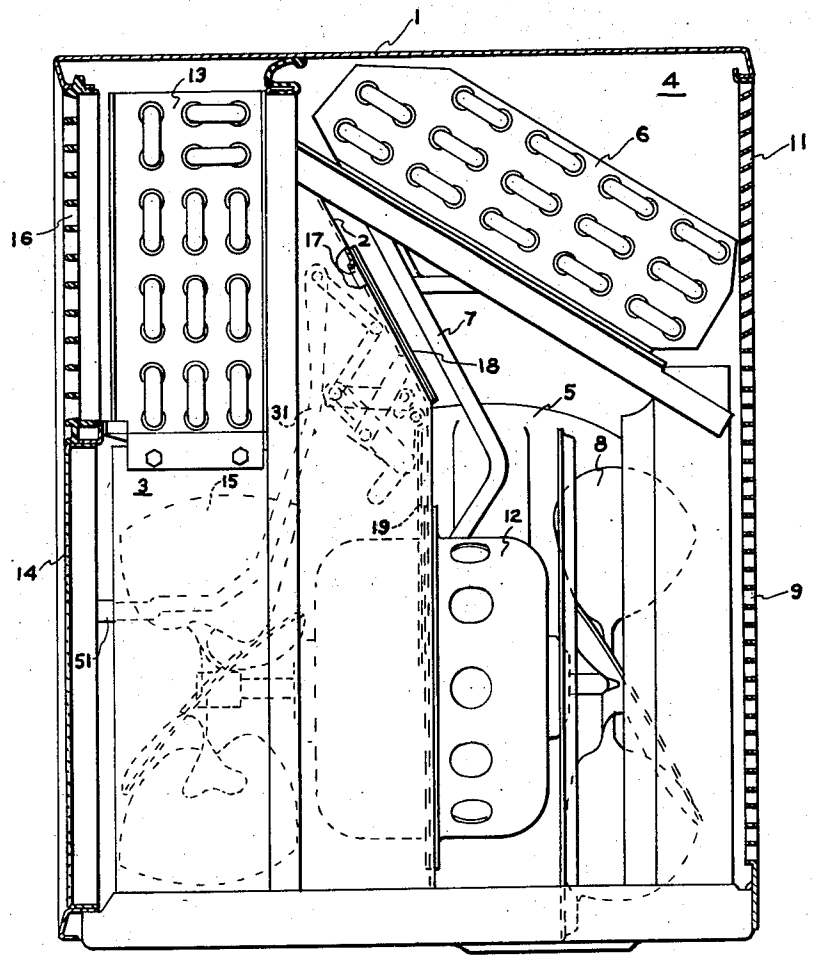
Nov. 4, 1958 S. E. ROSE 2,858,678

ROOM AIR CONDITIONER HAVING VENT CONTROL MEANS

Filed Oct. 15, 1956 5 Sheets-Sheet 1

FIG. 1



INVENTOR.
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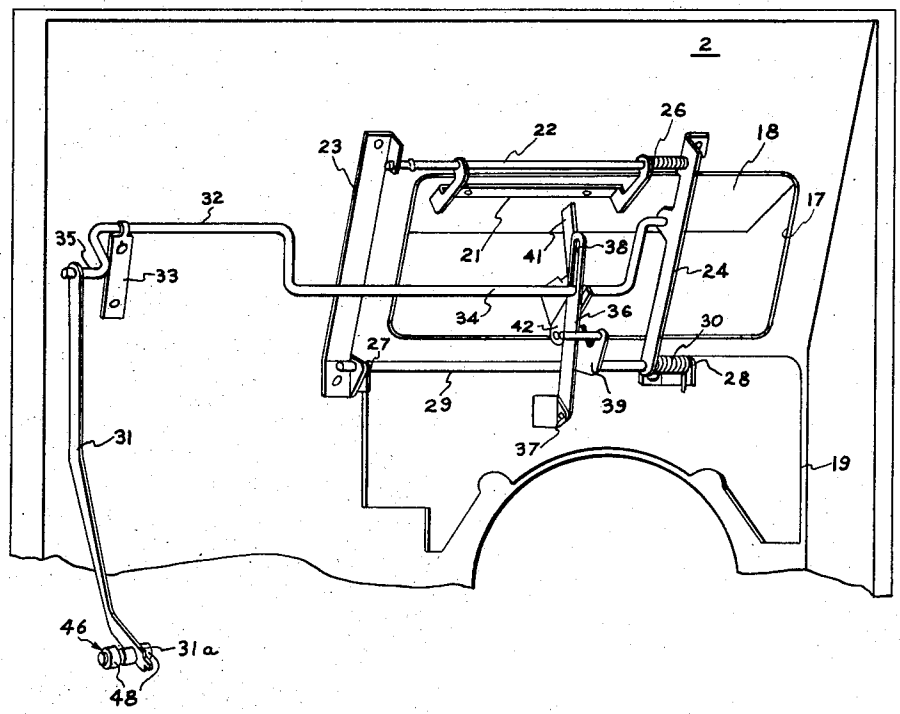
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Nov. 4, 1958 S. E. ROSE 2,858,678

ROOM AIR CONDITIONER HAVING VENT CONTROL MEANS

Filed Oct. 15, 1956 5 Sheets-Sheet 2

FIG. 2



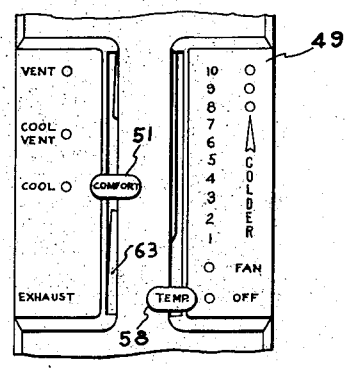


FIG. 9

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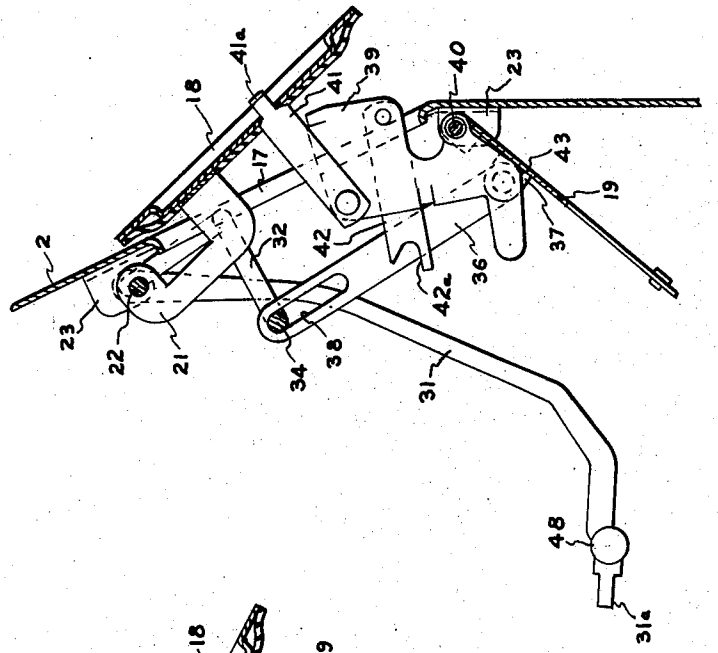
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Nov. 4, 1958 S. E. ROSE 2,858,678

ROOM AIR CONDITIONER HAVING VENT CONTROL MEANS

Filed Oct. 15, 1956 5 Sheets-Sheet 3

FIG. 3



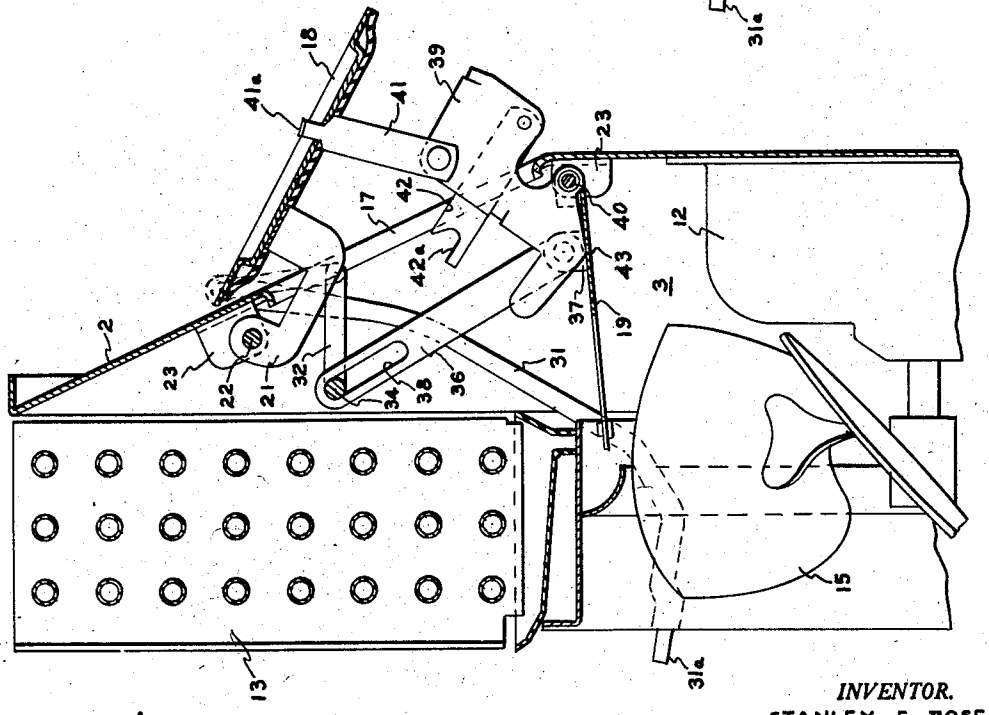


FIG. 4

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Nov. 4, 1958 S. E. ROSE 2,858,678

ROOM AIR CONDITIONER HAVING VENT CONTROL MEANS

Filed Oct. 15, 1956 5 Sheets-Sheet 4

FIG. 5

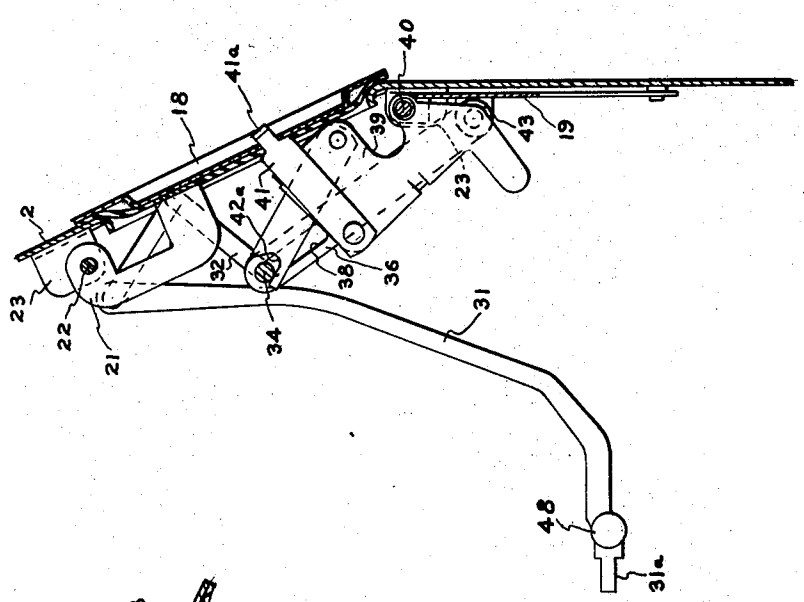
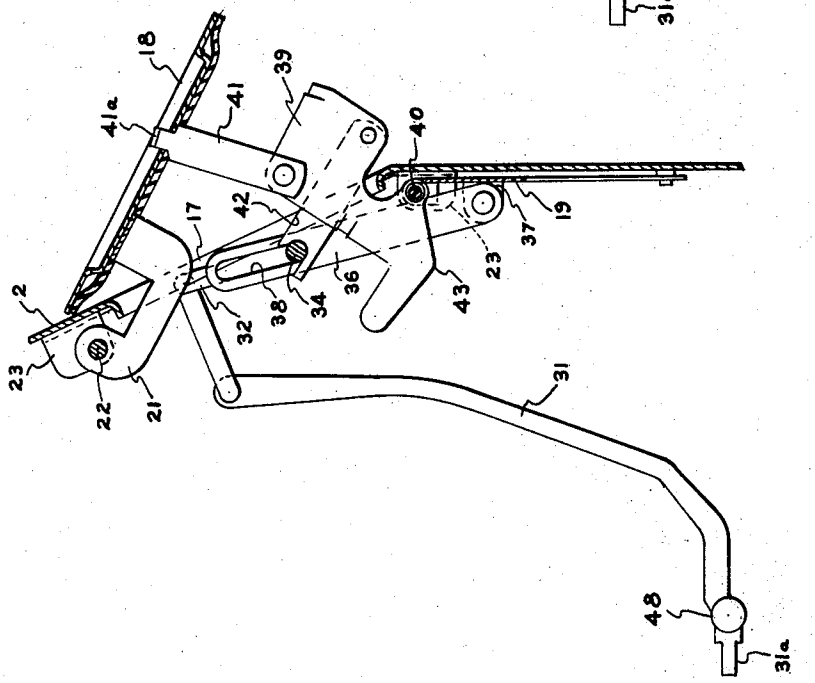


FIG. 6



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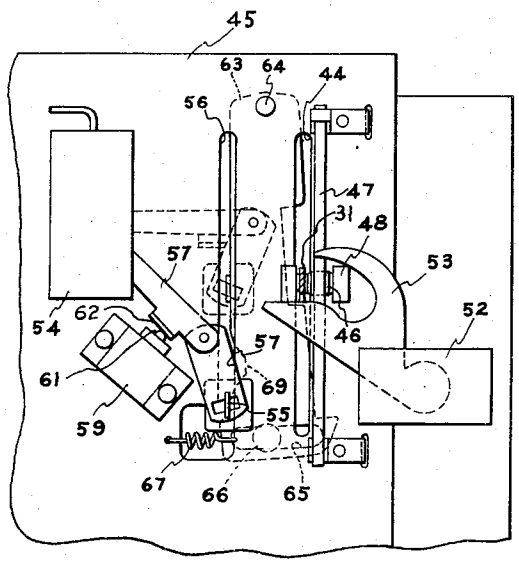
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Nov. 4, 1958 S. E. ROSE 2,858,678

ROOM AIR CONDITIONER HAVING VENT CONTROL MEANS

Filed Oct. 15, 1956 5 Sheets-Sheet 5

FIG. 7



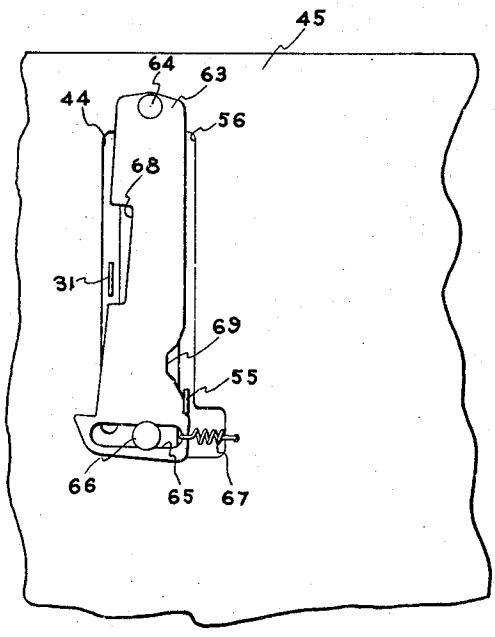


FIG. 8

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United States Patent Office 2,858,678
Patented Nov. 4, 1958

2,858,678

ROOM AIR CONDITIONER HAVING VENT CONTROL MEANS

Stanley E. Rose, Lyndon, Ky., assignor to General Electric Company, a corporation of New York

Application October 15, 1956, Serial No. 615,840

14 Claims. (Cl. 62—267)

The present invention relates to a room air conditioner and more particularly to a conditioner having a vent therein with a control mechanism for adjusting the air flow through the vent for the various conditions of operation.

Room air conditioners normally comprise a compressor, condenser, and evaporator connected in refrigerant flow relationship and arranged within a suitable housing which is mounted in a window or aperture leading to the outside and which is divided into at least two separate compartments. The evaporator is mounted within an inner compartment adjacent the room and room air is blown through the compartment over the evaporator where it is cooled and dehumidified before being discharged back into the room. The compressor and condenser are normally mounted in an outer compartment through which outside air is circulated for cooling the compressor and condenser. Many conditioners provide vents or apertures in the barriers dividing the housing into separate compartments through which fresh air may be introduced from the outside into the room and through which stale air from the room may be exhausted. It is often desirable during those periods when air is flowing through the exhaust or inlet vents in the barrier to stop the operation of the compressor in order to prevent the unnecessary cooling of this air.

It is an object of this invention to provide an improved mechanism for controlling the air flow through an air vent of a room air conditioner.

It is another object of this invention to provide a vent controlling mechanism having operating means which is interlocked at certain portions of its operation with a second operating means for actuating the electrical components of the room air conditioner.

It is a further object of the invention to provide an improved air flow controlling means for obtaining the exhaust of stale room air or the introduction of fresh outside air through the same air vent.

A still further object of the present invention is to provide an improved baffle and damper arrangement with controlling linkage therefor in the air vent of a room air conditioner.

Another object of the invention is to provide an improved interlocking arrangement whereby the compressor actuating means is maintained in an inoperative position when the air conditioner unit control is positioned for exhausting air from the room or venting maximum fresh air into the room.

Further objects and advantages of this invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

According to the present invention there is provided a room air conditioner having a housing divided by an inner barrier into inner or indoor and outer or outdoor compartments. The evaporator or cooling means of the

conditioner is mounted in the inner compartment and the condensing unit is mounted in the outer compartment. Air moving means are provided in both compartments for circulating streams of air therethrough. In order to obtain flow of air between one compartment and the other, thereby obtaining exhaust or venting of air from or to the room, a vent or aperture is provided in the barrier. An air flow controlling means within the aperture is actuated by an operating means designed for movement linearly to a plurality of positions for producing the requisite air flow through the aperture. This operating means is interlocked to a second operating means for actuating the electrical components of the conditioner and also designed for linear operation. The interlock is pivotally mounted between the lines of operation of the two operating means and contains camming surfaces and indented portions thereon which interfere with the operation of one operating means when the interlock has been pivoted by the movement of the other operating means to a certain predetermined position.

For a better understanding of the invention reference may be had to the accompanying drawings in which:

Fig. 1 is a side elevation view in cross section to show the various positions of the components of the air conditioner;

Fig. 2 is a perspective view of the barrier with the baffle and damper arrangement and its associated operating means;

Fig. 3 is a detailed view of the baffle and damper arrangement within the vent of the barrier showing the vent in the cool-vent position;

Fig. 4 is a detailed view of the damper baffle arrangement showing the damper in the vent position and also showing the arrangement of the damper and baffle with respect to the other components of the evaporator compartment;

Fig. 5 is another detailed view showing the damper and baffle in the cool or closed position;

Fig. 6 is another detailed view showing the damper and baffle in the exhaust position;

Fig. 7 is a partial rear elevation view of the control plate assembly showing the relationship between the two operating arms and the interlock;

Fig. 8 is a front elevation view of the control panel of Fig. 7 showing the interlock and its relationship to the two operating arms with the electrical control actuating arm in the off position and the damper and baffle operating arm locked in the cool or cool-vent positions; and

Fig. 9 is a view similar to the view of Fig. 8 but with the escutcheon plate and control knobs in place.

Referring now to Fig. 1 there is shown a self-contained room air conditioner having a housing 1 adapted for mounting in a window or other aperture of the room to be conditioned. The space within the housing is divided by a barrier 2 into two compartments designated the inner or evaporator compartment 3 and the outer or condensing compartment 4. The housing is normally positioned within a window such that the inner compartment 3 is adjacent the room to be conditioned and the outer compartment 4 projects toward the outside.

Within the outer compartment 4 of the conditioner there is positioned the refrigeration condensing unit of the conditioner. This condensing unit comprises a refrigeration compressor 5 and the condenser 6 connected together by means of a compressor exhaust line 7. A fan or air moving means 8 is mounted in the lower part of the outer compartment 4 and pulls a stream of air from the outside into the outer compartment and passes it upwardly over the condenser 6 for cooling the condenser and discharges the air through the outlet grille 11 in the rear of the housing. Thus the outside air is

drawn through the condenser inlet grille 9 and into the outer compartment 4 and flows upwardly along the barrier 2 over the condenser 6 and out the discharge grille 11. The fan 8 is driven by a motor 12 mounted in the barrier 2 which divides the housing into two separate compartments.

In order to cool or condition the air within the room there is provided within the inner compartment 3 an evaporator 13 positioned in the upper portions of the compartment and connected in refrigerant flow relationship with the compressor 5 and the condenser 6. Air is drawn from within the room through an inlet grille 14 by a fan or air moving means 15 positioned in the lower portion of the inner compartment. In the present illustration of the invention, the evaporator fan 15 is driven by the motor 12 which also drives the compressor fan 8. However, it is not absolutely essential that the evaporator fan be driven by the same motor that drives the compressor fan and it would be possible to use a separate motor for this purpose. The air stream drawn into the evaporator compartment 3 from the room passes upwardly adjacent the barrier 2 through the evaporator 13 and is discharged back into the room through the discharge grille 16.

As thus far described, however, the air conditioner with its two separate compartments and condensing means forms no part of the present invention but is intended only to be illustrative of the type of air conditioner to which the invention may be adapted. As will now be explained the invention deals with venting structure and control mechanism incorporated therewith for applying different conditioning effects to the room toward which the inner compartment faces.

In conditioning a room, it is sometimes desirable to exhaust the stale air within the room to the outside or to bring in fresh outside air to be mixed with the recirculated room air. In order to provide for these functions, there is provided in the barrier 2 an aperture or vent 17 which permits the flow of air between the two separate compartments. In the illustrated embodiment of the invention the aperture 17 is positioned in the barrier 2 directly above the fan motor 12. In order to control the amount and direction of the air flowing through the aperture, there is provided a controlling means or mechanical control system comprising a damper 18 and baffle 19 which are secured to the barrier above the evaporator fan 15. In Fig. 2, it can be seen that the damper 18 is hingedly mounted within the aperture 17 by a hinge member 21 which is rigidly fastened to the face of the damper 18 and has a pair of arms extending upwardly and pivotally attached to an upper shaft 22. The upper shaft 22 extends through left and right brackets 23 and 24 respectively, which are in turn fastened to the barrier 2. A damper spring 26, also positioned upon the upper shaft 22, biases the damper into the closed position across the aperture 17.

The baffle 19 is provided with a pair of outwardly bent ears 27 and 28 which are mounted upon a lower shaft 29 attached to the barrier 2 through the left and right bracket members 23 and 24. The outwardly bent ears 27 and 28 and the lower shaft 29 cooperate to form a pivotal mount around which the baffle 19 may be rotated outwardly from a position flush against the barrier within the inner compartment 3. The baffle 19 is biased into a normally flush position against the barrier by a baffle spring 30 also mounted upon the lower shaft 29.

In order to operate the damper 18 and baffle 19 to provide the necessary air flow requirements for exhausting stale air from within the room and for introducing fresh air from the outside into the room, there is provided an operating means including a control or operating arm 31 having an end thereof extending through a slot in the control panel, with the other end extending upwardly into the inner compartment whereupon it is pivotally attached to a drive rod 32. The drive rod 32 has an axis of rotation adjacent the face of the barrier 2 and is held in place against the barrier by means of the bearing bracket 33 and the right hand bracket 24. The drive rod 32 comprises a throw portion 34 and a reversely bent crank portion 35 at its end adjacent the bearing bracket 33 whereupon it is attached to the operating arm 31. A link 36 connects the baffle 19 to the throw portion 34 of the drive rod 32. The link 36 is attached at one end to an outwardly bent ear 37 on the baffle 19 and contains a slot 38 formed in its other end through which the drive rod 32 extends. The connection between the baffle 19 and the drive rod 32 is such that during a certain portion of the rotation of the drive rod 32 there will be no movement or pivoting of the baffle 19. As clearly shown in Fig. 2 the slot 38 is considerably longer than the diameter of the driving rod 32. Thus depending upon the position of the drive rod 32 there will be some movement of the throw portion 34 before the link 36 is engaged to cause a pivoting of the baffle 19. In other words the slot 38 and the throw portion 34 comprise a lost motion connection.

Linking the damper 18 with the throw arm 34 is a rocker arm assembly which pivots about the lower shaft 29. As can be seen in Fig. 3 the rocker arm assembly comprises a rocker 39 having pivotally connected thereto a damper link 41 which contains a lug 41*a* at one end thereof extending through a hole in the damper 18. In order to drive the rocker assembly, there is an assembly connecting link 42 also pivotally attached to the rocker 39 and having one end extending upwardly adjacent the slot 38 in the baffle link 36. In the end of the assembly connecting link 42 adjacent the slot 38 there is formed a U-shaped slot 42*a* designed to engage the throw portion of the drive rod 32 during rotation thereof in the counterclockwise direction, as shown in Fig. 5. During rotation of the drive rod 32 in the counterclockwise direction the throw arm 34 rotates downwardly, engaging the U-shaped slot 42*a* of the assembly connecting link 42, and causes the rocker assembly to move about its pivot point 40 thereby forcing the damper link 41 into the aperture 17 and causing the damper to rotate about the shaft 22.

As can best be seen in Figs. 5 and 6, during clockwise rotation of the drive rod 32 the throw portion 34 of the rod slides in slot 38 upwardly until it contacts the upper end of the slot 38 of the baffle link 36. During this operation the rocker assembly is rotated counterclockwise around its pivot point 40 until there is no longer any contact between the throw portion 34 and the U-shaped slot 42*a*. At this point the damper spring 26 forces the damper 18 to close the aperture 17. Referring now to Figs. 3 and 4, further clockwise rotation of the drive rod 32 causes the baffle link 36 to rotate the baffle about the lower shaft 29. As the baffle 19 is rotated from its position flush against the barrier outwardly across the air stream it comes into contact with the rocket 39 at its lower portion 43 thereof and forces the rocker assembly to rotate clockwise around the lower shaft 29. Thus as the baffle 19 is rotated outwardly across the air stream the rocker rotates clockwise around the shaft 29 and forces the damper link into the aperture 17 thereby causing the damper 18 to pivot outwardly around the shaft 22 thereby opening the aperture.

As can best be seen in Figs. 1, 2, 8 and 9 the operating arm 31 has one end pivotally connecting with the reversely bent crank portion 35 of the drive rod 32 and the other end extending downwardly through the inner compartment with the portion 31*a* extending outwardly through a slot 44 in the control panel 45. As the end 31*a* is moved linearly upwardly and downwardly in the slot 44 of the control panel 45, the operating arm 31 rotates the drive rod 32 clockwise and counterclockwise about its axis, which in turn causes the damper and baffle

to assume the proper positions. In order to maintain the operating arm in position through the slot **44** in the control panel **45** there is provided a roller assembly **46** attached to the operating arm adjacent the end **31***a*. The roller assembly **46** is held in place against the rear of the control panel **45** by a detent spring **47** (shown in Fig. 7) which extends the length of the slot **44** and passes over the central portion of the roller assembly **46**. In operation the rollers **48** ride smoothly against the rear side of the control panel **45** as the end **31***a* of the operating arm is moved linearly upwardly and downwardly along the slot **44** in the control panel.

As shown in Figs. 7, 8 and 9 the operating arm **31** is designed to be normally moved to a plurality of positions along the slot **44** in the control panel. Basically this provides four different positions or arrangements of the damper and baffle to give four different conditioning effects. In Fig. 9 these positions are indicated upon the escutcheon plate **49** assembled to the front of the control panel **45**. The comfort knob **51** provides a convenient means for manually moving the arm **31** and is mounted upon the end **31***a* after the escutcheon plate **49** has been assembled to the front of the control panel. When the end **31***a* of the operating arm **31** is in its lowermost position within the slot **44** the drive rod **32** and the throw portion **34** are rotated counterclockwise to a position such that the damper **18** is forced outwardly through the aperture **17** and the baffle **19** is flush against the barrier **2**, as illustrated in Fig. 6 of the drawings. This arrangement of the damper and baffle is known as the exhaust position and the flow of air through the aperture is from the inner compartment **3** to the outer compartment **4**. As the end **31***a* of the operating arm is moved upwardly within the slot **44**, the drive rod **32** is rotated clockwise about its axis and, as it reaches the position shown in Fig. 5, the damper **18** is in the closed position across the aperture **17** and baffle **19** is flush against the barrier. In this position there is no air flow through the aperture and the conditioner is in its normal cooling position.

Referring now to Fig. 3, it can be seen that further upward movement of the end **31***a* of the operating arm **31** rotates the drive rod **32** clockwise about its axis and causes the baffle **19** to swing outwardly around its pivot point. As the baffle **19** swings outwardly the damper **18** is forced away from the aperture **17** thereby allowing the flow of air therethrough. As the baffle **19** is partially raised across the air stream, it blocks some of the air coming from the evaporator fan **15**. With the damper partially open, some outside air is forced by the condenser fan **8** to flow through the aperture **17** into the inner compartment **3** where it mixes with the room air and passes through the evaporator coil **13**, where it is cooled and dried, and is then discharged along with the recirculated air back into the room. This arrangement of the damper and baffle is the cool vent position indicated on the escutcheon plate **49** in Fig. 9. When the comfort knob **51** is moved to a position adjacent the vent portion indicated upon the escutcheon plate **49**, so that the end **31***a* of the operating arm is moved to the upper portions of the slot **44**, the damper is moved into its fully open position and the baffle **19** is fully raised across the air stream within the inner compartment **3**. In this position, with the baffle **19** completely raised, more of the room air coming from the evaporator fan **15** is blocked. With the damper **18** fully opened, an increased quantity of outside air is forced through the aperture **17** into the inner compartment **3** by the condenser fan **8** where it mixes with the room air which does happen to escape around the baffle **19**. The mixture then passes through the evaporator coil **13** and discharges into the room. This arrangement of the damper and baffle is illustrated in Fig. 4, and provides a means for venting fresh air from the outside into the room.

When the damper **18** and baffle **19** are in the exhaust position illustrated by Fig. 6 it is necessary to have the air flow through the aperture from the inner compartment to the outer compartment. During normal operation, the condenser fan **8** draws air inwardly through the lower portion of the outer compartment **4** and passes it upwardly along the barrier **2** through the condenser **6** and discharges it outside through the upper portion of the outer compartment. With the air flowing through the outer compartment **4** in this direction, exhausting of air through the aperture **17** from the inner compartment to the outer compartment is difficult to obtain. To remedy this and cause the air stream in the outer compartment **4** to flow in the opposite direction from the direction it flows during normal operation, the condenser fan **8** is reversed as the end **31***a* of the operating arm **31** is moved linearly downwardly into the exhaust or bottom position. This is accomplished by reversing the flow of current through the phase winding of the fan motor **12** by use of a reversing switch **52** (shown in Fig. 7) which is mounted on a bracket fastened to the back of the control panel **45**. Referring to Fig. 7, reversing switch **52** is operated by a C-shaped arm **53** which goes around the damper operating arm **31**. As the operating arm **31** is lowered to its bottom or exhaust position the arm **31** pushes down on the C-shaped arm **53** which actuates the switch contacts of the reversing switch **52** causing the fan motor **12** to change its direction of rotation.

When, as in the illustrated embodiment of the invention, the condenser fan motor **12** also drives the evaporator fan **15**, reversing of the motor will also cause the evaporator fan to rotate in the opposite direction. When this is the case, the design of the evaporator fan must be such that it moves very little air when operating in the reverse direction. With the condenser fan **8** turning in the reverse direction, the air pressure in the inner compartment above the fan **15** is such that room air is drawn through the air discharge grille **16** through the aperture **17**, whereupon it is picked up by the condenser fan **8** and is forced outside through the lower section of the inlet grille **9**. The air stream within the outer compartment will be reversed and will flow downwardly adjacent the aperture **17** in the barrier, and be discharged through the grille **9** into the outside air.

The air conditioner is equipped with an automatic thermostat **54** which is also mounted on the rear of the control panel **45**. The thermostat **54** controls the operation of the compressor motor and is operated by a second or electrical component operating means which is movable linearly to a plurality of positions along a line parallel to the movement of the operating arm **31**. The electrical components operating means comprises a second control or operating arm **55** and a linkage **57** connecting the arm to the thermostat. The second operating arm **55** extends through a slot **56** parallel to the first operating arm slot **44** and permits continuous adjustment of the automatic thermostat **54** through a plurality of positions giving the required temperature selection range. A temperature selector knob **58** provided upon the end of the second operating arm **55** provides ease of movement in selecting any desired temperature setting as indicated upon the escutcheon plate **49** in Fig. 9.

As can be seen in Fig. 7, there is also mounted on the rear of the control panel just below the thermostat, a switch **59** having a plurality of contacts which open or close the electrical circuits to the fan motor **12** and to the thermostat **54**. The switch contacts across the respective circuits are actuated by a spring-loaded plunger **61** which keeps the contacts normally closed. As the electrical components operating arm **55** is moved all the way to the bottom of slot **56**, a flat portion **62** on the thermostat linkage **57** pushes down on the switch plunger **61** to open the electrical circuits. When the temperature selection knob **58** and thereby the second operating arm

55 is moved from its bottom position upwardly to the fan position indicated upon the escutcheon plate 49, the fan motor 12 is energized and air is circulated through the respective compartments. Further movement of the arm 55 upwardly causes the circuit to be completed to the thermostat 54 and this actuates the compressor. Starting of the fan before starting the compressor reduces the starting currents. Further upward movement of the electrical control arm 55 will give a temperature setting of the automatic thermostat 54 for the proper conditioning requirements within the room. It should be noted that a pair of switches could be used rather than the single switch 59 having a plurality of contacts and still be within the scope of the present invention. By having the fan motor circuit actuated by the electrical control arm 55 at a different position and separately from the actuation of the compressor circuit, another function to be hereinafter described is provided.

Referring now to Fig. 8, it can be seen that the electrical components controlling means and the air flow controlling means are both operable to a plurality of positions along parallel straight lines positioned in the plane of the control panel. It is desirable to prevent the operation of the compressor when the air flow controlling means is either in the vent or exhaust positions and conversely it is desirable to prevent the opening of the damper 18 to the vent or exhaust positions while the condenser unit is operating. It is also desirable to prevent the opening of the damper 18 to the vent or exhaust positions when the electrical control means is in the off position or in other words when the air conditioner is not operating. In order to provide this function there is an interlock 63 pivotally mounted upon the front of the control panel 45 between the baffle operating arm 31 and the electrical control operating arm 55. The interlock 63 comprises a flat longitudinal member pivotally attached at its one end to the control panel 45 by a pin 64 and having a slot 65 at its other end which rides upon a guide pin 66, also attached to the control panel. The interlock 63 is slightly wider than the distance between the lines of operation of the operating arm 31 and electrical control or second operating arm 55 and is biased against arm 55 by a spring 67 connected between the lower end of the interlock and the control panel 45. An indented portion 68 on the side adjacent the first operating arm 31 and another indented and camming portion 69 on the side adjacent the second operating arm 55 provide the necessary interlocking functions.

It can be seen in Fig. 8 when the first operating arm 31 is set at either the cool or cool vent positions, the interlock 63 can swing to the left permitting the second operating arm 55 to be raised high enough to actuate the thermostat 54 to start the compressor motor and move to any of the numbered temperature settings indicated upon the escutcheon plate 49. When the first operating arm 31 is in the exhaust or vent positions the interlock cannot swing far enough to allow the second operating arm 57 to be raised higher than the fan energizing position. In fact, the only position that the second operating arm 57 can be located when the first operating arm 31 is in the exhaust or vent positions is the fan energizing position. Likewise, when the second operating arm 55 is in any one of the thermostat positions the first operating arm 31 cannot be moved from either the cool or the cool vent position to the exhaust or vent positions. This feature prevents the cooling of stale air as it is being exhausted to the outside and prevents the unnecessary cooling excessive amounts of outside air when fresh outside air is being vented through the aperture 17. When the second operating arm is moved downwardly to the off position, the interlock 63 is forced toward the first operating arm 31 and unless the first operating arm 31 is in either the cool or the cool vent position the second operating arm may not be moved completely down into the off position, and conversely, when the second operating arm is in the off position, the first operating arm may not be moved out of the cool or cool vent positions.

It is possible, merely by rearranging the position of the indented portions of the interlock 63 to obtain other interlocking control. For example, if the indented portion 68 were only of sufficient length to include that portion of the movement of the first operating arm 31 where the operating arm 31 maintains the damper in the closed position, then the cool vent position of the damper would be completely eliminated, in that it would be possible to operate the condensing unit only when the damper was in the closed position. It is also possible to have an interlock which is not pivoted at either end, as the interlock would operate just as well if both ends were mounted upon the control panel by the sliding arrangement provided by the slot 65 and the pin 66.

By the present invention there has been provided a new and improved vent controlling means designed to provide a plurality of different conditioning effects within a room air conditioner. Moreover this vent controlling means is completely interlocked with the controlling means for operating the electrical components of the air conditioner in order to prevent any wasteful operation of the refrigerating unit during predetermined positions of the vent controlling means.

While in accordance with the Patent Statutes there has been described what at present is considered to be the preferred embodiment of the invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention and it is, therefore, the aim of the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a controlling means in said aperture for controlling the flow of air therethrough, a first operating means for operating said controlling means, said operating means being translationally movable to a plurality of positions to change the position of said controlling means, a second operating means for energizing said air moving means and said condensing unit, said second operating means being movable to a plurality of positions in the plane of translation of said first operating means, an interlock movably mounted between said first and second operating means having camming surfaces and indented portions designed to engage said first and second operating means, said camming surfaces and indented portions causing said interlock to move into interlocking engagement with one of said means during the movement of the other of said means to prevent movement of said one means to predetermined positions when the other means is moved to a certain predetermined position.

2. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for

circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a controlling means in said aperture for controlling the flow of air therethrough, a first operating means for operating said controlling means, said operating means being movable in a straight line to a plurality of positions to change the position of said controlling means in said aperture, a second operating means for energizing said fan and said condensing unit, said second operating means being movable to a plurality of positions in a line parallel to movement of said first operating means, an interlock movably mounted between the lines of movement of said first and second operating means and having camming surfaces and indented portions designed to engage said first and second operating means, said camming surfaces and indented portions causing said interlock to move into interlocking engagement with one of said means during the linear movement of the other of said means to prevent movement of said one means to predetermined positions when the other means is moved to certain predetermined positions.

3. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a damper in said aperture for controlling the flow of air therethrough, a baffle in said inner compartment pivotally mounted on said barrier adjacent said air stream and adapted to pivot across said air stream upstream from said aperture and retard the flow of air thereto, a first operating means for controlling said damper and said baffle, said means designed for linear movement to a plurality of positions, a second operating means for energizing said fan and said condenser unit, said second means designed for movement to a plurality of positions in a line parallel to movement of said first operating means, an interlock having opposite edges thereof adjacent said lines of movement of said operating means and pivotally mounted between said first and second operating means, said interlock having camming surfaces and indented portions on said opposite edges thereof designed to engage said first and second operating means, said camming surfaces and indented portions causing said interlock to pivot into interlocking engagement with one of said controlling means during the linear movement of the other of said controlling means to prevent movement of said one controlling means to a predetermined position when the other of said controlling means is moved to certain predetermined positions.

4. An air conditioner unit for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of air through said outer compartment over said condenser, an aperture in said barrier for permitting the flow of air from one compartment to the other, a damper in said aperture for controlling the amount of air flowing therethrough, manually operated means for adjusting the position of said damper to control the amount of air flowing through said aperture, a baffle adjacent said air stream flowing through said inner compartment, said baffle being normally flat against said barrier and adapted to pivot into position across said air stream and retard its flow, and connecting linkage connecting said baffle to said manually operated means to simultaneously operate said baffle while said damper is being operated thereby providing simultaneous control of the flow of air through said inner compartment and through said aperture.

5. An air conditioner unit for conditioning a room comprising, a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in the upper portion of said outer compartment, an evaporator in the upper portion of said inner compartment, a first air moving means in the lower portion of said inner compartment for circulating an air stream from within said room through said inner compartment upwardly over said evaporator and discharging said air stream back into said room, a second air moving means in the lower portion of said outer compartment for circulating a stream of air from outside through said outer compartment upwardly over said condenser and discharging it outside, an aperture in said barrier adapted to permit the flow of air from one compartment to the other, a damper in said aperture for controlling the amount of air flowing therethrough, a baffle in said inner compartment adjacent said air stream flowing upwardly through said inner compartment, said baffle being positioned normally flush against said barrier and adapted to pivot into positions across said air stream and retard its flow, manually operated means for adjusting the positions of said damper and said baffle to control the amount of air flowing through said aperture, said means comprising an operating arm designed to be moved from a first position to a plurality of positions, and connecting linkage connecting said operating arm with said damper and said baffle whereby said damper is moved from a fully open position to a closed position and then to a fully open position when said operating arm is moved from its first position to its furthermost position and said baffle is moved from a position flush against said barrier to a position across said air stream while said damper is moved from its closed position to its open position, said baffle remaining flush against said barrier during all other positions of said damper.

6. An air conditioner unit for conditioning a room comprising, a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in the upper portion of said outer compartment, an evaporator in the upper portion of said inner compartment, a first air moving means in the lower portion of said inner compartment for circulating an air stream from within said room through said inner compartment upwardly over said evaporator and discharging said air stream back into said room, a second air moving means in the lower portion of said outer compartment for circulating a stream of air from outside through said outer compartment upwardly over said condenser and discharging it outside, an aperture in said barrier adapted to permit the flow of air from one compartment to the other, a damper in said aperture for controlling the amount of air flowing therethrough, a baffle in said inner compartment adjacent said air stream flowing upwardly through said inner compartment, said baffle being positioned normally flush against said barrier and adapted to pivot into position across said air stream and retard its flow, manually operated means for adjusting the positions of said damper and said baffle to control the amount of air flowing through said aperture, said means comprising an operating arm designed to be moved in a straight line from a bottom position upwardly to a plurality of positions, and connecting linkage connecting said operating arm with said damper and said baffle whereby said damper is moved from a first fully open position to a closed position and then to a second fully open position when said operating arm is moved from its bottom position to its furthermost upper position and said baffle is moved from a position flush against said barrier to a position

across said air stream while said damper is moved from its closed position to its second open position, said baffle remaining flush against said barrier during all other positions of said damper.

7. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a damper hingedly mounted on said barrier for opening and closing said aperture to control the flow of air thereto, a baffle pivotally mounted upon said barrier within said inner compartment and adapted to pivot from a position normally flush against said barrier to a position across said air stream, an operating means for operating said damper and said baffle to control the flow of air through said aperture, said operating means comprising a manually operated control arm designed for linear movement from a first position to a plurality of positions along a straight line, connecting linkage connecting said baffle and said damper to said control arm, said linkage designed to cause said damper to move from an open position to a closed position and then to an open position as said operating arm is moved from its first position to its furthermost position, said linkage also causing said baffle to move from a position flush against said barrier to a position across said air stream while said damper is moving from a closed position to a fully open position during the movement of said operating arm from an intermediate position to its furthermost position, said baffle remaining flush against said barrier during the remaining movement of said damper, a reversing switch for reversing said air moving means, linkage connecting said switch with said operating arm, said linkage thereby causing said switch to reverse said air moving means when said operating arm causes said damper to open while said baffle is in position flush against said barrier.

8. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a controlling means in said aperture for controlling the flow of air therethrough, a first operating means for operating said controlling means, said operating means being movable in a straight line to a plurality of positions to change the amount of air flow through said aperture, an air moving means actuating switch, a condenser unit actuating switch, a second operating means for operating said air moving means actuating switch and said condenser unit actuating switch comprising an operating arm designed for movement from a first position to a plurality of positions in a line parallel to the movement of said first operating means, said movement of said operating arm designed to first operate said air moving means switch and then operate said condensing unit switch.

9. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, an air flow controlling means in said aperture for controlling the flow of air therethrough, a first operating arm for operating said air flow controlling means between open and closed positions, said arm designed to move linearly to a plurality of positions, an air moving means actuating switch, a condenser unit actuating switch, a second operating arm designed for movement to a plurality of positions in a line parallel to the movement of said first operating arm, said movement of said second operating arm designed to first operate said air moving means actuating switch and then operate said condensing unit switch, and an interlock pivoted at one end and mounted between said first and second operating arms in the plane of movement of said operating arms, said interlock having edges engaging said operating arms, said edges having cammed portions and indented portions therein designed to cause said interlock to move into interference with one of said operating arms upon movement of the other of said arms to certain predetermined positions whereby said first operating arm operates said air flow controlling means to prevent the flow of air through said aperture when said second operating arm actuates said condensing unit switch and conversely said second operating arm is prevented from actuating said condensing unit switch when said first operating arm has operated said flow controlling means to permit the flow of air through said aperture.

10. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a controlling means in said aperture for controlling the flow of air therethrough, a first operating arm for operating said air controlling means into open and closed positions, said arm being movable linearly to a plurality of positions, a switch for energizing said air moving means, a condenser unit switch for energizing said condenser unit, a second operating arm for operating said air moving means switch and said condensing unit switch in sequence as said arm is moved to a plurality of positions in the plane of a straight line parallel to the movement of said first operating arms, an interlock pivotally mounted between said first and second operating arms, said interlock comprising a flat longitudinal member having edges thereof positioned adjacent said operating arms, said edges having indented portions therein, a spring biasing said interlock against said second operating arm, said indented portions on one edge of said interlock designed to move into interference with said first operating arm to prevent movement of said first operating arm to a position whereby said air flow controlling means is actuated to a fully open position at such times when said second operating arm has actuated said condensing unit switch to energize said condensing unit, and conversely said indented portions on the other edge of said interlock are designed to move into interference with said second control arm when said first operating arm has moved said air flow controlling means into a fully open position thereby preventing said second operating arm from actuating said condenser unit switch.

11. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an

outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment and over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a damper in said aperture for controlling the flow of air therethrough, a baffle pivotally mounted on said barrier adjacent said air stream within said inner compartment, a first operating arm movable linearly from a first position upwardly to a plurality of positions, connecting linkage connecting said damper and said baffle to said arm, said linkage designed to cause said damper to move from a first fully open position to a closed position and then to a second fully open position as said first operating arm is moved from its first position to its furthermost upward position, said linkage also causing said baffle to move from a position flush against said barrier to a position across said air stream while said damper is moving from a closed position to its second fully open position during the upward movement of said first operating arm, said baffle remaining flush against said barrier during all other movement of said damper, a switch, said switch having a plurality of contacts for energizing the electrical circuits leading to said air moving means and said condensing unit, a thermostat, a second operating arm designed for movement linearly to a plurality of positions in a line parallel to the movement of said first operating arm, said movement of second operating arm designed to actuate said switch to first energize said air moving means and then to energize said condensing unit, said movement of said second operating arm also setting said thermostat for the conditioning requirements of said room, an interlock pivoted at one end and mounted between said first and second operating arms in the plane of movement of said first and second operating arms and having edges adjacent said operating arms, said edges having cammed portions and indented portions designed to cause said interlock to move into interference with one of said operating arms when the other of said operating arms is moved to predetermined positions whereby said first operating arm is prevented from moving said damper to a fully open position when said condensing unit is energized by said second operating arm and conversely said second operating arm is prevented from energizing said condensing unit when said first operating arm has moved said damper to the fully open position.

12. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a damper in said aperture for controlling the flow of air therethrough, a first operating arm for operating said damper within said aperture to open and closed positions, said operating arm being movable linearly along a straight line to a plurality of positions thereby causing said damper to move from a first fully open position to a closed position and then to a second fully open position while said arm moves from its first position linearly to its furthermost position, a switch for energizing said air moving means, a condensing unit control comprising an actuating switch and a thermostat for energizing said condensing unit in accordance with conditioning requirements, a second operating arm designed to operate said air moving means switch and said condensing unit control as said arm is moved from a first position to a plurality of positions in a line parallel to the movement of said first operating arm, an interlock comprising a flat, longitudinal member mounted for pivotal movement between said first and second operating arm with the edges thereof adjacent said operating arms, a first indented portion extending along said edge of said interlock member adjacent said first operating arm to permit said interlock to pivot towards said first operating arm during those positions when said arm has actuated said damper to a substantially closed position thereby permitting said second control arm to pass freely along the opposite edge of said interlock, a second indented portion extending along said edge of said interlock member adjacent said second operating arm to permit said interlock to pivot towards said second operating arm during those positions when said arm has actuated only said air moving means switch thereby permitting said first control arm to pass freely along the opposite edge of said interlock to operate said damper to said fully open position.

13. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and an inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into the room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a damper in said aperture for controlling the flow of air therethrough, a baffle pivotally mounted on said barrier adjacent said air stream within said inner compartment, a first operating arm movable linearly from a first position upwardly to a plurality of positions, connecting linkage connecting said damper and said baffle to said arm, said linkage designed to cause said damper to move from a first fully open position to a closed position and then to a second fully open position as said control arm is moved from its first position to its furthermost upward position, said linkage also causing said baffle to move from a position flush against said barrier to a position across said air stream while said damper is moving from its closed position to its second fully open position during the upward movement of the first operating arm, said baffle remaining flush against said barrier during all other movement of said damper, a switch, said switch having a plurality of contacts for energizing the electrical circuits leading to said air moving means and said condensing unit, a thermostat, a second operating arm designed for movement linearly to a plurality of positions in a line parallel to the movement of said first operating arm, said movement of said second operating arm designed to actuate said switch to first energize said air moving means and then to energize said condensing unit, movement of said second operating arm also setting said thermostat for the conditioning requirements of said room, and an interlock comprising a flat longitudinal member mounted for pivotal movement between said first and second operating arms with the edges thereof adjacent said operating arms, a first indented portion in said edge of said interlock adjacent said first operating arm to permit said interlock to pivot towards said first operating arm when said first operating arm has caused said damper to move to a substantially closed position, said pivoting of said interlock thereby permitting said second operating arm to pass freely along the opposite edge of said interlock and actuate said switch to energize said air moving means, said condensing unit and said thermostat, a second indented portion in said edge of said interlock adjacent said second operating arm thereby permitting said interlock to pivot towards said

second operating arm when said second operating arm is moved to a position to actuate said switch to energize only said air moving means, said interlock thereby permitting said first operating arm to pass freely along the edge of said interlock and operate said damper and said baffle to all positions.

14. An air conditioner for conditioning a room comprising a housing, a barrier dividing said housing into an outer compartment and inner compartment, a condensing unit in said outer compartment, an evaporator in said inner compartment, a first air moving means for circulating a stream of air from said room through said inner compartment over said evaporator and discharging it back into said room, a second air moving means for circulating a stream of outside air through said outer compartment over said condenser, an aperture in said barrier for permitting flow of air from one compartment to the other, a damper hingedly mounted on said barrier for opening and closing said aperture to control the flow of air thereto, a baffle pivotally mounted upon said barrier within said inner compartment and adapted to pivot from a position normally flush against said barrier across said air stream, an operating means for operating said damper and said baffle for controlling the flow of air through said aperture, said operating means comprising a first operating arm designed for linearly movement to a plurality of positions along a straight line, connecting linkage connecting said baffle and said damper to said first operating arm, said linkage designed to cause said damper to move from an open position to a closed position and then to an open position as said first operating arm is moved from its first position to its furthermost position along said straight line, said linkage also causing said baffle to move from a position flush against said barrier to a position across said air stream while said damper is moving from a closed position to a fully open position during the movement of said first operating arm, said baffle remaining flush against said barrier during the remaining movement of said damper, an air moving means reversing switch, a reversing switch arm connecting said switch to said first operating arm, said reversing switch arm thereby causing said switch to reverse said air moving means when said operating arm is in its first position and while said damper is in said open position and while said baffle is in a position flush against said barrier, an air moving means actuating switch, a condenser unit actuating switch, a second operating arm designed for movement to a plurality of positions in a line parallel to the movement of said first operating arm, said movement of said second operating arm designed to first operate said air moving means actuating switch and then actuate said condenser unit switch, and an interlock having indented surfaces designed to engage said first and second operating arms, said indented portions causing said interlock to pivot into interlocking engagement with one of said arms during the linear movement of the other of said arms to prevent the movement of said one operating arm to predetermined positions when the other arm is moved to certain predetermined positions.

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