June 6, 1961 F. GRIESSER 2,987,120

VENETIAN BLIND ASSEMBLY

Filed Aug. 26, 1958

3 Sheets-Sheet 1

Fig. 1

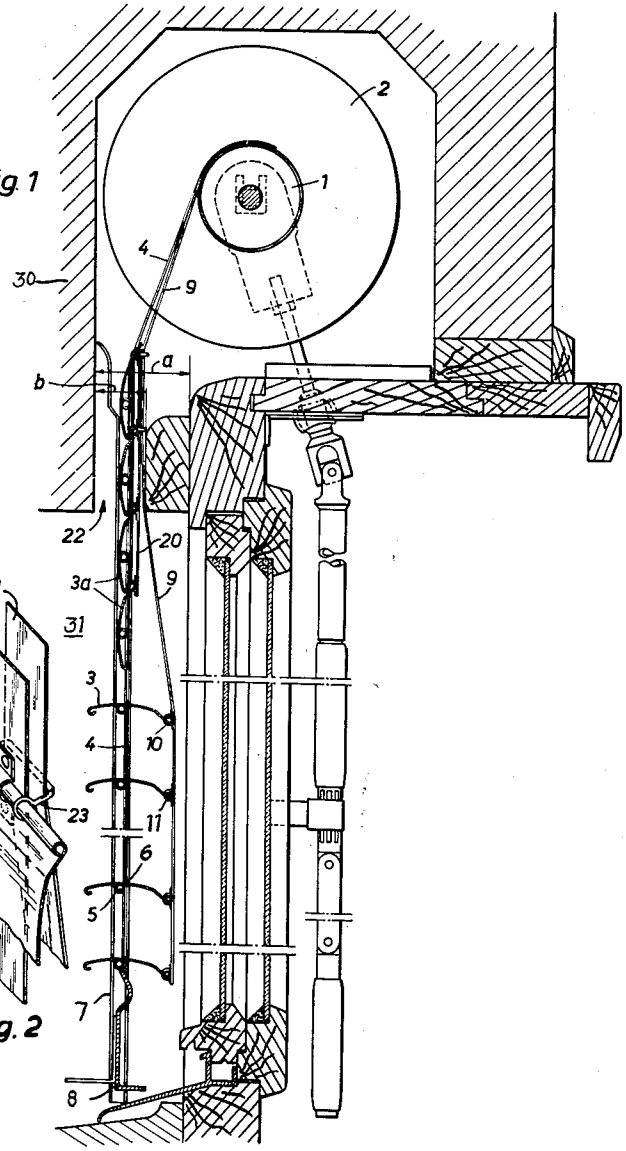


Fig. 2

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FIG 4

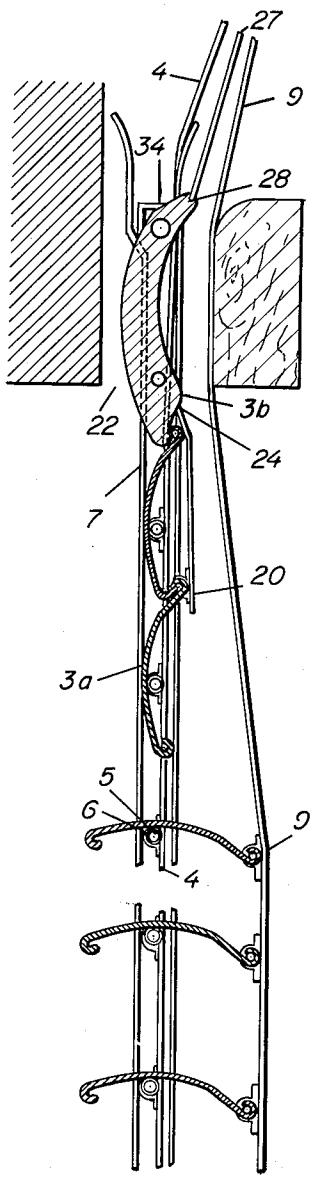
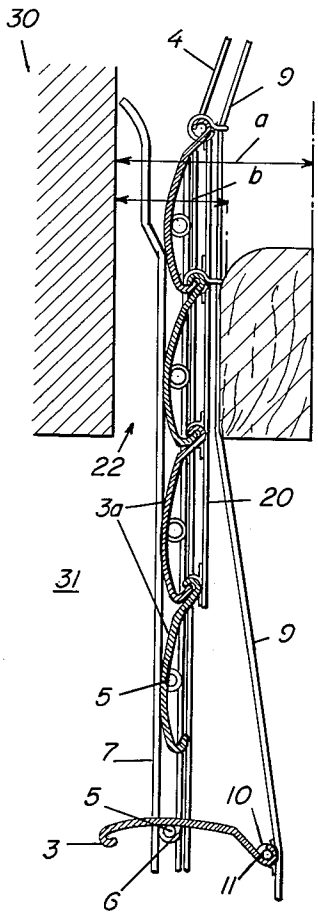


FIG 3



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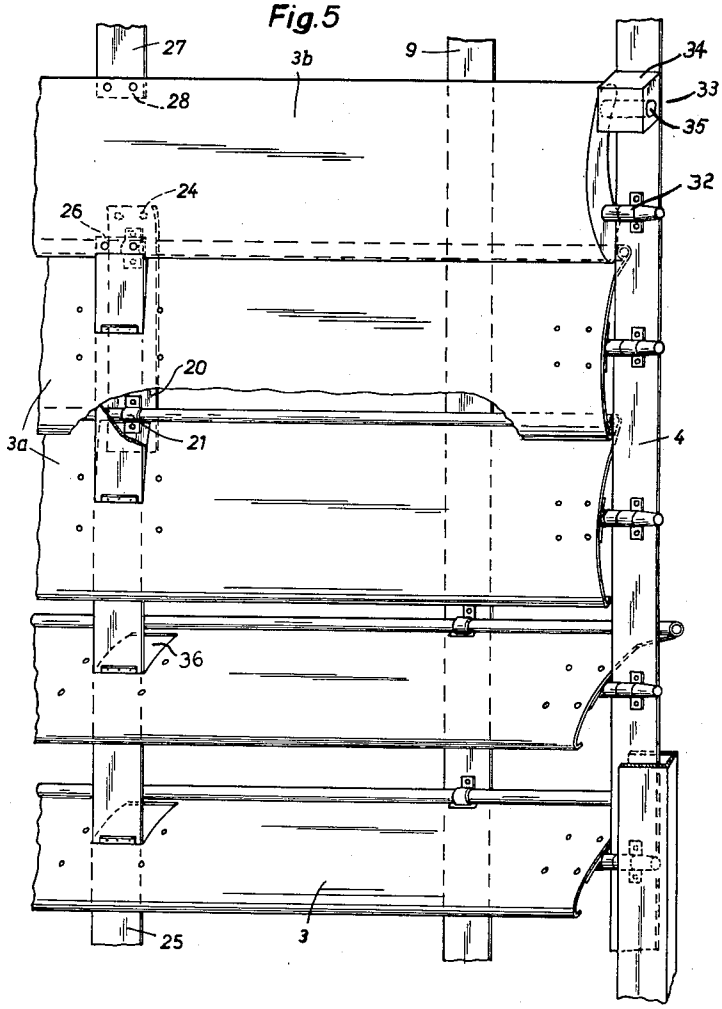
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Fig.5



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2,987,120

VENETIAN BLIND ASSEMBLY

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6 Claims. (Cl. 160—25)

This invention relates to a Venetian blind assembly, and more particularly to a Venetian blind assembly in which there is provided in the space between the uppermost of the pivotable slats and the housing containing the shaft on which the blind is rolled up a plurality of slats which are prevented from pivoting with the pivotable slats to provide a covering over this space.

This application is a continuation-in-part of my application Serial No. 524,184, filed July 25, 1955, now abandoned.

A disadvantage of Venetian blinds of the type in which the slats and the guiding and pivoting tapes are all wound up on the shaft mounted above the opening over which the blind is positioned, is that there is a gap between the uppermost pivotable slat and the top of the opening, which must be present to give the uppermost slat room to pivot on the guiding tapes. It is an object of the present invention to provide a Venetian blind assembly which overcomes this disadvantage.

It is a further object of this invention to provide a Venetian blind assembly in which not only the space between the uppermost of the pivotable slats and the top of the opening is covered but which also provides the advantages of a narrow opening in the housing through which the blind assembly is raised and lowered.

Other and further objects of the present invention will become apparent from the following specification and the appended claims, taken together with the accompanying drawings, in which:

FIG. 1 is a vertical cross section through a lowered Venetian blind assembly according to the invention;

FIG. 2 is a perspective view of a detail of the assembly on an enlarged scale;

FIG. 3 is an enlarged vertical cross section of a portion of FIG. 1;

FIG. 4 is a vertical cross section similar to FIG. 1 of a modification of the Venetian blind assembly, on a somewhat smaller scale; and

FIG. 5 is a front elevation of a portion of the Venetian blind assembly of FIG. 4.

As seen in the drawings, the Venetian blind assembly comprises a winding shaft **1** which is rotatably mounted in a housing **30** therefor, the housing being mounted over the window opening **31** or the like which is to be covered by the blind. The winding shaft **1** is rotated by means of a winding device **2** which is geared to the winding shaft **1** in a conventional manner. The housing has an opening **22** therein, which is substantially the same length as the blind assembly and which is relatively narrow as compared to the slats **3** of the blind assembly.

Secured to the winding shaft **1** are the upper ends of two guiding tapes **4**, which may be of steel or the like and which extend through the opening **22**. Guide rails **7** are mounted on the sides of the window opening and guiding tapes **4** extend along these guide rails. An end rail **8** is secured to the lower end of the tapes **4**.

A plurality of thin slats **3** and a plurality of cover slats **3***a* are provided, which slats are made of metal and are curved transversely of their length. The slats are provided at their inner edges with an upwardly bent bead, while the outer longitudinal edge is bent downwardly. The slats **3** and **3***a* haxe their ends pivotally connected to the guiding tape **4**. For this purpose a pin **5** is provided at each end of the slats and is attached thereto by a stiffening member (not shown) for the slats. The pins **5** are inserted into eyes **6** on the guiding tapes **4**.

The ends of two steel pivoting tapes **9** are secured to the winding shaft **1**. The inner edges of the slats **3** are pivoted to these tapes, which likewise extend downwardly through the opening **22**. The slats **3** have cut-out portions adjacent to the ends of the slats into each of which is fitted an eye **10** which is secured to the tapes **9** by spot welding or the like. A pin **11** extending through the eye **10** and fitting into the bead on the edge of the slat **3** forms the pivotal connection between the eyes and the slats.

There is provided at least one separate tape **20** which is pivoted to the beaded edges of each of the cover slats **3***a*. The pivotal connection is provided by eyes **21** which are secured to the tape **20** and which fit into recesses in the edges of the cover slats **3***a*. A pin (not shown) completes each connection. There may also be provided loops **23** which are mounted on the beads of the cover slats **3***a* and which project laterally of the slats and through which the pivoting tapes **9** are passed to guide them past the cover slats **3***a*. These loops may be provided on all of the cover slats **3***a*, or only on one or two of them, as is shown in FIG. 1.

In operation, as the winding shaft **1** is unwound, the guiding tapes **4** with the slats **3** and the cover slats **3***a* thereon will be guided down the guide rails **7** until the end rail **8** reaches the bottom of the guide rails **7**. At this point, all of the thin slats are in the closed postion, that is they are pivoted so that they are substantially vertical, as are the cover slats **3***a* in FIG. 1. Since they present a relatively narrow profile in this position, it is easy for them to pass through the narrow opening **22** in the housing **30**.

However, upon further rotation of the winding shaft **1** in the direction for unwinding the tapes, the slats **3**, which have their beaded edges pivoted to the tape **9** are pivoted about the pins **5**, which remain relatively stationary in the guide rails **7** on the guide tapes **4**, by the continued movement of the tape **9** in the downward direction. Since the tape **9** is not attached to the cover slats **3***a*, these slats remain in the closed position. Moreover, since the tapes **4** will tend to try and continue moving downward, but will be prevented from doing so by the end rail **8** abutting the sill of the window opening, the upper ends of the tapes **4** will curve away from the tape **9**, tending to tilt the uppermost of cover slats **3***a* away from the tape **9**. This will result in an upward pull on all of the cover slats **3***a* through the separate tape **20**, thus positively preventing tilting of the cover slats **3***a* to the open position.

Thus it is seen that even though the tiltable slats **3** have been tilted to the open position, the cover slats **3***a* have been kept in the closed position providing the covering for the gap between the uppermost of the pivotable slats and the bottom of the housing. At the same time, all of the slats can pass through the narrow opening into the housing without difficulty.

In the modification shown in FIGS. 4 and 5, the uppermost of the thin cover slats **3***a* has been replaced by a thick rigid cover slat **3***b* which is pivoted to the guiding tapes **4** at **32** as well as at **33**. The pivot **32** is the same type of connection as for the other slats, but the connection at **33** is in the form of a block **34** on the tapes **4** into which is rotatably inserted a pivot pin **35**. As can be seen in FIG. 3, the size of the block **34** is such that it cannot pass into the guide rails **7**.

The purpose of providing a rigid thick cover slat is to provide a support for the central regions of slats which are so long that they cannot support themselves. A further guiding tape **25** is provided which is secured at **26** to the thick rigid cover slat **3***b*. This guiding tape extends downwardly through apertures **36** in the slats beneath the

cover slat 3*b* and is secured to each slat on one edge of the aperture 36. The separate tape 20 in this embodiment is secured to the slat 3*b* at 24 since it is in the position farthest removed from the uppermost pivotable slat 3. An additional length of tape 27 is secured to the slat 3*b* at 28 and extends around winding shaft 1.

It is thought that the invention and its advantages will be understood from the foregoing description and it is apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing its material advantages, the forms hereinbefore described and illustrated in the drawings being merely preferred embodiments thereof.

I claim:

1. A Venetian blind assembly comprising a winding shaft, a plurality of guiding tapes suspended from said winding shaft for winding and unwinding around said shaft, a plurality of thin slats pivotally connected at their ends to said guiding tapes for rotation around the central longitudinal axes of said slats, at least one pivoting tape suspended from said winding shaft for winding and unwinding around said shaft, each of said thin slats being articulated to said pivoting tape at the edge of said thin slat for producing, with the blind in the lowered position and upon further rotation of the winding shaft in the direction for unwinding of said tapes, a pivoting of said thin slats into the open position, a plurality of cover slats pivoted at their ends to said guiding tapes between the uppermost of said plurality of thin slats and said winding shaft, a separate tape secured to the edges of the cover slat of said plurality of cover slats closer to the uppermost thin slat of said plurality of thin slats and secured to the slat of said plurality of cover slats farthest away from said uppermost thin slat for holding said cover slats in the closed position, and a housing for said winding shaft surrounding said winding shaft and in which said winding shaft is rotatably mounted, said housing having an elongated aperture in the wall thereof of a width less than the width of one of said thin slats and said cover slats and through which said tapes and slats pass during the unwinding and winding up of said blind with the slats in the closed position, at least the uppermost of said cover slats lying within said elongated aperture in the lowered position of said blind.

2. A Venetian blind assembly comprising a winding shaft, a plurality of guiding tapes suspended from said winding shaft for winding and unwinding around said shaft, a plurality of thin slats pivotally connected at their ends to said guiding tapes for rotation around the central longitudinal axes of said thin slats, at least one pivoting tape suspended from said winding shaft for winding and unwinding around said shaft, each of said thin slats being articulated to said pivoting tape at the edge of said thin slat for producing, with the blind in the lowered position and upon further rotation of the winding shaft in the direction for unwinding of said tapes, a pivoting of said thin slats into the open position, a plurality of cover slats pivoted at their ends to said guiding tapes between the uppermost of said plurality of thin slats and said winding shaft, a separate tape secured to the edges of the cover slat of said plurality of cover slats closer to the uppermost slat of said plurality of thin slats and secured to the slat of said plurality of cover slats farthest away from said uppermost thin slat for holding said cover slats in the closed position, at least one loop secured to the edge of one of said plurality of cover slats through which said pivoting tape passes and by which said pivoting tape is guided past said plurality of cover slats, and a housing for said winding shaft surrounding said winding shaft and in which said winding shaft is rotatably mounted, said housing having an elongated aperture in the wall thereof of a width less than the width of one of said thin slats and through which said tapes and thin slats and cover slats pass during the unwinding and winding up of said blind with the slats in the closed position, at least the uppermost of said cover slats lying within said elongated aperture in the lowered position of said blind.

3. A Venetian blind assembly comprising a winding shaft, a plurality of guiding tapes suspended from said winding shaft for winding and unwinding around said shaft, a plurality of thin slats pivotally connected at their ends to said guiding tapes for rotation around the central longitudinal axes of said thin slats, at least one pivoting tape suspended from said winding shaft for winding and unwinding around said shaft, each of said thin slats being articulated to said pivoting tape at the edge of said thin slat for producing, with the blind in the lowered position and upon further rotation of the winding shaft in the direction for unwinding of said tapes, a pivoting of said thin slats into the open position, a plurality of cover slats pivoted at their ends to said guiding tapes between the uppermost of said plurality of thin slats and said winding shaft, a separate tape secured to the edges of the cover slat of said plurality of cover slats closer to the uppermost thin slat of said plurality of thin slats and secured to the slat of said plurality of cover slats, farthest away from said uppermost thin slat for holding said cover slats in the closed position, and at least one loop secured to the edge of one of said plurality of cover slats through which said pivoting tape passes and by which said pivoting tape is guided past said plurality of cover slats.

4. A Venetian blind assembly comprising a winding shaft, a plurality of guiding tapes suspended from said winding shaft for winding and unwinding around said shaft, a plurality of thin slats pivotally connected at their ends to said guiding tapes for rotation around the central longitudinal axes of said thin slats, at least one pivoting tape suspended from said winding shaft for winding and unwinding around said shaft, each of said thin slats being articulated to said pivoting tape at the edge of said thin slat for producing, with the blind in the lowered position and upon further rotation of the winding shaft in the direction for unwinding of said tapes, a pivoting of said thin slats into the open position, a plurality of cover slats pivoted at their ends to said guiding tapes between the uppermost of said plurality of thin slats and said winding shaft, and a separate tape secured to the edges of the cover slat of said plurality of cover slats closer to the uppermost thin slat of said plurality of thin slats and secured to the slat of said plurality of cover slats farthest away from said uppermost slat for holding said cover slats in the closed position.

5. A Venetian blind assembly as claimed in claim 4 in which said one of said plurality of cover slats farthest away from said uppermost thin slat is a thick rigid cover slat and is further connected to said guiding tapes by a second pivot on each end of said thick rigid cover slat, and said plurality of guiding tapes includes a guiding tape extending through said thin slats between the ends thereof and secured thereto and to said thick rigid cover slat.

6. A Venetian blind as claimed in claim 4 in which said other of said plurality of cover slats are of the same type as the thin slats of said plurality of thin slats.

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