Nov. 17, 1953 H. K. LORENTZEN 2,659,430

BOTTOM BAR ORGANIZATION FOR VENETIAN BLINDS

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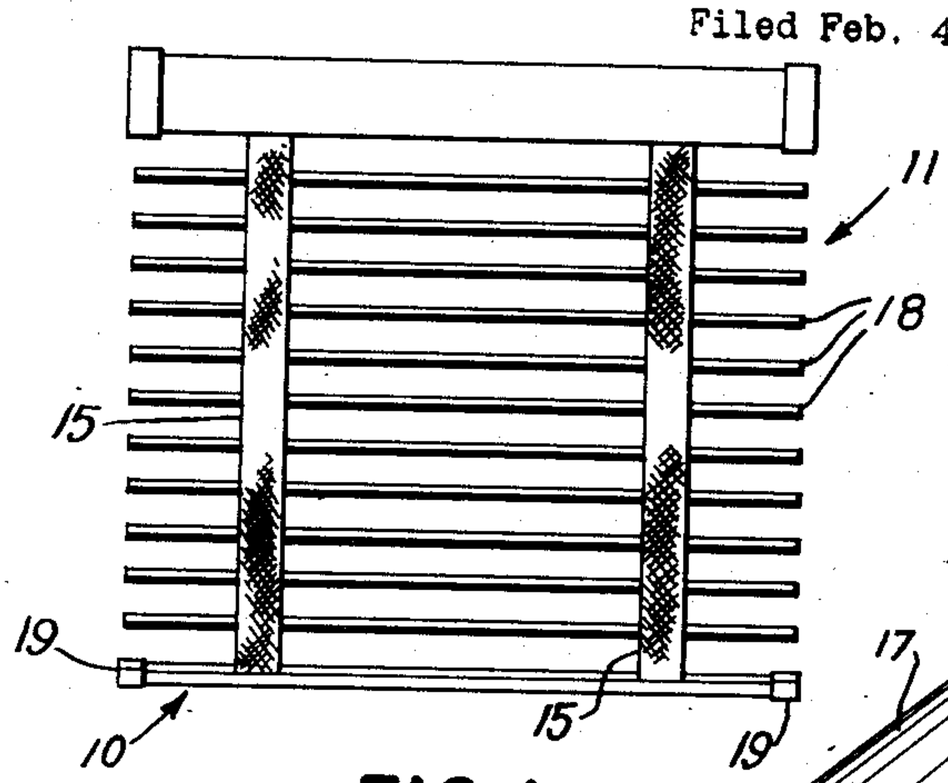

FIG. 1

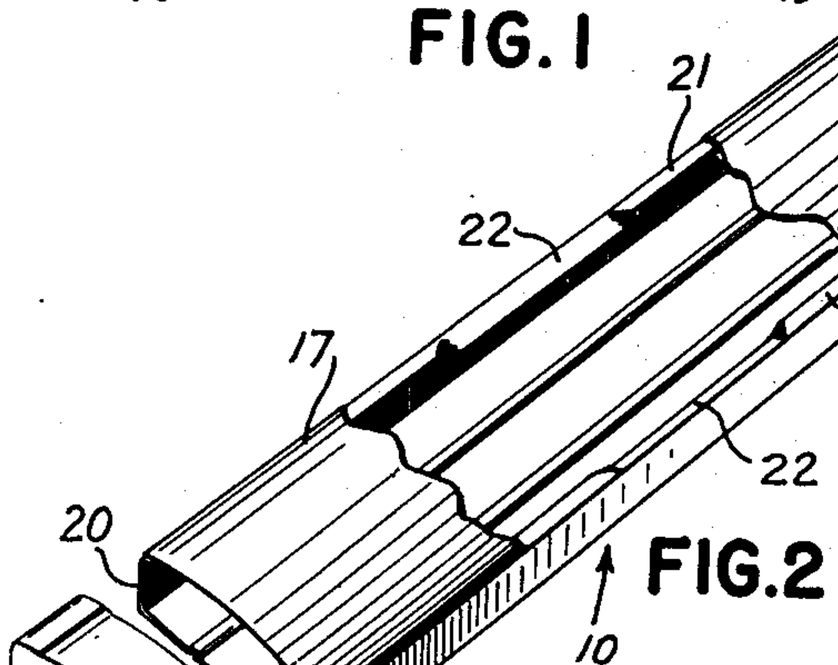

FIG. 2

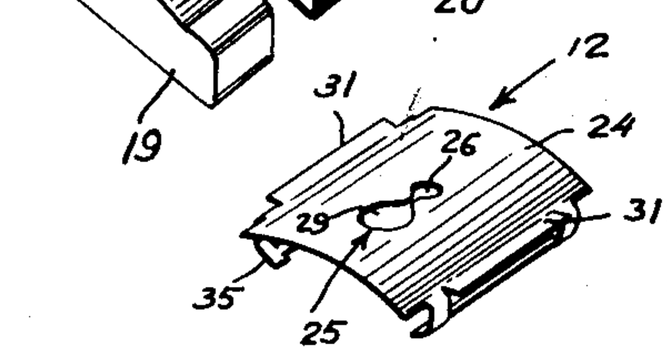

FIG. 6

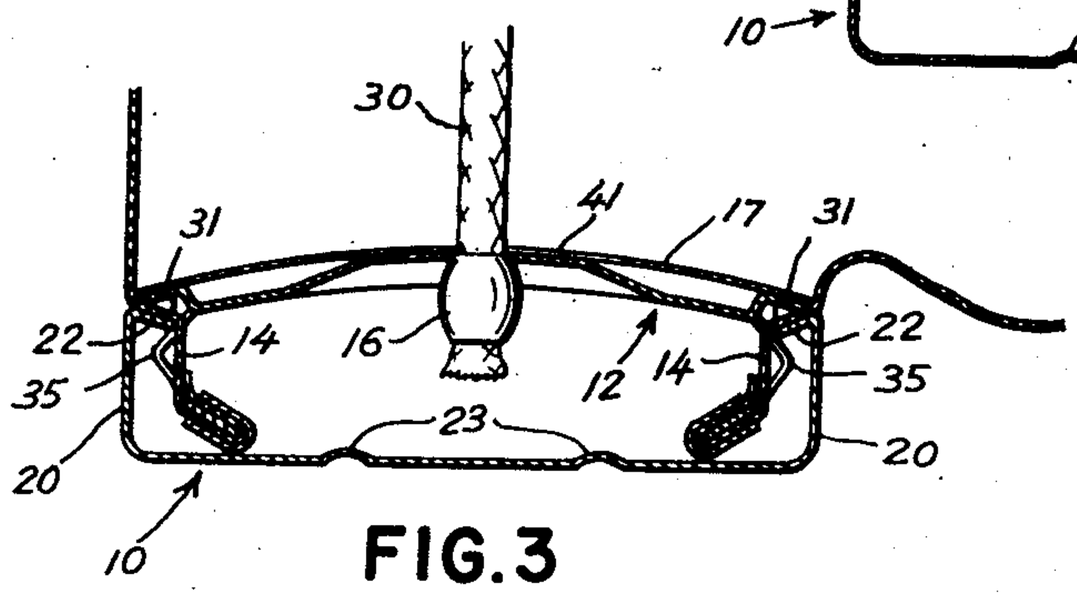

FIG. 3

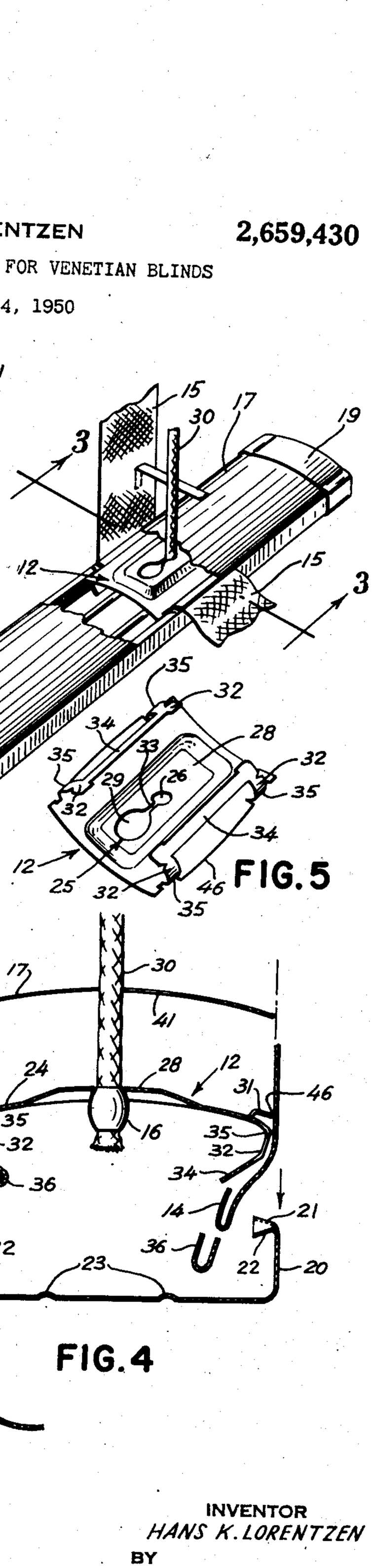

FIG. 5

FIG. 4

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BOTTOM BAR ORGANIZATION FOR VENETIAN BLINDS

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2 Claims. (Cl. 160—173)

1

This invention relates to Venetian blinds, and more particularly to a bottom bar organization.

Venetian blinds are customarily provided with a bottom bar extending for the width of the blind and to which the lower ends of the ladder tapes and the lift cords are attached. This bar is usually thicker and heavier than the intermediate slats of the blind.

In the form shown of the present invention, the bottom bar is formed of an assembly of rolled and stamped sheet metal parts consisting principally of an open-topped channel, a resilient, transversely arched sheet metal cover for closing the open side of the channel, fittings for securing the ends of the ladder tapes and lift cords to the bottom bar, and cap members to close the ends of the channel. This invention is in some respects an improvement over that shown in my copending application S. N. 115,407, filed September 13, 1949.

Among the objects of the present invention are to provide a Venetian blind bottom bar organization of pleasing appearance which can be rapidly and economically manufactured on a quantity production basis, which can readily be assembled to, or disassembled from, a Venetian blind without the use of tools, and to generally improve metal bottom bar organizations for Venetian blinds.

My invention is clearly defined in the appended claims. In the claims, as well as in the description, parts may at times be identified by specific 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 embodying the bottom bar organization of the present invention.

Fig. 2 is a perspective of the bottom bar per se, parts being broken away to show details of construction.

Fig. 3 is a vertical section taken generally on the line 3—3 of Fig. 2.

Fig. 4 is a vertical section similar to Fig. 3, certain parts being in exploded relation to facilitate explanation of the assembly procedure.

Fig. 5 is a perspective of the fitting, viewed from the bottom.

Fig. 6 is a perspective of a modified form of the fitting.

2

Reference will now be had to the drawings, in which the same reference numerals will refer to the same parts throughout the several views. A rolled sheet metal channel 10 extends along the bottom of a Venetian blind 11. A pair of duplicate fittings, designated as a whole by 12 (one shown), is secured to the channel by snap engagement therewith. The lower ends of the vertical branches 14, 14 of ladder tapes, designated as a whole 15, 15, are secured to the fittings. An enlarged lift cord end 16 is also secured to each fitting 12. This enlargement may be formed in any suitable manner, as by clamping a bead on the cord, as is more fully explained in my application S. N. 115,407, filed September 13, 1949. A slat, serving as an arched cover member 17, is positioned on top of the channel; and a cap member 19 is telescoped over each end of the channel and the adjacent end of the cover, thereby securing the cover 17 to the channel 10.

The channel 10 may be a length cut from rolled sheet metal stock of indeterminate length, the channel 10 ordinarily being of the same length as the slats 18 of the blind. The channel 10 has parallel spaced vertical side walls 20, 20, the top portions of the channel walls being turned inwardly and formed into confronting flanges 21, 21 that are inclined slightly upwardly. The flanges 21, 21 extend throughout the length of the channel. Pairs of short longitudinal portions 22, 22 of the flanges 21, 21 on the two sides of the channel 10 are depressed below the general level of the flanges 21, 21 (see Fig. 2 and Fig. 4). Metal is pressed upwardly from the bottom of the channel 10 to form parallel beads 23, 23 that extend longitudinally for the length of the channel. These beads increase the rigidity of the channel.

Each of the fittings 12 is attached to the Venetian blind 11 by securing thereto the lower ends of the vertical branches 14, 14 of one of the ladder tapes 15, 15 and an enlarged lift cord end 16. Each fitting 12 is a generally rectangular arched sheet-metal stamping, which includes an arched rectangular plate 24 adapted to span across the channel 10.

Central side portions of the plate are elevated so as to form inclined lips 31, 31. The lips 31, 31 are so arranged that when each fitting 12 is secured to the channel 10, the lips 31, 31 will overlie and be spaced from the depressed portions 22, 22 of the channel, see Fig. 3. Space is thereby provided between the fitting portions 31, 31 and the depressed portions 22, 22 of the flanges 21, 21 of the channel for the passage of the vertical

branches 14, 14 of a ladder tape. The lips 31, 31 of each fitting 12 terminate in such spaced relation as to spread the two vertical branches 14, 14 of the ladder tape 15 by an amount equal to the overall width of the channel 10, which is equal to the width of the blind slats. This is the proper spaced relationship for the two vertical branches of the ladder tape (see Figs. 3 and 4) to enable the cover member 17 of the bottom bar to lie flat against the flanges 21, 21. Thus the lips 31, 31 of the fitting 12 prevent a tensioned ladder tape from exerting force on the cover member 17 which would tend to tilt or displace the same.

An extension 32, adjacent each of the four corners of the plate 24, projects downwardly and inwardly (see Figs. 3 and 4). Each extension 32 is formed with a resilient nose portion 35. Bridge members 34, 34 (Fig. 5) integrally connect each pair of extensions 32, 32 that lie on the same side of the fitting 12; and these bridge members 34, 34 are adapted to receive and have secured thereon the ends of the vertical branches 14, 14 of a ladder tape 15. Upon complete assembly, each vertical branch of the ladder tape will extend down past the inclined lip 31 of the fitting 12, through the space between the inclined lip portion 31 and the downwardly-depressed portion 22 of the flange 21, and thence between the extensions 32, 32 on that side of the fitting 12. The end of the ladder tape branch 14 is folded about the bridge member 34. A resilient U-shaped clip 36 is then telescoped over that portion of the ladder tape that is folded about the bridge member, thereby clamping the ladder tape branch to the bridge member. If desired, other means, such as stapling, may be used to secure the ends of the vertical branches of ladder tapes looped around the respective bridge members 34.

A center portion 28 may be embossed upward and provided with a keyhole slot 25. However, if desired the embossing of the center portion 28 may be omitted, and the slot located in the arched plate 24, see Fig. 6. In either case, a small end 26 of the slot 25 is centrally located in the plate 24. An enlarged lift cord end 16 is insertable through the large end 29 of the keyhole slot 25. The lift cord 30 is then shifted through a narrow passage 33 to the small end 26 of the keyhole slot. The passage 33 is preferably slightly narrower than the nominal diameter of the cord 30, so that the edges of the slot will squeeze the cord slightly as the cord is pushed sidewise to shift enlargement 16 to the small end 26 of the keyhole slot. This relationship of slot width and cord size prevents accidental return of the cord to the big end of the keyhole slot, and thereby prevents the cord from being fortuitously disengaged from fitting 12. The fittings 12, 12 in some respects are similar to the fittings disclosed in my co-pending application S. N. 115,407 filed September 13, 1949.

The ladder tapes having been secured to the fittings 12, 12 as previously described, the slats are put in place in the ladder tapes. The bottom slat, which is to act as the cover member 17 for the bottom bar, is placed on top of the fittings 12, 12. The center embossed portion 28 together with the lips 31, 31 form an arch which aids in supporting the cover member 17. The lift cords are then reeved through the openings in the various slats including the openings 41 (one shown) in the cover member 17. The ends of the lift cords are then secured in the keyhole slots 25 as previously described.

With the ladder tapes and lift cords secured to the fittings 12, 12, the next step in the assembly is the securing of the fittings to the channel 10. The fittings 12, 12 are positioned on the top of the channel with the inclined lip portions 31, 31 thereof overlying the depressed portions 22, 22 of the channel flanges 21, 21. The fittings are then pressed downwardly, the four resilient nose portions 35 of each fitting making snap engagement with the edge of a channel flange 21 adjacent one end of a depressed portion 22. By bending the extensions 32, 32 to decrease or increase the distance between the nose portions 35, 35 which are on opposite sides of the bottom bar, a looser or tighter fit may be obtained.

With the fittings secured to the channel, the ladder tapes are further secured against any fortuitous disengagement, since each vertical branch 14, after extending down past the edge 46 (see Fig. 5) of the inclined lip portion 31 of the fitting, turns inwardly between the inclined lip portion 31 and the adjacent depressed portion 22 of the flange. After the fitting has been secured, the vertical branches of the ladder tape are held taut below the fitting, as can be seen by comparing Figs. 3 and 4.

Cap members 19, 19 which may be molded from plastic in one piece, are telescoped over the ends of the channel 10. These cap members embrace the adjacent end portions of the cover member and thereby secure the cover member to the channel 10.

It will be seen that this bottom bar organization is one composed of but few parts which may be rapidly and economically manufactured, and that the bar organization is one which can be assembled in a facile manner without the use of special tools.

The bottom bar herein disclosed has the necessary rigidity to act as a carrier for the slats on the raising of the blind, and the ladder tapes and lift cords are attached to the channel, via the fittings, in such manner that they will not be disengaged upon the sudden arresting of the bottom bar when the blind is lowered rapidly.

What I claim is:

1. In a Venetian blind, a bottom bar organization comprising: a sheet metal channel extending along the bottom of the blind, the top portions of the channel walls being turned inwardly and formed into confronting flanges that extend throughout the length of the channel, pairs of short longitudinal portions of the flanges on the two sides of the channel being depressed below the general level of the flanges; arched sheet metal fittings spanning the space between the side walls of the channel, one fitting being positioned on top of each of said pairs of depressed flange portions and each fitting having portions making snap engagement with non-depressed portions of said flanges; a lift cord attached to each of said fittings; a vertical ladder tape branch passing around each longitudinal edge of each of said fittings and being secured to the fitting on the under side thereof; and a single cover member overlying said fittings and said confronting flanges of the channel.

2. In a Venetian blind, a bottom bar organization comprising: a sheet metal channel extending along the bottom of the blind, the top portions of the channel walls being turned inwardly and formed into confronting flanges, pairs of short longitudinal portions of the flanges on the two sides of the channel being depressed below the general level of the flanges; arched sheet

metal fittings spanning the space between the side walls of the channel, one fitting being positioned on top of each of said pairs of depressed flange portions and each fitting having portions making snap engagement with said confronting flanges; a vertical ladder tape branch passing around each longitudinal edge of each of said fittings and being secured to the fitting on the under side thereof; and a single cover member overlying said fittings and said confronting flanges of the channel.

HANS K. LORENTZEN.

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