

March 11, 1958

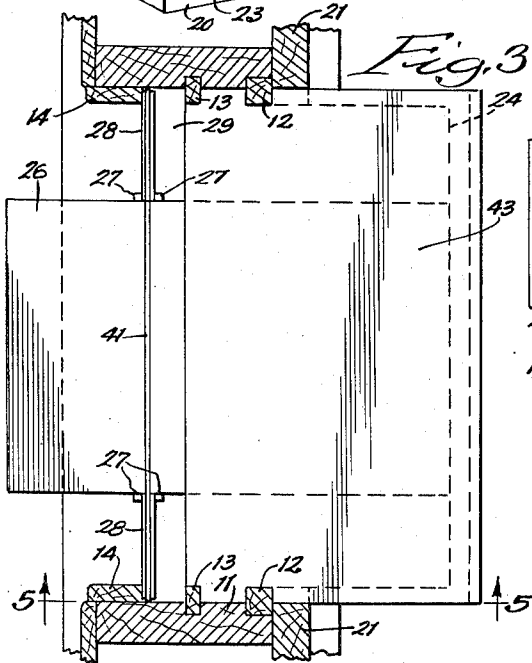
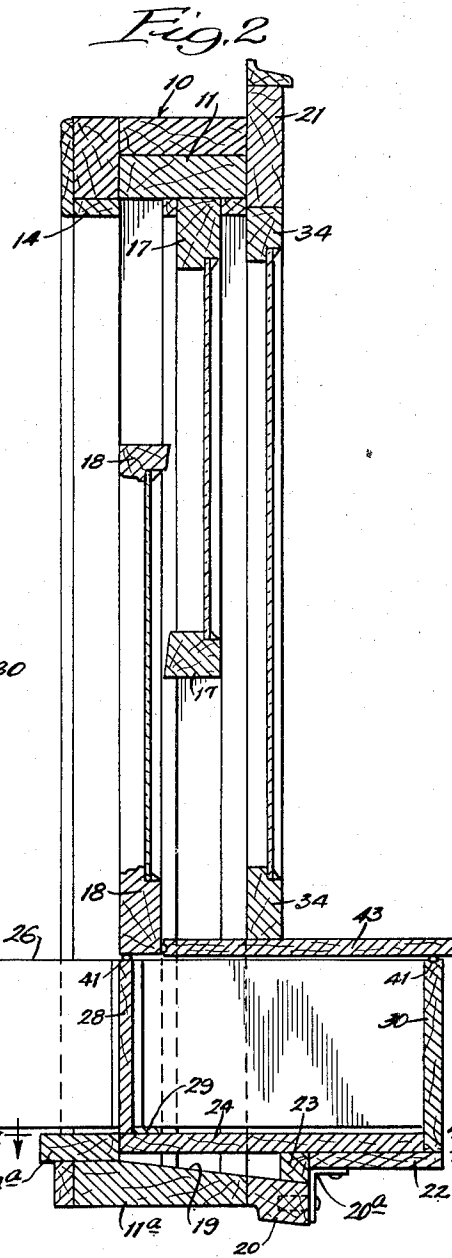
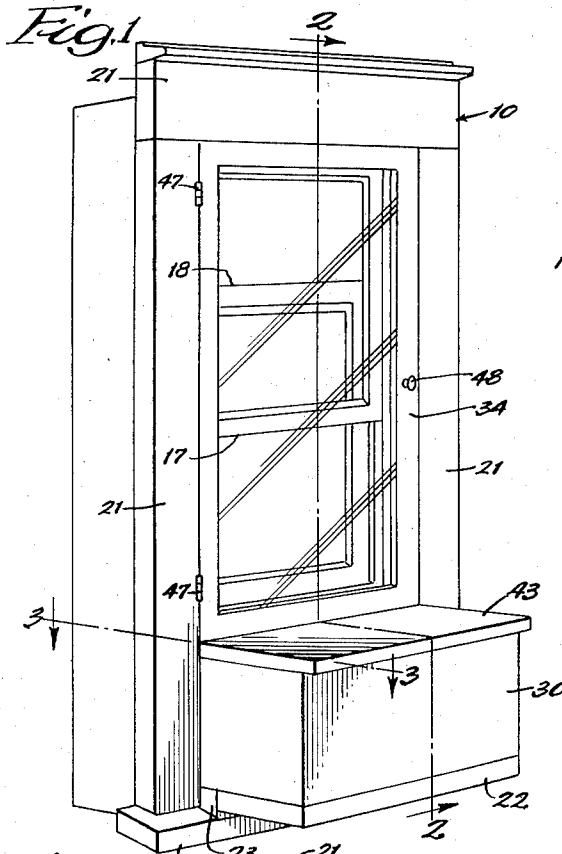
F. W. HUMPHNER

2,826,472

WINDOW AIR CONDITIONER ENCLOSURE

Filed July 16, 1954

3 Sheets-Sheet 1



INVENTOR:
Ferdinand W. Humphner,
BY
Dawson, Tilton & Graham,
ATTORNEYS.

March 11, 1958

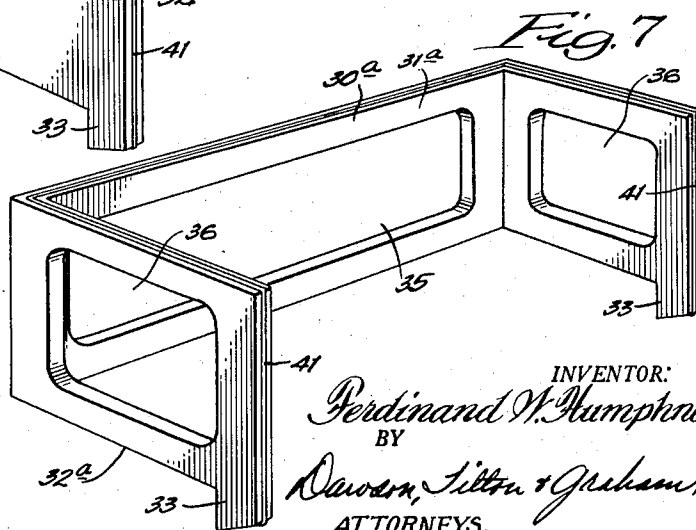
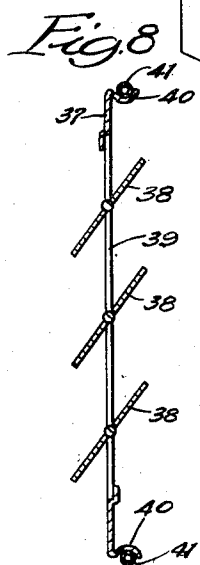
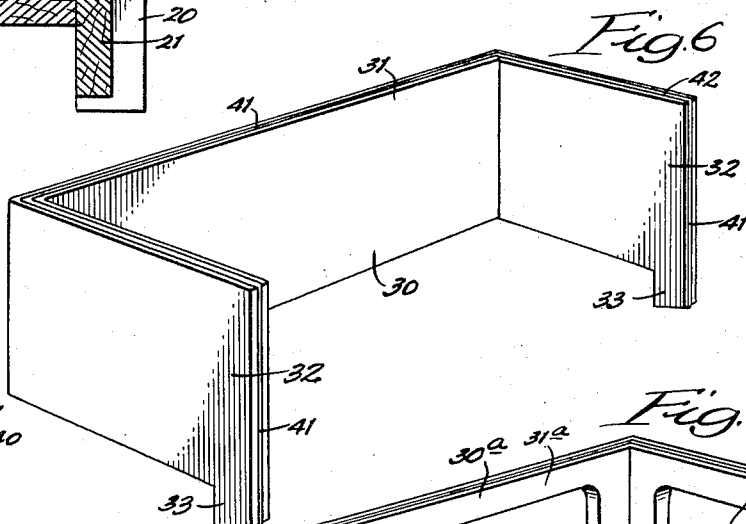
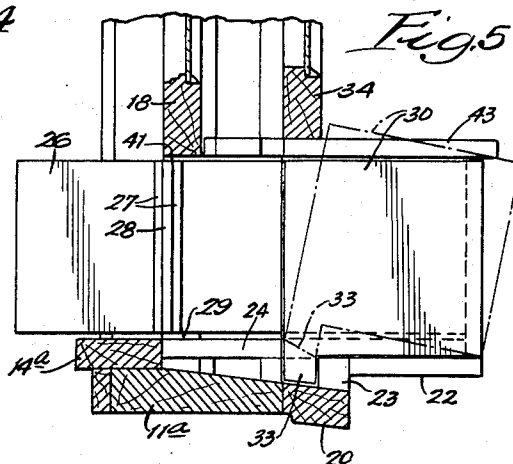
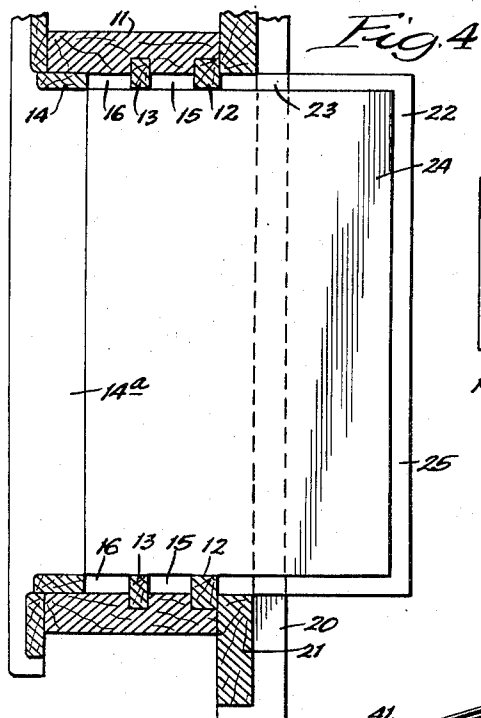
F. W. HUMPHNER

2,826,472

WINDOW AIR CONDITIONER ENCLOSURE

Filed July 16, 1954

3 Sheets-Sheet 2



INVENTOR:
Ferdinand W. Humphner,
BY
Dawson, Tilton & Graham,
ATTORNEYS.

March 11, 1958

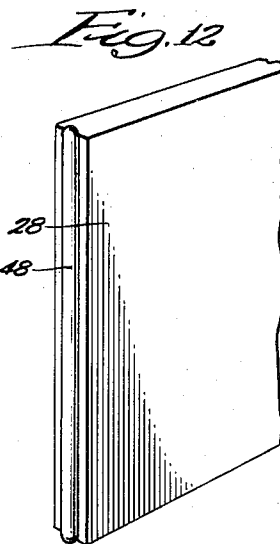
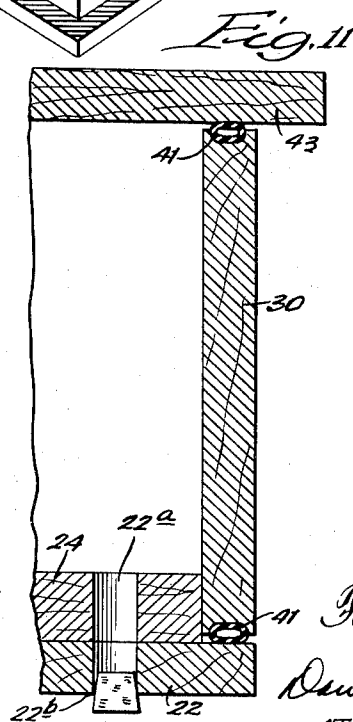
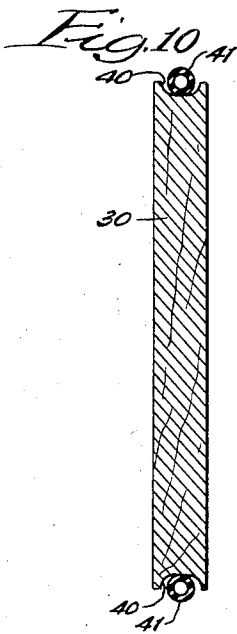
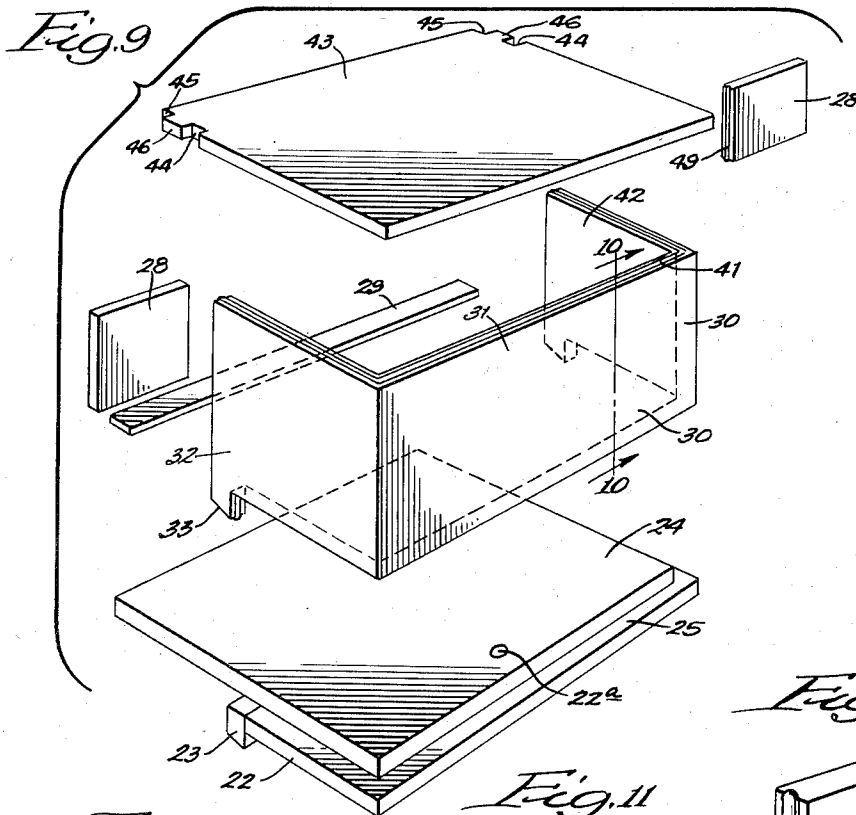
F. W. HUMPHNER

2,826,472

WINDOW AIR CONDITIONER ENCLOSURE

Filed July 16, 1954

3 Sheets-Sheet 3



INVENTOR:

INVENTOR:
Ferdinand W. Humphner,
BY

BY

Dawson, Titton & Graham.
ATTORNEYS.

ATTORNEYS.

1

2,826,472

WINDOW AIR CONDITIONER ENCLOSURE

Ferdinand W. Humphner, River Forest, Ill.

Application July 16, 1954, Serial No. 443,773

5 Claims. (Cl. 312--101)

This invention relates to a window air conditioner enclosure, and is particularly useful in connection with the sealing of a window about an air conditioner while providing a permanent base for the structure.

The use of window type air conditioners in homes and buildings has presented a number of difficult problems. Not only do the problems arise in the sale and installation of such equipment, but the home owner thereafter is confronted with difficulties in the operation of the structure. If he leaves the air conditioner in the window for the year around, the room becomes drafty and as a result more heat is lost and additional heat must be brought into the house or room for comfort. If the unit is to be taken out each season, there is the very substantial expense of removal and installation at the later time, and further, there may be a cost for storage. Also, there is the problem of preventing bugs from entering at the window section which must be raised, and it is necessary to remove and later insert again felt strips, etc. At the same time, there is the ever present possibility of an accident when taking the unit in and out—the danger that someone may lift a window which is holding a unit in place and allow it to fall out—and also there is danger of tampering with the unit when the unit is located close to the ground.

An object of the present invention is to overcome the above difficulties and provide a structure which permits the ready removal and insertion of the air conditioner while at the same time overcoming the hazards and dangers above described. A further object is to provide a base structure which may be secured in position and thereafter permit the removal and installation of the enclosure units, storm windows, and the like, without the use of screws, nails, or other special fastening means. A still further object is to provide a base structure which is firm and made a part of the building structure and which serves thereafter as an effective means for releasably locking the conditioner enclosure means in position. Yet another object is to provide a permanent base structure providing for the safe and sure support of an air conditioner while at the same time supporting a storm window securely in position and in tight relation to the window frame and conditioner enclosure. It is also an object hereof to provide a common base fixed to the building structure which provides a support for the air conditioner while also providing an interlocking means for securing an enclosure thereabout, and in combination therewith a storm window and effective sealing means about the window and about the enclosure parts. Yet another object is to provide new and important structural elements adapted to be fitted within the structure of a window for releasably securing an air conditioner while providing a support for a storm window or other frame member and for providing seals about the enclosure parts. Other specific objects and advantages will appear as the specification proceeds.

2

The invention is shown, in an illustrative embodiment, by the accompanying drawings, in which—

Figure 1 is a perspective view of a window frame having incorporated therewith an air conditioner enclosure and storm window embodying my invention; Fig. 2, a vertical sectional view, the section being taken as indicated at line 2—2 of Fig. 1; Fig. 3, a plan sectional view, the section being taken as indicated at line 3—3 of Fig. 1; Fig. 4, a plan sectional view, the section being taken as indicated at line 4—4 of Fig. 2; Fig. 5, a broken sectional view, the section being taken as indicated at line 5—5 of Fig. 3; Fig. 6, a perspective view of an enclosure piece adapted to interlock with the base and to form an enclosure about the front portion of the air conditioner; Fig. 7, a view similar to Fig. 6 but showing a modified form of enclosure piece adapted for use with the air conditioner when the same is functioning; Fig. 8, a vertical sectional view of a second modified form of enclosure device which is formed of metal; Fig. 9, an exploded view in perspective of the various parts employed in forming the enclosure structure, the parts being shown in spaced-apart relation; Fig. 10, an enlarged sectional view, the section being taken as indicated at line 10—10 of Fig. 9; Fig. 11, a view similar to Fig. 10 but showing the parts in assembled relation with other parts; and Fig. 12, a broken perspective view of an inner end portion of an air conditioner sealing element.

In the illustration given, 10 designates a window frame. The frame 10 may, of course, be of any suitable structure, and since the structure is old and well known, a detailed description herein is believed unnecessary. It is sufficient to point out that the frame 10 provides an inner longitudinal frame 11 provided with a forward vertical beam or guide 12 and a rear guide 13. At the rear of the member 13 is a border board 14, the members 12 and 13 providing between them a vertical recess 15, and the members 13 and 14 providing between them a recess 16. Within recess 15 is mounted a window 17, and within the recess 16 is mounted a window 18. The board 14a at the base of the window is larger than the boards 14 on the other three sides of the window frame, as shown in Fig. 2. Also, the bottom or sill portion of the window frame 11a has an inclined top surface 19, as shown best in Fig. 2. Forwardly of the frame member 11a is a sill 20, and a border 21 extends upwardly about the sides and top of the window frame. Since all of the foregoing is well known and is typical of window frame structure, a further detailed description is believed unnecessary.

In combination with the window frame and the windows therein as above described, I employ a base structure which is permanently secured to the bottom portion of the window frame. The base structure, as seen best in Figs. 2 and 9, comprises a baseboard 22 having at its rear a downwardly-extending block 23 inclined at its lower side so as to rest upon the inclined top surface of the sill 20. Secured to the board 22 is a platform 24 which extends rearwardly to the baseboard 14a of the inner portion of the window frame and provides a top surface flush with the top surface of the baseboard 14a. The base, consisting of a platform 24 and the supports 23 and 22, are secured together and are then permanently secured by nails, screws or other means directly to the window frame so as to form therewith a permanent structure.

The base, consisting of the parts 22, 23 and 24, may, if desired, be formed of a single piece, and may be molded from a composition formed of wood, metal, or other suitable material. The base, as perhaps shown best in Fig. 9, provides a perimetric lip or ledge 25 about the outer portion of the platform 24 for a purpose which will be later

set forth. It will be noted that the members 22 and 23 extend outwardly a short distance beyond the platform 24 to provide the ledge 25, and it will be noted also that the heavy block 23 provides at its rear a bearing surface on each side of the base for the purpose of releasably locking an enclosure part thereon, as will be later set forth.

After the base has been secured firmly and permanently in position, as illustrated best in Fig. 2, the air conditioner unit, which is shown simply as an elongated rectangular structure and which is indicated by the numeral 26, may be placed in position, as illustrated best in Figs. 2 and 3. The unit 26 is provided with spaced vertically members 27 providing therebetween a space for receiving the sealing blocks 28. The sealing blocks 28 extend substantially the height of the air conditioner unit and serve to seal the space on both sides of the unit. I prefer to employ a thin flat strip 29 within the window space 16 and just forwardly of the strips 28 so as to hold them securely in position, the strip 29 resting on the base below the unit 26, as shown best in Fig. 3.

To enclose the outer portion of the conditioner 26, I provide enclosure pieces, as illustrated in Figs. 6, 7 and 8. The enclosure piece 30 shown in Fig. 6 has a rear closed side 31 and two forwardly-extending sides 32, each having a depending foot 33 adapted to be inserted within the space behind the base block 23 so as to secure the enclosure piece 30 firmly in position. In Fig. 5, there is shown in dotted lines the enclosure 30 and indicating the manner in which the locking foot 33 may be inserted in position behind the block 23. After the enclosure piece 30 is in position, the storm window 34 may be swung into closed position so as to anchor the enclosure 30 in the interlocked position shown in full lines in Fig. 5.

The enclosure piece 30a is substantially the same as the piece 30 except that the panel 31a is provided with an aperture 35 and the sides 32a are provided with apertures 36. In Fig. 8, there is shown a structure corresponding to that shown in Fig. 6 but with a metal rather than a wooden panel. The metal panel 37 has the same U-shaped form as illustrated in Fig. 7, but is provided with vanes 38 for closing the openings 39 through the rear and side walls of the structure. The panel 37 is provided at its top and forward edges with a concave border portion 40 in which is secured a tubular sealing member 41. Similarly, in the structures shown in Figs. 6 and 7, there are grooves 42 formed in the top and front borders and in which are received tubular resilient sealing members 41 and of the type shown in Fig. 8. The tubular members are hollow and formed of resilient material so as to form a tight seal when the parts are united, as illustrated best in Fig. 11.

To seal the top of the enclosure part 30 or 30a or 37, I provide a top board 43. As shown best in Fig. 9, the top board 43 is provided with cut-away portions 44 and 45, leaving a laterally-extending projection 46 on each side of the board for insertion within the window space 15. By this means, the tongue 46 is employed to lock the top piece 43 firmly in position over the enclosure piece 30, 30a or 37.

With the enclosure formed as described above, there is now provided a uniform rectangular space in the window opening above the top board 43. Into this space I now insert a storm window 34, which may be secured by any of the means commonly employed for this purpose. In the specific illustration given, the storm window 34 is provided on one side with hinges 47 and on the other side with a lock-equipped knob 48. The window may be equipped with a flush type door lock which may be operated from the inside or outside by the use of a key, so as to prevent unauthorized opening of the window. By this means, all of the structures are securely held against removal, since the window, which is now locked, serves to lock or hold the remaining structure in place. As stated above, however, any securing means for releasably confining the storm window or a similar sealing member in position may be employed. If desired, a metal angle

20a may be employed, as illustrated best in Fig. 2, for further supporting the base. If desired, a wood block or other support may be substituted for the angle 20a.

The sealing boards 28 are also preferably provided on their inner sides with grooves 49 for receiving the tubular sealing members 41, etc. It will be understood that any effective sealing means between the various engaging surfaces employed in the enclosure structure may be used. The tubes 41, which are preferably sealed and which contain air or other mobile fluid, are particularly efficient in providing a tight seal because the fluid within the tubes tends, by reason of the equalization of pressure, to make the tubes conform minutely to the curvature or irregularities of the surfaces to be sealed, thus providing an effective seal all the way around the structures. Each of the tubes 41 may be sealed at the ends thereof, or it may be a continuous tube. A water drain opening 22a extends through the members 24 and 22 and may, if desired, be provided with a sealing plug 22b. It will be understood that other sealing means may be used as, for example, a rotatably-mounted screen may be swung into position aligned with the opening 22a to prevent bugs from entering the opening while permitting the inflow of air. Alternatively, the closure is effective for preventing the inflow of air.

In the illustration given in Figs. 1, 2 and 3, I have shown a specific form of window for the purpose of illustration, the window having two panes of glass. It will be understood that the invention may be employed in combination with a casement window or with large windows where only a portion of a window is used in connection with the cooling unit, as well as with a metal frame window from which one pane of glass is removed. In the latter case, the unit is locked into place by attaching it to the window cabinet or the metal part of the window. It will be understood that the structures herein may be employed not only with standard window construction, but also with special type or custom built structures. In other words, in the casement type or metal type of window where a single pane of glass is removed to receive the cooling unit and where there is a pivotally-mounted window thereabove, since in this structure the window is not effective as a lock for the unit enclosure structure, I bring about the locking of the enclosure mechanism by securing this to the top portion of the frame about the removed pane.

In connection with the louver enclosure structure shown in Fig. 8, while I have shown a series of pivotally-mounted vanes, it will be understood that a slip type or shutter type of ventilation control may be used. Further, the structure shown in Fig. 7 may be equipped similarly with screen and shutter devices, the shutter preferably being operated by a control device from the inside.

Operation

In the operation of the structure, I prefer to follow the following sequence: The base is firmly and permanently secured in position, as illustrated in Fig. 2, the parts 22, 23 and 24 being secured together within the frame of the window by nails, screws or other means so as to make the base a permanent part of the window frame. The frame, together with the baseboard 14a, thus provides a flat, firm platform onto which the air conditioner 26 is placed. The strip 29 is laid within the recess 16 so as to maintain the seal strips 28 therein, and the unit 26 is placed upon the platform. Next the enclosure 30 or 30a or 37 may be placed in position, with the enclosure piece preferably tilted, as illustrated in Fig. 5, to bring the locking lug or foot 33 behind the block 23. The top board 43 is pressed in position with the tongues 46 on each side thereof received within the window recesses 15 of the frame. The storm window 34 is then swung to closed position or pressed into closed position so as to form the final sealed structure shown best in Fig. 2.

5

If the conditioner unit is to be kept in a sealed position and without use, as during the wintertime, the enclosure 30 may be employed so as to form a tight sealing closed box about the exterior of the unit. In the summertime, or at other times when the unit is to be used, the ventilating enclosures 30a and 37 may be employed.

When it is desired to remove the unit 26, for the purpose of repair, oiling, or other service, it is merely necessary to raise the window 18 and remove the sealing parts 28. Metal parts supplied by the unit manufacturer may be anchored to the base to hold the machine in place during this operation. The unit 26 can then be taken out and repaired, etc., and just as readily replaced and resealed, as heretofore described.

While the foregoing sequence is preferred and is particularly advantageous in connection with the structure shown, it will be understood that such sequence of steps may be varied.

With the base shown, there is no danger of the unit 26 being tipped from the window and falling upon passersby, because the movement of the window has no effect upon the support of the conditioner unit. Further, the unit can be moved inwardly or outwardly through substantial distances without increasing the hazard. For example, if desired, the unit may be supported thus for the major portion well outside the window so that there is only a minor inner panel portion exposed within the room. Further, with the structure shown, the window can be readily cleaned and manipulated to open and closed positions, and the storm window may be removed or swung laterally for cleaning, etc.

With the base structure shown, it will be noted that there is thus provided a safe support for all the mechanism, permitting inner exchange of the enclosure parts without the use of nails or other fastening means, while at the same time adapting the structure to use or non-use during winter and summer seasons, etc., and permitting the handling of the heavy instrument for servicing, repair, etc., without danger to passersby.

Upon the platform 24 may be provided resilient pads or other vibration-dampening means such as may be needed for the unit 26. The structure provided enables any supporting vibration or soundproofing structure to be employed within the enclosure and below or about the unit 26.

Instead of forming the enclosure parts of wood or metal, one may advantageously form the various parts of plastic such as acrylic resin (Plexiglas), which resin has the advantage of being moldable in various shapes, also such a resin provides the transparent pane which may be substituted for the glass window, which pane may be worked to receive screws and other fastening devices, thus dispensing with the frame formerly used with the glass. Cleats of plastic, metal, or any other material may be used for supporting the base platform upon the sill. The plastic pane may be tinted to keep out glare, and the enclosure parts may be likewise colored or tinted and molded so as to dispense with fastening parts. It will be understood that a variety of plastics or molding compositions may be used.

While, in the foregoing specification, I have set forth a specific structure in considerable detail for the purpose of illustrating an embodiment of the invention, it will be understood that such details of structure may be varied widely by those skilled in the art without departing from the spirit of my invention.

I claim:

1. In combination with a window frame having a bottom baseboard and window sash panels slidably mounted in said frame, a base comprising a platform portion engageable with said baseboard and secured thereto, said platform being adapted to receive thereon an air conditioning unit, an enclosure member extending about the

6

forward end of said unit, said base and enclosure having interlocking foot and recess connections restricting outward movement of the enclosure, and a storm window fitted within the window frame outwardly of said sash panels and having its upper edge engaging the top of said frame and its lower portion immediately above said foot and recess connections and restricting upward movement of the enclosure, whereby said enclosure is locked against removal upon said base and about said air conditioning unit.

2. In combination with a window frame having window sash panels slidably mounted in said frame and a frame board and a sill portion, a base secured upon said sill to provide a platform flush with the surface of said frame board and adapted to receive thereon an air conditioner unit, said base having locking recesses therein, and an enclosure extending about the outer portion of said unit and equipped with depending feet engageable with the recesses of said base to limit outward movement of said enclosure, and a storm window extending between the top of the window frame and to said enclosure above said recesses for restricting upward movement of said enclosure.

3. The structure of claim 2, in which said enclosure comprises a U-shaped frame having an outer wall and inwardly-extending side walls and a top wall.

4. In combination with a window frame having window sash panels slidably mounted in said frame and an inner baseboard and a sill extending outwardly from said baseboard, a base platform secured upon said window frame and sill to provide a top surface flush with said baseboard, said base platform being provided at its inner sides with recesses and being adapted to receive thereon an air conditioner unit, an enclosure equipped with depending feet adapted to engage the recesses of said base platform, a top panel for said enclosure, and a storm window extending between the top of said window frame and said top panel in substantially perpendicular alignment with said enclosure feet to lock said enclosure against removal.

5. In combination with a window frame having a pair of windows slidably mounted in the frame, a base member mounted on the lower portion of the window frame to provide a flat surface adapted to receive thereon an air conditioning unit, means for securing said base member upon said frame, said base member having locking recesses therein, an enclosure frame equipped with feet adapted to engage said recesses and adapted to restrict outward movement of said air conditioning unit, and a storm window extending between the top of the window frame and said enclosure to lock said enclosure against removal, said storm window positioning outwardly of said pair of windows and above said recesses said first-mentioned windows being freely movable within said window frame without affecting the position of said air conditioning unit.

References Cited in the file of this patent

UNITED STATES PATENTS

1,069,412	Greene	Aug. 5, 1913
1,099,499	Hackett	June 9, 1914
1,137,473	Ford	Apr. 27, 1915
1,552,006	Palansky	Sept. 1, 1925
1,575,683	Groves	Mar. 9, 1926
1,954,590	Hanson	Apr. 10, 1934
2,115,720	Holmes	May 3, 1938
2,234,771	Moore	Mar. 11, 1941
2,294,664	Hubbard	Sept. 1, 1942
2,316,704	Moore	Apr. 13, 1943
2,519,085	Eberhart	Aug. 15, 1950