Aug. 26, 1952 E. SHAPIRO 2,608,148

SUPPORTING ASSEMBLY FOR WINDOW COOLERS

Filed Feb. 17, 1950 2 SHEETS—SHEET 1

Fig. 1

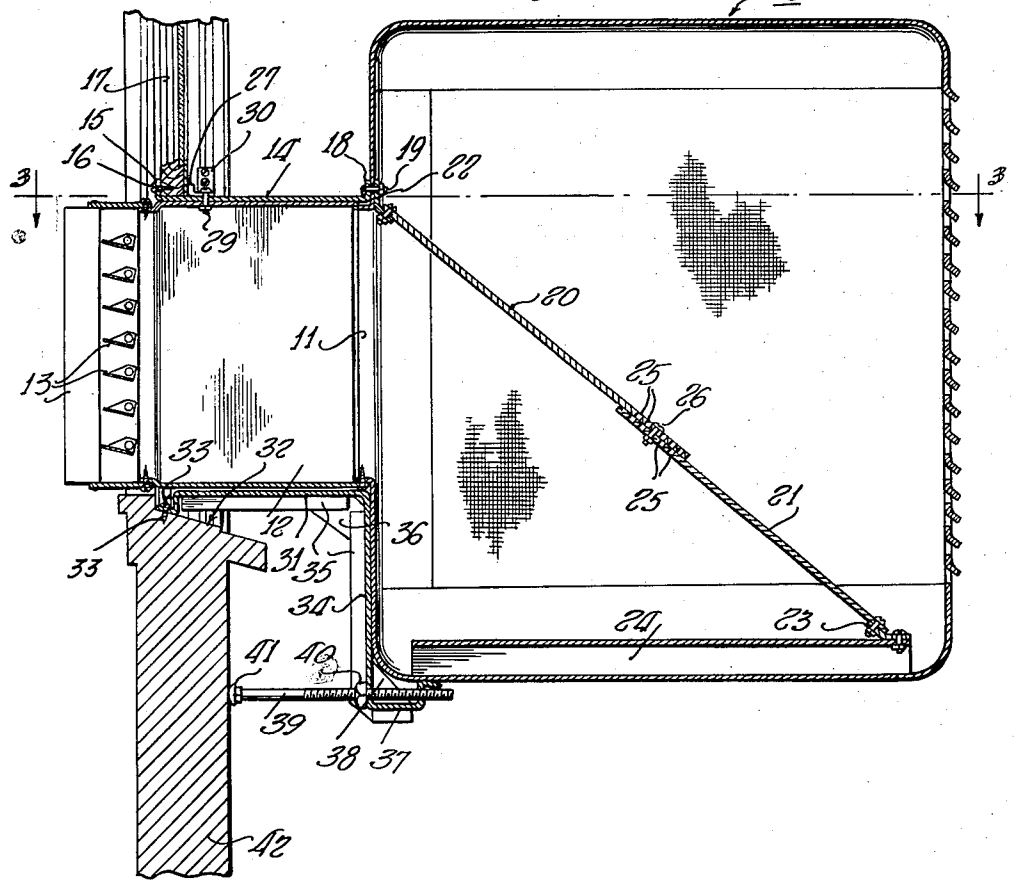
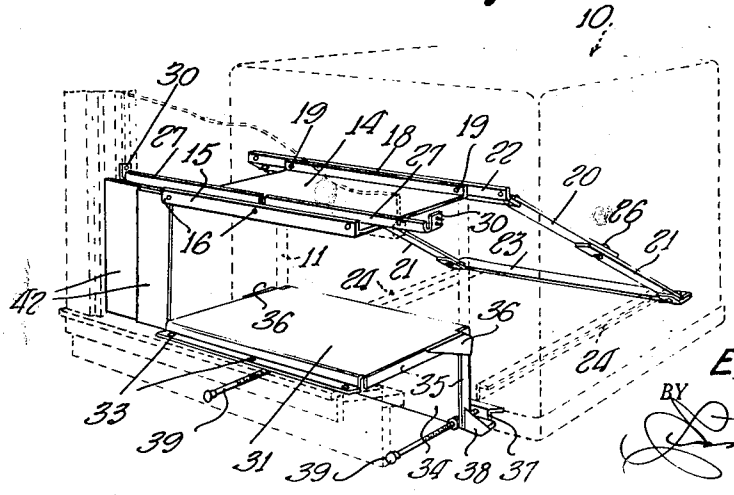


Fig. 2



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Fig. 3

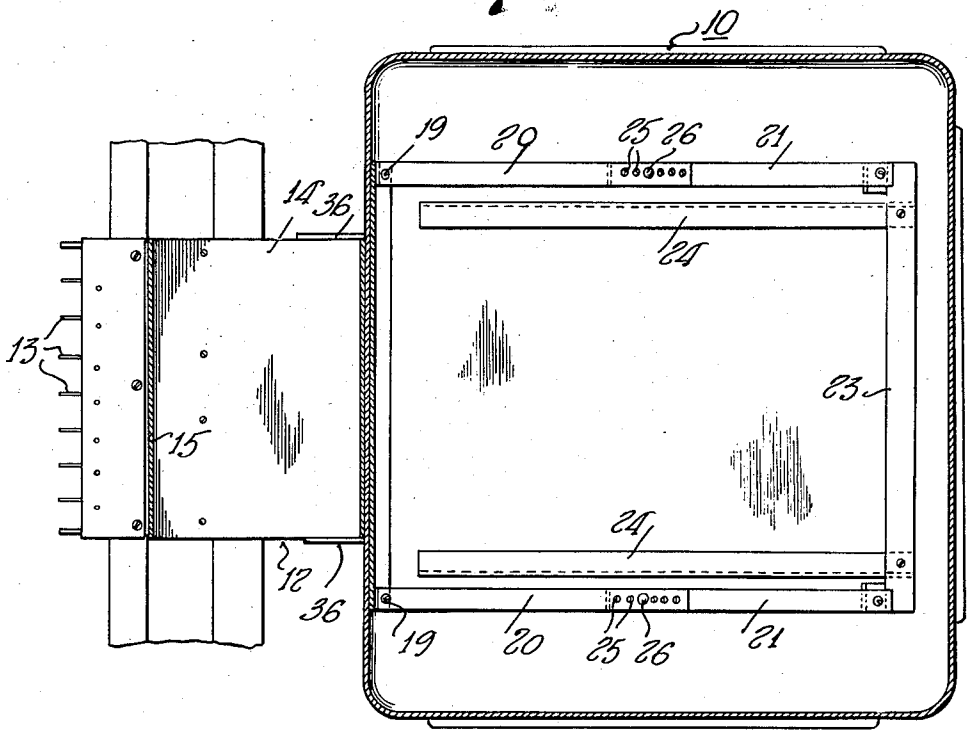


Fig. 4

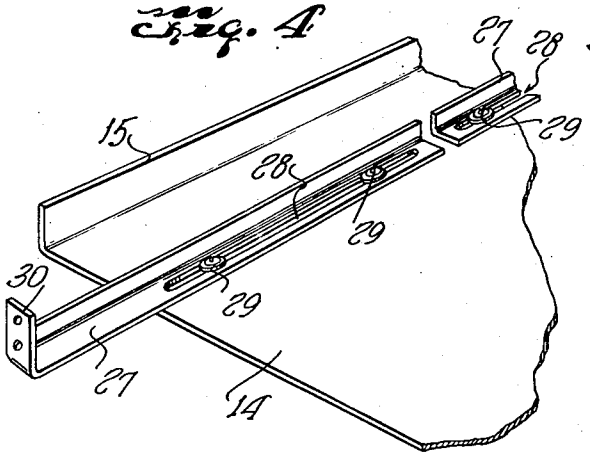
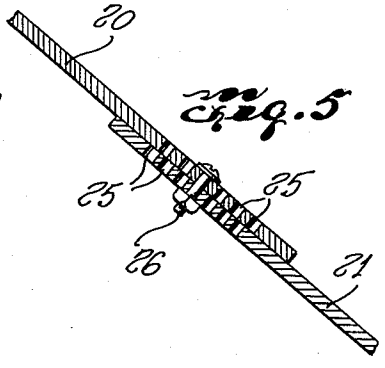


Fig. 5



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SUPPORTING ASSEMBLY FOR WINDOW COOLERS

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3 Claims. (Cl. 98—94)

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This invention relates to evaporative coolers and it has particular reference to supporting fabrication designed to retain the cooler operatively in relation to a window opening.

The principal object of the invention is to reduce materially the cost for erecting supports for window coolers, especially above the ground floor and to provide internal structure which makes feasible installations of large evaporative cooler units in double hung windows without the necessity for additional external support. As a general rule, the weight of the unit is such that sub-bracing is needed, bearing against the building wall to support the cooler. Such bracing is unattractive and expensive and falls far short of providing adequate support. The invention affords a support which is not only strong and durable but of pleasing appearance.

Another object of the invention is to provide a window enclosure assembly adapted to embrace the duct through which air enters the room after penetrating the filter mats of the cooler, said assembly being adjustable to accommodate the same to windows of various widths. Moreover, by virtue of a longitudinally adjustable supporting strap within and adjacent each side of the cooler and which extends from a lower outer corner thereof to the window enclosure assembly, the cooler is stabilized against lateral stresses as well as alleviating undue strain on the duct assembly. Broadly, the weight of the mass is distributed uniformly within the supporting fabrication and much of the weight is borne by compression bolts carried by the lower support assembly of the cooler and which bear adjustably against the building wall below the window.

With the foregoing and other objects in view, the invention has further reference to certain features of accomplishment which will become manifest as the description proceeds, taken in connection with the accompanying drawings wherein:

Figure 1 is a vertical sectional view of a cooler shown mounted in a window.

Figure 2 is a perspective view of the cooler supporting assembly on a reduced scale, in which the cooler is shown in dotted lines.

Figure 3 is a longitudinal sectional view taken on line 3—3 of Figure 1.

Figure 4 is a fragmentary perspective view of the upper support, and

Figure 5 is a fragmentary detail view of one of the angular supporting strap assemblies in longitudinal section.

Continuing with a more detailed description

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of the drawing, reference numeral 10 denotes the cooler housing whose side and rear walls are louvered and removable for readly access to fibrous filter mats therein, which have been omitted from the drawing. The housing is adapted to contain a blower effective to influence air through the filter mats which are kept saturated by water elevated by a pump, not shown, from the reservoir in the bottom of the housing, in the usual manner. The air is cooled by its passage through the mats and is discharged through an opening 11, embraced by a duct assembly 12, which latter conveys the air into a room. Directional control of the air as it emerges from the duct 12 is accomplished by vertically and horizontally arranged and adjustable louvers 13.

The window enclosure assembly of the invention is comprised primarily of an upper support in the form of a plate 14, the inner end of which is flanged upward at 15, and secured by screws 16 to the inner face of the lower window sash frame 17 which is lowered against the plate 14 in the manner revealed in Figure 1. The plate 14 is of the same width as the duct 12 and its outer end is upwardly flanged at 18 and is apertured to receive bolts 19 which extend through the front wall of the cooler housing, serving jointly to secure the plate 14 to the housing and to anchor the upper end of the supporting strap assembly, consisting of the axially aligned straps 20—21.

The upper section 20 of the supporting strap assembly is attached at its upper end to a support angle 22, the latter being secured by the bolt 19. The lower section 21 of the strap assembly is secured at its lower end to a lower support angle 23 which extends along the bottom of the housing adjacent the rear wall thereof. Two assemblies such as above described are required, one being adjacent each side of the housing but these assemblies, that is, the straps 20 and 21, are sufficiently spaced apart to accommodate the blower and motor, not shown, which are supported on the parallel rails 24 rigidly affixed to the bottom of the housing.

The continuous ends of the supporting straps 20—21 are each provided with longitudinally aligned apertures 25 which are adapted to selectively receive a bolt 26 to secure them adjustably together. It will be observed especially in Figure 5 that when the bolt 26 is positioned to secure the straps 20—21 together, all remaining holes are disaligned. This makes for closer adjustment in the length of the strap assembly to

compensate for slight variations in relationship of companion elements of the support assembly as a whole or for minor inaccuracies in manufacture.

Mounted for lateral adjustment on the plate 14 is a pair of reinforcing angles 27 (Figs. 2 and 4). These angles are each slotted longitudinally at 28 to receive spaced apart bolts 29, anchored in the plate 14, so that the angle member 27 may be moved inwardly or outwardly, depending upon the width of the window in which the unit is being installed. The end of each angle member is turned upwardly at 30 and secured by wood screws to the window frame, in the manner shown.

The lower supporting assembly is made up of a plate 31 below and parallel with the plate 14 of the upper support assembly and lies under the air duct 12. The inner end of the plate 31 is broken downwardly, thence forwardly at such an angle that it will lie flush against the sill 32 of the window (Fig. 1), to which it is secured by wood screws 33. The plate 31 is bent intermediate its ends to form a vertical portion 34 which bears flush against the front of the housing 10 and is turned outwardly at its lower ends, thence upwardly and again outwardly, the end thereof engaging the bottom of the cooler housing. The plate and the vertical portion 34 thereof are each provided with side flanges 35, the inner ends of which are joined by a gusset plate 36, to reinforce the support assembly.

The particular manner in which the lower end of the vertical portion 34 of the plate 31 is formed, as above described, creates a channel 37 under the forward end of the housing 10 and is reinforced by a gusset plate 38 at each end. The flanges of this channel have aligned apertures near each end through which are passed carriage bolts 39. A nut 40 is threaded onto each bolt against which rests a portion of the weight of the housing since the heads 41 of the bolts bear against the wall 42 of the building underneath the window.

The full weight of the housing 10 is distributed between the upper and lower supports, the upper support together with the supporting strap assembly, being under tension while the bolts 39 are under compression, as imposed through the lower support.

After the upper support is installed as described, the housing is elevated into position so that duct 12 will be disposed in the window opening. The side reinforcing angles 27 are set into position after first centering the duct with respect to the window. The lower support is positioned so that the inner edge of the plate 31 will bear against the window stool and is secured by the screws 33. The window sash frame 17 is brought down against the top of the duct 12 and the upturned flange 15 of plate 14 is secured to the sash frame by screws 16.

A spirit level is placed on the housing 10 and adjustment is made in the length of the strap assembly 20—21 until the housing is made level. At the same time, the nuts 40 on the compression bolts 39 are moved to insure that these bolts assume at least a part of the load with the housing 10 in a level position in order to relieve undue strain on the window sash frame 17.

It is obvious that any adjustments interiorly of the cooler housing may be made from within the room, which is a desideratum when the cooler is installed in windows above the ground floor. After installation and following any required adjustments, the louver assembly 13 is installed along with side extension panels 42, which are mounted vertically behind the window sill and sash frame (Fig. 2) on each side of the duct 12 to close the space not occupied by the duct.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed to fall within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. In a window cooler and housing, a supporting fabrication therefor including in combination with a window, a duct effecting communication between said housing and window, an upper support assembly comprising a plate overlying said duct having a flanged inner end affixed to the lower sash frame of said window and whose outer end is affixed to said housing, a lower support assembly comprising a plate underlying said duct and attached at its inner end to the sill of said window, said plate being formed with a vertical portion lying against the front of said housing below said duct, a channel formed in the lower end of said vertical portion and disposed under the forward edge of said housing, a pair of angular supporting strap assemblies within said housing, each connected at its upper end to said upper support assembly and at its lower end to a lower outer corner of said housing, means to effect length adjustment of said strap assemblies and adjustable compression means retained in said channel for supporting said housing from the wall of a building under said window.

2. In a window cooler and housing, a supporting fabrication therefor comprising in combination with a duct for conveying air through a window from said housing, an upper support assembly composed of a plate attached to and overlying said duct and having an upturned flange on one end engaging a sash frame of said window, an upturned flange on the opposite end of said plate engaging the front wall of said housing, a pair of diagonally arranged and extensible supporting strap assemblies within said housing, one end of each strap assembly being secured to the inner surface of said front wall of said housing, the opposite end of said strap assembly being secured adjacent a lower corner of said housing opposite said front wall, a second support assembly below said duct having one end attached to the sill of said window and the opposite end thereof disposed below said housing, and means adjustably retained by said opposite end of said second support assembly and engaging the building wall under said window to assume a portion of the weight of said housing.

3. In a window cooler and housing, a duct assembly for conveying air to a window from said housing, an upper support assembly comprising a plate above said duct having on one end a flange engaging the lower sash frame of said window and on its opposite end a flange secured to the front wall of said housing, a transverse angle support affixed to the inner surface of said front wall opposite said latter flange, adjustable tension means composed of axially aligned metal straps angularly disposed in said housing and attached at their upper ends to said angle support to support the end of said housing opposite said front wall through said

upper support assembly, each of said straps having longitudinally spaced apertures adapted for selective register with like apertures in the companion strap to receive a bolt effective to hold said straps adjustably together, and adjustable compression means at the front of said housing and engaging the building wall below said window and assuming a portion of the weight of said housing.

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