April 7, 1964 F. C. ROMENKO 3,127,697

WINDOW SOLARIUM

Filed May 11, 1962

FIG. 2

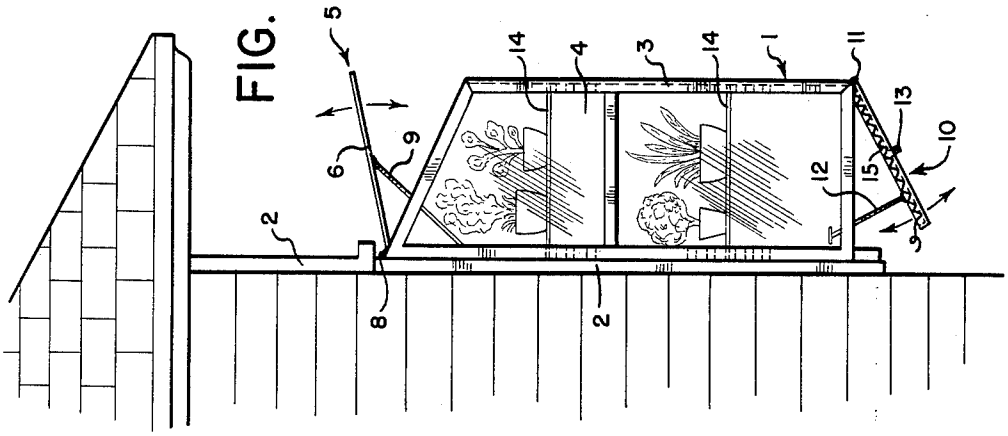
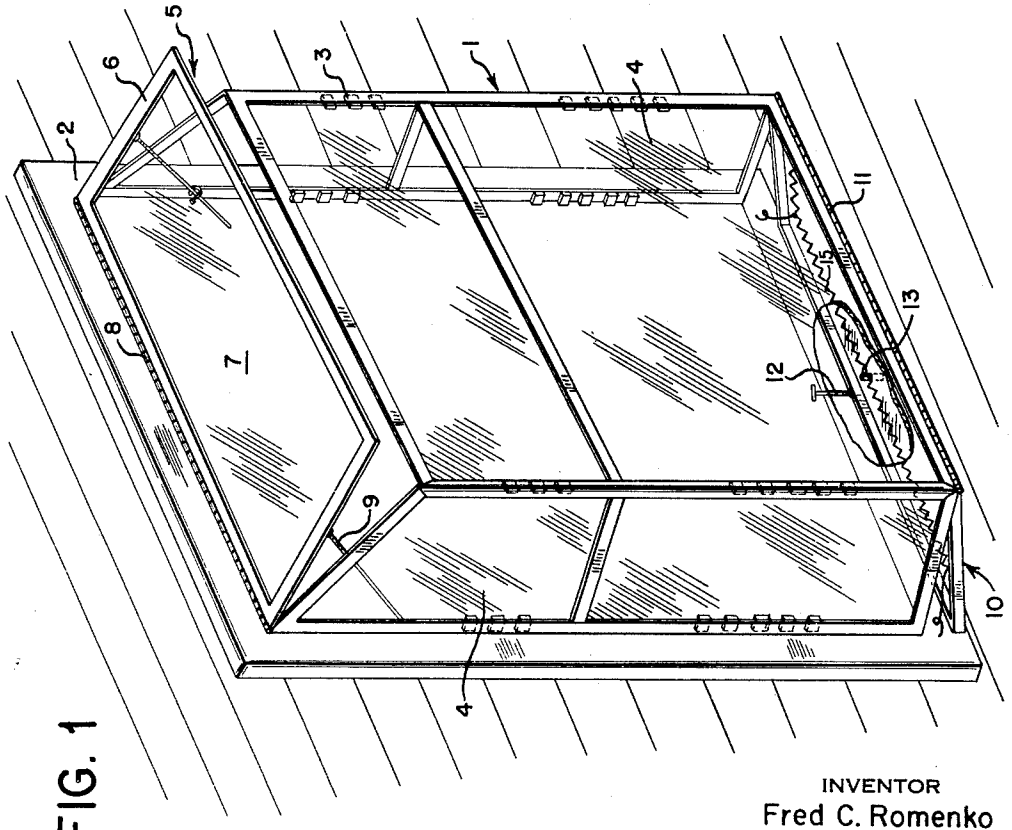


FIG. 1



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WINDOW SOLARIUM

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This invention relates to a window solarium or conservatory for plants and more particularly to a window solarium wherein the temperature, humidity, and air circulation may be controlled to promote the healthy growth of the plants situated therein.

Window solariums or conservatories are box-like units which are attached to the exterior of a window frame. The function of a solarium is to create a protected space which provides a suitable environment in which plants may grow. To meet this purpose, a solarium usually has three sides, a top and a bottom. When the solarium is attached to a window frame, the window substantially defines the fourth side. Access to the solarium is through the window which may be opened and closed.

A solarium is provided with glazed areas to permit the entrance of sunlight. The solarium is also provided with one or more variably adjustable ventilators which permit the circulation of air within the solarium. Located within the solarium are a plurality of shelves of racks upon which the plants are situated.

What has heretofore been lacking in window solariums is a convenient means for achieving a uniform and generally stable environment most conducive to healthy plant growth. It is known that several factors are important in establishing the proper environment: temperature, humidity, sunlight, and ventilation. For proper plant growth it is important to have these factors combine to maintain a substantially uniform environment not subject to quick or radical changes. Such harmful changes might result from drop in temperature of the outside air, strong or gusty wind conditions, or excessive precipitation. This invention enables the owner to anticipate and meet adverse atmospheric conditions and to maintain substantially uniform environmental conditions within the solarium by making adjustments in the uniquely positioned ventilators.

Broadly, this development is for a window solarium having oppositely hinged upper and lower ventilators, the adjustment of which enables the user to maintain a substantially uniform air flow and temperature gradient within the solarium. A rigid box-like framework of wood, metal or other suitable material defines the structure of the solarium. The front and two sides are preferably all glass enclosed. The back is open, but when the solarium is attached to the window frame of a building, the window serves to enclose the back. The upper and lower ventilators serve to enclose the top and bottom of the solarium when necessary. The upper ventilator is hinged at its back edge; the lower ventilator at its front edge. Thus, when the ventilators are in an open position, air coming in at the bottom flows upwardly and across the interior of the solarium, escaping from the top. The lower ventilator acts as a baffle to protect against strong wind conditions, while the current of escaping air from the top acts as a curtain tending to prevent the entrance of outside air at that point.

A more complete understanding of my development may be gained by reference to the accompanying drawings.

FIG. 1 is an isometric projection of my window solarium as attached to the window frame of a dwelling;

FIG. 2 is a side elevation of the solarium showing the relative position of the ventilators.

Referring to the drawings, the solarium is generally

designated by the numeral **1**. It is connected by suitable means to a window frame **2**, preferably in an air-tight sealing relationship. The solarium comprises a rigid framework **3** and glass areas **4**, supported by the framework **3**. An upper ventilator **5**, comprising a frame **6** and glass **7**, is hinged at its back edge **8** and held in variably adjustable positions by an upper bracket **9**. The lower ventilator **10** is hinged at its front edge **11** and is held in variably adjustable positions by a lower bracket **12**. The lower ventilator **10** is adapted to hold humidifying agents, such as peat moss or sawdust containing water, and is preferably designed as a shallow, rectangular pan in which the humidifying agents may be placed, the edge of the pan acting to hold the humidifying agents on the ventilator when it is tilted. When so designed, it is provided with a suitable drainage hole **13** to facilitate the escape of excess fluids.

The interior of the solarium **1** is provided with a plurality of adjustable shelves **14**, upon which the plants may be positioned. The shelves are constructed preferably of numerous slats to permit air circulation therethrough. Usual access to the solarium is gained via the window of the dwelling.

The movement of the air within the solarium **1** is initiated by the energy of the sun's rays. As the sun's rays pass through the glass areas **4** and **7**, the air inside the solarium **1** is warmed. Under this warming influence the air expands and rises and if the ventilator **5**, is opened will escape from the top of the solarium **1**. The escaping air is replaced by cooler air entering through the bottom of the solarium when ventilator **10** is open. Although the air near the top of the solarium will be warmer than that at the bottom, a substantially constant temperature gradient may be maintained by adjusting the degree of opening of the ventilators **5** and **10**. To maintain a uniform flow rate of ascending air and to maintain a substantially constant temperature gradient, either or both of the ventilators **5** and **10** may be adjusted until the desired result is obtained. Generally, the colder the outside air, the greater the degree of closure necessary. Since the air movement within the solarium is primarily dependent upon the sun and air temperature, it can be seen that it is largely independent of outside wind conditions.

It will be noted that the upper ventilator **5** and the lower ventilator **10** are hinged to the solarium **1** along opposite edges. The relative hinged positions of the ventilators **5** and **10** is important for two reasons. The first is that this particular arrangement directs the circulation of air in a stream originating substantially at the bottom inner side of the solarium upward and across the interior of the solarium and outwardly substantially at the upper outer side. Thus, the air is circulated through a maximum of interior space thereby bringing the beneficial results of air and humidity to all plants. The second reason is that the interior environment of the solarium is well protected from the disrupting effects of outside wind currents. The ventilator **10** being hinged at its outer edge acts as a baffle to wind currents. A further advantage of having the upper ventilator **5** oppositely hinged, is that the escaping flow of warm air at that point tends to act as a counter current or curtain against outside air currents.

A more suitable plant environment is created by placing humidifying agents upon the lower ventilator **10**. By so placing these humidifying agents, the circulation of air entering in the bottom of the solarium will pass over and pick up moisture from the humidifying agents and aid in the uniform and thorough distribution of moisture within the solarium. The lower ventilator being preferably constructed to hold humidifying agents, is also a suitable point at which to place a heating coil **15** when additional warmth is required during the winter months.

The location of the heating coil 15 among the humidifying agents also promotes the evaporation of the necessary water vapors.

I claim:

1. A window solarium comprising in combination a box-like rigid framework adapted to be attached to a window frame, glass areas held by said framework and enclosing three sides, an imperforate upper ventilator, said upper ventilator being hinged at its inner edge to said framework and substantially sealed along said inner edge, and a lower ventilator having a drainage outlet, said lower ventilator being imperforate except for said drainage outlet and further being hinged at its outer edge to said framework and substantially sealed along said outer edge.

2. A window solarium comprising in combination a box-like rigid framework adapted to be attached to a window frame, glazed areas supported by said framework and enclosing three sides of said solarium, said solarium being enclosed on its fourth side by the windowpane of said window frame, an imperforate upper ventilator having a rigid frame supporting a glazed area, said upper ventilator being hinged at its inner edge to said framework and substantially sealed along said inner edge, an upper bracket connecting said upper ventilator to said rigid framework whereby said upper ventilator may be held in varying degrees of openness, a lower ventilator having a drainage outlet, said lower ventilator being imperforate except for said drainage outlet and hinged at its outer edge in substantially sealed relationship to said framework, and a lower bracket connecting said lower ventilator to said rigid framework whereby said lower ventilator may be held in varying degrees of openness.

3. A window solarium comprising in combination a box-like rigid framework defining a front, a back, two sides, a top and a bottom, said framework being adapted to be attached at its back to a window frame, said framework being constructed such that said top slopes downward from said back to said front, glazed areas supported by said framework enclosing said front and said sides, an imperforate upper ventilator comprising a frame and a glazed area, said upper ventilator being further hinged in substantially sealed relationship to said framework at the back edge of said top, an adjustable upper bracket connected to said upper ventilator and said framework whereby said upper ventilator can be maintained in various positions of openness, a lower ventilator, said lower ventilator having a drainage outlet and being imperforate except for said drainage outlet, said lower ventilator further being hinged in substantially sealed relationship to the front edge of said bottom, and an adjustable lower bracket connected to said framework whereby said lower ventilator can be maintained in various positions of openness.

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