

May 22, 1962

J. F. HALBEISEN

3,035,422

ROOM AIR CONDITIONER

Filed March 6, 1961

4 Sheets-Sheet 1

FIG. 1.

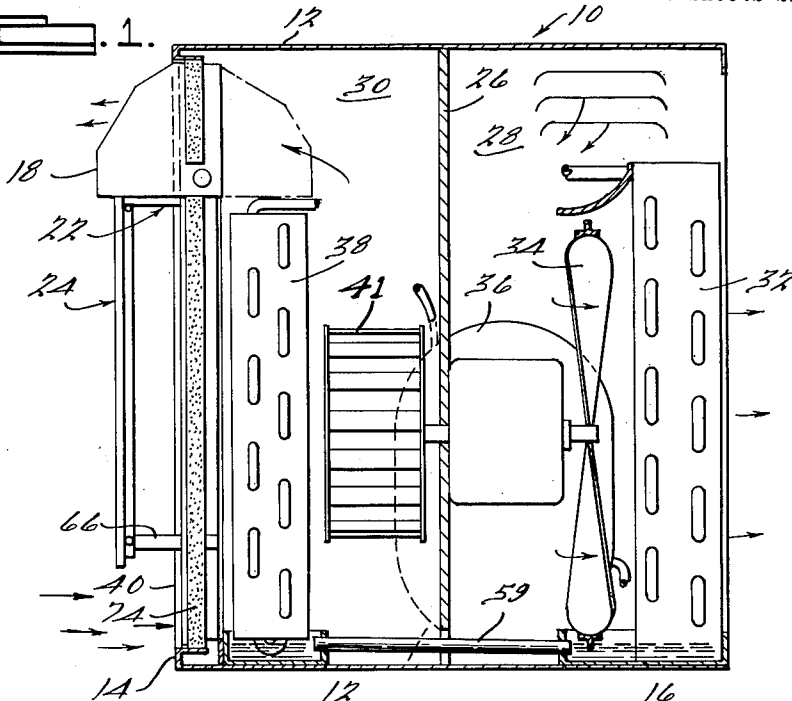


FIG. 2.

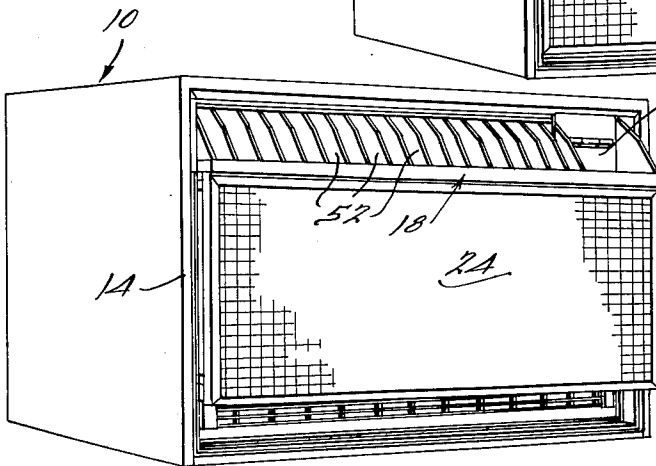
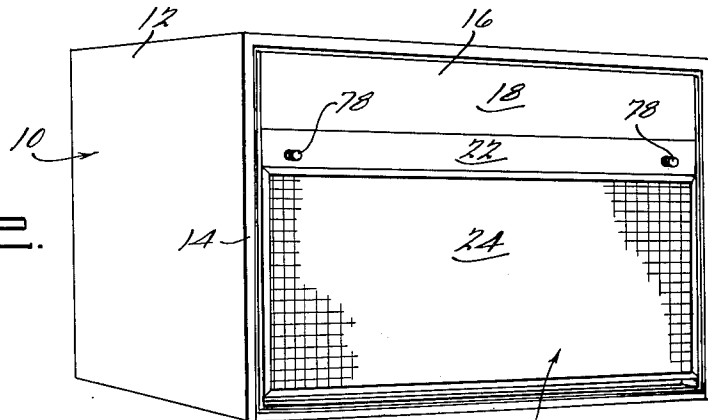


FIG. 3.

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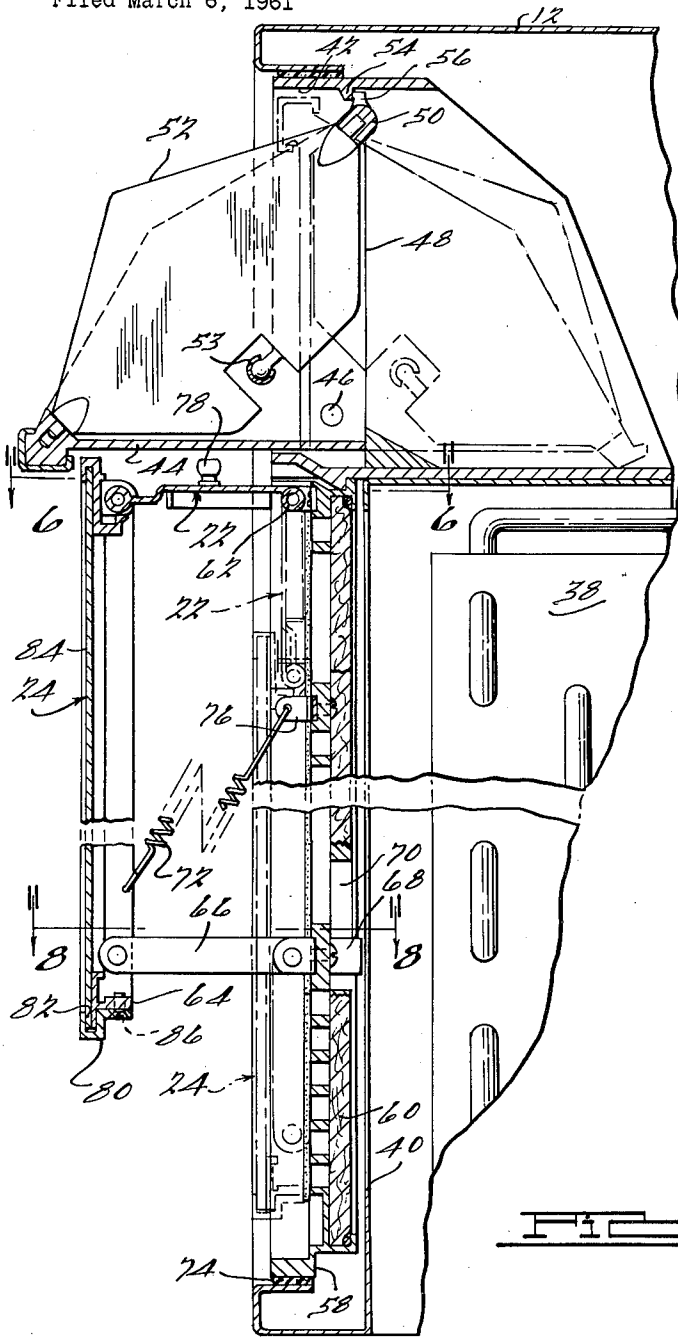
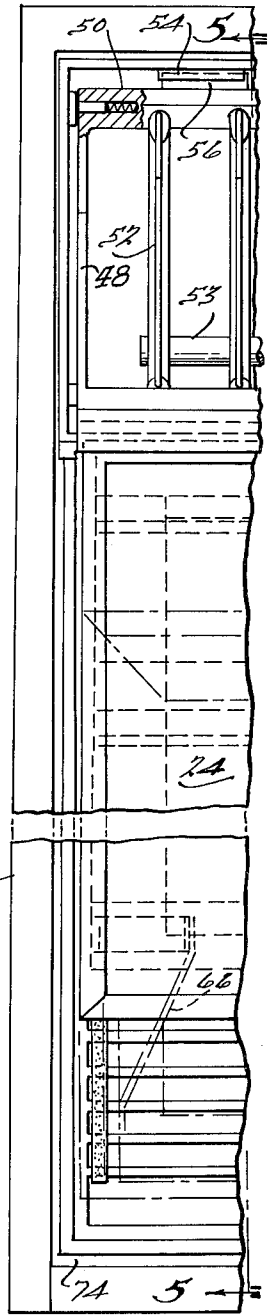


FIG. 5.



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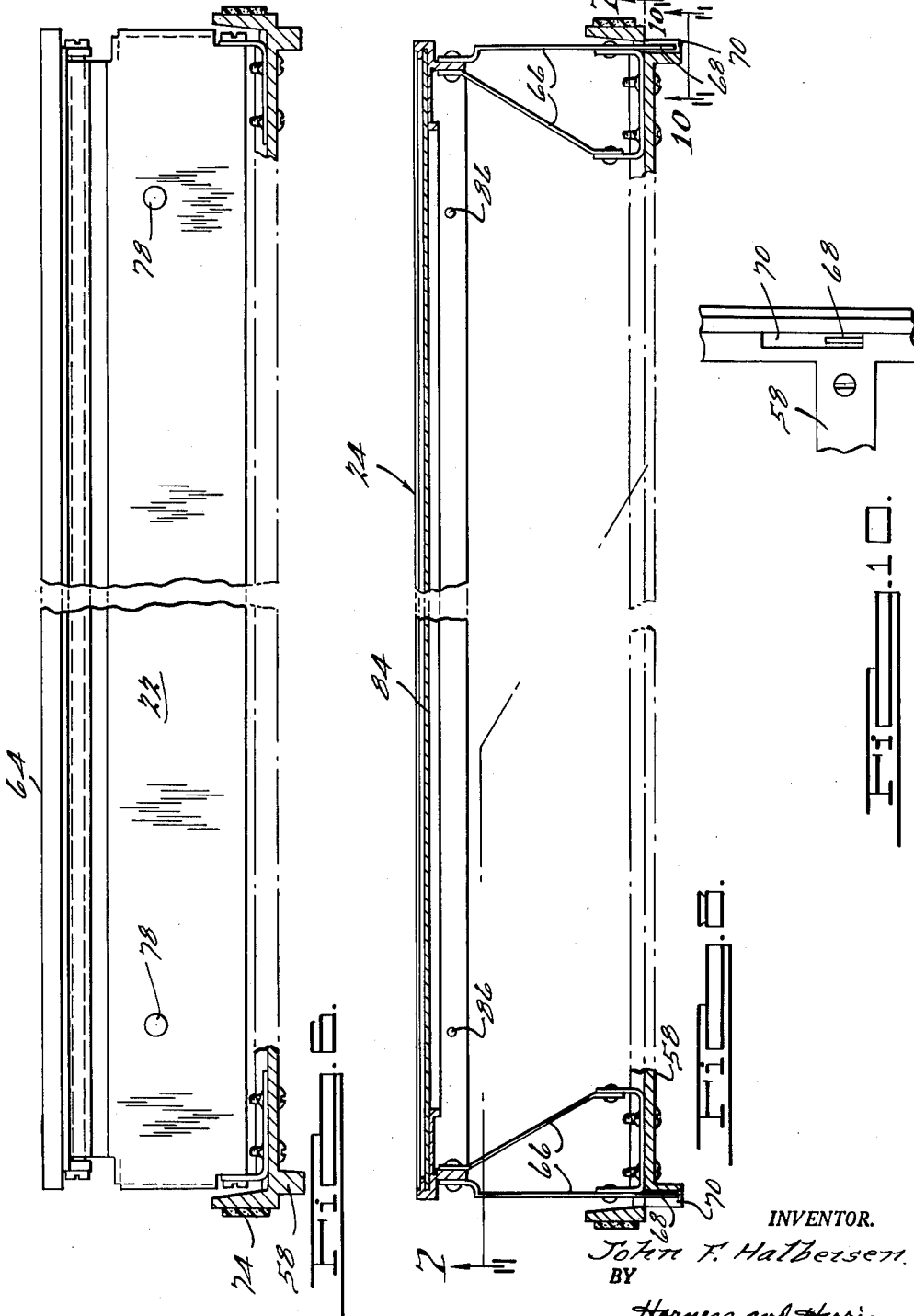
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4 Sheets-Sheet 3



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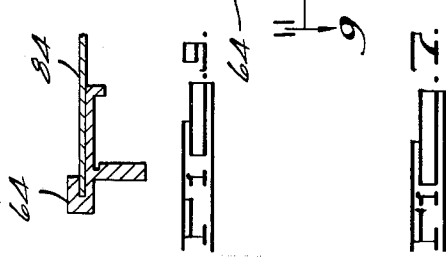
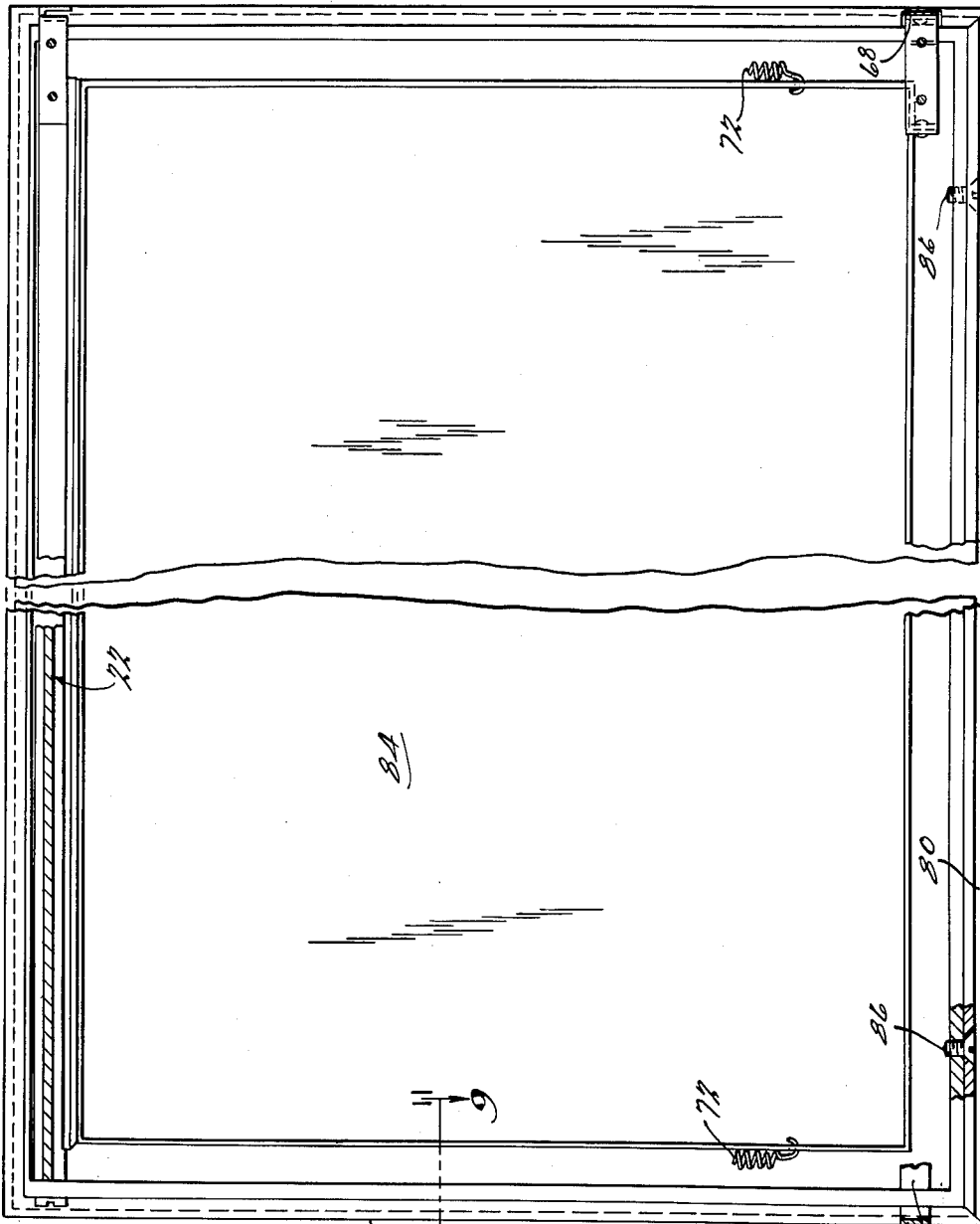
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4 Sheets-Sheet 4



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3,035,422

ROOM AIR CONDITIONER

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Filed Mar. 6, 1961, Ser. No. 93,386

9 Claims. (Cl. 62-426)

The present invention relates to a room air conditioner of the type which is self-contained and adapted for mounting in an aperture in an outer wall of an enclosure and more particularly to the construction of the front face and air opening controls on that air conditioner.

Room air conditioners generally present a front face to the room and it is common for room air to enter the air conditioner through an opening in such front face and to be discharged from the air conditioner either through an opening in the front face or in the side or top surfaces in close proximity to the face.

It is a principal object of this invention to provide a cover for the air inlet opening on the front face of the air conditioner with mechanism accommodating movement of this cover to either of two stations such that with the cover in one position the air inlet opening is closed and in the other station the cover is positioned in parallel relationship with the front face to serve as an air controlling means and as a sound deflector. The closing of the air outlet opening is very advantageous as it serves as a seal to prevent drafts and the admission of cold outside air to the room.

It is a further object of this invention to hingedly interconnect the above mentioned cover and a cooperating panel preferably along the upper edge of the cover so that the panel serves as a baffle and separates the air inlet opening from the air outlet opening thereby discouraging the intermingling of cooled air with air entering the air inlet opening to be cooled.

It is an additional object of the invention to provide a decorative panel which is releasably held in a framework such that the decorative panel and framework cooperate to form the above-mentioned cover. The frame and decorative panel are releasable held together so that the decorative panel may readily be removed and either another panel substituted or different decorative materials applied to it such as wallpaper or cloth to conform the appearance of the air conditioner with room decorations.

It is a further object of the invention to shield the air inlet grille from contact therewith by clothing or draperies.

It is also an object of the invention to provide a baffle across the air outlet opening to assist in deadening sound emanating from the operating parts of an air conditioner.

Referring to the drawings:

FIG. 1 is a vertical sectional view of the air conditioner;

FIG. 2 is a perspective view of a room air conditioner having the cover over its air inlet opening in its closed position;

FIG. 3 is a perspective view of a room air conditioner having the above mentioned cover and the air outlet opening control both in an open condition;

FIG. 4 is a fragmentary view of the front of the air conditioner on an enlarged scale;

FIG. 5 is a sectional view taken on the line 5-5 of FIG. 4;

FIG. 6 is a sectional view taken on the line 6-6 of FIG. 5;

FIG. 7 is a sectional view taken on the line 7-7 of FIG. 8;

FIG. 8 is a sectional view taken on the line 8-8 of FIG. 5;

FIG. 9 is a sectional view taken on the line 9-9 of FIG. 7; and

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FIG. 10 is a fragmentary sectional view taken on the line 10-10 of FIG. 8.

The room air conditioner is indicated generally by the numeral 10 and it includes a casing 12 provided with a front face 14 which is intended to be directed into the enclosure. The front face 14 of the air conditioner is provided with an upper rectangular area 16 in which an air outlet control 18 is pivotally mounted. The front face is also provided with a lower rectangular area 20 and cooperating panels 22 and 24 which in one position as illustrated in FIG. 2 are adapted to substantially completely cover the lower rectangular area 20 as will be described herein. The panels 22 and 24 are mounted for movement to another position as illustrated in FIG. 3 during operation of the air conditioner.

Referring to FIG. 1 of the drawings it will be seen that the internal mechanism of the air conditioner is of conventional construction and includes a dividing wall 26 which divides the interior into a compressor-condenser compartment 28 and an evaporator compartment 30. A condenser 32 is mounted in the condenser compartment and a fan 34 is provided for the circulation of outside air over the condenser for the dissipation of heat therefrom. A compressor 36 is connected to the condenser and to an evaporator 38 with the latter located in compartment 30. The casing 12 and its front face 14 are provided with an air inlet opening 40 and an air outlet opening 42. A blower 41 is provided to draw air in through the inlet opening 40 and discharge out the outlet opening 42.

A suitable control is mounted over the air outlet opening 40 and it includes the plate 44 which is pivotally mounted at 46 in casing 12 for movement between a closed position illustrated in FIG. 2 and an open position illustrated in FIGS. 3, 4 and 5. The plate 44 also serves to cover a small control panel 45 on the front face of the air conditioner. A pair of legs 48 carried by plate 44 and a cross member 50 cooperate to provide a bin type control for the air outlet opening 40. Suitable vanes 52 are pivotally mounted in the cross member 50 and plate 44 to afford lateral control of the outgoing air. The vanes 52 are connected for gang movement by a rod 53. Cooperating stop members 54 and 56 are carried by the casing 12 and cross member 50, respectively. The illustrated control for the air outlet opening is the subject matter of a separate patent application Serial No. 93,385 filed March 6, 1961 by John F. Halbeisen.

The lower rectangular area 20 of the front face of the air conditioner carries a grille 58 and a conventional filter 60. The panel 22 is pivotally mounted at 62 on opposite edges of the casing 12 to accommodate movement of panel 22 from a vertical position, which is illustrated in broken lines in FIG. 5 to a horizontal position which is illustrated in solid lines in FIG. 5. The panel 22 serves as a baffle or divided between the air inlet opening 40 and the air outlet opening 42 so that even if the plate 44 was absent or not fully opened the plate 22 would discourage the short circuiting of cold discharged air directly back to the inlet opening 40.

The panel 24 includes a frame 64 which is pivotally mounted on the outer extremity of the panel 22 and is pivotally mounted on supporting legs 66 provided adjacent its lower edge and at the right and left extremities of the frame. The legs 66 are pivotally mounted on the frame and preferably include at least one extension 68 which cooperates with a slot 70 in frame 64 to limit the upward movement of panel 24 by interference of extension 68 with the lower end of slot 70 as illustrated in FIGS. 5 and 10.

The panel 24 is thus mounted for movement between a broken line position illustrated in FIG. 5 and a solid line position illustrated in FIG. 5 and in the former position

the entire air inlet opening is blocked by the cooperating panels 22 and 24 while these panels in the solid line positions of FIG. 5 panel 22 serves as a divider and air may enter the air inlet opening 40 and pass through grille 53 by traveling around the left and right sides of panel 24 and entering below panel 24. When panel 24 is in its closed position it prevents the admission of cold air to the room. In the winter the leakage of cold air is undesirable and a condensate drainage tube 59 which is a component of most air conditioners is a source of such leakage. In addition, the panel 24, in both its open and closed positions, prevents clothing and draperies from contacting grille 58 and filter 60 which may tend to accumulate dirt during the operation of the air conditioner.

A pair of springs 72 are provided adjacent opposite sides of the air conditioner and each spring extends from frame 64 to a tab 76 on grille 58. It will be readily apparent that with the parts in the position illustrated in solid lines in FIG. 5 the springs 72 will urge the parts to the solid line position as limited by the abutment of extension 68 on the bottom of slot 70. When it is desired to close the cooperating panels 22 and 24 the spring 72, because of the relative positions of its ends assumes a slightly over center position and it also urges and retains the parts in their broken line position illustrated in FIG. 5. A rubber seal 74 carried by grille 58 cooperates with cover 24 to provide an effective seal around the edges of cover 24.

A pair of knobs 78 are provided by which means the operator may manually pull the parts from their broken line position in FIG. 5 to the extended and solid line position in FIG. 5.

The frame 64 is provided with a removable bottom member 80 which preferably has a groove 82 for reception of a decorative panel 84. Similar grooves are provided in the other three sides of frame 64 as illustrated in FIGS. 8 and 9. The bottom frame member 80 is preferably retained in position by means of screws 86. It will thus be seen that removal of screws 86 and the bottom frame member 80 will accommodate the gentle withdrawal of the decorative panel 84 from the frame. This is desirable for it permits one to readily substitute another decorative panel 84 or it permits one to recover such panel easily with decorative material such as fabric or wallpaper to conform to the appearance of the air conditioner to room decoration. The substitute panel or recovered panel may then be readily inserted in the frame members and when it is in position the bottom frame member 80 may be replaced and secured by means of screws 86.

I claim:

1. A unit for conditioning air within an enclosure comprising a housing having a front wall exposed to such air, refrigeration mechanism including a cooling element within said housing and air propelling means for inducing a flow of air over said cooling element, said front wall being provided with an air inlet opening and an air outlet opening and a cover movable between first and second positions, mounting means operable to secure said cover in its first position flush with said front wall in unobstructing relationship with respect to said air outlet opening and in overlying relationship with respect to said air inlet opening to seal the latter against undesirable air leakage therethrough, said mounting means including mechanism operable to accommodate movement of said cover to its second position and retention thereof in the aforementioned second position wherein said cover is spaced from said front wall in parallel relationship thereto and air is admitted to the above-mentioned air inlet opening around edges of said cover.

2. A unit for conditioning air within an enclosure comprising a housing having a front wall exposed to such air, refrigeration apparatus including a cooling element and air propelling means within said housing for inducing a flow of air over said cooling element, said front wall being provided with an air inlet opening and an air outlet opening, a movable and substantially flat cover plate extending

in one position across one only of the above-mentioned openings to close the latter and mechanism mounting said cover plate on said front wall for movement between its above-mentioned closed position and an open position in which the cover plate is held parallel to the above-mentioned front wall and spaced therefrom to accommodate the flow of air around the edges of said cover plate.

3. A unit for conditioning air within an enclosure comprising a housing having a front wall exposed to such air, refrigeration mechanism including a cooling element within said housing and air propelling means for inducing a flow of air over said cooling element, said front wall being provided with an air outlet opening and an air inlet opening, and mechanism for selectively covering the above-mentioned inlet opening, said mechanism including a first imperforate panel pivotally mounted on said front wall in close proximity to the above-mentioned air outlet opening and a second panel pivotally mounted along one of its edges on said first panel to accommodate movement of said panels between a first condition in which said panels abut and cooperate to cover a substantial area of said front wall including the above mentioned air inlet opening and a second condition in which said second panel is parallel to and spaced from said front wall while said first panel is normal to said front wall between the above-mentioned inlet and outlet openings whereby the admission of air to the inlet opening is accommodated around edges of said second panel and said first panel serves as a divider between the two openings.

4. A unit for conditioning air within an enclosure comprising a housing having a front wall exposed to such air, refrigeration mechanism including a cooling element within said housing and air propelling means for inducing a flow of air over said cooling element, said front wall being provided with a first opening along one edge thereof, a cover plate pivotally mounted on said front wall for movement from a closed position in which it is flush with said front wall to an open position in which said cover plate is inclined relative to said front wall and serves as a divider separating said first opening from a substantial portion of said front wall, the last-mentioned portion of said front wall being provided with a second opening, a covering panel movably mounted on said front wall for movement between a first station in which it closes said second opening and a second station in which it is parallel to and spaced outwardly from said substantial portion of said front wall, said covering panel and said cover plate having abutting edges when said cover plate is in its open position and said covering panel is in its second station to minimize the leakage of air from one opening to the other.

5. A unit for conditioning air within an enclosure comprising a housing having a rectangular front wall exposed to such air, refrigeration mechanism including a cooling element within said housing and air propelling means for inducing a flow of air over said cooling element, said front wall being provided with an air outlet opening and an air inlet opening, and mechanism for selectively covering the above-mentioned inlet opening, said mechanism including a first rectangular imperforate panel pivotally mounted on and extending across said front wall in close proximity to the above-mentioned air outlet opening and a second rectangular panel pivotally mounted along one of its edges on said first panel to accommodate movement of said panels between a first condition in which said panels abut and cooperate to cover a substantial area of said front wall including the above mentioned air inlet opening and a second condition in which said second panel is parallel to and spaced from said front wall while said first panel is normal to said front wall between the above-mentioned inlet and outlet openings whereby the admission of air to the inlet opening is accommodated around edges of said second panel and said first panel serves as a divider between the two openings.

6. A unit for conditioning air within an enclosure com-

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prising a housing having a front wall exposed to such air, refrigeration mechanism including a cooling element within said housing and air propelling means for inducing a flow of air over said cooling element, said front wall being provided with an air outlet opening located along one edge of said front wall and an air inlet opening located alongside the air outlet opening, and mechanism for selectively covering the above-mentioned inlet opening, said mechanism including a first imperforate panel pivotally mounted on said front wall in close proximity to the above-mentioned air outlet opening and a second panel pivotally mounted along one of its edges on said first panel to accommodate simultaneous movement of said panels between a first station in which said panels abut and cooperate to cover a substantial area of said front wall including the above mentioned air inlet opening and a second station in which said second panel is parallel to and spaced from said front wall while said first panel is normal to said front wall between the above-mentioned inlet and outlet openings to accommodate the admission of air to the inlet opening around edges of said second panel while said first panel serves as a divider between the two openings, said mechanism further including means operable to releasably hold said panels in their respective first and second stations.

7. A unit for conditioning air within an enclosure comprising a housing having a flat, rectangular, front wall exposed to such air, refrigeration mechanism including a cooling element within said housing and air propelling means for inducing a flow of air over said cooling element, said front wall comprising first and second rectangular areas in abutting relationship along one edge thereof and being provided with an air outlet opening in the above-mentioned first area and an air inlet opening in the above-mentioned second area, mechanism for selectively covering the above-mentioned inlet opening, said mechanism including first and second abutting rectangular panels which together are coextensive with the above-mentioned second area and are hingedly connected together along their abutting edges, means pivotally mounted in said first panel on said front wall to accommodate movement of said panels between a first condition in which said panels are arranged in substantially co-planar relationship over the above second area and cooperate to cover the above-

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mentioned second area of said front wall and a second condition in which said second panel is parallel to and spaced from said front wall while said first panel is normal to said front wall between the above-mentioned inlet and outlet openings to accommodate the admission of air to the inlet opening around three edges of said second panel while said first panel serves as a baffle between the two openings.

8. A unit for conditioning air within an enclosure comprising a housing having a front wall exposed to such air, refrigeration apparatus including a cooling element and air propelling means within said housing for inducing a flow of air over said cooling element, said front wall being provided with an air inlet opening and an air outlet opening, a flat rectangular frame extending in one position across one of the above-mentioned openings, mechanism mounting said frame on said front wall for movement between its above-mentioned position and an open position in which the frame is held parallel to the above-mentioned front wall and spaced therefrom to accommodate the flow of air around the edges of said cover plate, a decorative panel mounted in said frame and cooperating means on said frame and said panel to accommodate the insertion and removal of said panel from said frame.

9. A unit for conditioning air within an enclosure comprising a housing having a front wall exposed to such air, refrigeration apparatus including a cooling element and air propelling means within said housing for inducing a flow of air over said cooling element, said front wall being provided with an air inlet opening and an air outlet opening, a frame extending in one position across one of the above-mentioned openings, mechanism mounting said frame on said front wall for movement between its above-mentioned position and an open position in which the frame is held parallel to the above-mentioned front wall and spaced therefrom to accommodate the flow of air around the edges of said cover plate, a decorative panel mounted in said frame and cooperating means on said frame and said panel to accommodate the insertion and removal of said panel from said frame.

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