

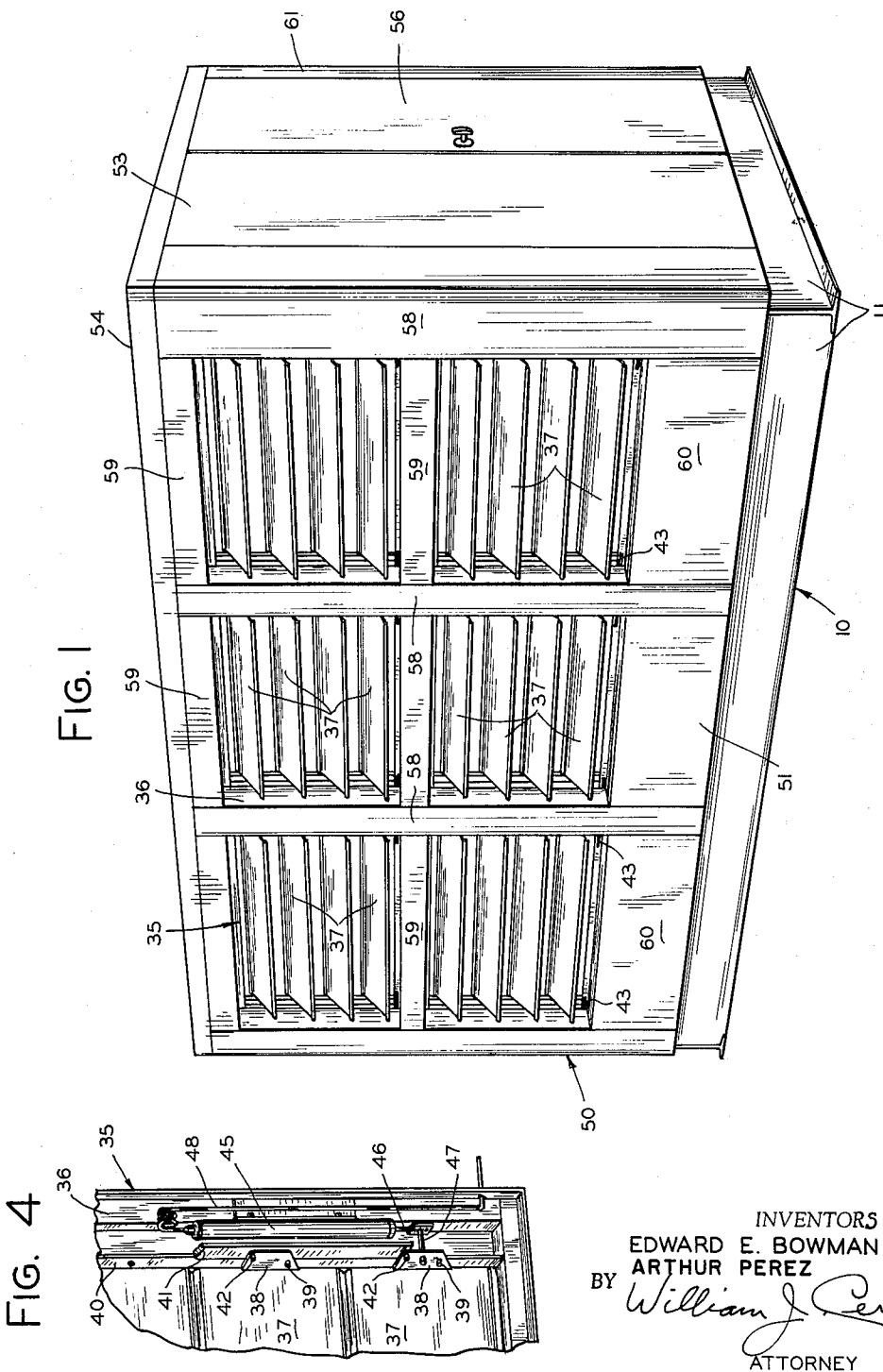
March 29, 1966

E. E. BOWMAN ET AL
UNITARY MACHINE ROOM

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FIG. 2

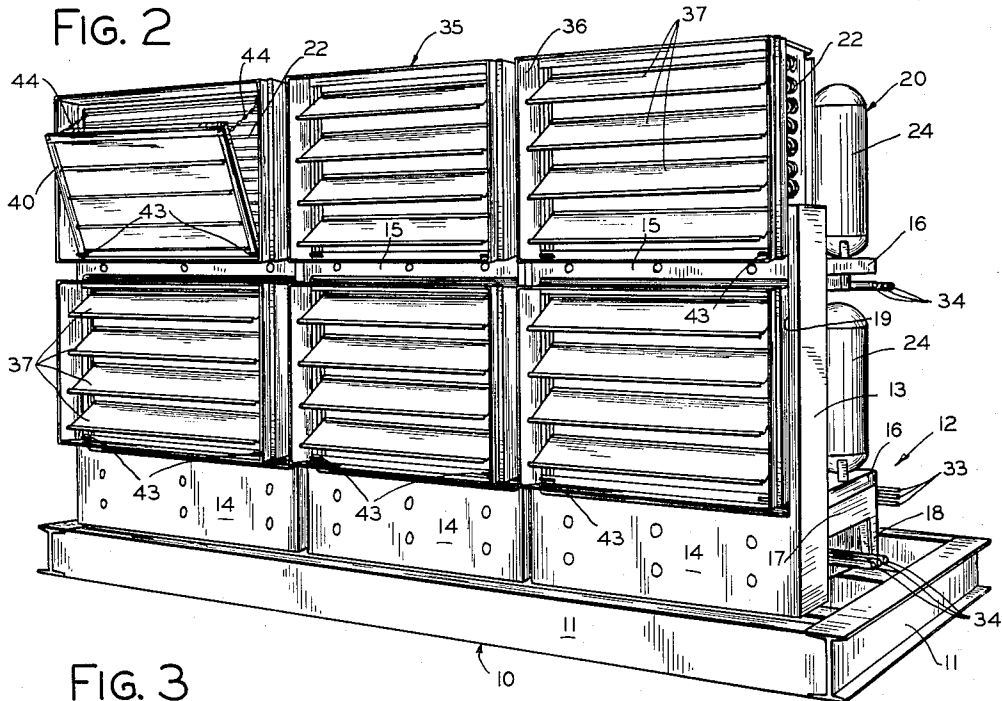
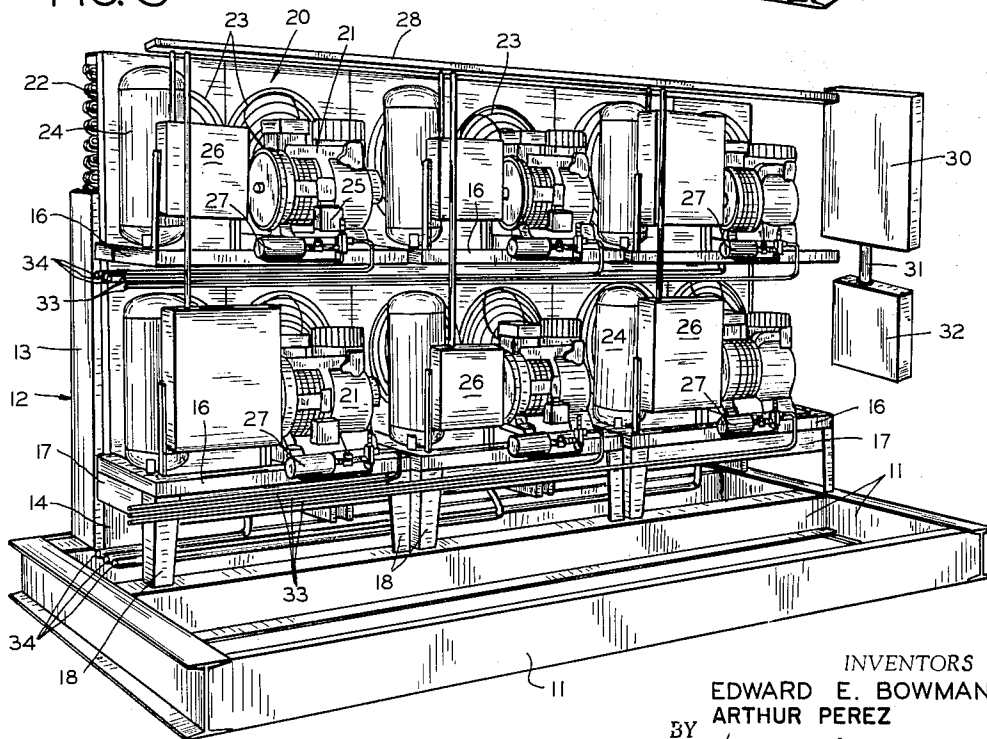


FIG. 3



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FIG. 6

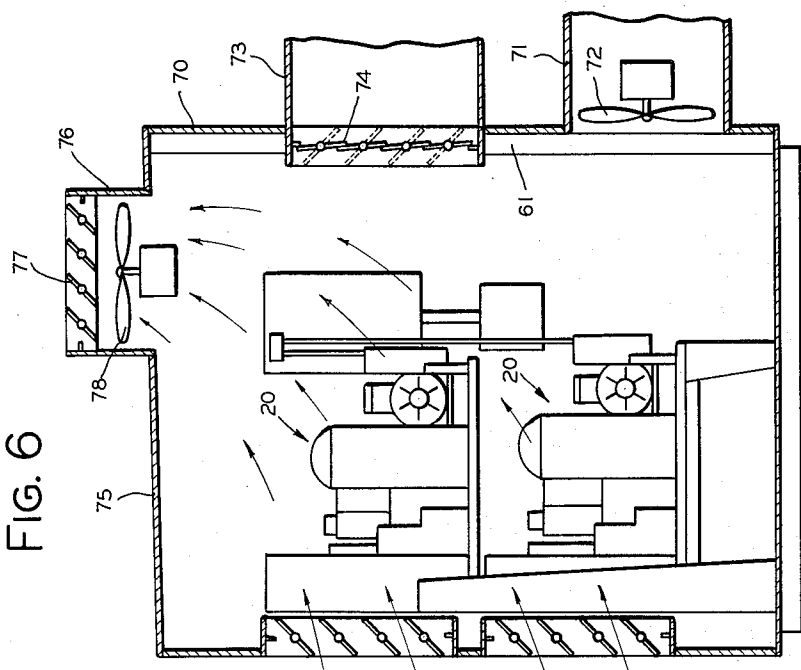
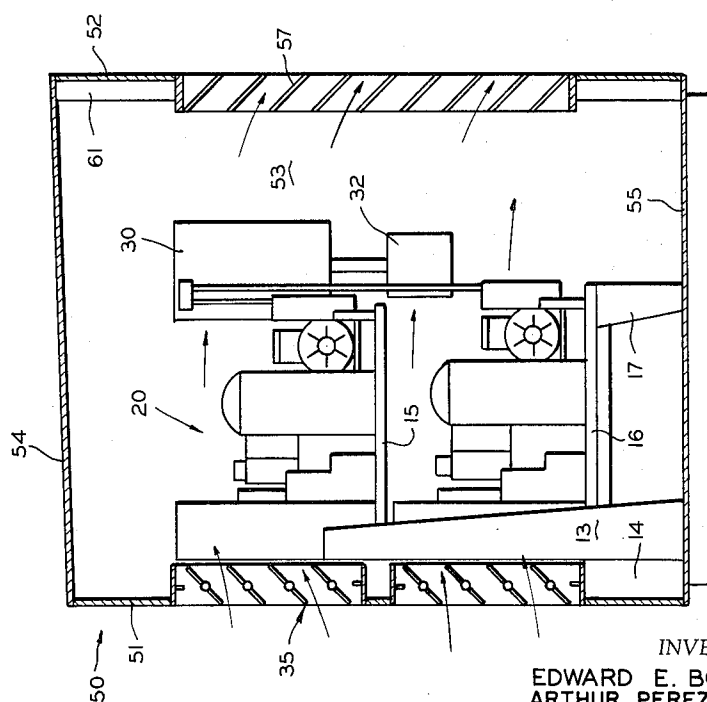


FIG. 5



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UNITARY MACHINE ROOM

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16 Claims. (Cl. 62-184)

The present invention relates to a centralized grouping or organization within a suitable enclosure, commonly termed a machine room or compressor room, of operating apparatus for remotely located refrigeration equipment, such as that employed in food stores, and more particularly to a machine room which is completely preassembled for handling and installation as a unit with minimum on-site labor being required.

Particularly in large food stores and similar establishments employing refrigeration equipment on a large scale, the various refrigerated cases have the refrigerating apparatus therefor located at a remote centralized point, save for the evaporating or refrigerating coils and means for moving air over these coils, which are included in the cases. Conduits or lines connect the remote operating mechanism with the refrigerating coils for supply and return of refrigerant to effect the desired cooling. The operating mechanism or apparatus disposed in the machine or compressor room normally comprises a number of condensing units, or compressor-condenser units, each connected by refrigerant lines with the evaporating coils of one or more of the refrigerated cases. These units are arranged so that cooling air may flow therepast and thereover from the outside through suitable openings provided for the purpose, movable louvers or the like being employed to control the air intake. Each condensing unit comprises a condenser, essentially a coil through which the refrigerant may flow, a compressor for compressing the refrigerant in its gaseous form flowing to the condenser, a fan or other means for moving the outside cooling air over the condenser, and suitable controls for operating the condensing units and louvers to effect the desired refrigeration of the remotely located cases. Suitable stands or racks are employed to support the compressor-condenser units for passage of outside air thereover from the louvered openings to an exhaust opening in the enclosing structure rearwardly of the unit.

Prior to the present invention, it has been the universal practice to build the machine room or compressor room at the site of use, and install the apparatus therein, the various parts or components being shipped separately to the location. By the present invention, a unitary compressor or machine room is provided as a completely preassembled structure which is transported, handled and installed as a single integrated unit, requiring only disposition in its exact place of use, and connection to an exterior source of electrical supply refrigerant line extensions to the various cases, and connection of defrost devices, to be ready for operation. The entire machine room is assembled at the factory on a strong, rigid base, the various condensing units being mounted on a stand or rack in desired relation to intake air control louvers, with all internal electrical wiring completed, and the refrigerant lines from the several condensing units being connected thereto ready for connection to the refrigerant lines extending from the evaporator coils of the cases to be refrigerated. Provision is made for connection of the electrical defrost means employed for the evaporator coils of the cases through the internal electrical wiring to the exterior electrical supply. An enclosure secured on the base houses all of the condensing units and the supports therefor, as well as the electrical circuit and connection means. Openings in the front wall provide for movement of air to the respective condensing units

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through control louvers under the impetus of fans or the like, the louvers and fans both being responsive to rise or fall of the temperature of refrigerant in the unit. The prior practice of effecting opening and closing of air-admitting louvers and operation of the air-moving means by thermostatic or similar devices responsive to the temperature of the air at a particular portion of the room has required efficiency-reducing compromises. The disclosed construction provides for operation of each unit and its related louvers in accordance with its own temperature, thus assuring maximum efficiency and the maintenance of proper temperatures in the refrigerated cases.

The present invention provides several advantages over compressor rooms previously known. By reason of the compact arrangement of the apparatus in the enclosure, the construction achieves a great saving in space, thus alternatively allowing a reduction in the rental cost of a supermarket, for example, or an increase in productive space without increase of rental. A machine room according to the present invention need be only some seven feet high, six feet wide, and of a length varying with the quality of refrigerating mechanism employed, the normal maximum being some eighteen feet. Another important advantage of the invention is the fact that it provides great economy in installation. The machine room may be transported very cheaply, since it may easily be handled as a unit, and is of rugged construction not readily damaged, thus requiring no crating. It may easily and quickly be placed in the predetermined position, whether inside the building, outside the wall, or on the roof as may be desired. In addition to setting in place, installation of the machine room requires nothing more than completing the connections of the refrigerant lines to the several refrigerated cases, the connection of the external power supply to the electrical control box or other electrical connection means provided in the room, and the connection of the electric defrost means to the connection means similarly provided. On-site labor is thus reduced to an absolute minimum, and the possibility of error is also greatly reduced. Since the room and all the equipment to be employed therein is completely assembled at the factory, the quality of materials, parts and workmanship is readily controlled to assure that the necessary standards are maintained, which is difficult if not impossible when the machine room is constructed at the site of installation, with the various condensing units and other equipment mounted and connected in such an operation. Furthermore, the factory assembly of the compressor room can be accomplished in less time than similar assembly at the site, thus increasing the savings; and by workman familiar with the apparatus, thus tending to better workmanship. The compressor room of the invention, furthermore, does not require the employment of exhaust fans, and thus provides additional savings. In operation, further economy is provided by the invention in winter time by allowing operation at the lowest possible head pressure, thus increasing the unit capacity while holding power consumption to a minimum.

It is an object of the invention to provide a unitary machine or compressor room for a refrigeration system, which room is economical of manufacturing, installation, and operational costs, and in addition meets higher standards of workmanship and parts than similar rooms constructed and assembled at the site of use.

Another object is the provision of a unitary machine room for a refrigeration system which is complete in itself and requires only connection to a power source and to refrigerating coils in order to go into operation.

Another object is the provision of a multiple condensing unit assembly for a refrigerating system in which cooling of each individual unit is accomplished in response to the temperature of the individual unit.

It is a further object of the invention to provide a unitary assembly of a plurality of condensing units for a refrigeration system in which the temperature of each unit, through the head pressure as a function thereof, controls cooling of the unit.

Another object is the provision of a unitary machine or compressor room for refrigerated cases which has numerous advantages in savings in overall costs, space requirements, installation time, and labor, and in minimization of errors and improvement of quality, of which some only may be realized, if so desired, by employing the concept and unitary room structure only in part.

Other and further objects, advantages, and features of the invention will be apparent to those skilled in the art from the following detailed description, taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a perspective view of the exterior of a machine room or compressor room according to the invention;

FIGURE 2 is a front perspective view of the assembled apparatus included in the machine room of FIG. 1;

FIGURE 3 is a rear perspective view of the apparatus shown in FIG. 2 illustrating the mounting of the condensing units on a stand provided therefor secured to the rigid base;

FIGURE 4 is a fragmentary view illustrating the means for operating the louvers provided for opening and closing apertures through which cooling air is supplied to the unit;

FIGURE 5 is a diagrammatic cross-sectional view illustrating the operation of the machine room; and

FIGURE 6 is a view similar to FIG. 5, but illustrating a modification of the machine room.

Referring first to FIGS. 1 to 3, the unitary machine room construction of the present invention is shown as comprising a strong, rigid base generally designated 10, of rectangular shape, formed of I-beams 11 or similar structural members. One long side of the rectangular base, provided by one of the I-beams 11, extends along the front of the structure, the opposite long side being at the rear. The frame or base includes a longitudinally extending beam 11 disposed intermediate the front and rear I-beams, and with the front beam providing support for a rack or stand 12 suitably secured thereon as by welding or riveting. Additional longitudinal members, as well as transversely disposed members, may be employed in the base. The stand 12 may be formed of a plurality of similar sections, three being shown in this instance. Each section comprises a forward upright portion having a pair of laterally spaced standards 13 with a lower connecting portion 14 and an upper connecting portion 15 extending horizontally therebetween, a louver-receiving opening 19 being thus provided. A number of horizontal shelves 16, in this case two, are provided in vertically spaced relation. The upper shelf 16 is supported at its forward portion by the upper connecting portion 15 and standards 13, and extends rearwardly therefrom. The lower shelf 16 is supported on a base portion 17 having depending legs 18 engaging on the intermediate longitudinal beam of the base 10 and secured thereto. This construction permits the lower shelf to support the weight of a man stepping thereon in order to reach more conveniently the upper shelf and the apparatus disposed thereon. The upper shelf, as shown, need not be supported at its rear edge. In the present instance, the standards 13 extend upwardly a relatively short distance above the level of the upper shelf 16, but they might project considerably higher and be connected at their upper ends by a cross member similar to the connecting portion 15, to define an aperture like the opening 19.

On each of the six shelves 16 employed in the disclosed embodiment of the invention, there is mounted a condensing unit generally designated 20, comprising a compressor 21 driven by a suitable electric motor incorporated therein, a condenser 22 comprising a coil preferably of finned

construction, electric fans 23 or similar air-moving means, and a refrigerant tank or receiver 24. In the present instance, a pair of fans arranged in tandem is employed for each unit. Each compressor-condenser unit, or condensing unit, is suitably secured on its shelf, and is of a size to fit between the standards 13. The two fans in this case are located between the condenser and the compressor, so that air may be drawn through the condenser and blown rearwardly over the compressor to remove heat from both the condenser and compressor, and to be exhausted from the room. A pressure switch 25 responsive to the head pressure, or in other words the pressure of refrigerant on the high or supply side, is provided for opening and closing the circuit to the motors (not shown) of the fans 23. The head pressure varies directly with the temperature, which is thus employed to control the fans. Each unit, of course, is provided with suitable means to control its operation in response to the requirements of the refrigerated case or cases to which it is connected. Such control means may be included in an electrical panel or control box 26, one for each unit, mounted on the supporting shelf, by suitable brackets, and through which the electrical circuits of the unit are completed. The condensing units 20 may include additional elements or components known in the refrigeration art, when desired, such for example as dryers 27 for removing water moisture from the refrigerant. Each of the control boxes 26 is connected through a suitable wiring duct 28 to a main or master electrical control box 30, shown as mounted adjacent one end of the stand 12. The box 30 is adapted for connection to an external source of electrical current through which the several electrical circuits of the units 20 may be energized. Fuses or circuit breakers and other conventional circuit elements are provided in the box 30, and additional appropriate circuit elements are provided in the boxes 26. Conductors (not shown) leading from the several control boxes 26, as through the duct 28 and master control box 30, may extend through a conduit 31 connecting the wiring box 30 to an electrical box 32 provided for connection of the electrical source to electrical defrost heater means which may be employed with the respective refrigerated cases. Connected to each of the condensing units is a pair of individual refrigerant lines, comprising a pressure line 33 and a suction or return line 34, the several pairs of lines conveniently extending from the respective units horizontally along the shelves 16, as shown, and terminating adjacent one end of the stand 12. These ends of the lines 33 and 34 are adapted for connection to corresponding external refrigerant lines extending to remotely located refrigerated cases. Refrigerant is initially provided in the condensing unit, and retained therein by any suitable valve means controlling connection of the particular lines 33 and 34 to the unit. The capacities of the several units may vary according to the requirements of the refrigerated cases served thereby.

A plurality of air control damper or louver assemblies each generally designated 35, one for each of the condensing units, is provided, mounted on the stand 12. Each louver assembly is disposed immediately forwardly of the condenser 22 of its associated condensing unit, as best shown in FIGS. 2, 3 and 5. Each louver assembly 35 comprises a rectangular louver frame 36, of a size to fit between the standards 13 of the rack or stand 12, the lower louver assemblies being disposed in the openings 19 defined between the standards 13 and lower connecting portions 14 and upper connecting portions 15. The louver assemblies are secured in position on the stand 12 by any suitable means, with the upper assemblies projecting above the level of the upper ends of standards 13, as shown. The frames 36 define air inlet openings in alignment with the respective condensing units 20. A plurality of individual louvers 37 are pivoted in each of the frames 36, as best shown in FIG. 4, by means of ears 38 thereon. A suitable pivot member 39, which may be a screw, extends through an

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aperture in each ear 38 and is secured in an adjacent parallel portion of an inner frame 40 cooperating with each ear to effect the pivotal mounting. Along one end of the louvers 37, the ears 38 are connected by a strap 41 having pivotal connections as at 42 to the respective ears, and so offset from the mounting pivots 39 as to effect substantially identical pivoting movements of all of the louvers 37 upon pivoting of any one of them. The inner frame 40 on which the louvers 37 are pivoted is hinged on the louver frame 36, as at 43 in FIGS. 2 and 3, and particularly when pivoted at the lower edge thereof as shown, is provided with a chain or chains 44 connecting its upper edge to the frame 36, to limit the swinging thereof. Desirably, the pivots 43 are of a type permitting of quick disconnection of the hinged inner louver frame 40 from the louver frame 36, so that the louvers of each frame may be removed therefrom if desired. The hinged arrangement permits ready access to the condenser 22 for cleaning of the coils or any foreign matter which may have become locked therein, and the removable arrangement when employed permits even more convenient access to the condenser. It will be apparent that each louver frame defines an opening through which air may be admitted.

Each louver assembly 35 is provided with an operator for opening and closing the louvers in response to temperature changes in the associated condensing unit 20, or more precisely in response to increase and decrease in the head pressure thereof. In the present instance, the operator takes the form of a cylinder and piston 45 mounted on the hinged louver frame portion parallel to the connecting strap 41, and having the projecting end of its piston rod 46 provided with an extension 47 projecting perpendicularly therefrom and pivotally engaged with the pivot mounting ear 38 of one of the louvers 37. The cylinder-piston structure 45 may be of a known type employing a bellows-like longitudinally expandable and contractible interior construction. The head end of the cylinder is connected by a suitable line 48 to the pressure side of the associated condensing unit 20. The cylinder-piston assembly is preferably mounted adjacent the hinged edge of the hinged inner frame, with the line 48 so disposed as to extend to the cylinder from a point closely adjacent the hinge axis, so as to subject the line to a minimum of torque or flexing upon opening of the hinged inner frame. In the arrangement illustrated in FIG. 4, a rise in the head pressure of the condensing unit causes downward projection of the piston rod 46, swinging the lowermost louver 37 of the assembly 35 about the pivot 39, and through the strap connection to the other louvers 37 effecting similar swinging movement thereof. The louvers thus are opened more or less, in proportion to the projection of the piston rod 46, to allow more or less air to be drawn through the air inlet opening by the tandem fans 23, which as previously explained also operate in response to the head pressure. As the temperature of the condensing unit decreases, the head pressure falls, causing the piston rod 46 of the cylinder piston assembly 45 to be correspondingly retracted, thus swinging the louvers toward closed positions, restricting or completely closing off passage of air through the openings defined by the louver frames 36. It will be understood that one or more of the louver assemblies may have the louvers in more or less open position, or all may be closed, depending upon the temperature conditions of the several units 20. Suitable screening, not shown, may be provided for the air inlet openings, if desired.

The machine room is completed by an enclosure generally designated 50, secured on the base 10, comprising front and rear walls 51 and 52, end walls 53, a roof 54, and a floor 55. The rear wall is spaced a sufficient distance rearwardly from the condensing units 20 and supporting legs 18 of the lower shelf support 17 to provide adequate passage for a person inspecting or servicing the equipment, and the extent of floor 55 need only corre-

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spond to this space or passage. One of the end walls 53 is provided with a doorway or other suitable access opening, which is normally closed by a door 56. The rear wall 52 is provided with an opening or openings of sufficient total area to provide for proper exhausting of air from the room, preferably provided with fixed louvers 57, as shown in FIG. 5. The exhaust opening may be suitably screened, if desired. The front wall 51 comprises intermediate and corner uprights 58, top and intermediate horizontal cross members 59, and lower cross members 60, defining openings receiving the louver assemblies 35 therein, as best shown in FIG. 1. Suitable trim or facing elements may be applied to improve the exterior appearance of the structure, if desired. The rear wall 52 may be formed of appropriately shaped panels, rigidified by any suitable elements, such as uprights 61, secured to the base 10. The master control box 30 and the defrost wiring box 32 may conveniently be mounted on the end wall 53 opposite that provided with the door 56.

As has already been pointed out, it is unnecessary to employ any exhaust fans in the machine room of this invention, so long as sufficient exhaust opening area is provided, because the use of individual fan means for each of the condensing units of sufficient capacity to cool the respective units assures movement of the air through the exhaust openings. This holds true whether the fan means of only one of the units is operating, or the fan means of all of the units are operating at one time. As indicated by the flow arrows in FIG. 5, air drawn through the air inlet louvers passes through, about, and past the associated condensing unit 20, and is forced out through the exhaust louvers 57 in the rear wall. Any possibility of recirculation of the air after its passage over the condensing unit is thus eliminated, together with the reduction in efficiency which would result therefrom.

By reason of its strong and sturdy construction, its compactness, and its relatively light weight, the machine room may readily be transported and installed, in several different relations to the building in which the refrigerated cases are contained. Upon being set in place as a unit, the machine room requires only the connection to an exterior electrical source, the connections of the several refrigerant lines 33 and 34 to the corresponding lines extending exteriorly thereof from the refrigerating coils of the several cases, and the connection of the electrical defrost heating wires or like elements for the refrigerating coils to the box 32, to make the refrigerating mechanism ready for operation. The valve means confining the refrigerant to the condensing unit may then be opened to allow the refrigerant to circulate through the refrigerant lines. A great saving in time, allowing a food store, for example, to begin operations earlier than would otherwise be possible, as well as a saving in labor cost and the elimination of opportunities for mistakes, are among the advantages flowing from the provision of the unitary room of the invention. The room may be placed on the roof of the building on which the refrigerated cases are located, or at ground level outside of the wall of a building and exhausting inwardly of the building, or within the building with the air intake openings communicating with the exterior through a building wall. The room may also be arranged with one end adjacent or abutting the exterior of the building, so that both the intake and discharge are exterior of the building, as in the case of a roof installation of the room.

By utilizing only a part of the complete unitary machine room of the invention, it is possible to realize to a more limited extent the advantages provided by the present concept. Thus, for example, if it is not desired to employ the complete room structure as hereinabove disclosed, and to employ a portion of an existing building in place of the enclosure 50, the enclosure may be omitted from the construction, and the refrigerating mechanism structure as shown in FIGS. 2 and 3 may be transported

and installed as a unit, with the air inlet openings communicating through an exterior wall of the building with the outside air, the space occupied by this partial unit preferably being partitioned from the remainder of the building interior, and suitable air exhaust means being provided. In such case, the base 10 may be modified to eliminate the portions of the side or end I-beams 11 thereof rearwardly of the intermediate longitudinal I-beam 11 on which the legs 18 are supported, and also to eliminate the rear I-beam or similar structural member, so that the base conforms generally to the horizontal dimensions of the refrigerating mechanism. On the other hand, only a portion of the enclosure 50 may be eliminated, for example the front wall 51, and the remainder thereof employed as a means for partitioning the refrigerating mechanism from the interior of the building. Such a utilization of the invention has the advantage of a somewhat cheaper initial cost of the reduced or partial structural unit employed, although operating expenses may well be higher than in the case of the complete unitary machine room.

In FIG. 6, there is shown an adaptation of the invention to permit use of the warm air in the machine room resulting from passage over the condensing unit to aid in heating a space more or less adjacent to the machine room, such as the interior of a food store or the like containing the refrigerated cases connected to the refrigerating mechanism in the room. The construction of the room as shown in FIG. 6 is substantially identical to that of the room as disclosed in connection with FIGS. 1 to 5 inclusive, with respect to the arrangement and mounting of the condensing units and intake louvers, and the corresponding parts are designated by the same reference characters. The rear wall and roof of the enclosure 50, however, are somewhat changed from those shown in FIGS. 1 to 5, and additional elements are provided. The rear wall 70 of the machine room as shown in FIG. 6 is provided with an inlet opening through which a duct 71 communicates with the interior of the room. The duct 71 leads from the interior of a store or other space which it is desired to heat or warm by means of the warm air in the machine room. Suitable air moving means, such as the fan 72 shown in this instance as mounted within the duct, are provided for bringing relatively cool air from the space to be warmed into the machine room so that it may be warmed by contact and intermixture with the warm air in the room, to be returned to the store or other space. Another opening is provided in the rear wall 70 providing communication between the interior of the machine room and a warm air return duct 73 which is provided to conduct the warmed air from the machine room to the store or other space to be warmed thereby. Pivoted louvers 74 are provided to control admission of air through the duct 73 from the interior of the machine room. The fan 72 and louvers 74 may be controlled in any desired manner, as by conventional means, not shown, responsive to the temperature within the store or other space with which the ducts 71 and 73 communicate. It will be apparent that when air is moved into the interior of the machine room by means of the fan 72 or like means, it contacts and becomes intermingled with the air in the machine room, which is at a relatively elevated temperature, and the resulting warm air is returned to the store or other space through the louvers 74 and ducts 73. When air is not being circulated through the ducts 71 and 73, the louvers 74 are closed as shown in full lines, and the air moving means 72 is maintained out of operation. To avoid interference with the cooling flow of air through the air inlet louvers, any suitable overriding control arrangement may be provided to prevent operation of the fan 72 and opening of the louvers 74 during operation of the fans 23.

The provision of the openings for the ducts 71 and 73 may so reduce the area of the rear wall 70 available for exhausting air from the room in operation or cool-

ing of the condensing units 20 that it is insufficient to provide for proper operation, or maximum efficiency. Accordingly, exhaust means other than the fixed exhaust louvers 57 shown in FIG. 5 may be employed. In the embodiment of FIG. 6, roof 75 is provided with an opening surrounded by a coaming 76 and having louvers 77 to control exhaust of air therethrough. The louvers may be of a gravity self-closing type, or may be provided with suitable operating means (not shown) for opening and closing thereof in accordance with requirements. A fan 78 or other suitable air moving means is provided for exhausting air from the interior of the room through the louvers 77 as it is drawn through the inlet louvers 37 and over the respective condensing unit or units 20. This roof exhaust arrangement may, if desirable under particular conditions, be supplemented by means exhausting through the rear wall 70 or otherwise.

It will be understood that the embodiments of the inventive concept disclosed herein are exemplary and not exhaustive, and that the invention is not limited to these embodiments, since modifications and variations thereof may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

We claim:

1. A refrigeration system machine room comprising in a unitary assembly a rigid base frame, an equipment rack secured on said base frame, a plurality of refrigerant-containing condensing units mounted on said rack in approximately the same vertical plane, each of said units including a compressor and condenser and means for moving cooling air rearwardly over and past the condenser and compressor, a plurality of paired pressure and suction refrigerant conduits with each pair of pressure and suction conduits connected to a different one of the units, valve means between each unit and the conduits connected thereto, means defining air inlet openings each forward of and aligned with one of the condensing units, a plurality of louvers pivotally mounted in each opening for closing and unclosing the opening, a plurality of fluid motor means each connected to the pressure conduit of one of the units responsive to changes in pressure of refrigerant therein and also connected to the louvers in the aligned opening for respectively opening and closing the louvers upon increase and decrease of said pressure, electrical circuit means for each of the condensing units including supply leads and common connection means to which said leads are connected, and an enclosure mounted on said base frame for said rack, units, conduits, and connection means, said enclosure having air inlet openings registering with said openings and also having air exhaust means rearwardly of the rack.

2. A machine room substantially as defined in claim 1, including electrical panel means connected to said common connection means and adapted for supply connection to electrical defrost means.

3. A refrigeration system machine room comprising a unitary assembly of a rigid base frame, a plurality of refrigerant condensing units mounted on said frame in generally laterally arranged relation and each including a condenser and means for moving cooling air over and past the condenser, a plurality of pairs of pressure and suction refrigerant conduits, each pair being connected to a different one of the units, means defining a plurality of air inlet openings each forward of and aligned with one of the condensing units, a plurality of louvers pivoted in each opening for closing and unclosing the opening, a plurality of pressure-responsive fluid motor means each connected to the pressure conduit of one of the units and also connected to the louvers in the aligned opening for opening and closing the louvers in response to changes in the refrigerant pressure, electrical circuit means for each of the units including common connection means therefor, and an enclosure for said units, conduits, and connection means mounted on said base frame and having openings registering with said air inlet open-

ings and also having air exhaust means rearwardly of the units.

4. A central machine room structure for remote refrigerated cases, comprising a unitary assembly of a rigid base frame, a front wall structure on said frame having a plurality of air inlet openings therein, a plurality of refrigerant condensing units mounted on said frame rearwardly of said wall structure, each of said units being aligned with one of said openings and including means for moving cooling air rearwardly thereover from the aligned opening, refrigerant conduits extending from each of said units for connection to refrigerated cases, louver means pivotally mounted in each opening for closing and unclosing the same, operator means for each of the louver means controlled by the temperature of the refrigerant at the pressure side of the aligned condensing unit for opening and closing the louver means, and electrical circuit means for operation of each of the condensing units including common connection means.

5. A central machine room structure for remote refrigerated cases, comprising in a unitary assembly a rigid base frame, a plurality of refrigerant condensing units mounted on said frame in generally lateral relation to each other, each of said units including means for moving cooling air thereover, refrigerant conduits extending from each of said units for connection to refrigerated cases, means defining a plurality of air inlet openings each in alignment with one of the condensing units, louver means pivotally mounted in each opening for closing and unclosing the same, means for opening and closing each louver means responsive to changes in the condition of refrigerant in the aligned unit, and electrical circuit means for the condensing units including common connection means.

6. A unitary refrigeration machine room for remotely located refrigerating coils, comprising a rigid base, an enclosure secured on said base, a plurality of ventilation openings in a front wall of the enclosure, a plurality of compressor-condenser units within the enclosure disposed one in alignment with each of said ventilation openings, support means for said units mounted on the base, a plurality of louver means one mounted in each of the ventilation openings for opening and closing thereof, means for opening and closing the louver means in each ventilation opening in accordance with rise and fall of the temperature of the unit aligned with the opening, means for moving air from each ventilation opening upon opening thereof by the louver means rearwardly to and past the compressor-condenser unit aligned with the opening, means for activating and inactivating said air moving means in accordance with the temperature of the aligned unit, an opening in the enclosure rearwardly of the units to exhaust air from the enclosure, a plurality of pressure and suction refrigerant conduits for supply and return of refrigerant with one pressure conduit and one suction conduit connected each at one end to one of the units and adapted at the other end for connection to a refrigerating coil, and electrical circuit means for the several units and air moving means including common electrical panel means adapted for connection to exterior electrical supply means.

7. A machine room substantially as defined in claim 6, including electrical panel means electrically connected to said common panel means adapted for connection to electrical defrost means.

8. A machine room substantially as defined in claim 6, in which each said opening and closing means comprises fluid motor means connected to the pressure side of the aligned compressor-condenser unit for operation by the refrigerant pressure.

9. A unitary refrigeration machine room for remotely located refrigerating coils, comprising a rigid base, a front wall structure secured on said base, a plurality of ventilation openings in said front wall structure, a plurality of compressor-condenser units disposed one in alignment with each of said ventilation openings, a plurality of louver means one mounted in each of the ventilation

openings for opening and closing thereof, means for operating the louver means to open and close each ventilation opening in accordance with rise and fall of the temperature of the unit aligned with the opening, means for moving air from each ventilation opening upon opening thereof past the compressor-condenser unit aligned with the opening, means controlling operation of said air moving means in accordance with the temperature of the aligned unit, means for discharging rearwardly of the units air moved past the units, a pair of pressure and suction refrigerant conduits for supply and return of refrigerant connected to each of the units and adapted for connection to a refrigerating coil, and electrical circuit means for the units and air moving means including common electrical panel means adapted for connection to electrical supply means.

10. A unitary refrigeration machine room for remotely located refrigerating coils, comprising a rigid base, means defining a plurality of ventilation openings, a plurality of compressor-condenser units disposed one in alignment with each of said ventilation openings, means in each of the ventilation openings for opening and closing thereof, means for operating said opening and closing means in each ventilation opening in accordance with rise and fall of the temperature of the unit aligned with the opening, means for moving air from each ventilation opening rearwardly past the compressor-condenser unit aligned with the opening, means for controlling operation of the air moving means, pressure and suction refrigerant conduits for supply and return of refrigerant extending from each unit for connection to a refrigerating coil, electrical circuit means for the units and air moving means including electrical panel means adapted for connection to electrical supply means.

11. A unitary refrigeration machine room for remotely located refrigerating coils, comprising a rigid base, means defining a plurality of ventilation openings, a plurality of compressor-condenser units disposed one in alignment with each of said ventilation openings, means in each of said openings for opening and closing thereof, means for operating said opening and closing means in each ventilation opening in accordance with rise and fall of the temperature of the unit aligned with the opening, means for moving air through each ventilation opening past the aligned compressor-condenser unit, means for activating and inactivating said air moving means in accordance with the temperature of the aligned unit, a pair of conduits for supply and return of refrigerant extending from each unit for connection to a refrigerating coil, electrical circuit means for the several units and air moving means including common electrical panel means adapted for connection to a source of electricity.

12. A machine room as defined in claim 11, including electrical panel means electrically connected to said common panel means and adapted for connection to electrical refrigerating coil defrost means.

13. A central machine room for a plurality of refrigerating coils disposed in a building, comprising a rigid base, means mounted on said base defining a plurality of ventilation openings, a plurality of condensing units mounted one in alignment with each of said openings, each of said condensing units including a compressor and condenser and electrically operable means for moving air thereover from the opening aligned therewith, a plurality of conduits for refrigerant arranged in pairs with each pair comprising a pressure conduit and a suction conduit, each pair of conduits extending from one of the condensing units for facile connection to one of said refrigerating coils, means for activating an inactivating each of said air moving means in accordance with increase and decrease of the temperature of the aligned unit, movable means mounted at each of the openings to control flow of air therethrough to the unit aligned therewith, a plurality of means for respectively operating the movable means of the openings each controlled by the temperature of the

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aligned unit, and electrical circuit means for the condensing units including common control panel means for connection to exterior electrical supply means, means separating the condensing units, activating means, operating means, and circuit means from the building area containing said refrigerating coils, and means for exhausting air through said operating means.

14. A machine room substantially as defined in claim 13, including electrical panel means having electrical connection with said common panel means for connection thereby with said exterior supply means and adapted for ready connection to electrical defrost means for said coils.

15. A machine room substantially as defined in claim 13, in which each of said operating means is directly actuated by the pressure in the pressure conduit of the associated condensing unit.

16. A central machine room for a plurality of refrigerating coils disposed in a building, comprising a rigid base, means secured on said base providing a plurality of ventilation openings, a plurality of condensing units mounted one in alignment with each of said openings, each of said condensing units including electrically operable means for moving air rearwardly thereover from the opening aligned therewith, refrigerant supply and return conduits extending from each of the condensing units for connection to one of said refrigerating coils, means for activating and inactivating each of said air moving means in accordance

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with rise and fall of the temperature of the aligned unit, means to control flow of air through each of the openings, means for operating the control means of each opening in accordance with the temperature of the unit aligned therewith, electrical circuit means for the condensing units including common control panel means for connection to exterior electrical supply means, means for separating said condensing units and circuit means from the building area containing said refrigerating coils, and means for exhausting air through said separating means.

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