Dec. 9, 1952 S. G. ISSERSTEDT 2,620,865

VENETIAN BLIND

Filed Aug. 31, 1945 2 SHEETS—SHEET 1

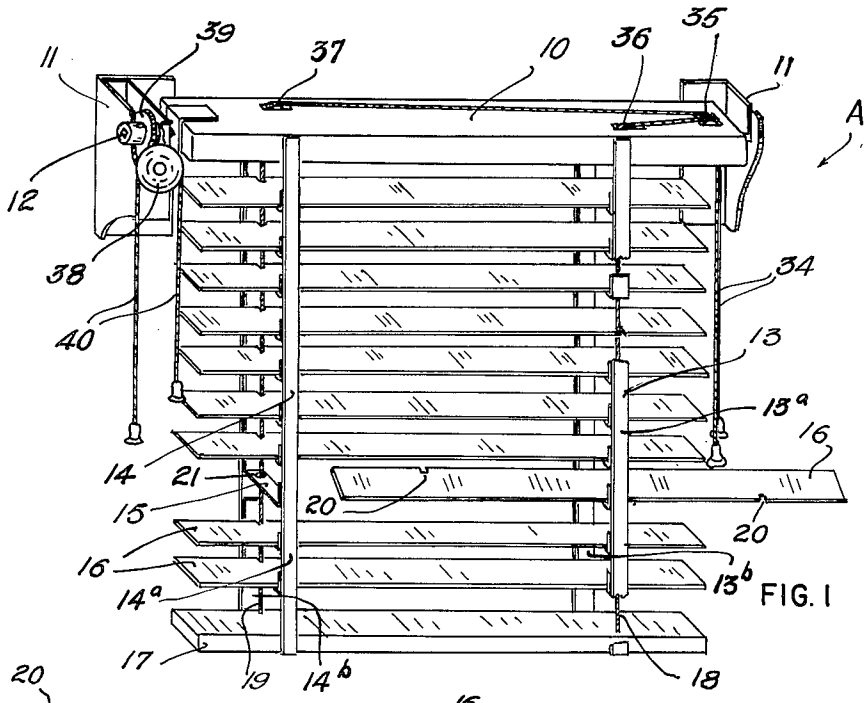


FIG. 1

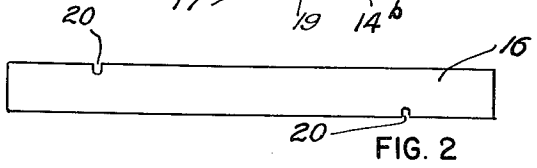


FIG. 2

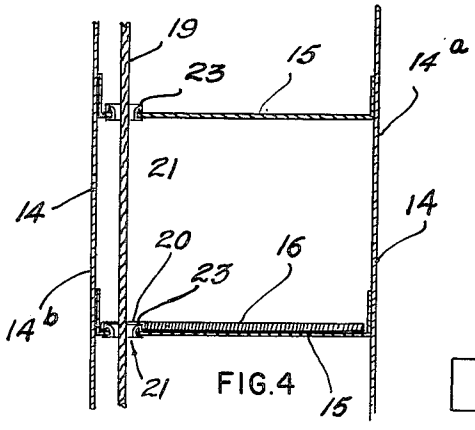


FIG. 4

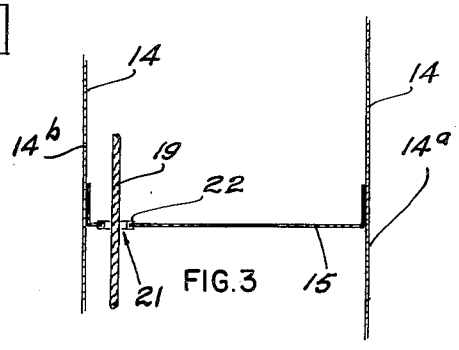


FIG. 3

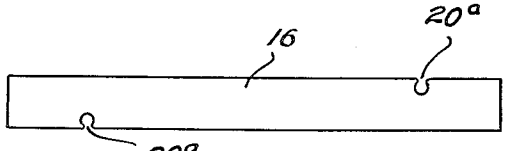


FIG. 6

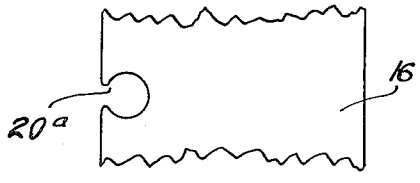


FIG. 5

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VENETIAN BLIND

Filed Aug. 31, 1945 2 SHEETS—SHEET 2

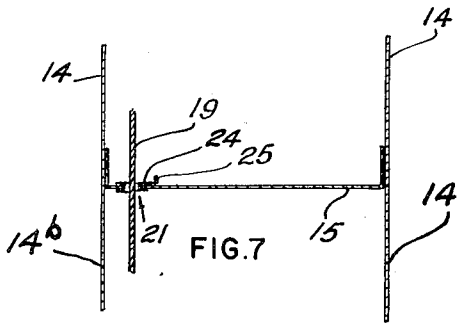


FIG. 7

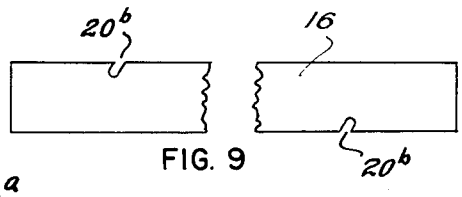


FIG. 9

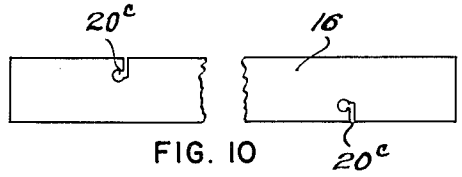


FIG. 10

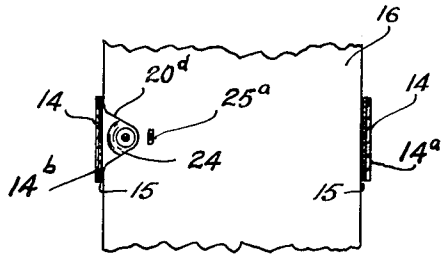


FIG. 8

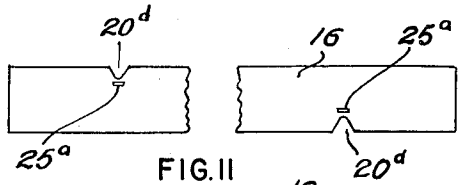


FIG. 11

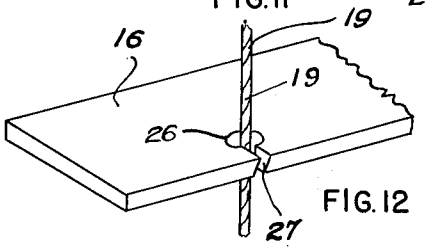


FIG. 12

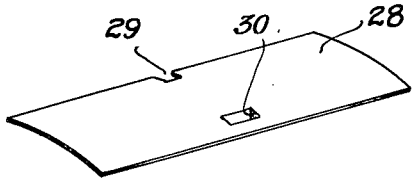
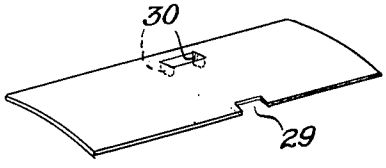
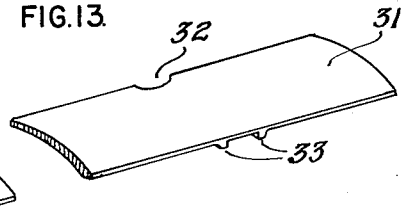


FIG. 13





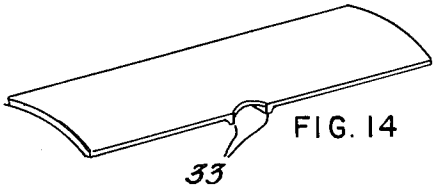


FIG. 14

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UNITED STATES PATENT OFFICE

2,620,865

VENETIAN BLIND

Siegfreid Gordon Isserstedt, Toronto, Ontario, Canada

Application August 31, 1945, Serial No. 613,888

2 Claims. (Cl. 160—173)

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This invention relates to Venetian blinds and constitutes in part an improvement on my co-pending application Serial No. 543,552, filed July 5, 1944, now Patent 2,407,554, issued September 10, 1946. In my earlier filed application I have disclosed a Venetian blind structure embodying a plurality of uniformly spaced apart slats notched on opposite side edges at opposite ends in a position corresponding with the location of the lifting cables of the blind so that each slat is readily removable for cleaning and the blind only requires two lifting cables. This simplified structure is of substantial advantage. In certain cases, however, such as operating the blind when the slats are in a tilted position, one or more of these slats might possibly become dislodged from its normal position of rest. The present invention provides a simple means for overcoming this hazard.

The invention also operates to simplify a Venetian blind structure to an even greater degree.

It is an object of the present invention to provide a Venetian blind structure employing removable slats wherein the blind is generally of simplified form and wherein the removable slats are maintained against inadvertent dislocation.

A further object of the invention is to provide a blind of this character wherein the cable engaging notches of the slats may be of very shallow depth.

A further object of the invention is to provide a blind structure wherein the slat suspending tapes can be formed from quite narrow material and wherein the cross tapes supporting the slats are all disposed in the same axial vertical plane.

A still further object of the invention is to provide a blind structure which will be quite durable in character.

A still further object of the invention is to provide a blind of such simplified structure that it can be readily manufactured and may be marketed at comparatively low cost.

With these and other objects in view, the invention generally comprises a Venetian blind having a suspension of a plurality of uniformly spaced apart slats, each of which may be individually removable and including means normally retaining the slats from dislocation during operation of the blind. It includes also a means of simplifying the supporting of the slats by the cross tapes embodying narrow suspension tapes and a plurality of slat supporting cross tapes, all located in the same vertical plane above and below one another wherein the lifting cables pass through the cross tapes including a means normally preventing wear on the cross tape by the lifting cables and preferably of such character as to provide cooperating means for retaining the removable slats from dislocation.

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The invention will be clearly understood by reference to the following detailed specification taken in conjunction with the accompanying drawings.

In the drawings:

Fig. 1 is a perspective view of a Venetian blind according to the present invention showing the blind in suspended position and illustrating one slat thereof partially removed to illustrate certain features of the invention.

Fig. 2 is a plan view of a generally preferred form of slat.

Fig. 3 is an enlarged fragmentary section taken longitudinally through the suspension tapes to illustrate the manner in which the lifting cables are correlated to the suspension tapes and the slat supporting cross tapes.

Fig. 4 is a view similar to Fig. 3 showing an additional cross tape and the modified form of grommet used in the cross tapes for cooperation with the slats.

Fig. 5 is an enlarged fragmentary plan of a modified form of notch.

Fig. 6 is a plan view of a slat showing the use of the type of notch as shown in Fig. 5.

Fig. 7 is a view similar to Fig. 3 illustrating a still further modified form of grommet.

Fig. 8 is an enlarged fragmentary cross sectional view taken through the suspension tapes to better illustrate the manner of the cooperation of the slats with the cross tapes and employing a type of grommet as shown in Fig. 7.

Figs. 9, 10 and 11 are plan views of slats showing modified forms of notching.

Fig. 12 is an enlarged fragmentary perspective of a slat showing a further modified form of notching.

Fig. 13 is a fragmentary perspective illustration of a slat showing a modified form of construction for direct cooperation with the cross tapes; and

Fig. 14 is an enlarged fragmentary perspective view of a slat showing a further modified form of means cooperating directly with the cross tapes of the blind for retaining the slats from dislocation.

Referring to the drawings, 10 indicates the head board of a Venetian blind which is swingably journalled in suitable brackets 11 by means of a cross shaft or pintles 12 designed to project from the center of each end of the head board,

From the head board, the suspension tapes 13 and 14 depend, each formed to provide the two spaced apart sections 13*a* and *b* and 14*a* and *b* connected at uniformly spaced apart intervals throughout their extent by the cross tapes 15. The cross tapes are designed to support the slats 16 as shown particularly in Fig. 1.

The suspension tapes 13 and 14 may be formed from one continuous piece of material having its ends connected to the head board 10 and passing under and connecting with the base board 17. Alternatively as is obvious they may be formed as two separate tapes forming the sections 13*a* and *b* and 14*a* and *b* fastened at their lower ends to the base board 17.

The blind employs two lifting cords 18 and 19 as in the case of my prior application disposed so that one connects with the base board at one end towards one side edge of the board and the other at the other end towards the opposite side edge of the board. The slats 16 are designed to accommodate the passage of the cables as in the case of my prior application by means of suitable notches, the simplest form of which is indicated by the numeral 20. The notched portions, as in the case of my prior application, are designed in effect to straddle the cable.

The suspension means for the blind is substantially simplified. Whereas in normal practice it is the custom to employ wide suspension tapes and two series of cross tapes uniformly spaced apart throughout the length of the suspension tapes, the alternate cross tapes being staggered and disposed in a different vertical plane to their alternates with the cables passing upwardly between each series, according to the present invention it is possible to employ quite narrow suspension tapes 13 and 14 for the reason that the cross tapes are all disposed in the same vertical plane. This is accomplished by orificing each cross tape adjacent one end and closely adjacent to one section of the suspension tapes so that the lifting cable 18 or 19 as the case may be is threaded through the orifices 21 in each series of cross tapes. The cross tapes are each provided with a suitable grommet 22 enclosing the exposed edges of the tape at the orifice and thus eliminating the possibility of wear of the tapes by contact with the lifting cables during the course of use. In this way a simplified suspension structure is provided which will ordinarily require less material than the conventional type of blind, whereas the structure employed including the grommet positively avoids wear on the cross tapes which often occurs in ordinary structures by reason of the fact that the cable passes between the exposed inner edges of the tapes.

This simplified structure lends itself to a further improved structure in respect to maintaining the removable slats from inadvertent dislocation. As has been indicated in the case of my prior application, there is the possibility of dislocation of a slat during the manipulation of the blind such as when the blind is left in the tilted position and is lowered from the raised position or due to vibration brought about by wind currents, whereas there is the possibility also of the slat sliding from its normally disposed position when the slats are tilted and the blind is collapsed or partially collapsed due to the fact that the suspension tapes tend to bell outwardly between each slat and thus can permit the opposite edge of the slat to that carrying the notch at one end to slide partially into the

belled portion of the folded suspension tape and this, therefore, gives a very untidy and non-uniform effect. Moreover, in some instances this condition might not be corrected when the blind is lowered. The structure of the present invention completely avoids any such possibility by providing for the positive retention of the slat under the various conditions of use.

The notches 20 and their various counterparts 20*a*, *b* and *c* are formed slightly larger than normally necessary to straddle the cables 18 and 19 and I employ in this instance a grommet of the general character illustrated by the numeral 23 in Fig. 4. This as indicated provides an annular flange projecting above the surface of the cross tapes which is encompassed or partially encompassed by the cooperating notch of the slat as shown clearly in the bottom portion of Fig. 4. Accordingly, therefore, the grommet provides a means for retaining the slats from shifting in all horizontal directions, or otherwise it prevents endwise or crosswise shifting of the slats.

Alternatively, a grommet may be employed such as shown in Fig. 7 indicated by the numeral 24 which includes a laterally projecting upwardly turned lug 25. In this instance the slats may be provided with an outwardly flaring type of notch 20*d* if desired instead of the other forms of notch referred to. The slat is also provided with a slot adjacent to and inwardly spaced from the notch designed to register with the lug 25 so that when the slat is placed in position, it will cooperate with the cross tape, cable, grommet and lug such as shown in Fig. 8.

Where it is preferred to obtain the advantages of the simplified means of suspension employing merely a grommet such as 22 or some other simple means protecting the edges of the orifices in the cross tapes 15, it may be found desirable to employ the special type of notched structure shown in Fig. 12 wherein the body of the notch 26 is larger than the entrance thereto, indicated by the numeral 27, which entrance may be disposed at an angle to the vertical, thus tending to offset displacement of the slats horizontally under certain conditions of usage.

A further alternative structure is shown in Figs. 13 and 14 conveniently employed particularly where the slats are made from metal or plastic material. In this case, the slat 28 is provided with notches 29 which straddle the lifting cables 18 and 19, while by means of spaced apart parallel lugs depending from the lower surface of the slats, the cross tapes 15 are straddled. This will prevent any endwise displacement of the slat and will also have the tendency, by frictional contact with the tape, to prevent horizontal shifting movement. The lugs 30 may be formed by orificing the slat and bending down portions of the material displaced from the orifice.

In the case of Fig. 14 a substantially similar construction and result is provided. In this instance, the slat 31 is provided with the notches 32 on opposed edges of the strip and a pair of spaced apart downwardly projecting cross ribs 33 are provided in line with each of the notches 32. These cross ribs straddle the cross tapes 15 and operate in a manner similar to the lugs 30 as described in connection with Fig. 13.

The invention incorporates one further cooperative improvement lending to the smooth and practical operation of the blind under all circumstances of use. In the conventional type of blind the lifting tapes are designed to extend over pulleys fastened on a stationary head structure and

when such a structure is employed in conjunction with a suspension employing two lifting cables only, positioned as shown in the present drawings, the tilting of the head board **10** has the effect of tilting the slats in their lengthwise direction by reason of the slight shortening of one cable and the slight lengthening of the other due to the tilting action of the blind assembly, caused by the fact that the base board **17** tilts in a corresponding manner and since the cables are of equal length from their point of suspension downwardly, it is obvious that this effect must occur. The present development overcomes this disadvantage by causing the manipulating portions **34** of the cables **18** and **19** to pass over the pulleys **35** mounted in a slot in one end of the head board **10**, preferably located along the line of the longitudinal center of the board and the line of the pintles **12**, and to pass over the pulleys **36** and **37** respectively disposed in slots in the head board coinciding with the point at which the cables **18** and **19** respectively must pass downwardly to engage the base board **17**. As a result, therefore, the tilting action of the head board can have no disadvantageous effect on a suspended blind since the base board tilts correspondingly to the head board and the suspension is in effect directly between the head board and the base board.

The head board **10** is, of course, tilted in the conventional manner employing the cooperating gears **38** and **39**, the former having pulley means for anchoring the tilting cords **40**.

From the foregoing, it will be clear that through a simplified construction I provide improvements in Venetian blinds, particularly of the type employing individually removable slats, the structure lending to simplification not only in the character and arrangement of the suspension tapes but also permitting a fully practical structure employing only two lifting cords disposed to connect with the base board at opposite ends and opposite sides thereof. In addition, the invention provides for a removable slat structure which will be maintained in normal position in all cases of use.

What I claim as my invention is:

1. In a Venetian blind structure, the combination with a plurality of slats having slots therein opening to one edge thereof, of tilting suspension tapes laterally spaced to correspond to the spacing of the slots of said slats and comprising two parallel spaced apart side tapes and a plurality of slat supporting cross supports extending between and secured at their ends to said side tapes, each of said slat supporting cross supports having a lift cord receiving opening therein, lift cords arranged through the openings of said cross supports, the slats being removably supported by the supports with lift cords within the slots of the slats, and a grommet rigidly secured to the marginal edge area of said holes, said grommet having a flange extending therefrom that overlies in spaced relation, a portion of the surface of said cross support, said flange being spaced from said tape a distance to accommodate said slat between it and said cross support whereby to retain said slat firmly against the cross support during tilting operation of the blind.

2. In a Venetian blind structure, the combination with a plurality of slats having slots therein opening to one edge thereof, of tilting suspension tapes laterally spaced to correspond to the spacing of the slots of said slats and comprising two parallel spaced apart side tapes and a plurality of slat supporting cross supports extending between and secured at their ends to said side tapes, each of said slat supporting cross supports having a lift cord receiving opening therein, lift cords arranged through the openings of said cross supports, the slats being removably supported by the supports with lift cords within the slots of the slats, and a grommet rigidly secured to the marginal edge area of said holes, said grommet having a slat securing means extending therefrom for retaining said slats against said cross supports during tilting operation of the blind.

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