Nov. 18, 1952 H. NELSON 2,618,329

VENETIAN BLIND CONSTRUCTION

Filed Oct. 18, 1947 3 Sheets-Sheet 1

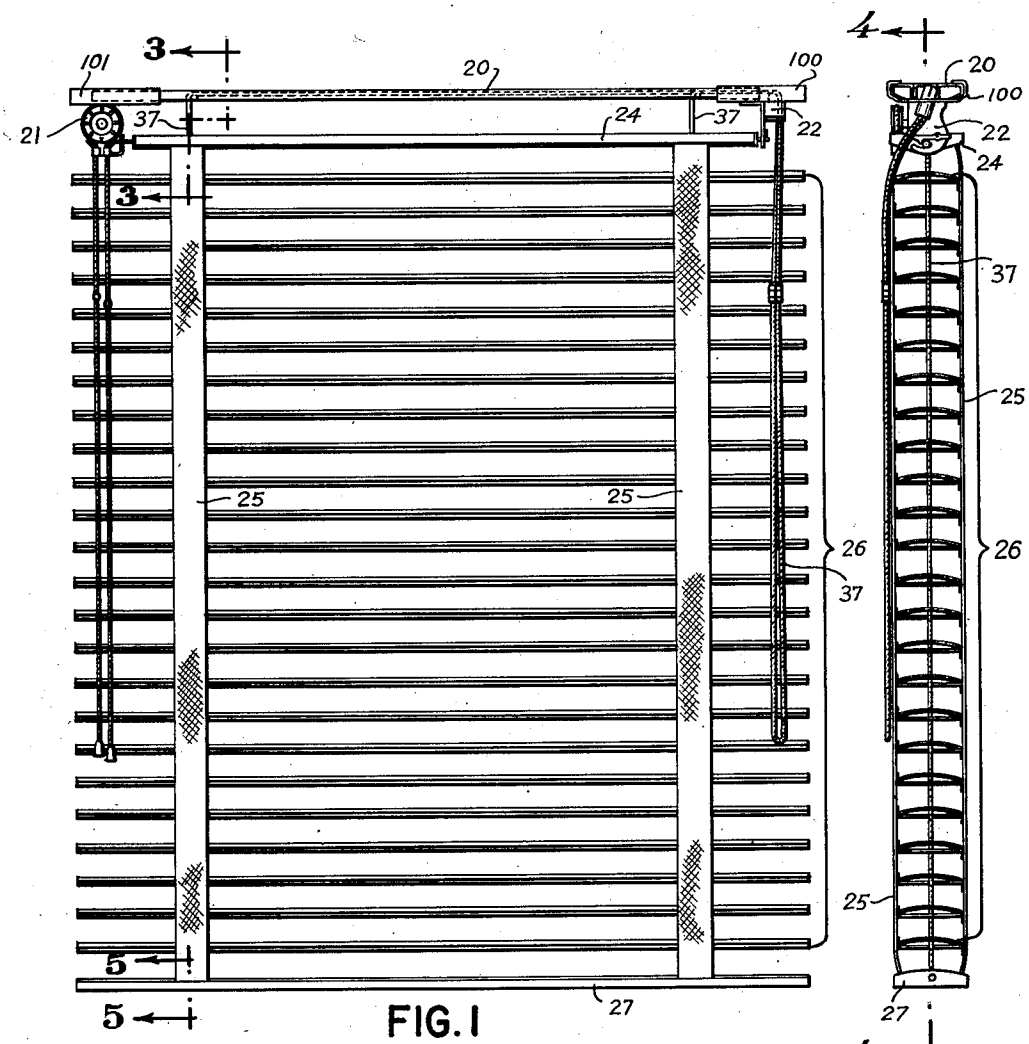


FIG. 1

FIG. 2

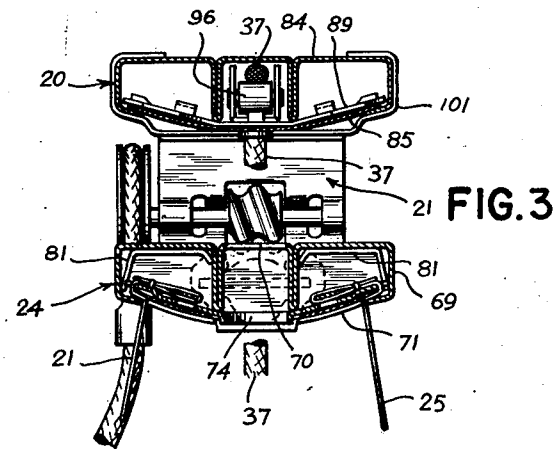


FIG. 3

INVENTOR
HARRY NELSON
BY
Ramsey, Kent & Chisholm
HIS ATTORNEYS

Nov. 18, 1952 H. NELSON 2,618,329

VENETIAN BLIND CONSTRUCTION

Filed Oct. 18, 1947 3 Sheets-Sheet 2

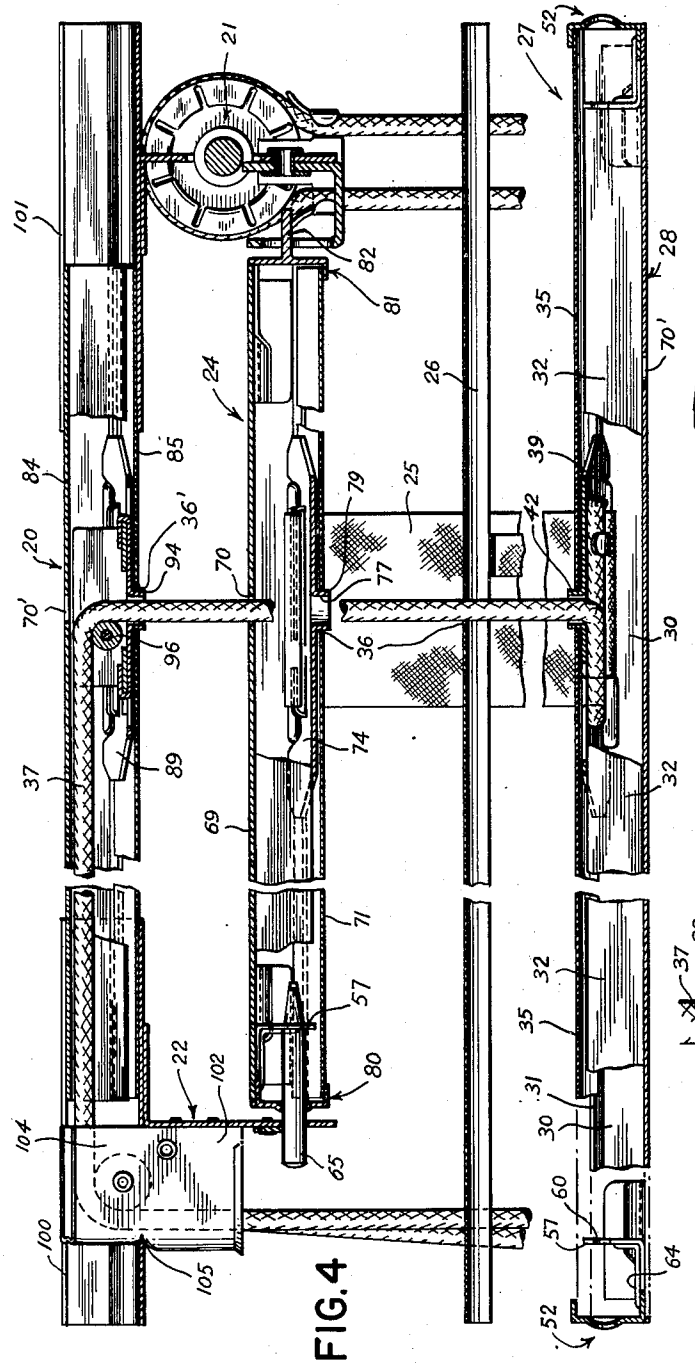


FIG. 4

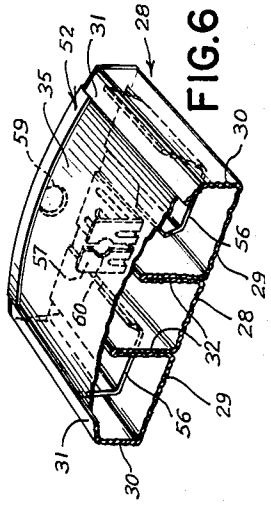


FIG. 6

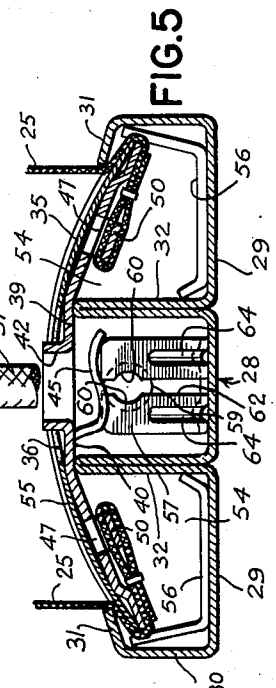


FIG. 5

INVENTOR
HARRY NELSON

BY
Ramsey, Kent & Chisholm
HIS ATTORNEYS

Nov. 18, 1952 H. NELSON 2,618,329

VENETIAN BLIND CONSTRUCTION

Filed Oct. 18, 1947 3 Sheets-Sheet 3

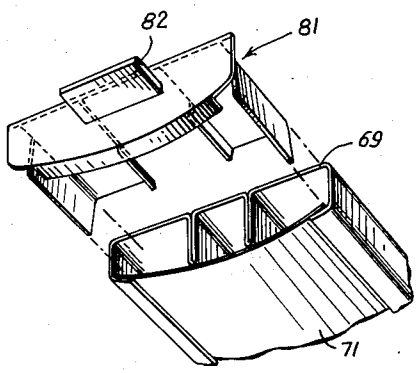


FIG.10

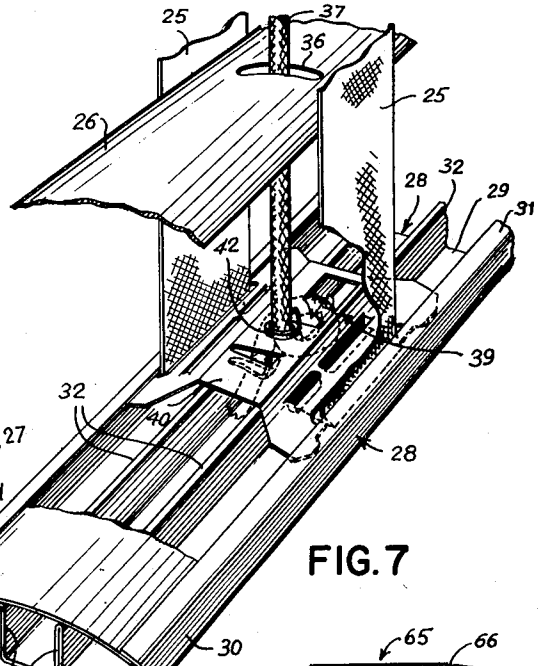


FIG.7

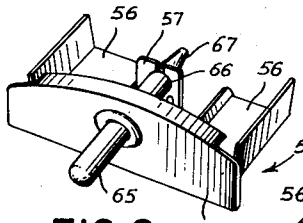


FIG.8

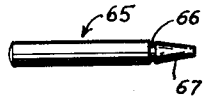
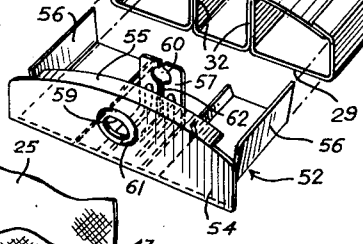


FIG.9



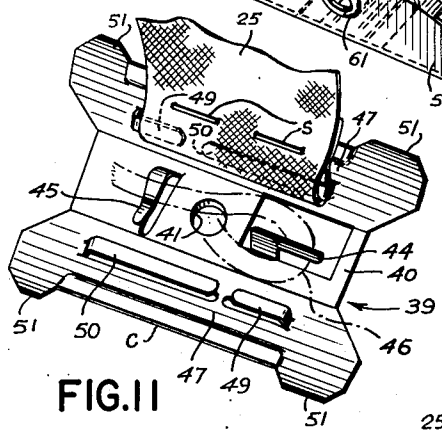


FIG.11

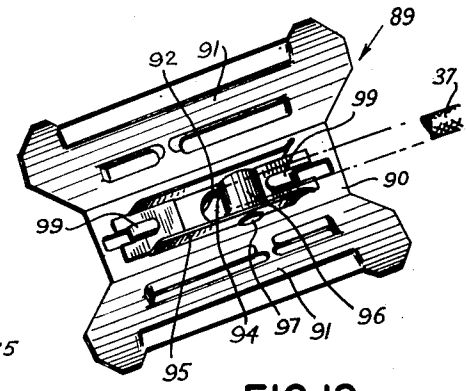


FIG.12

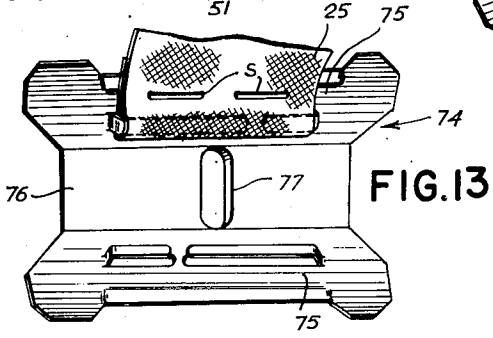


FIG.13

INVENTOR
HARRY NELSON
BY
Ramsey, Kent & Chisholm
HIS ATTORNEYS

Patented Nov. 18, 1952

2,618,329

UNITED STATES PATENT OFFICE

2,618,329

VENETIAN BLIND CONSTRUCTION

Harry Nelson, New York, N. Y., assignor to Lorentzen Hardware Mf'g. Corp., New York, N. Y., a corporation of New York

Application October 18, 1947, Serial No. 780,653

8 Claims. (Cl. 160—173)

1

This invention relates to Venetian blinds, the invention including a new and improved form of bottom bar, tilt bar and head bar for such blinds.

Venetian blinds are provided with a bottom bar extending for the width of the blind and to which the lower ends of the ladder tapes, and usually the lift cords, are secured. This bar is thicker and heavier than the intermediate blind slats and in the past has usually been formed of wood even though the intermediate slats are often formed of steel. Many Venetian blinds are also provided with substantially solid wooden head bars and tilt bars, these bars often approximating in overall dimensions the bottom bar.

In the form shown of the present invention, the bottom bar, tilt bar and head bar are all formed of generally similar assemblies of rolled and stamped sheet metal parts, consisting principally of a channel-shaped body and a resilient transversely-arched sheet metal cover for the body, preferably formed of a metal intermediate blind slat. The bar body is preferably one which may serve equally well in a head bar, tilt bar or bottom bar.

Various auxiliary fittings, such as anchors for the ends of the ladder tapes and lift cords and end fittings for the body, complete the assembly of bottom bar, head bar or tilt bar. The individual parts of the bar in each instance are held in assembled relation by the interfitting of the parts, special fastening or welding of the parts of each assembly being unnecessary. Certain of the fittings are useful in more than one of the three bars.

An object of the present invention is to provide a rigid, durable, easily-assembled bottom bar, tilt bar and head bar for a Venetian blind.

Another object is to provide a Venetian blind bottom bar, head bar and tilt bar that may be fabricated economically of rolled and stamped sheet metal parts.

A further object of the invention is to provide an improved channel-shaped body assembly suitable for use in a Venetian blind bottom bar, head bar or tilt bar.

A still further object is to generally improve Venetian blind bottom bars, head bars and tilt bars.

Further objects, and objects relating to details and economies of construction, assembly and use will more definitely appear from the detailed description to follow.

My invention is clearly defined in the appended claims. In the claims, as well as in the description, parts are at times identified by specific

2

names for clarity and convenience, but such nomenclature is to be understood as having the broadest meaning consistent with the context and with the concept of my invention as distinguished from the pertinent prior art. The best form in which I have contemplated applying my invention is illustrated in the accompanying drawings forming part of this specification, in which:

Fig. 1 is a front elevation of a Venetian blind having a bottom bar, head bar and tilt bar in accordance with the preferred form of the present invention.

Fig. 2 is an end elevation of the blind shown in Fig. 1, looking from the right of Fig. 1.

Fig. 3 is a cross section of the head bar and tilt bar taken on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary longitudinal vertical section of the blind, taken on the line 4—4 of Fig. 2.

Fig. 5 is a cross section of the bottom bar taken on the line 5—5 of Fig. 1.

Fig. 6 is a fragmentary perspective view of an end portion of the bottom bar.

Fig. 7 is a fragmentary perspective view of a lower corner of the blind, including one end of the bottom bar, the end fitting of the bar being shown in exploded relation to the bar.

Fig. 8 is a perspective view of an alternative end fitting for the bottom bar, which may also be used as an end fitting for the tilt bar.

Fig. 9 is an elevation of the pin shown in the end fitting of Fig. 8.

Fig. 10 is a perspective view of the tilter-engaging end of the tilt bar, the tilter-engaging end fitting being shown in exploded relation to the tilt bar.

Fig. 11 is a perspective view of the underside of a ladder tape and lift cord anchor for the bottom bar of a two-lift-cord blind.

Fig. 12 is a perspective view of the underside of a ladder tape anchor and cord pulley for incorporation in the bottom bar of a four-lift-cord Venetian blind, this fitting being also usable as a cord pulley in the head bar of the blind shown.

Fig. 13 is a perspective view of a ladder tape anchor for the tilt bar.

Referring now to the drawings, and particularly to Figs. 1, 2 and 4, the Venetian blind there shown has a head bar 20 by which the blind is supported adjacent a wall opening by suitable installation brackets, not here shown, such as shown in my U. S. Patent No. 2,281,043. The tilt bar 24 is rotatably supported, in a position parallel to and a short distance below the head bar, by a tilter mechanism 21 mounted at one

end of the head bar 20 and a combined cord lock and tilt bar bracket 22 mounted at the opposite end of the head bar. The tilter 21 may be of the type shown in Lorentzen U. S. Patent No. 2,226,623 issued December 31, 1940. The cord lock and bracket fitting 22 may be of the type shown in Lorentzen U. S. Patent No. 2,120,284 issued June 14, 1938.

A pair of ladder tapes 25, 25, secured a short distance from the ends of the tilt bar 24, support intermediate slats 26 and a bottom bar 27 of the blind. A pair of lift cords 37, 37 are reeved in the usual manner through the head bar and pass through slots provided in the tilt bar and the intermediate slats, the ends of these lift cords being anchored within the bottom bar. In the form of my invention shown, the intermediate slats 26 are formed of thin, resilient, transversely-arched sheet metal strips. The general organization described in this and the preceding paragraph is well-known in the art.

Having described the general organization of a form of Venetian blind in which my improved bottom bar, head bar and tilt bar may be incorporated, these bars will now be described in detail. Referring particularly to Figs. 3 and 7, it will be seen that the body of the head bar 20, tilt bar 24, and bottom bar 27 each comprises a length of identically-shaped sheet metal channel severed from a piece of such channel of indeterminate length. In each instance, a resilient sheet metal cover is provided for the open side of the channel in order to form a bar of closed cross section. The bottom bar will first be described in detail.

Referring to Fig. 5, a channel 28 is proivded which is of uniform cross-sectional shape throughout its length. This channel has a flat base 29 and generally parallel sides 30, 30 which terminate in inwardly-turned upwardly-inclined longitudinal edges 31, 31. The base 29 of the channel 28 is folded upwardly into a pair of tight folds 32, 32 which extend between and above the longitudinal edges 31, 31 and are equally spaced from the longitudinal center line of the channel. The folds 32, 32 form longitudinal ribs that serve to strengthen the channel materially against bending and serve other purposes to be hereinafter explained.

A metal cover 35 is provided for the channel 28. This cover is resilient and normally lightly arched transversely, being formed of the slat stock used for the intermediate slats of the blind. The cover 35 is preferably formed identical to the intermediate slats 26 and may be the lowermost intermediate slat of the blind. At each lift cord 37, 37, the cover 35 is provided with a transverse slot 36 for passage of the lift cord, the slots 36 in the cover being identical in shape and positioning to the slots 36 (Fig. 7) of the intermediate slats of the blind.

The bottom bar 27 is provided with necessary fittings for cooperation with the lift cords 37, 37 and the ladder tapes 25, as well as with fittings for closing the ends of the channel 28 and retaining the cover 35 in position. In the form of my invention shown in Fig. 7, the lift cords 37, 37 terminate within the bottom bar, this blind being provided with two lift cords. Anchors 39 are provided within the bottom bar, one for each ladder tape, which serve to engage the lower ends of the two branches of a ladder tape 25, as well as receiving the lower end of a lift cord 37. This anchor, which is best shown in Figs. 7 and 11, is formed as a sheet metal stamping. The central portion 40 of the stamping is provided with a centrally-located hole 41, this hole being formed with a tubular flange or collar 42 (Fig. 5) projecting upwardly slightly above the central portion 40. The collar 42 of the anchor 39 is of suitable diameter to receive a lift cord 37 and also to fit within a lift cord slot 36 of the cover 35, as will be explained hereinafter.

The central portion 40 of anchor 39 may also be provided with two fingers 44 and 45 stamped therefrom and extending below and generally parallel to the central portion 40 of the anchor. The finger 44 projects lengthwise of the central portion 40 of the anchor and provides a projection about which a bight 46 of the lift cord 37 may be passed. The finger 45 lies somewhat closer against the central portion 44 of the anchor 39 so that the end of the lift cord 37 may be engaged beneath this finger, the latter finger frictionally engaging the cord so as to retain the bight 46 about the finger 44.

The flat central portion 40 of the anchor 39 is of suitable width so that when positioned within the channel 28 it overlies the central portion of the channel including the folds 32, 32 thereof (see Figs. 5 and 7). This central portion merges with symmetrically-arranged downwardly-and-outwardly-extending flanges 47, 47. Each of these flanges is provided with a pair of inwardly-directed opposed aligned fingers 49 and 50 lying principally in a plane slightly below the plane of the flange 47. The finger 49 is much shorter than the finger 50. These fingers are of appropriate width to receive the looped-over end of a ladder tape branch, as shown in Fig. 11, the ladder tape loop being held closed in any suitable way as by staple *s,s*. The extreme corners 51 of the flanges 47, 47 extend somewhat beyond the central portion of the flanges to provide necessary clearance at *c* for the branches of the ladder tape 25 when the anchor 39 is positioned within the channel 28.

The ends of the channel 28 are closed by an end fitting 52, this fitting being formed of stamped sheet metal and having the general configuration shown in Figs. 5, 6, 7 and 8. The end fitting 52 has a flat end wall 54 of suitable shape to extend completely over the end of the channel, the side extremities of the wall 54 lying outside of and against the end surfaces of the channel sides 30, 30. A curved inwardly-projecting flange 55 along the top of the end wall 54 fits between the longitudinal edges 31, 31 of the channel 28 and serves to overlie the end of the cover 35 and retain the cover in position.

The end fitting 52 is retained in position within the end of the channel 28 by frictional engagement of an extended base portion thereof with the inside surfaces of the channel (see particularly Fig. 5). This base portion consists of two generally U-shaped flanges 56, 56 adapted to telescope between the sides of the folds 32, 32 and the sides 30, 30 of the channel. The flanges 56, 56 are tapered very slightly, toward the free ends thereof, to aid in their insertion and frictional engagement within the channel 28.

The end fitting 52 is also provided with a central portion 57 projecting from the bottom edge of the flat end wall 54 and between the flanges 56, 56. This central portion extends horizontally so as to lie along the inside of the base 29 of the channel between the folds 32, 32 and is then turned upwardly into a plane parallel with the wall 54. The wall 54 and the upturned part of the central portion 57 are provided with aligned

holes 59 and 60, respectively, the hole 59 within the end wall 54 being somewhat larger than the hole 60 and being surrounded by a circular outwardly-projecting bead 61. The central portion 57 is bifurcated by a slot cut lengthwise thereof and extending through the hole 60 and downwardly for a sufficient length of the central portion so that the upturned part of this portion may be resiliently spread. The central portion 57 may be reinforced by a pair of longitudinally-extending beads 64, 64, which extend along the horizontal leg of portion 57, around the corner, and into the vertical leg.

In the assembly of the bottom bar 27 herein described, the remainder of the blind is first assembled, with the lift cords 37, 37 and the ladder tapes 25, 25 depending from the tilt bar 24. The intermediate slats 26 are positioned within the ladder tapes 25, 25 and the lift cords 37, 37 passed therethrough in the customary fashion. The lowermost slat becomes the cover 35; and after the lift cords 37, 37 have been passed through the slots 36, 36 thereof, they are passed through the anchors 39, 39. The lower ends of the lift cords are then secured to the anchors as already described. The ladder tapes 25, 25 are then engaged with the anchors 39, 39, the ends of the ladder tape branches having previously been folded back upon themselves and stapled to form terminal loops. This is done by crowding the loop onto the long finger 50 and then smoothing it out to telescope it onto the short finger 49 also.

The assembly of cover 35 and anchors 39, 39 is then telescoped within the channel 28, it being necessary to increase slightly the transverse arching of the cover 35 to accomplish this. Such deformation may be accomplished by hand and without the use of tools. As these parts are telescoped, the lift cord slots 36, 36 of the cover 35 retain the anchors 39, 39 due to engagement of the flange 42 thereof in these slots.

When in position within the channel 28, the central portion of cover 35 will lie against the top edges of the folds 32, 32 of the channel while the lateral edges of the cover will lie tightly against the underside of the inturned longitudinal edges 31, 31 of the channel due to the resilience of the cover. The cover 35 will be deformed to a slightly greater arching above the anchors 39, 39 due to the interposition of the anchors above the top edges of the folds 32, 32 of the channel. However, this is of such slight degree as to be scarcely apparent.

The assembly of bottom bar 27 is completed by insertion of the end fittings 52, 52. This is accomplished by entering the lower flanges 56, 56 thereof within the channel 28, the upper flange 55 being entered above the cover 35 as the fitting is forced into position. The fitting may be telescoped into position within the channel 28 by a steady pressure or by driving it inwardly with a hammer or other tool, this fitting being forced inwardly until the end wall 54 thereof lies against the squared end of the channel. One of these end fittings may be entered into the channel 28 prior to assembly of the cover 35 therewith. When in assembled position, the edges of the slots 36, 36 formed in the cover 35 engage the outside of the upwardly-projecting collars 42, 42, thus maintaining the anchors 39, 39 in proper position longitudinally of the bottom bar, and thus maintaining the lift cords 37, 37 and ladder tapes 25, 25 in alignment.

The holes 59 and 60 provided in the end fitting 52 are for the purpose of receiving a pin 65 (see Figs. 8 and 9) for use when hold-down brackets are used in conjunction with the bottom bar. The pin 65 comprises a short cylindrical body having a circumferential groove 66 near one end and a conical tapered portion 67 between the slot 66 and the end of the pin.

Either before or after insertion of an end fitting 52 within the ends of the channel 28, the pin 65 may be inserted by hand, tapered end first, into the holes 59 and 60. The tapered end 67 engages and slightly spreads the resilient central portion 57 of the end fitting 52 until the groove 66 reaches the wall portion about the hole, at which time the wall portion will snap into and engage within the groove 66 so as to retain the pin 65 in position. Where hold-down brackets are not to be used, the hole 59 and central portion 57 of the end fitting 52 may be omitted if desired. However, I prefer to provide the above-described construction in all end fittings to standardize parts and minimize the number of different parts required to be stocked.

The tilt bar 24 is also comprised of a metal channel and cover which preferably have the same cross-sectional shape as the channel 28 and cover 35, respectively, of the bottom bar 27. Referring now to Figs. 3, 4 and 10, a channel 69 is severed from channel stock of indeterminate length, the length of channel 69 being somewhat shorter than the length of the bottom bar 27 as is customary in this type of Venetian blind. In the channel 69 there are then formed transverse slots 70 extending across the base of the channel and between the folds of the channel base, these slots being properly located lengthwise of the channel to adapt them for passage of the lift cords 37, 37.

The open side of the channel 69 is provided with a cover 71 formed of the same resilient slat stock that is used for the intermediate slats 26. The cover 71 is provided with transverse slots 36 similar to the slots 36 of the intermediate slats and of cover 35 of the bottom bar, these slots being likewise properly located longitudinally of the cover for passage of the lift cords 37, 37. Since the tilt bar 24 and channel 69 thereof are somewhat shorter than the bottom bar 27 and the intermediate slats 26, the cover 71 must likewise be shorter and is not interchangeable with the intermediate slats as is the cover of the bottom bar.

Ladder tape anchors 74, 74 are provided within the tilt bar 24 for receiving the top ends of the branches of ladder tapes 25, 25. The anchors 74, 74, best shown in Fig. 13, are generally similar to the anchors 39 within the bottom bar and are assembled with the ladder tapes, the channel 69 and the cover 71 in a similar manner.

The ladder tape-engaging side portions 75, 75 of the anchors 74, 74 may be identical to those of the anchors 39, 39. A central portion 76, however, is somewhat different in that in this instance a transverse slot 77 is provided in each central portion to permit passage of the lift cords 37, 37. In forming the slot 77 in each anchor 74, part of the metal displaced thereby is formed into a collar or annular flange 79 (see Fig. 4) projecting upwardly from the anchor. The collar 79 is generally similar to the collar about the hole 41 of the anchor 39 but is generally oval to conform with the slot 77. This collar is adapted to be passed through a transverse slot 36 of the cover 71.

The tilt bar 24 is provided with end fittings

closing the ends of the channel 69 and cooperating with the tilter 21 and the cord lock and tilt bar bracket 22 to rotatably mount the tilt bar. One end fitting 80 (see Fig. 4), corresponding to the gudgeon pin of a conventional wooden tilt bar, engages the bracket 22. This fitting is preferably identical to the end fitting 52 of the bottom bar with the pin 65 inserted therein. This fitting is engaged with the channel 69 in all respects similarly to the bottom bar end fittings previously described.

A tilter-engaging end fitting 81 is located at the opposite end of the tilt bar 24. The body of this fitting is in general similar to that of the end fitting 52 of the bottom bar previously described except that the central portion 57 of that end fitting may be omitted.

In lieu of providing the end fitting 81 with a hole for receiving a pin, this end fitting is provided with an extending tilter-engaging portion 82 which may have any convenient non-circular cross section. In the form shown, this portion is given a customary flat shape for engagement in a slot of the tilter 21. This tilter-engaging portion may be secured to the rest of the fitting by any convenient means such as riveting or welding and is mounted so as to lie symmetrically on the axis of the pin of the opposite end fitting so as to form an axis for rotation of the tilt bar.

The tilt bar 24 is assembled generally similar to the assembly of the bottom bar 27. However, in this instance the lift cords 37 are not assembled therewith but are passed through the slots 77 and 70 after assembly of the tilt bar and its positioning within the blind assembly. The tilt bar 24 is inverted with respect to the bottom bar 27, the cover 71 being on the bottom side of the channel 69 when the blind is in open position.

The head bar 20 likewise comprises a channel 84 and a cover 85, these parts being similar to the corresponding parts of the bottom bar and tilt bar above described. For convenience, the channel 84 and cover 85, which are somewhat shorter than the width of the blind as defined by the intermediate slats 26, may be of the same length as the corresponding parts of the tilt bar 24. Further, these parts may be provided with transverse slots at 36' and 70', respectively, corresponding in size and location to the slots 36 and 70 of the tilt bar. The slots at 36' are required for passage of the lift cords 37, 37, while the slots 70' within the base of the channel 84 serve no function and may be omitted. However, by forming slots 70' in the channel, it may interchangeably be incorporated in either the tilt bar or the head bar. When incorporated in the head bar, the slots 70' are not ordinarily visible after the blind is mounted.

Cord guides 89 are provided within the head bar 20 for passage of each of the lift cords 37, 37. One of these cord guides is best shown in Fig. 12. This guide comprises a plate 90 similar to the plate of anchor 39 of the bottom bar and to the anchor 74 of the tilt bar, so as to assemble within the channel 84 and beneath the cover 85 in a manner similar to that already described for the bottom bar and tilt bar. The side portions 91, 91 of the plate 90 may be formed similarly to the ladder tape-engaging portions of the anchors 39 and 74 of the bottom bar and tilt bar, respectively, but such portions have no comparable function in the cord guide 89 and may be omitted. However, I prefer to include such portions, since the cord guide 89 embodying this

construction is then usable as a bottom bar anchor for a modified form of blind to be described hereinafter.

The central portion of plate 90 is provided with a hole 92 for passage of a lift cord 37. This hole is provided with a projecting flange or collar 94 adapted to pass through one of the slots at 36' in the cover 85, similarly to the collar provided about the hole 41 of the bottom bar anchor 39.

A U-shaped pulley carrier 95 is mounted by its base on the plate 90 and carries a pulley wheel 96 freely mounted on a transverse axle 97. The base of the pulley carrier 95 is apertured below the pulley wheel 96, and the carrier is mounted on the plate 90 with this aperture registering with the hole 92 of the plate. The pulley carrier 95 is retained in mounted position in any suitable manner, as by a pair of tabs 99, 99 struck from the central portion of the plate 90 and bent over the opposite ends of the pulley carrier base.

The channel 84, cover 85, and cord guides 89 of the head bar 20 are assembled in a manner similar to the assembly of the bottom bar and tilt bar above described. However, the lift cords 37, 37 are preferably threaded over the pulleys 96 and thence lengthwise through the channel before the assembly is completed. In the case of the head bar, it is not necessary to engage any ladder tapes prior to assembly, the cover 85 being telescoped relative to the channel 84 with the cord guides 89 therebetween. As above described in connection with the bottom bar and tilt bar construction, the flanges or collars 94 lying within the slots of the cover at 36' retain the cord guides 89 against longitudinal displacement.

A pair of sheet metal sleeves 100 and 101 are adapted to be telescoped over the ends of the assembled channel and cover to complete the head bar. These sleeves are of fixed length regardless of the total length of the hear bar 20, the channel 84 and cover 85 being cut in various lengths to provide for different widths of Venetian blinds. These sleeves serve as extensions of the channel and cover assembly previously described.

The combined cord lock and tilt bar bracket 22 is mounted on the underside of the sleeve 100, this part being generally similar to that shown in Lorentzen Patent No. 2,120,284 of June 14, 1938. The cord lock housing 104, through which the lift cords pass, projects through a slot at 105 (see Fig. 4) in the bottom of the sleeve.

The sleeve 101, located on the opposite end of the head bar 20, has a tilter 21 mounted on its underside, this tilter being generally similar to that shown in Lorentzen Patent No. 2,226,623 of December 31, 1940 as above mentioned. The sleeves 100 and 101 may be secured to the channel and cover assembly of the head bar 20 by a firm frictional engagement or by any other suitable fastening means.

The above-described fittings are also suitable for assembling a modified form of Venetian blind, the so-called four-lift-cord type in which actually a single length of cord is used, the two ends of the cord being anchored to the tilt bar, passing downwardly through the intermediate slats to the bottom bar, passing along the bottom bar and upwardly again through the intermediate slats and the tilt bar and into the head bar where they are conducted through the cord lock, hanging downwardly in a depending loop. In this well-known type of Venetian blind, the assembly of which is not shown in the drawings, two bottom bar anchors 39 may be used to an-

chor the lift cord ends and the ladder tape in the tilt bar, two tilt bar ladder tape anchors **74** also being used in the tilt bar. In such a construction, four of the cord guides **89** (shown in Fig. 12) are used within the bottom bar, these parts also serving to anchor the bottom ends of the ladder tapes.

In order to standardize parts, the cord guides **89** may be formed with ladder tape-engaging fingers, as previously described, although the fingers have no function when the part is being used within the head bar. The remainder of the fittings of a four-lift-cord blind may be identical with the fittings already described.

It is to be understood that the above-described construction of bottom bar, head bar and tilt bar may be used together, or independently, the other bars of the blind being conventional in construction. For instance, the metal bottom bar described may be used with a blind having an enclosed metal head containing a tilt rod.

I claim:

1. In the Venetian blind art, a bar suitable for a head bar, tilt bar or bottom bar, said bar comprising a channel-shaped sheet metal body having an open side defined by inwardly-turned longitudinal edges and a longitudinal rib projecting within the channel-shaped body from the base thereof and between its inwardly-turned edges, and a resilient sheet metal cover for closing the open side of said channel-shaped body, said cover being engageable under the longitudinal edges of the body and being transversely deflected by the longitudinal rib of the body upon application of the cover, thereby biasing the cover against said longitudinal edges.

2. For a Venetian blind, a bar having a channel-shaped sheet metal body comprising a base and upwardly and inwardly-turned longitudinal edges, the base of the body being folded upwardly upon itself to form a longitudinal stiffening rib projecting between and above the level of the inwardly-turned edges of the body.

3. For a Venetian blind, a bar having a channel-shaped sheet metal body comprising a base and upwardly and inwardly-turned longitudinal edges, the base of the body being tightly folded upwardly upon itself to form a pair of vertical longitudinal-extending stiffening ribs projecting between and above the level of the inwardly-turned edges of the body and substantially equidistant from the longitudinal center line thereof.

4. In a Venetian blind having ladder tapes, a hollow bar suitable for a tilt bar or bottom bar, said bar comprising a metal channel of uniform cross section throughout its length and having upwardly-and-inwardly-turned longitudinal edges defining an open side, the edges being located a substantial distance above the bottom of the channel and extending in an uninterrupted straight line throughout the length of the channel, and a resilient, transversely slightly arched cover extending for the length of said channel and having longitudinal edges engaged beneath the upwardly-and-inwardly-turned edges of the channel, the ends of the branches of the ladder tapes being entered within said bar between the upwardly-and-inwardly-turned edges of the channel and the portions of the cover lying beneath said edges, and being anchored within the bar.

5. For a Venetian blind, a hollow metal bar suitable for a tilt bar or bottom bar, said bar comprising a channel-shaped member having inwardly-turned, longitudinal edges and a rib projecting upwardly from the base between the longitudinal edges, a resilient cover extending for the length of the channel and having a hole to permit the passage of a lift cord therethrough, and a ladder tape anchor within said bar, the anchor being resiliently engaged between the cover and the rib of the channel-shaped member and having a projecting portion lying within the hole in said cover for preventing displacement of the anchor longitudinally of the bar.

6. In the Venetian blind art, a bar suitable for a head bar, tilt bar or bottom bar, said bar comprising a channel-shaped sheet metal body having an open side defined by inwardly-turned longitudinal edges and a pair of longitudinal ribs spaced equidistant from the longitudinal center line of the body and projecting within the body from the base thereof and between its inwardly-turned edges, and a resilient sheet metal cover for closing the open side of said channel-shaped body, said cover being engageable under the longitudinal edges of the body and being transversely deflected by the longitudinal ribs of the body upon application of the cover and thereby biasing the cover against said longitudinal edges.

7. In the Venetian blind art, a bar suitable for a head bar, tilt bar, or bottom bar, said bar comprising a channel-shaped sheet metal body having a base and upwardly-and-inwardly turned longitudinal edges, the base of the body being folded upwardly upon itself to form a longitudinal stiffening rib projecting between and beyond the level of the inwardly-turned edges of the body, and a resilient sheet metal cover closing the open side of said channel-shaped body, the cover having its side edges engaged beneath the inwardly-turned longitudinal edges of the body and its underside engaged by the stiffening rib.

8. In the Venetian blind art, a bar suitable for a head bar, tilt bar, or bottom bar, said bar comprising a channel-shaped sheet metal body having a base and upwardly-and-inwardly turned longitudinal edges, the base of the body being folded upwardly upon itself to form a pair of vertical, longitudinal extending stiffening ribs projecting between and beyond the level of the inwardly-turned edges of the body and substantially equidistant from the longitudinal center line thereof, and a resilient sheet metal cover closing the open side of said channel-shaped body, the cover having its side edges engaged beneath the inwardly-turned longitudinal edges of the body and its underside engaged by the stiffening ribs.

HARRY NELSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
667,567	Page	Feb. 5, 1901
686,052	Golding	Nov. 5, 1901
1,668,953	Erickson	May 8, 1928
2,100,648	Lawson	Nov. 30, 1937
2,158,826	Lorentzen	May 16, 1939
2,161,414	Hammer	June 6, 1939
2,202,293	Lawson	May 28, 1940
2,260,726	Rosenbaum	Oct. 28, 1941
2,391,904	Junkunc	Jan. 1, 1946
2,421,505	Hunter	June 3, 1947
2,485,217	Semilof	Oct. 18, 1949
2,508,742	Bell	May 23, 1950
2,534,080	Stuber	Dec. 12, 1950
2,573,163	Thomson	Oct. 30, 1951