My present invention relates to comfort conditioning of an enclosure for human occupancy. Specifically, the invention comprises means for creating a feeling of comfort for the occupants of gathering places, such as night clubs, ballrooms, hotel lobbies, and other enclosures, by the use of artistic creations artistically arranged and spaced about the enclosure, such creations being partially or partially chilled to a considerable extent whereby to cause radiation of heat thereto from the bodies of occupants of the enclosure, and which may be chilled to such an extent as to cause atmospheric moisture to condense thereon in the form of frost, thereby reducing the humidity of the atmosphere and enhancing the appearance of the enclosure. It is contemplated that the invention heretofore described be used in an enclosure which may be air conditioned, although it is within the purview of my invention to omit the air conditioning system so as in cases where it may not be necessary to create a sufficient feeling of comfort.

A further object of my invention is to create an artistic arrangement of natural appearing creations in an enclosure, so as to simulate the appearance of a natural scene, as by causing the artistic creations heretofore mentioned to assume the shape of trees, such as palm trees, the trunks or the trunks and leaves of which are coated with frost as heretofore described.

A further object of my invention is to create an ensemble in an enclosure of artistically arranged objects such as palm trees, the trunks of which are chilled for the purposes heretofore described, and the leaves or fronds of which are made of relatively stiff fabric or other fibrous sheet material whereby to simulate the appearance of natural leaves or fronds of a palm tree, and which leaves or fronds are arranged within the upper reaches of the enclosure whereby to form an overhead canopy of leaves; in combination with an air conditioning system for the enclosure having horizontally directed outlets arranged above or adjacent the leaves or fronds previously described whereby conditioned air projected horizontally into the ceiling zone of the enclosure will be deflected in many directions and thoroughly diffused with the room air before settling to the zone of occupancy, in the course of which the conditioned air may wave and rustle the palm leaves or fronds whereby to simulate the appearance and sound of a natural palm forest.

Having described the principal objects of the present invention, the same should be more fully understood from a study of the following specification and the accompanying drawing wherein like numerals refer to like parts throughout; in which Fig. 1 shows an enclosure constructed and arranged according to the present invention, and Fig. 2 shows a detail of an artistic creation.

In the drawing a section of a room having side walls such as walls 10 and 11, a ceiling 12, and a floor 13 is disclosed. The room is shown as being provided with an air conditioning system, the system being conventionally set forth and preferably comprising a return air duct 15 drawing air from the room through louver 16 arranged adjacent the floor 13, so as to cause a gentle movement of air through the lower portion of the room or the zone of occupancy. The system also preferably comprises a fresh air duct 28 whereby fresh air may be drawn into the room to keep the air fresh and pure, the room being provided with an outlet vent (not shown), or the walls permitting sufficient leakage to permit the influx of such fresh air. A mixing chamber 17 is connected to both ducts 15 and 28, and a blower 18 forces the mixed air through a duct 19 in which is mounted a conditioning coil 20 and which terminates in horizontally directed outlets 21 directing the air horizontally into the ceiling zone through louver 22. The coil 20 is shown as being connected to a conventional compressor-condenser-evaporator system including the compressor 30, condenser 31, and expansion valve 32 which may be controlled by the usual valve motor 33 and superheat-responsive thermobulb 34 mounted upon the suction connection from the evaporator coil 30 to the compressor 30. It is of course apparent that the air conditioning system is shown in its barest essentials, and any of numerous types of air conditioning systems may be utilized in actual constructions.

The air, of course, may consist of room air or fresh air alone, or a mixture of both, as controlled by dampers 35 and 36.

Within the enclosure there are shown a plurality of artistic creations 40, the artistic creations being spaced about the enclosure in a convenient and artistic arrangement. Each creation preferably comprises a relatively tall body portion comprising a shell 41 having a relatively small diameter, so that the body portion does not occupy much floor space and extends from, or adjacent, the floor 13 to a point above the zone of occupancy and slightly below, or adjac-
cent, the outlet louver 22. Each artistic creation may also comprise a crown portion 42 surrounding and extending above the top of the body portion 40 toward the ceiling 12 and preferably extending below the top of the body portion to a point such as to be above the heads of the tallest occupants of the enclosure. Each body portion shell 41 is preferably chilled throughout its extent to such an extent as to cause radiation of heat thereto from the bodies of persons adjacent thereto, and still more preferably, chilled to such an extent as to cause the condensation of moisture thereon in the form of frost crystals and needles. Each crown portion may or may not be so chilled, but preferably the crown portion is not provided with chilling medium circulating means because the overhanging portions thereof might drip condensed moisture upon occupants of the room. Each crown portion preferably comprises a number of spaced, artistically formed and arranged branches, fronds or arms 43, so positioned and formed as to break the horizontally projected air streams issuing from the louver 22 into a plurality of divergent streams whereby to cause thorough mixing of the conditioned air with room air rising from the zone of occupancy thus permitting only evenly tempered, comfortable air to reach the zone of occupancy on its way to the return air duct 15.

In the present disclosure the artistic creations 40 are shown as simulating the appearance of palm trees, the body portions comprising shells 41 simulating the appearance of palm tree trunks, and the crowns 42 simulating the appearance of the crowns of palm trees, which crowns comprise a plurality of fronds 43. It is to be appreciated that other artistic creations may be substituted therefore, some of which may assume the shape of statuary, and others of which may assume the shape of other types of trees, especially trees which would have long and relatively slender trunks and crowns of spreading branches adjacent the crowning area; or the appearance of an arbor may be created by the use of body portions resembling the trunks of vines and crown portions resembling an overhanging canopy of vine branches.

In order to chill the portions of the artistic creation which are to be chilled, I provide any convenient method of creating a sufficient temperature drop within the interior of the chilled portions. The refrigerating apparatus forms no part of my present invention, and any person skilled in the art of refrigeration may supply the necessary knowledge with which to create the cooling effect.

The particular means, disclosed in the present application, whereby a cooling medium may be circulated within the artistic creations is the invention of Rafael A. Gonzalez, and full details thereof may be ascertained in his copending application, Serial No. 275,441, filed concurrently herewith. In the present disclosure it may be seen that the body portion shell 41 comprises a rigid, self-supporting structure within which is connected an inlet pipe 50 extending from a source of cooling medium to a point adjacent the upper extremity of the shell. The pipe 50 may be braced by an inner, rigid, self-supporting shell 51 which achieves the dual purpose of supporting the pipe 50 and of forming an annular space 52 adjacent the inner surface of the shell 41, thereby reducing the interior space to be filled with cooling medium. The cooling medium is admitted to the pipe 50 from a feeder pipe 55 extending from a pump 56 which draws the cooling medium from the refrigerating system through the suction inlet 57. The cooling medium rises to the upper; open end of pipe 59 and descends through the trunk of the artistic creation in the hollow space 52, from which it is ejected through an outlet pipe 60 connected to a return line 59 extending back to the refrigerating system comprising brine cooler 60. In the present disclosure the cooling medium is preferably a "brine," which may be an actual salt solution, or as the term is commonly used in the art, is preferably an organic compound capable of being lowered in temperature to a considerable extent below 0° F. without congealing.

The inlet to the cooler 60 and the return line 59 are joined to a riser 65 opening into an open balance tank 66, the middle of which is on a level with the tops of the portions of the artistic creations which are to be chilled as shown by the datum line 67, in order that the pump may work against a constant head and maintain a constant flow through all of the artistic creations. Each of the artistic creations is provided with a vent valve 70 located slightly above the datum line 67, which vent valve permits the escape of air from the annular space 52 to the atmosphere when the system is started in order that air trapped in the interiors of the artistic creations may be expelled.

Each of the body portions are thus filled with a circulating chilling medium which constantly traverses the inner surfaces of the outer shells 41, thereby causing the body portions to be chilled to the extent desired by the operator of the system. If chilled to a certain extent below body temperature, the persons adjacent the body portions will sense a cooling effect due to radiation of heat from themselves to the chilled surfaces. These persons may be walking about in the enclosure, dancing, or seated in chairs 75 at tables such as 76, which are illustrated for the purpose of demonstrating the relative heights of the artistic creations. If the body portions are chilled to the necessary extent below freezing, the humidity of the room atmosphere will be lowered by the condensation thereon of water vapor. Preferably the chilling medium is at such a temperature below the freezing temperature of water as to cause any moisture condensing thereon instantly to form into crystals or needles of white frost, thereby enhancing the appearance of the artistic creations and preventing moisture from running down the outer surfaces of the artistic creations. This frost will continue to form, thereby continually counteracting the uncomfortable effects of excessive humidity created by moisture given off by occupants of the enclosure, and continually making the artistic creations ever more attractive outer surfaces on the artistic creations.

Each artistic creation is preferably mounted in a floor well 80 of sufficient depth to hide the base thereof and the outlet connections 88, which wells may be filled with loose gravel 81, or other porous material which will support the weight of persons walking thereover and which will permit the rapid flow of water therethrough, in order that defrosting of the artistic creations may be accomplished without flooding the floor of the enclosure. Each well is provided with a drain connection 83 which connects with a drainage line 83 leading to some disposal inlet. Defrosting of the artistic creations may be accomplished
when desired by stopping the circulation of chilling medium therethrough.

The crowns 42 preferably extend to a region adjacent the conditioned air outlet louvers 22, in order to enhance the conditioning system. The air which then falls through the zone of occupancy and is gently drawn toward the return air louvers 18 is mild and comfortable. In addition, if the leaf parts of the fronds or branches 43 are, as contemplated, made of a fabric capable of holding its shape to a considerable extent but yieldable enough so as to be disturbed by mild air currents, and if the connections of the fronds or branches to the body portion are, as contemplated, yieldable to such an extent as to permit waving of the, e.g., branch or frond when deflected by mild air currents, a further pleasing effect will be achieved due to the rustling of the leaves and waving of the fronds when struck by the air streams issuing from the outlet louvers 22. This appearance may be enhanced by decorating the leaf surfaces, such as by causing a sprinkling of mica flakes to adhere thereto, in order that a glittering appearance will be created when lights are reflected therefrom during the fluttering of the leaves.

Having described a preferred form of my invention, it should be apparent to those skilled in the art that the same permits of numerous modifications in arrangement, detail, and appearance. All such modifications as come within the scope of the following claims are considered a part of my invention.

I claim:

1. In an enclosure in which human beings congregate, the improvement comprising the inclusion therein of an object located in the zone of occupancy and having a body portion extending from adjacent the floor level of the enclosure to a point above the zone of occupancy, said body portion being chilled to an extent sufficient to cause the radiation of heat thereto from nearby human beings, and having a crown portion above the zone of occupancy comprising a plurality of divergent air currents and comprising leaf simulating members of stiff fabric; in combination with means for directing an air stream into said room substantially horizontally through said crown portion.

2. In an enclosure in which human beings congregate, the improvement comprising the inclusion therein of an object located in the zone of occupancy and having a body portion extending from adjacent the floor level of the enclosure to a point above the zone of occupancy, said body portion being chilled to an extent sufficient to cause the condensation of moisture thereon in the form of frost, and having a crown portion above the zone of occupancy comprising a plurality of separate branches, said branches being of a character such as to break up air streams into a plurality of divergent air currents; in combination with air conditioning means comprising an inlet duct directed toward said crown portion and means to propel an air stream through said inlet duct.

3. In an enclosure in which human beings congregate, the improvement comprising the inclusion in said enclosure of a plurality of spaced artistic creations comprising body portions of relatively small diameter extending from near the floor of the enclosure to a point above the zone of occupancy, and crown portions simulating branches or fronds extending from the tops of said body portions in various directions above the zone of occupancy, at least said body portions comprising means for the interior circulation therethrough of a chilling medium; in combination with means for injecting a stream of air into said room adjacent and through said crown portions.

4. In an enclosure in which human beings congregate, the improvement comprising the inclusion in said enclosure of a plurality of spaced artistic creations comprising body portions of relatively small diameter extending from near the floor of the enclosure to a point above the zone of occupancy, and crown portions simulating branches or fronds extending from the tops of said body portions in various directions above the zone of occupancy, at least said body portions comprising means for the interior circulation therethrough of a chilling medium; in combination with means for causing a gentle withdrawal of air from said enclosure through the zone of occupancy and the injection of conditioned air into said enclosure adjacent said crown portions.

5. In an enclosure in which human beings congregate, the improvement comprising the inclusion therein of an object located in the zone of occupancy and having a body portion extending from adjacent the floor level of the enclosure to a point above the zone of occupancy, said body portion being chilled to an extent sufficient to cause the radiation of heat thereto from nearby human beings, and having a crown portion above the zone of occupancy comprising a plurality of separate branches, said branches being of a character such as to break up air streams into a plurality of divergent air currents and comprising leaf simulating members of stiff fabric; in combination with means for directing an air stream into said room substantially horizontally through said crown portion.

6. In an enclosure in which human beings congregate, the improvement comprising the inclusion therein of an object located in the zone of occupancy and having a body portion extending from adjacent the floor level of the enclosure to a point above the zone of occupancy, said body portion being chilled to an extent sufficient to cause the condensation of moisture thereon in the form of frost, and having a crown portion above the zone of occupancy comprising a plurality of separate branches, said branches being of a character such as to break up air streams into a plurality of divergent air currents and comprising leaf simulating members carried on frost simulating particles on the surfaces thereof; in combination with means for directing an air stream into said room substantially horizontally through said crown portion.

7. In an enclosure in which human beings congregate, the improvement comprising the inclusion therein of an object located in the zone of occupancy and having a body portion extending from adjacent the floor level of the enclosure to a point above the zone of occupancy, said body portion being chilled to an extent sufficient to cause the radiation of heat thereto from nearby human beings, and having a crown portion above the zone of occupancy comprising a plurality of
separate branches, said branches being of a character such as to break up air streams into a plurality of divergent air currents and comprising leaf simulating members of stiff fabric; in combination with means for producing and projecting a stream of conditioned air into said room through said crown portion whereby the said branches will break up said air stream into a plurality of divergent currents for the purpose of commingling the conditioned air with the air in the room.

8. In an enclosure in which human beings congregate, the improvement comprising the inclusion therein of an object located in the zone of occupancy and having a body portion extending from adjacent the floor level of the enclosure to a point above the zone of occupancy, said body portion being chilled to an extent sufficient to cause the condensation of moisture thereon in the form of frost, and having a crown portion above the zone of occupancy comprising a plurality of separate branches, said branches being of a character such as to break up air streams into a plurality of divergent air currents and comprising leaf simulating members carrying frost simulating particles on the surfaces thereof; in combination with means for producing and projecting a stream of conditioned air into said room through said crown portion whereby the said branches will break up said air stream into a plurality of divergent currents for the purpose of commingling the conditioned air with the air in the room.

RAYMOND LOEWY.