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CONDENSATE DRIP PAN CONSTRUCTION AND MOUNTING ARRANGEMENT THEREFOR

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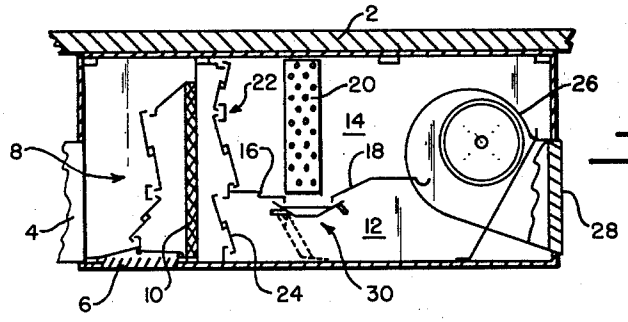



FIG. 1

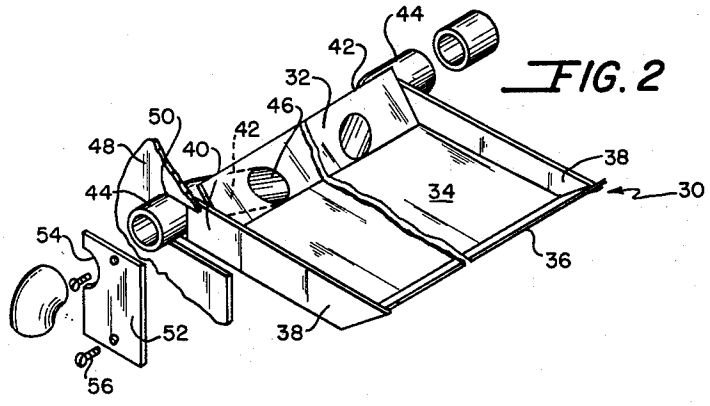
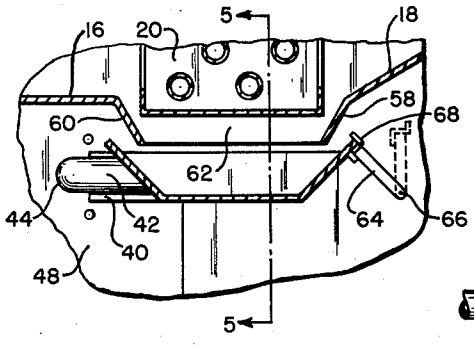



FIG. 2

FIG. 4



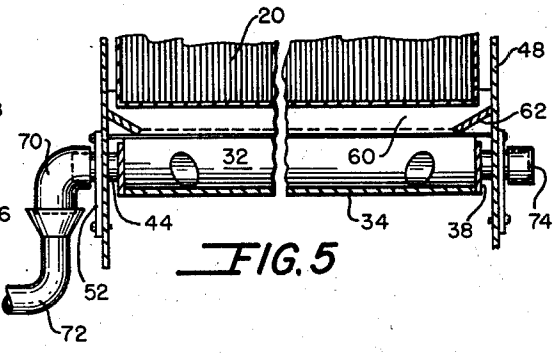




FIG. 5

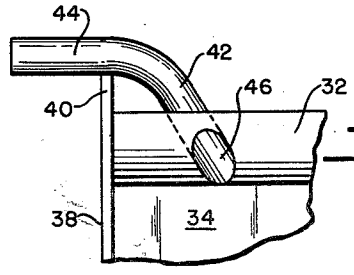



FIG. 3

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# CONDENSATE DRIP PAN CONSTRUCTION AND MOUNTING ARRANGEMENT THEREFOR

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This invention relates to a condensate drip pan construction and mounting arrangement therefor.

Air heating and cooling units such as classroom unit ventilators are sometimes mounted in a horizontal disposition adjacent the ceiling of the space to be conditioned. Access to the interior of the condensate drip pan for cleaning purposes has sometimes posed problems in connection with such ceiling mounted units.

One object of this invention is the provision of a condensate drip pan construction and mounting arrangement which facilitates access to the pan interior for cleaning and other purposes.

Another object is the provision of a pan so constructed and mounted that condensate may be selectively received from either end of the pan.

In accordance with the invention, the drip pan is pivotally supported between opposite vertical partitions along an axis parallel to and spaced from one longitudinal wall of the pan to permit the pan to be swung downwardly away from the bottom edge of the condensate generating element to give convenient access to the condensate receiving surface for cleaning. Further in accordance with the invention, the tubing through which condensate passes from the pan to a drain connection serves as the means upon which the pan is pivotally supported.

The invention and its features will be further described in connection with the accompanying drawing wherein one embodiment incorporating the principles of the invention is shown by way of example and wherein:

FIGURE 1 is a somewhat diagrammatic vertical sectional view of a ceiling mounted unit ventilator of the type wherein the invention finds application;

FIGURE 2 is an exploded, broken, isometric view of the drain pan and certain associated parts;

FIGURE 3 is a fragmentary top view of one rear corner of the pan;

FIGURE 4 is a fragmentary vertical cross-section illustrating certain details of the invention; and,

FIGURE 5 is a fragmentary, broken, vertical cross-section taken along a line corresponding to the line 5—5 of FIGURE 4.

The unit ventilator of FIGURE 1 is shown mounted in a horizontal disposition immediately below a ceiling 2. In accordance with conventional operation of such units, outdoor air and room air are admitted to the unit through the openings 4 and 6 respectively, the proportions thereof depending upon the positions of the primary dampers generally designated 8. The air so admitted then passes through an air filter 10 into the central part of the unit ventilator.

The central part of the unit includes a lower bypass passageway 12 and an upper coil passageway 14, these passageways being separated from each other on the upstream side of the coil by a generally horizontal wall 16 and on the downstream side by an upwardly sloped wall 18. The heat exchanger or coil 20 is adapted to selectively receive a heating or cooling medium and extends across the coil passageway 14. Face dampers 22 upstream from the coil control the quantity of air admitted to the coil passageway while the bypass damper 24 at the upstream end of the bypass passageway 12 controls the quantity of air which bypasses the coil. A plurality of



fans 26 induce air flow into and through the unit and discharge the conditioned air into the room through the air outlets 28.

The drip pan generally designated 30 in FIGURE 1 is positioned to underlie the opening defined by the edges of the walls 16 and 18 which separate the bypass passageway 12 and the coil passageway 14 so that condensate dripping from coil 20 positioned above that opening falls into the pan. The solid line position of the drip pan in FIGURE 1 shows it in operative position to catch condensate while the dotted line position shows it swung downwardly for cleaning purposes.

The general construction of the drip pan is perhaps best illustrated in FIGURE 2. The sloping rear wall 32, generally horizontal bottom wall 34 and sloping front wall 36 may conveniently be a single sheet of metal bent to form a relatively shallow trough. The end walls 38 close the ends of the pan and include a rearwardly extended portion 40 projecting beyond the rear wall 32 for a purpose to be hereinafter explained.

The piping means through which condensate flows from the pan to an appropriate drain serves, according to this invention, as the means upon which the pan is pivoted. To this end a tubular, open-ended, elbow-shaped member (FIGURES 2 and 3) is connected adjacent each end of the pan with a first leg 42 of each elbow extending rearwardly and obliquely from the pan rear wall 32, and a second or pivot leg 44 extending outwardly and horizontally to provide a pivot along an axis parallel to the length of the pan but spaced rearwardly from the pan.

In the illustrated embodiment, the angle between the leg 42 and leg 44 is an obtuse angle. This, coupled with the slope of the rear wall 32, requires that for the open end of leg 42 to solidly abut the exterior surface of the rear wall that it be in the general form of an ellipse. This is a preferable connecting arrangement in that the somewhat extended juncture so provided permits a stronger connection than would be obtained if the axis of the leg 42 were normal to the plane of the rear wall 32.

The bottom wall of the elbows is generally aligned with the bottom wall 34 of the pan so that the condensate may flow freely through the elliptically-shaped holes 46 in the rear wall 32 where the legs 42 joint the rear wall. It will be noted that the end edges of the rearwardly extended portions 40 of the pan end walls 38 contact the legs 44 of the elbow. At this point of contact, they are preferably secured to each other so that the connection between the elbows and pan is not confined solely to the connection between the rear wall 32 and leg 42. If desired, the rear edge of extended portion 40 may be contoured to fit the circumference of the leg 42 and thus provide an extended connection line.

The pivot legs 44 of the elbows are journalled in opposite vertical partitions spaced inwardly from the side walls of the unit ventilators to separate the part of unit ventilator through which air flows from the opposite end compartments. These vertical partitions 48 are formed of a number of panels, one of which is shown in broken form in FIGURE 2 and which includes a horizontal slot 50 for receiving a pivot leg 44. After the leg 44 is received within the slot, a small plate 52 having a semicircular cutout 54, is secured to the vertical partition by screws 56 to close the slot. The other panels may then be secured in place to complete the vertical partition.

Referring now to FIGURES 4 and 5, the walls 16 and 18 which separate the coil passageway 14 and the bypass passageway 12 have downwardly flanged edges or lips 58 and 60 which define the front and rear edges of the opening which the coil overlies. The end edges of this opening are defined by pieces 62 extending inwardly from the opposite vertical partition 48. These lips 58 and 60, and

pieces 62 insure that condensate from the coil will be directed into the upwardly-open pan.

The pan 30 is held in an operative position to catch condensate by a latch member 64 (FIGURE 4) pivotally secured to each vertical partition 48 at point 66. The free ends of the latches carry Z-shaped elements 68 which engage the underside and edge of pan front wall 36 when the pan is in operative position. When the latch members 68 are rotated forwardly to the dotted line positions of FIGURE 4, the pan may be rotated downwardly about the legs 44 for cleaning the interior of the pan.

The pan construction and mounting arrangement permits condensate from the drip pan to be passed to a drain connection in either end compartment space. In FIGURE 5 the drain connection is made in the left hand end compartment with a resilient plastic elbow 70 on the open outer end of the left leg 44 so that the condensate will flow into drain piping 72. The open outer end of right leg 44 is closed with a plastic cap 74. By using an elbow 70 of resilient plastic or like material which frictionally engages the leg 44, the pan may be rotated downwardly for cleaning without breaking the drain connection since the leg 44 will rotate within the elbow 70.

The invention claimed is:

1. A construction and mounting arrangement for a condensate drip pan pivotally supported between opposite walls, comprising: an upwardly-open condensate receiving pan having a bottom, front, rear, and end walls; a pair of tubing members in the form of elbows rigidly connected to said pan adjacent the respective opposite ends thereof with one leg of each of said members extending rearwardly and the other leg of each of said members projecting outwardly through the respective opposite wall in rotatable relationship therewith whereby said pan may be rotatably displaced about said other legs, at least one of said members having its pan connected end open to the interior of said pan to receive condensate therefrom.

2. A construction and mounting arrangement for a condensate drip pan pivotally supported between opposite walls, comprising: an upwardly-open condensate receiving pan having a bottom wall, front and rear walls, and end walls; elbow-shaped tubing members secured adjacent opposite ends of said pan with one leg of each of said members having an open end in communication with the interior of said pan rigidly connected to the rear wall of said pan and extending rearwardly, and the other legs of said members projecting outwardly in aligned relation through said opposite walls and journalled therein to serve as pivots about which said pan may be displaced.

3. The construction and mounting arrangement specified in claim 2 wherein: said pan connected legs intersect said rear wall at an oblique angle.

4. The construction and mounting arrangement specified in claim 2 wherein: the outer ends of said other legs are open; means closing one of said open outer ends is included; and, means for connecting the other of said open outer ends to a condensate drain is included.



5. The construction and mounting arrangement specified in claim 4 wherein: said condensate drain connecting means includes an elbow fitting resiliently engaging said other leg to permit relative rotational movement between said fitting and said other leg.

6. A construction and mounting arrangement for a condensate drip pan pivotally supported between opposite partitions, comprising: an upwardly-open condensate receiving pan having a bottom wall, a front wall, a sloping rear wall, and opposite end walls having rearwardly-extended portions; a pair of angularly-shaped tubing members secured adjacent the opposite ends of said pan to pivotally support said pan from said opposite partitions along an axis rearwardly spaced from and parallel to said pan, each of said members including a first leg having an end connected to said rear wall and open to the interior of said pan and extending rearwardly and outwardly, and a second leg projecting outwardly in pivotal relation through said partitions; and means connecting said rearwardly-extended portions of said pan and walls to said second legs.

7. A construction and mounting arrangement for a condensate drip pan pivotally supported between opposite partitions, comprising: a condensate collecting pan including a bottom wall, opposite longitudinal walls, and opposite lateral walls; means for hingedly supporting said pan about an axis generally parallel to and spaced away from one longitudinal wall of said trough, said mounting means comprising a pair of oppositely-directed, open-ended tubing elbows, each elbow having a laterally-extending leg rigidly connected to a longitudinal wall of said pan with its open end in communication with the interior thereof, and a longitudinally-projecting leg lying along said axis and pivotally journalled in one of said opposite partitions; means for connecting the open end of one of said longitudinally-projecting legs to drain piping; and means for closing the open end of the other of said longitudinally-projecting legs.


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