generally forward of and partly above the shelf. Any other position of the hinge is satisfactory that allows the hood to swing through 90° or more from the full line position.

A releasable fastener is indicated generally at **40**, there being preferably one such means at each end wall **43** of the hood. Each fastening means is located at a position spaced from hinge **38**, preferably near the rear of the hood adjacent wall **15**. This fastening means includes a short stud **41** which can be screwed into or otherwise attached to the under side of shelf **31** and a spring clip **42** which is attached in a suitable manner to the outside face of end wall **43** of the hood. The head of the stud is indented and can be gripped by the sides of the clip to hold up the hood as in Fig. 5. A fastener of this type is well-known and further exemplifies a suitable fastening means at this location on the hood.

Since the movement of exhaust opening **34** when coming into registration with the end **35** of the duct is parallel to the plane of opening **35** rather than axial thereof,

as is the case in the previously described form of my invention, no flange is provided on the hood around opening 34. However, in order to improve the fit between exhaust opening 34 and the open end 35 of the duct, there is provided a packing ring 45 of felt or similar deformable material. Ring 45 surrounds the open end of the duct and engages the outer face of rear wall 33 of the hood in order to prevent leakage of air between the hood and duct at th[illegible] point.

A further variation in my invention is shown in Figs. 6 and 7 in which the hood and its supporting structure are the same as in Fig. 5, the primary difference being in the location of the exhaust opening from the hood. In this form, hood 30*b* is provided with an exhaust opening 48 which is located in one of the two end walls 43 where, when the hood is raised, it is in registration with the open end 51 of duct 50. Duct 50 has its open end 51 arranged in a substantially vertical plane, the duct extending horizontally through wall 15*a* which is located adjacent one end of hood 30*b*.

Supporting means for the hood includes hinge 38 attached to the hood and to shelf 31 which in turn is attached to wall 15 and may be given other shapes if desired. The releasable fastener means at the rear of the hood is a pair of snap fasteners 52 each of which is screwed into, or otherwise suitably attached to, shelf 31 and has a plurality of spring prongs forming a head which can be pushed through a suitable opening 53 in top wall 32 of the hood. The spring fingers on snap fastener 52 expand after they pass through the opening 53 in the hood and hold the hood in a raised position, as shown in Fig. 7. The spring fingers contract when the hood is pulled downwardly to pass through opening 53 and release the hood. When so released, the hood can swing about the axis established by hinge 38.

Here again the movement of exhaust opening in the hood 30*b* as it registers with duct opening 51 is not suitable for inserting a flange on the hood into the open end 51 of the ventilating duct so that no metal flange is provided around the exhaust opening. However, a gas-tight seal between the duct and the exhaust opening of the hood may be obtained by mounting a gasket or a sealing ring 45 on the face of wall 15*a* around the end 51 of the ventilating duct or on the face of wall 43 around exhaust opening 48.

In both forms of my invention described in connection with Figs. 5, 6, and 7, the movement of the hood between the raised normal position and the lowered position for cleaning, is essentially the same as already described in connection with Figs. 2 and 3. However, the character of hinge 38 is such that the hood cannnot be lifted from its supporting means.

It will be understood that the location of hinge 38 is not limited to the so called front of the hood but may be placed at either of sides 43 provided there is no obstructing wall or cabinet at that side to prevent swinging movement of the hood toward that side or to block access to the hood from that side when the hood is lowered.

From the foregoing, it will be understood that various changes in the detailed construction or location of the elements of a ventilating hood embodying my invention may be made without departing from the spirit and scope of my invention. Accordingly, it is to be understood that the foregoing description is considered as illustrative of, rather than limitative upon, the appended claims.

I claim:

1. A ventilating hood construction for use in combination with a support structure having a downwardly facing underside of extended surface area meeting an upwardly extending forward face of the structure and a ventilating duct having an inlet opening, said hood construction comprising: a hood having a top wall with an extended surface area conforming substantially to the underside of the support structure and an exhaust opening in one wall conforming to the duct inlet opening, said exhaust opening being at a position spaced rearwardly from the forward edge of said top wall; mounting means adjacent to the forward face of the support structure and the top wall of the hood for pivotally mounting the hood on the support structure for swinging movement between a raised position in which said top wall of the hood is closely adjacent the underside of the support structure and the exhaust opening of the hood is in registration with the inlet opening of the ventilating duct, and a lowered position in which the hood is generally below and forwardly of said support structure, and releasable fastening means normally holding the hood in the raised position and releasable to allow said swinging movement.

2. The combination comprising: a support structure including a vertically extending wall and a projecting member extending horizontally away from the wall, said support structure surrounding and supporting a ventilating duct having an inlet opening at a surface of the support structure, a ventilating hood having in one wall an exhaust opening registrable with the inlet of the duct; means mounting the hood on the support structure beneath and closely adjacent the undersurface of the projecting member and also closely adjacent the wall with the two openings in registration, said mounting means including means adjacent the forward side of the projecting member pivotally connecting the hood to the projecting member to permit the hood to swing downwardly away from the projecting member and away from the wall, and releasable fastening means holding the hood normally in said position with the two openings in registration and releasable to allow the hood to swing downwardly.

3. A ventilating hood construction as in claim 2 in which a front portion of the hood is located outwardly beyond the forward edge of the projecting member when the hood is raised, and when the hood is swung downwardly through an arc of approximately 90°, said front portion of the hood is raised above the undersurface of the projecting member.

4. A ventilating hood construction for use with a supporting structure having a downwardly facing bottom face, comprising: a ventilating hood having a top wall including a flat area and a plurality of depending walls at the margins of the top wall, two of the depending walls being located at opposite sides of the hood; a pair of fixed depending arms attached to the bottom face of the supporting structure near one edge thereof and each having an upwardly facing recess; a pair of axially aligned pivot pins, each attached to one of said two depending side walls and engageable in the recess of one of said arms to establish a horizontal axis for swinging movement of the hood substantially at a lower corner of the supporting structure; and means holding the hood raised with the flat area of the top wall closely adjacent the boom face of the supporting structure and releasable to allow the hood to swing downwardly away from the supporting structure to a position in which the hood can be lifted upwardly off the arms.

5. A ventilating hood for use beneath a cabinet or similar support structure having a downwardly facing undersurface terminating at an upwardly extending side surface of the structure, comprising: a hood having a top wall a portion at least of which is normally substantially horizontally disposed and in close proximity to the undersurface of the support structure, said hood having a forward portion extending horizontally beyond the support structure at said one side thereof; means for pivotally mounting the hood on the support structure to swing about a horizontal axis adjacent said undersurface but beyond the support structure at said one side; and releasable fastening means holding the hood in said normal position and releasable to permit the hood to swing about said axis through an arc of approximately 90° to move said portion of the top wall downwardly away

from the support structure to a substantially vertical position with the forward portion of the hood projecting above the undersurface of the support structure.

6. A ventilating hood construction for use in combination with a support structure having a downwardly facing undersurface intersecting an upwardly extending side surface, to define at the intersection a lower corner of the support structure, said hood structure comprising: a hood having a top wall within an area conforming substantially to at least a portion of the undersurface of the support structure; mounting means in the vicinity of said lower corner for pivotally mounting the hood on the support structure to swing about a horizontal axis near the forward edge of the hood, the hood being movable between a raised position in which said top wall of the hood is closely adjacent the undersurface of the support structure and a lowered position in which

the hood is generally below and forward of the raised position; and releasable fastening means spaced from the horizontal axis, normally holding the hood in raised position and releasable to allow said swinging movement.

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