Feb. 28, 1967 N. W. WOODS 3,306,181

WINDOW MOUNT FOR AIR CONDITIONERS

Filed Sept. 21, 1964

2 Sheets-Sheet 1

FIG. 1

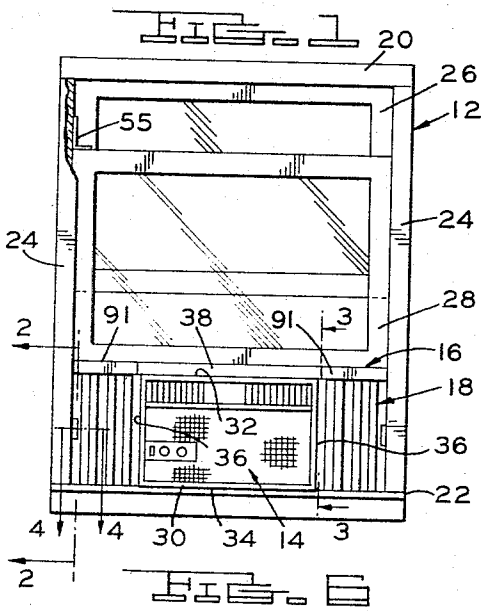


FIG. 2

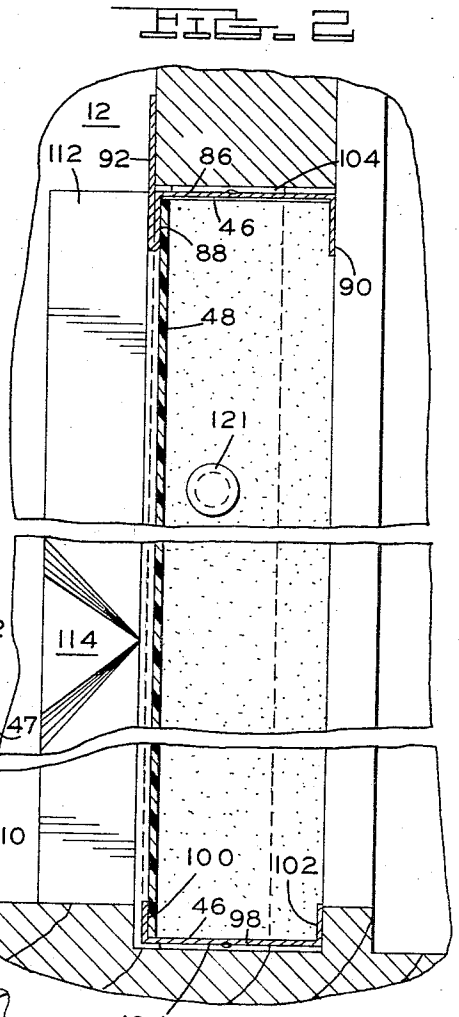


FIG. 6

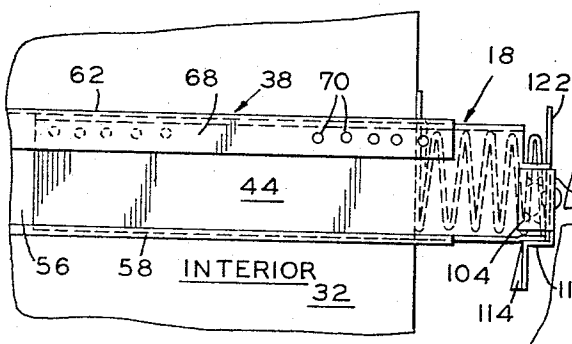


FIG. 3

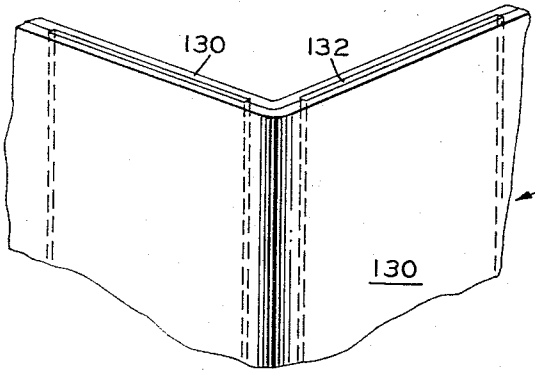
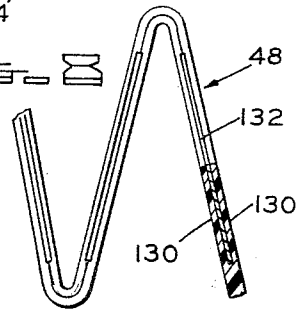


FIG. 8



INVENTOR.
NORMAN W. WOODS
BY
Barnes, Kisselle, Raisch & Choate
ATTORNEYS

Feb. 28, 1967 N. W. WOODS 3,306,181

WINDOW MOUNT FOR AIR CONDITIONERS

Filed Sept. 21, 1964

2 Sheets-Sheet 2

FIG. 3

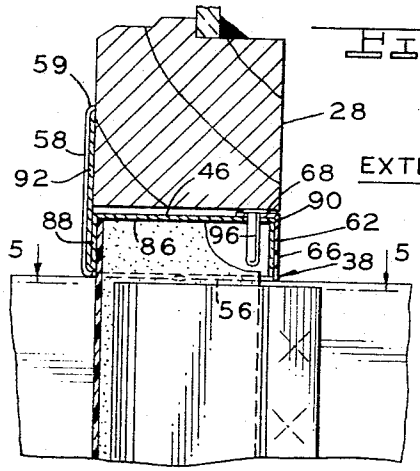
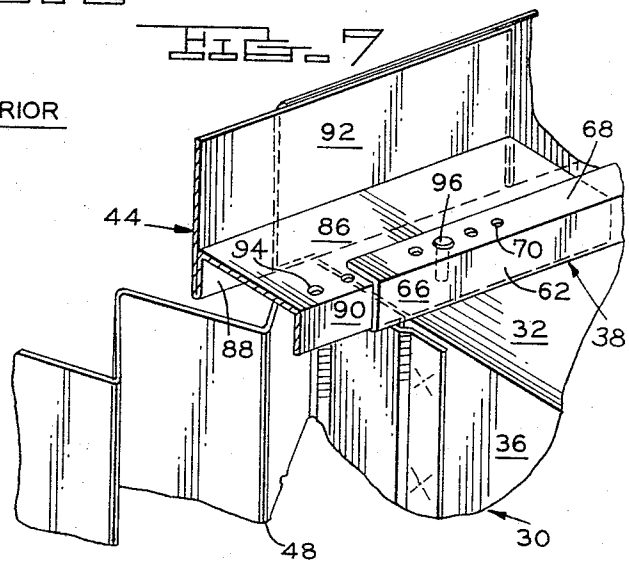


FIG. 7



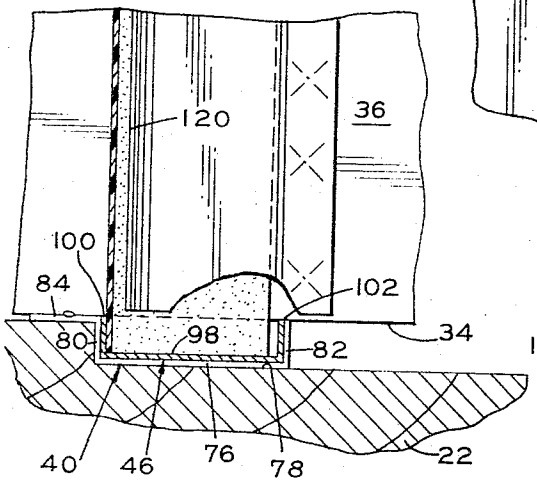


FIG. 4

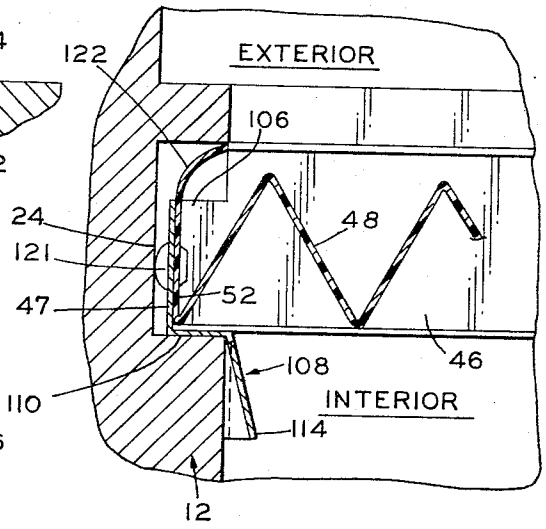
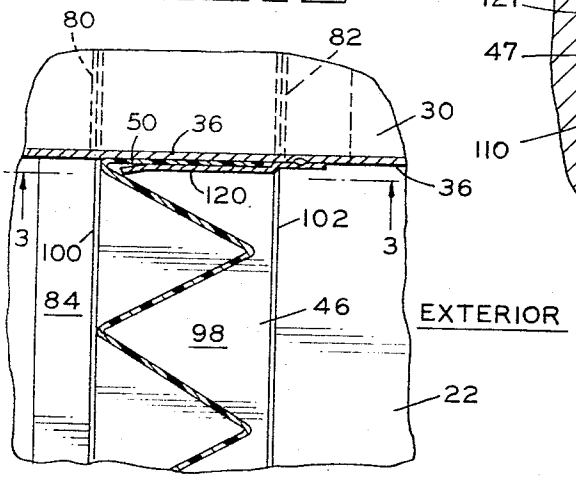


FIG. 5



INVENTOR.
NORMAN W. WOODS
BY
Barnes, Kisselle, Raisch & Choate
ATTORNEYS

United States Patent Office 3,306,181 Patented Feb. 28, 1967

3,306,181

WINDOW MOUNT FOR AIR CONDITIONERS

Norman W. Woods, Brantford, Ontario, Canada, assignor to Keeprite Products Limited, Brantford, Ontario, Canada, a corporation of the Province of Ontario

Filed Sept. 21, 1964, Ser. No. 397,987
3 Claims. (Cl. 98—94)

This invention relates to air conditioners and in particular to a mounting arrangement for supporting and enclosing an air conditioner in a window.

The objects of this invention are to provide such a window mount that is constructed simply and economically; that facilitates rapid and effective mounting of the air conditioner in the window; that is attractive yet durable and relatively impact proof; that has low thermal conductivity; that can be completely factory assembled economically; and that is extremely compact when factory assembled to facilitate shipping.

In the drawings:

FIG. 1 is a view of a window with the lower sash partly raised and an air conditioner mounted in the opening between the lower sash and the window sill by a window mount having side closures that extend laterally of the air conditioner to close the window opening in accordance with the instant invention.

FIG. 2 is an enlarged vertical section taken along the line 2—2 in FIG. 1 to illustrate the outer end of one of the side closures.

FIG. 3 is a vertical section taken along line 3—3 in FIG. 1 to illustrate the inner end of one of the side closures.

FIG. 4 is an enlarged horizontal section taken along line 4—4 in FIG. 1 to illustrate the cross section of an accordion-type curtain forming part of each side closure and also to illustrate the cooperation between the end of one side closure and a side run of the window.

FIG. 5 is a fragmentary horizontal section taken along line 5—5 of FIG. 3 to illustrate the connection between the curtain and a side wall of the air conditioner housing.

FIG. 6 is a fragmentary top view of the air conditioner illustrating the telescopic connection between one of the side closures and a channel on the air conditioner housing.

FIG. 7 is a perspective view of the telescopic connection between one of the side closures and the channel on the air conditioner housing.

FIG. 8 is an enlarged cross section of reinforced laminated sheet material from which the curtains are made.

FIG. 9 is a fragmentary perspective view of one fold at the top of the curtain.

For purposes of illustration and not by way of limitation, FIG. 1 shows a conventional double hung sash window 12 partially open with an air conditioner 14 extending through the open window and retained in the window 12 by a window mount 16. Mount 16 has a pair of side closures 18 that telescope laterally of air conditioner 14 to close the space between air conditioner 14 and window 12.

Window 12 comprises a frame having an upper cross member 20, a lower sill 22 and a pair of side runs 24. An upper sash 26 and a lower sash 28 are mounted in runs 24 for vertical movement. Air conditioner 14 comprises a generally rectangular housing 30, having upper and lower horizontal walls 32, 34 and a pair of side walls 36. Side walls 36 are spaced inwardly from adjacent runs 24 when air conditioner 14 is mounted in window 12. Mount 16 further comprises an upper channel 38 and a lower channel 40 mounted on upper and lower walls 32, 34, respectively, as by welding (FIG. 3). Channels 38 and 40 serve as guides for side closures 18. Side closures 18 generally comprise a three-sided frame having upper and lower slides 44, 46 telescopically mounted in channels

38, 40, respectively, and an end plate 47. Each side closure 18 also comprises an accordion-type curtain 48 each of which has its inner end portion 50 connected to one of the side walls 36 of the air conditioner and its outer end portion 52 connected to end plate 47 on side closure 18. Air conditioner 14 is held tightly in place by closing sash 28 against the top of air conditioner 14 and the upper slides 44. Sash 28 is locked in place by an angled bracket 55 having its legs secured to the top of sash 28 and one of the side runs 24, respectively, as by screws (not shown).

The upper channel 38 is preferably formed from a single piece of heavy gauge sheet metal and is fashioned with a bottom 56 (FIGS. 3 and 6), a vertical interior flange 58, and a generally L-shaped exterior flange 62. Bottom 56 abuts top wall 32 of the air conditioner and is fastened thereto as by welding. Flange 58 extends upwardly from air conditioner 14 to overlie an interior surface of sash 28. Flange 58 has its upper free end bent at 59 toward sash 28 (FIG. 3). The exterior flange 62 has a vertical leg 66 extending upwardly from air conditioner 14 and a horizontal top leg 68 extending in an interior direction to overlie upper slide 44. Bottom 56 of channel 38 has its length substantially equal to the width of upper wall 32 of the air conditioner whereas the side flanges 58, 62 project slightly outwardly beyond side walls 36 of the air conditioner. Adjacent each end of channel 38, leg 68 has perforations 70 spaced longitudinally therealong. Lower channel 40 is fashioned with a bottom 76 that rests in a recess 78 of sill 22. Channel 40 also has interior and exterior sides 80, 82, respectively, projecting upwardly from bottom 76. A horizontal flange 84 at the top of side 80 overlies the top face of sill 22. Channel 40 extends the full width of bottom wall 34 of the air conditioner and is fastened to wall 34 as by spot welding flange 84 thereto.

Slides 44, 46 each have a generally U-shaped cross section dimensioned to telescopically nest in channels 38, 40, respectively. Each of the upper slides 44 has a top 86 formed by the bight of the U and downwardly projecting interior and exterior sides 88, 90 formed by the legs of the U. Sides 88, 90 overlie adjacent interior and exterior upper surfaces of curtains 48. Each of the slides 44 also has a vertical interior flange 92 integral with side 88 and extending upwardly from air conditioner 14 to overlie the interior face of sash 28. The inner end portions of flanges 92 are nested between flange 58 of upper channel 38 and sash 28. Tops 86 of slides 44 have perforations 94 spaced longitudinally therealong and adapted to register with perforations 70 in channel 38 so that a headed pin 96 can be dropped downward through perforations 70 and 94 to lock slides 44 in channel 38. The spacing between adjacent perforations 94 is greater than the spacing between perforations 70 so that one of the perforations 70 can be vertically aligned with one of the perforations 94 with very slight movement of side closures 18. The lower slide 46 has a bottom 98 formed by the bight of the U and upwardly projecting interior and exterior sides 100, 102. Sides 100, 102 overlie the adjacent interior and exterior lower surfaces of curtains 48. End plates 47 have upper and lower end tabs 104 bent inwardly of closures 18. Tabs 104 are welded to ensmalled end tabs on slides 44, 46 (FIGS. 2 and 6). Each end plate 47 is also fashioned with an interior L-shaped flange 108 having one leg 110 adjacent one side of run 24 and the other leg 112 overlying an adjacent interior surface of window 12. Leg 112 has a trough-shaped indentation 114 which serves as a handle to assist in moving closures 18 laterally of air conditioner 14.

Curtain 48 has its inner end portion 50 tucked under and frictionally retained by a vertical spring leaf 120 which is fixed on side wall 36 as by spot welding along

the exterior edge of leaf **120**. The outer end portion **52** of curtain **48** is secured to end plate **47** as by riveting at **121**. As shown in FIG. 4, end portion **52** has a terminal flap **122** that projects from plate **54** toward the exterior of the window and abuts a side wall of run **24** to provide a seal when the outer end of closure **18** is fitted in run **24**. Each curtain **48** is fashioned from a pair of flexible, vinyl-plastic sheets **130** reinforced by vertical steel slats **132** displaced along sheets **130** as shown in FIG. 8. Sheets **130** are laminated together as by heat-bonding to provide a vinyl-steel-vinyl sandwich that is thin yet strong and stiff and can be folded compactly along the fold lines of weakness between the slats **132**.

With the device described, the window mount **16** can be assembled on housing **30** at the factory into a very compact assembly when side closures **18** are telescoped to their innermost position and end plates **47** are disposed immediately adjacent channels **38, 40**. To install the air conditioner **14** in window **12**, sash **28** is partially opened so that air conditioner **14** can be extended therethrough until channel **40** drops into recess **78** in sill **22**. Closures **18** are then extended laterally, slides **44, 46** telescoping in channels **38, 40**, respectively, until end plates **47** bottom in runs **24** of window **12**. Pins **96** are then dropped through those perforations **70, 94** that can be aligned with very slight movement of closures **18**. As end plates **47** enter runs **24**, flaps **122** engage the exterior side wall of runs **24** and are flexed slightly to provide a weather seal. After both side closures **18** are locked in their extended position by pins **96**, sash **28** is lowered until it bottoms on mount **16** and the heads of pins **96** as illustrated in FIG. 3. With sash **28** in its lowered position, flanges **58, 92** overlie an interior face of sash **28**. Sash **28** is then locked in its lowermost position with bracket **55** by securing one leg thereof in one of the runs **24** and the other leg to the top of sash **28**.

Alternately, air conditioner **14** and side closures **18** can be shipped unassembled. To assemble closures **18** on air conditioner **14**, the upper exterior corner of end portion **50** is tucked under leaf **120** and then the remainder of portion **50** is tucked under leaf **120** until curtain **48** can be dropped down into slide **46**. Slides **44, 46** can then be nested in channels **38, 40**.

By way of example, in a conventional half-horsepower air conditioner having a width of approximately 20 inches, each of the side curtains **48** were formed from two sheets of vinyl each approximately 20 inches wide and 0.008 inch thick. Sixteen steel slats **132**, one inch wide and 0.0065 inch thick, spaced one-fourth of an inch apart, were used. This curtain can be expanded to 10–10½ inches and provide an effective closure and yet be collapsed to $^{11}/_{32}$–$^{7}/_{16}$ inch. This construction provides a very thin curtain which looks stiff and is stiff and yet can be made very inexpensively.

I claim:

1. In combination with an air conditioner housing of the type adapted to extend through an opening in a window frame with a vertical side wall of the housing spaced from a vertical side of the frame, means for mounting the housing in the window frame to close the space between the side wall of the housing and the side of the window frame comprising a side closure telescopically mounted on the housing and an accordion-type side curtain mounted on the closure, said curtain comprising two sheets of flexible material with stiff vertical slats sandwiched between the sheet material and bonded therewith into a unitary laminated curtain with the slats reinforcing the sheet material, said slats being spaced from adjacent slats to form individual curtain panels that are hinged together by the sheet material between adjacent slats, said slats being vertically coextensive with the sheet material and the curtain being vertically coextensive with the sheet material so that the upper end edge of each slat is exposed at the top of the curtain and the lower end edge of each slat is exposed at the bottom of the curtain, said mounting means comprising a channel mounted on the top of said housing and extending in a direction generally perpendicular to said side wall, a slide on said closure telescopically engaged with said channel, said channel having an exterior L-shaped flange with one leg of the L extending upwardly from the housing and the other leg of the L extending in an interior direction from said one leg to overlie said slide, a first series of spaced perforations in the top of said slide, a second series of spaced perforations on said other leg of said L-shaped flange with one perforation in said first series registering with one of the perforations in said second series, and a pin extending through said registering perforations to locate said closure in a fixed position relative to said channel.

2. The combination set forth in claim **1** wherein the space between adjacent perforations in one series is greater than the spacing between adjacent perforations in the other series.

3. In combination a window, an air conditioner housing, and means for mounting said housing in said window, said window comprising a frame and a movable sash, said frame having a pair of vertical side runs and a sill, said sash being mounted for vertical movement in said side runs and being partially open when said housing is mounted in said window, said housing having a top wall, a bottom wall, and vertical side walls, one of said side walls being spaced from one run, said mounting means comprising top and bottom channels mounted on said housing, a side closure having a frame formed with top and bottom slides telescopic in said top and bottom channels, respectively, said top channel and said top slide having vertically registering perforations, a pin extending downwardly through said perforations to lock said top slide in said top channel with said closure extended laterally from said housing to said one run to substantially close the space defined by said one side wall, said one run, said sash and said sill, said sash being positioned directly over and immediately adjacent the upper end of said pin to block upward withdrawal of the pin from its locking position, and means securing said sash so positioned so that said pin cannot be removed to unlock the slide without first releasing and then raising said sash.

References Cited by the Examiner

UNITED STATES PATENTS

2,781,717	2/1957	Hord	98—94
2,911,899	11/1959	Spiegelhalter	98—94
3,030,873	4/1962	Metcalfe	98—94
3,094,916	6/1963	McGrath et al.	98—94
3,111,076	11/1963	Martin et al.	98—94

MEYER PERLIN, *Primary Examiner.*

ROBERT A. O'LEARY, *Examiner.*

M. A. ANTONAKAS, *Assistant Examiner.*