

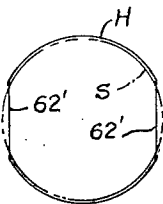
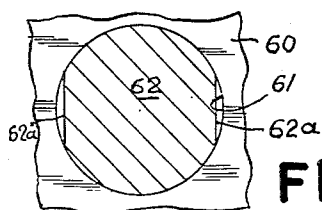
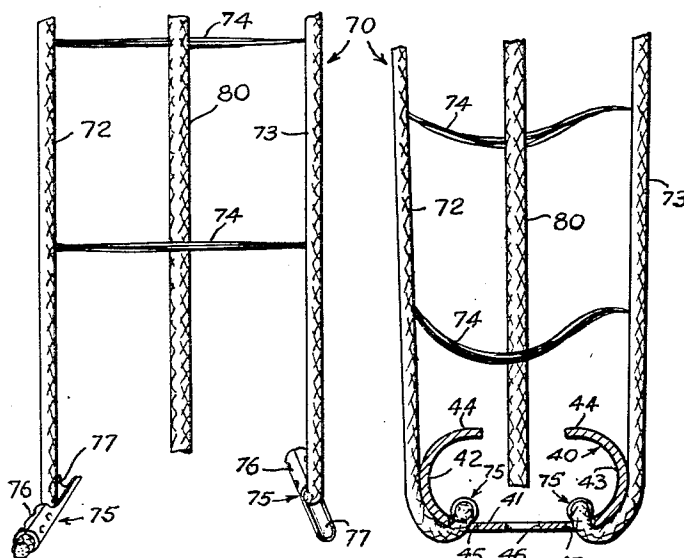
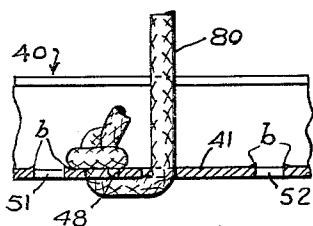
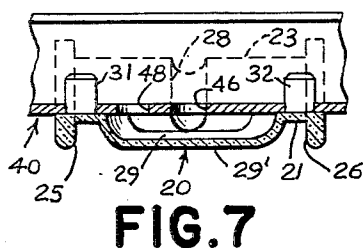
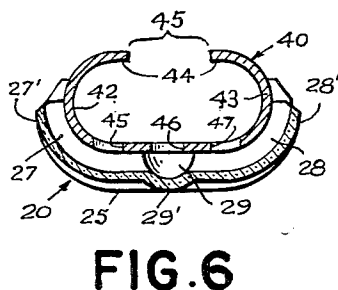
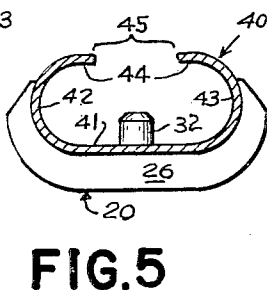
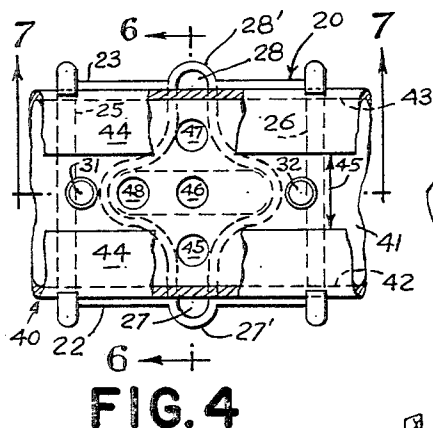
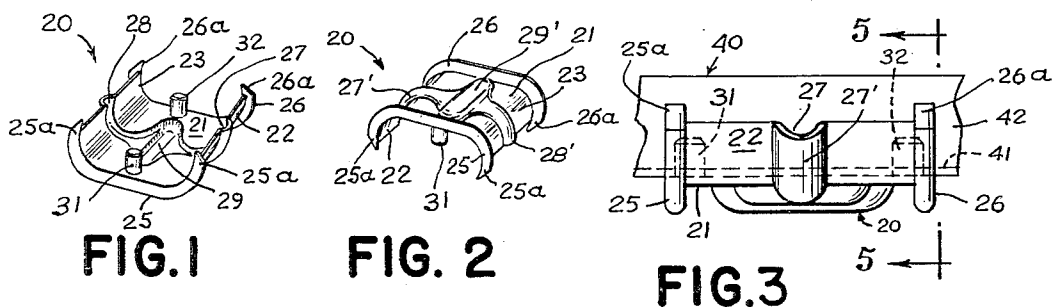
Dec. 23, 1969

H. K. LORENTZEN ET AL

3,485,286

VENETIAN BLIND LADDER-CAP AND ASSEMBLY

Filed May 27, 1968



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2

3,485,286
VENETIAN BLIND LADDER-CAP AND ASSEMBLY
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Int. Cl. E06b 9/38
U.S. Cl. 160—178 13 Claims

ABSTRACT OF THE DISCLOSURE

The lower end-portions of a Venetian blind ladder and associated lift cord are attached to a hollow Venetian blind bottom bar. A one-piece plastic ladder-cap is adapted to be fastened to the bottom bar in the region of the ladder and lift cord. The plastic ladder-cap underlies the bottom bar and extends upwardly in front and in back thereof. The ladder cap is provided with homogeneous plastic studs which project through tight stud-receiving holes in the bottom wall of the bottom bar and thereby fasten the ladder cap to the bottom bar. The ladder-cap has channels that are receptive of end portions of the ladder and lift cord.

BACKGROUND OF THE INVENTION

A Venetian blind is customarily provided with a bottom bar to which the lower end-portions of the longitudinal elements of the ladder are attached. A lift cord is often associated with a ladder, and the lower end-portion of the lift cord is also attached to the bottom bar.

The bottom bar has often been provided, in the region of the attachment of the end portions of the ladder and associated lift cord, with either a caplike fitting or an assembly that includes a caplike fitting. The caplike fitting, or the assembly which includes it, may or may not have a fastening function in connection with the attachment of the ladder and/or the lift cord to the bottom bar. The caplike element, which may be termed a ladder cap, underlies the bottom bar and shields the lower end-portions of the ladder so that they do not pick up dust and dirt from a window sill. With some bottom bars the ladder cap similarly protects the lower end-portion of the associated lift cord from picking up dust and dirt.

The prior-art ladder-cap constructions and arrangements have various disadvantages and limitations. Some are more complex and/or expensive than is desirable. Some are for special forms of bottom bars and cannot readily be adapted for other forms of bottom bars. Some involve assembly procedures which are less facile and speedy than is desirable. In most instances at least, the prior-art ladder-caps mar the window sill upon striking the sill when the blind is fully lowered. Few of any of the prior-art ladder-caps mar the window sill upon striking the suited for use with a narrow bottom-bar of small height, for example, a bottom bar $\frac{3}{4}$ " wide and $\frac{3}{8}$ " tall.

As examples of the prior-art ladder-cap structures and arrangements, see U.S. Patents 2,114,057, 2,421,505, 2,502,028, and 2,520,109.

SUMMARY OF THE INVENTION

The present invention provides a Venetian blind ladder-cap, and assembly of ladder-cap and bottom bar, which affords the features or aspects hereinafter set forth.

In accordance with the invention a plastic ladder-cap has plastic studs which are adapted to project through tight stud-receiving holes in the bottom wall of a hollow Venetian blind bottom-bar and thereby attach a ladder cap to the bottom bar. In accordance with one aspect of the invention, the ladder-cap includes a plastic base to underlie the hollow Venetian blind bottom-bar and also

includes front and rear plastic walls, homogeneous with the plastic base, to extend upwardly from the base and lie alongside the front and rear walls of the hollow Venetian blind bottom-bar.

In accordance with a feature of the invention, the ladder cap has outwardly-projecting plastic ribs that are homogeneous with the front and rear plastic walls of the ladder cap and which extend across the ends of the plastic base and thence upwardly across the front and rear plastic-walls.

In accordance with another feature of the invention, the ladder cap has channels that extend downwardly in the front and rear plastic-walls of the ladder cap and thence toward each other in the plastic base of the ladder cap, to afford passage for the lower end-portions of the front and rear longitudinal-elements of a Venetian blind ladder. In accordance with a further feature of the invention, the plastic base of the ladder cap has a lengthwise-extending channel which merges with the two downwardly-extending channels and which afford space receptive of the end portion of a ladder-associated lift-cord of a Venetian blind.

In accordance with other features of the invention, there are two plastic studs which extend upwardly from the base of the ladder cap on the longitudinal center-line thereof, these studs being at least roughly aligned vertically with the mid portions of the plastic ribs that extend downwardly from the ends of the ladder cap and these studs projecting through stud-receiving holes in the hollow bottom-bar in tight-fitting relationship therewith and thereby fastening the ladder cap to the bottom bar.

In accordance with further features of the invention, the plastic studs of the ladder cap are solid studs of initially-circular cross section and the stud-receiving holes in the bottom bar are circular except for flat opposite sides. In accordance with other aspects the initial diameter of the plastic studs is less than the diameter of the stud-receiving holes as measured between arcuate portions thereof but greater than the diameter of the stud-receiving holes as measured between the opposite flats thereof.

In accordance with still another feature of the invention, the bottom bar is of sheet metal and the metal at the flat sides of the stud-receiving holes is rough and barbed-like, digging into the plastic studs and opposing withdrawal of the studs once they have been inserted into the stud-receiving holes.

The presently-preferred embodiment of the invention affords all of the foregoing features and aspects, and affords additional features and aspects that will be apparent from the drawing and the descriptions in connection therewith. It is left to the user to decide upon the omission of any feature or features, and/or aspect or aspects, which are not needed for his particular use.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings the thickness of the sheet material may be exaggerated in some instances. FIGS. 3-10 are drawn to approximately twice the scale of FIGS. 1 and 2. FIGS. 11 and 12 are greatly enlarged, being to a much larger scale than any of the other figures.

As a Venetian blind is opened and closed, the bottom bar tilts forwardly and rearwardly with the forward and rearward tilt of the slats. For simplicity, the drawings are on the basis of the bottom bar being in the untilted position, i.e. in the position in which the front and rear of the bottom bar are at the same level.

FIG. 1 is an isometric view showing the plastic ladder-cap alone, this view showing the cap right-side-up with the plastic studs projecting upwardly for upward insertion into the stud-receiving holes in the bottom wall of a hollow Venetian blind bottom-bar.

3

FIG. 2 is an isometric view of the plastic ladder-cap alone, turned upside-down.

FIG. 3 is a fragmentary front elevation showing the bottom-bar and ladder-cap, the ladder-cap of FIGS. 1 and 2 being attached to the bottom bar.

FIG. 4 is a fragmentary plan view of the bottom bar and thereto-attached ladder-cap, looking from the top of FIG. 3.

FIG. 5 is a vertical cross-section on the line 5—5 of FIG. 3, showing the bottom bar in vertical section and showing the thereto-attached ladder-cap in end elevation.

FIG. 6 is a vertical cross-section on the line 6—6 of FIG. 4, showing both the bottom bar and the thereto-attached ladder-cap in vertical cross-section. For the sake of clarity the plastic stud of the ladder cap is omitted; if shown it would be superimposed on the center one of the three holes that this view shows in the bottom bar.

FIG. 7 is a fragmentary section on the line 7—7 of FIG. 4, showing both the bottom bar and the thereto-attached ladder-cap in vertical longitudinal-section, the plastic studs of the ladder cap being shown in elevation.

FIG. 8 shows the lower end-portion of a Venetian blind ladder and a fragment of the associated lift-cord. These are to be attached to the bottom bar in association with the ladder cap. In FIG. 8 the ladder and lift cord are viewed as though looking down the length of the bottom bar.

FIG. 9 is the same type of view as FIG. 8 but showing the ladder attached to the bottom bar, the bottom bar appearing in vertical cross-section.

FIG. 10 shows a fragment of the bottom bar in central longitudinal-section with the lower end-portion of the ladder-associated lift-cord attached thereto.

FIG. 11 is a diagrammatic view illustrating the punch and die that are used to punch the stud-receiving holes in the bottom bar. The punch is shown in cross section and the die is shown in plan.

FIG. 12 is a schematic diagram illustrating the relationship between the stud-receiving hole in the bottom bar and the stud circle of the plastic stud of the ladder cap before the stud is inserted into the stud-receiving hole.

DESCRIPTION OF THE EMBODIMENT THAT IS PRESENTLY PREFERRED

Except as may be otherwise indicated, the description under this heading refers only to the particular form of the invention that is shown in the drawing. The drawing shows the presently preferred embodiment, i.e. the best mode thus far contemplated of carrying out the invention.

When a Venetian blind is fully open the bottom bar is untilted, i.e. the front and rear of the bottom bar stand at the same level. For convenience and clarity the bottom bar will be referred to hereinafter on the basis of its standing in untilted position. Similarly, the ladder cap will be referred to hereinafter on the basis of its standing in the oriented position corresponding to the bottom bar being untilted.

The ladder cap is designated as a whole by 20; it is plastic and is injection-molded in one piece. When molded the plastic is resilient and is fairly hard, whereby the ladder cap has good stability as regards its configuration. At the same time, the ladder cap and the portions thereof are capable of a degree of resilient yielding. The presently preferred plastic is a resin sold by Phillips Chemical Company under the trade mark Marlex and designated Marlex Resin TR-822.

The ladder cap 20 includes a plastic base 21 and front and rear plastic walls 22 and 23 which are homogeneous with the base and curve upwardly therefrom. Homogeneous with the ends of the base 21 and with the ends of the walls 22 and 23, there are strengthening ribs 25 and 26 which project outwardly. These ribs have triangular end portions 25a, 25a and 26a, 26a which extend above the upper edges of the front and rear walls 22 and 23.

On the inside of the ladder cap, channels 27 and 28 extend downwardly in the front and rear walls 22 and

4

23 and thence toward each other in the base 21. A channel 29 extends lengthwise at the center of the base 21, and the channels 27 and 28 flare out and merge with the channel 29 as shown in the drawing. The plastic base 21 and the plastic walls 22 and 23 are sheetlike and, in a ladder cap for a bottom bar which is $\frac{3}{4}$ " wide and $\frac{3}{8}$ " tall, may have a thickness of approximately .035". Since the base 21 and the walls 22 and 23 are sheetlike, the channels 27, 28, and 29 on the interior of the ladder cap have counterparts on the exterior of the ladder cap, viz. the ribs that are designated 27', 28', and 29' respectively.

Plastic studs 31 and 32 project upwardly from the plastic base 21 on the inside of the ladder cap. These studs are homogeneous with the base 21. The studs 31 and 32 are solid studs of cylindrical cross-section, the upper ends of the studs having the short tapers that are seen in the drawing. The two studs 31 and 32 are located adjacent to the opposite ends of the base 21 of the ladder cap, the longitudinal axis of each stud being vertical and passing through the longitudinal center line of the ladder cap. The two studs 31 and 32 on the inside of the ladder cap are roughly aligned vertically with the mid portions of the strengthening ribs 25 and 26 that are on the outside of the ladder cap.

The bottom bar is designated as a whole by 40. It is formed from prepainted sheet steel and, for a bottom bar $\frac{3}{4}$ " wide and $\frac{3}{8}$ " high, the sheet steel may be approximately .025" thick before painting. In cross section the bottom bar has the oval configuration that is seen in FIGS. 5, 6, and 9, the long axis of the oval being horizontal when the bar is untilted. The bottom bar includes a bottom wall 41 from which front and rear walls 42 and 43 curve upwardly and merge with a top wall 44 that has a central discontinuity at 45.

The Venetian blind has two or more ladders and associated lift cords which are attached to the bottom bar. To receive the end portions of a ladder and the associated lift cord, the bottom wall 41 of the bottom bar is provided with a series of three transverse holes 45, 46, and 47 plus a fourth hole 48. The holes 46 and 48 are midway between the front and the rear of the bottom bar. The holes 45 and 47 are positioned as shown in FIG. 4, the centers of holes 45 and 47 lying on a line which passes through the center of hole 46 and which is perpendicular to the longitudinal axis of the bottom bar. The bottom wall 41 of the bottom bar is also provided with stud-receiving holes 51 and 52 (FIG. 10) to receive the studs 31 and 32 of the ladder cap. The holes 51 and 52 are midway between the front and the rear of the bottom bar, which aligns them with holes 46 and 48.

The holes 45, 46, 47, and 48 are circular holes punched in conventional manner, the punch moving from the outside to the inside of the bottom bar 20. Each of the holes 51 and 52 is punched with a flat-sided punch working with a circular die, the punch also moving from the outside to the inside of the bottom bar 20.

In FIG. 11 the die 60 has a circular opening 61 which receives the punch 62 which is shown in cross section. Except for the flats at 62a, 62a the punch 62 mates with the circular die opening 61 in conventional manner, with normal operating clearance. Flats 62a, 62a are cords of the punch circle, the centers of the two cords lying on the same diameter of the punch circle and the two cords being spaced from the die circle as seen in FIG. 11. In punching the holes 51 and 52 in the bottom wall 41 of the bottom bar, the die 60 is against the inner face of the bottom wall 41 and the punch 62 is projected through the bottom wall 41 from the outside to the inside of the bottom bar. Due to the abnormally-large clearance between the circular opening 61 of the die and the flats 62a, 62a of the punch, that metal of the bottom-bar wall 41 which is adjacent to the flats 62a, 62a is pushed toward the inside of the bottom bar; and as it is pushed it is roughened and torn, providing the holes 51 and 52 with

the rough barblike formations *b*, *b* that are seen in FIG. 10.

The Venetian blind ladder is designated as a whole by 70 and is of the type that is known in the trade as a "string" ladder. The front and rear longitudinal elements 72 and 73 are cordlike and are braided. The rungs or cross members 74 of the ladder each consists of a plurality of separate stringlike or threadlike strands which lie alongside one another. The lower ends of the longitudinal elements 72 and 73 are tipped with sheet-metal fittings 75. Each fitting 75 has a tubelike portion 76 for approximately half its length and a channel-shaped portion 77 for the remainder of its length. The tubelike portion 76 is telescoped onto the end of the longitudinal element of the ladder and squeezed against it, the metal of the tube being pricked inwardly at spots to securely attach the fitting 75 to the longitudinal element of the ladder.

In attaching the ladder 70 to the bottom bar 40 the lower end-portions of the front and rear longitudinal elements 72 and 73 of the ladder are passed downwardly around the front and rear walls 42 and 43 of the bottom bar, after which the fittings 75 are inserted tube end first through the holes 45 and 47 in the bottom wall 41 of the bottom bar. As the fittings 75 are inserted through the holes 45 and 47, the longitudinal elements 72 and 73 of the ladder nest within the channel-shaped trailing-portions 77, 77 of the fittings. Once the fittings 75, 75 are inside of the bottom bar, the pull of the longitudinal elements 72 and 73 at approximately the midpoint along the length of the fittings 75, 75 causes the fittings to dispose themselves crosswise of the holes 45 and 47 as seen in FIG. 9 and thereby prevent fortuitous detachment of the ladder from the bottom bar.

The end portion of the lift cord 80 is passed downwardly through the hole 46 in the bottom wall 41 of the bottom bar and may then be knotted beneath the bottom bar. In the alternative, the end portion of the lift cord 80 may be looped beneath the bottom bar and passed upwardly through hole 48 to the inside of the bottom bar and then be knotted as is shown in FIG. 10.

With the ladder 70 and the lift cord 80 attached to the bottom bar, the ladder cap 20 is applied. The stud-receiving holes 51 and 52 in the bottom wall of the bottom bar are tight holes for the reception of the plastic studs 31 and 32.

FIG. 12 shows the relationship between each of the holes 51 and 52, and the plastic stud to be received thereby. In FIG. 12 the full line H represents the hole 51 or 52 (FIG. 10), these holes being circular in plan except for opposite flat sides at 62', 62' corresponding to the flats 62a, 62a of the punch 62. The dot-dash circle S in FIG. 12 represents the circle of the solid cylindrical stud 31 or 32 before the stud is forcibly inserted into the hole 51 or 52. As is seen in FIG. 12, the relationship of the stud circle S to the hole H is such as to provide marked interference between the stud and the flat sides 62', 62' of the stud-receiving hole, whereby the inserted stud will be in tight-fitting relationship with the hole with slight clearance between the stud and arcuate portions of the hole H.

The ladder cap is applied to the bottom bar by manually moving the base 21 of the ladder cap toward the bottom wall 41 of the bottom bar with the studs 31 and 32 in alignment with the holes 51 and 52 and then forcibly projecting the studs 31 and 32 through the holes 51 and 52 to bring them, and the entire ladder cap 20, to the position that is best seen in FIG. 7. As is seen in FIG. 7, the plastic studs not only pass upwardly through the sheet-metal bottom wall of the bottom bar but extend well above such bottom wall. The tapered ends of the studs 31 and 32 help start the studs into the stud-receiving holes 51 and 52. As the studs are pushed into the holes, each stud is firmly squeezed between the opposite flat sides (62', 62' in FIG. 12) of the stud-receiving hole. These opposite flat sides of the holes have the rough

barblike formations that are designated by *b*, *b* in FIG. 10; and these barblike formations dig into the walls of the plastic studs 31 and 32 and oppose removal of the ladder cap. As shown in FIG. 7, the solid plastic studs 31 and 32 are long enough to project well within the bottom bar when the ladder cap is in position on the bottom bar.

The plastic studs 31 and 32 are resilient and fairly hard, and the grip of the stud-receiving holes 51 and 52 on the studs is so firm that there is no danger of fortuitous separation of the ladder cap from the bottom bar. However, if it is desired to remove the ladder cap from the bottom bar, it can be done by inserting a knife or screw driver between the bottom wall 41 of the bottom bar and the base 21 of the ladder cap and prying the ladder cap from the bottom bar.

When the ladder cap 20 is in applied position on the bottom bar, the bottom wall 21 of the ladder cap underlies the bottom wall 41 of the bottom bar, and the front and rear walls 22 and 23 of the ladder cap extend upwardly and lie alongside the front and rear walls 42 and 43 of the bottom bar. The lower end-portions of the longitudinal elements 72 and 73 of the ladder, which extend around the bottom bar as seen in FIG. 9, nest within the grooves 27 and 28 of the ladder cap. The portion of the lift cord 80 which is beneath the bottom wall 41 of the bottom bar nests within the longitudinal groove 29 in the ladder cap, whether the lift cord be knotted beneath the hole 46 in the bottom wall of the bottom bar or whether the lift cord be looped upwardly through the hole 48 and then knotted as shown in FIG. 10. Since the longitudinal groove 29 of the ladder cap extends in both directions from the central transverse plane of the ladder cap, in which plane the center of hole 46 lies, the ladder cap could be turned end for end when applying it to the bottom bar and the groove 29 would still receive the portion of the lift cord which is beneath the bottom bar in FIG. 10.

When the bottom bar 40 is fully lowered toward a window sill, the engagement with the window sill is made by the plastic ladder cap 20 which does not mar the sill. If the blind is in closed position at the time, the bottom bar will be tilted either forwardly or rearwardly corresponding to the tilt of the slats of the blind. However, the ladder cap 20 will still protect the sill against marring since the outwardly-protruding plastic ribs 25 and 26 of the ladder cap extend around the front and rear walls 42 and 43 of the bottom bar. The ribs 27' and 28' of the ladder cap also extend around the front and rear walls 42 and 43 of the bottom bar and are interposed between the window sill and the bottom bar when the bottom bar is tilted.

What we claim is:

1. A Venetian blind ladder-cap comprising:

a plastic base to underlie a hollow Venetian blind bottom bar,

front and rear plastic walls homogeneous with said plastic base and extending upwardly therefrom to lie alongside the front and rear walls of the Venetian blind bottom-bar,

channels extending downwardly in the front and rear plastic walls and thence toward each other in the plastic base, to afford passage for the lower end-portions of the front and rear longitudinal elements of a Venetian blind ladder, and

plastic studs homogeneous with said plastic base and extending upwardly therefrom between said front and rear plastic walls to project through tight holes in the bottom wall of the Venetian blind bottom-bar and thereby secure the ladder cap to the bottom bar.

2. A Venetian blind ladder-cap as in claim 1, which further comprises:

a channel extending lengthwise of the plastic base centrally thereof,

said lengthwise-extending channel merging with the channels of claim 3 and affording space receptive of an end portion of a ladder-associated lift-cord of a Venetian blind.

3. A Venetian blind ladder-cap comprising:

a plastic base to underlie a hollow Venetian blind bottom bar,

front and rear plastic walls homogeneous with said plastic base and extending upwardly therefrom to lie alongside the front and rear walls of the Venetian blind bottom-bar, outwardly-projecting plastic ribs that are homogeneous with the plastic base and with the front and rear plastic walls,

the plastic ribs extending across the ends of the base and thence upwardly across the ends of the front and rear plastic walls,

channels extending downwardly in the front and rear plastic walls and thence toward each other in the plastic base, to afford passage for the lower end-ports of the front and rear longitudinal elements of a Venetian blind ladder, and

plastic studs homogeneous with said plastic base and extending upwardly therefrom between said front and rear plastic walls to project through tight holes in the bottom wall of the Venetian blind bottom-bar and thereby secure the ladder cap to the bottom bar.

4. A Venetian blind ladder-cap as in claim 3 which further comprises:

a channel extending lengthwise of the plastic base centrally thereof,

said lengthwise-extending channel merging with the channels of claim 4 and affording space receptive of an end portion of a ladder-associated lift-cord of a Venetian blind.

5. A Venetian blind construction comprising:

a hollow sheet-metal bottom-bar having stud-receiving holes in the bottom wall thereof,

said stud-receiving holes being circular except for opposite flat sides, and

a plastic ladder-cap attached to the bottom bar, the ladder cap having plastic studs which project through said stud-receiving holes in tight-fitting relationship therewith and thereby effecting the attachment of the ladder cap to the bottom bar,

the studs being solid studs of initially-circular cross section.

6. A Venetian blind construction as in claim 5 in which the initial diameter of the studs is less than the diameter of the stud-receiving holes as measured between arcuate portions thereof, but greater than the diameter of the stud-receiving holes as measured between the opposite flat sides thereof.

7. A Venetian blind construction as in claim 6 in which the metal at the flat sides of the stud-receiving holes is rough and barblike, digging into the plastic studs and opposing withdrawal of the studs.

8. A Venetian blind construction in which a bottom bar is attached to the lower end of a ladder, the bottom bar is hollow and has front and rear sheet-metal walls and also has a sheet-metal bottom wall, and a ladder cap is attached to the bottom bar—wherein the improvement comprises:

the bottom bar has stud-receiving holes in the sheet-metal bottom wall thereof,

the ladder cap has a plastic base which underlies the sheet-metal bottom wall of the bottom bar in overlapping relation to the stud-receiving holes therein,

the ladder cap has front and rear plastic walls which are homogeneous with said plastic base and extend upwardly therefrom, overlying the front and rear walls of the bottom bar, and

the ladder cap is attached to the bottom bar by resilient plastic studs which are homogeneous with the plastic base of the ladder cap on the upper side thereof,

said plastic studs passing upwardly through the stud-receiving holes in the sheet-metal bottom wall of the bottom bar and extending above such bottom wall,

said plastic studs having an initial cross section which extends beyond the margin of the stud-receiving holes, and

said plastic studs having been forcibly projected through the stud-receiving holes in the sheet-metal bottom wall of the bottom bar, whereby such stud-receiving holes firmly grip the plastic studs.

9. A Venetian blind construction as in claim 8 in which the improvement further comprises:

the plastic studs being initially circular in cross section and the stud-receiving holes being non-circular.

10. A Venetian blind construction as in claim 8 in which the improvement further comprises:

the margins of the stud-receiving holes having portions which are rough and barblike, digging into the plastic studs and opposing withdrawal of the studs.

11. A Venetian blind construction as in claim 8 in which the improvement further comprises:

elongated plastic ribs which are homogeneous with the base of the ladder cap on the under side thereof,

these ribs extending transversely of the base of the ladder cap and thence upwardly across the front and rear plastic walls of the ladder cap, whereby these ribs are interposed between the bottom bar and a window sill when the bottom bar is lowered toward the window sill and even if the bottom bar be in tilted position.

12. A Venetian blind construction as in claim 8 in which the improvement further comprises:

downwardly-projecting plastic ribs which are homogeneous with the base of the ladder cap on the under side thereof,

these ribs extending transversely of the base of the ladder cap adjacent to the ends thereof,

the plastic studs being two studs located adjacent to the ends of the ladder cap, and

the two studs being vertically aligned, at least roughly, with said downwardly-projecting ribs on the under side of the base of the ladder cap.

13. A Venetian blind construction as in claim 12 in which the improvement further comprises:

the plastic ribs extending across the base of the ladder cap and thence upwardly across the front and rear plastic walls of the ladder cap, whereby these ribs are interposed between the bottom bar and a window sill when the bottom bar is lowered toward the window sill and even if the bottom bar be in tilted position.

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PETER M. CAUN, Primary Examiner

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,485,286

December 23, 196

Hans K. Lorentzen et al.

It is certified that error appears in the above identified
patent and that said Letters Patent are hereby corrected as
shown below:

Column 1, lines 54 and 55, "Few of any of the prior-art ladder-caps mar the window sill upon striking the" should read -- Few if any of the prior-art ladder-cap structures and arrangements are well --. Column 2, line 6, "plastic ribs" should read -- plastic-ribs --; line 12, "chanel's" should read -- channels --. Column 3, line 55, "correspondig" should read -- corresponding --. Column 7, line 2, the claim reference numeral "3" should read -- 1 --; line 11, the clause which commences with "outwardly-projecting" should have been started on a new line coordinate with "a" in line 6 and "front" in line 8 of same column; line 32, the claim reference numeral "4" should read -- 3 --.

Signed and sealed this 15th day of December 1970.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

WILLIAM E. SCHUYLER, J
Commissioner of Patent