

March 5, 1963

M. GREEN
VENETIAN BLIND

3,079,988

Filed May 23, 1962

3 Sheets-Sheet 1

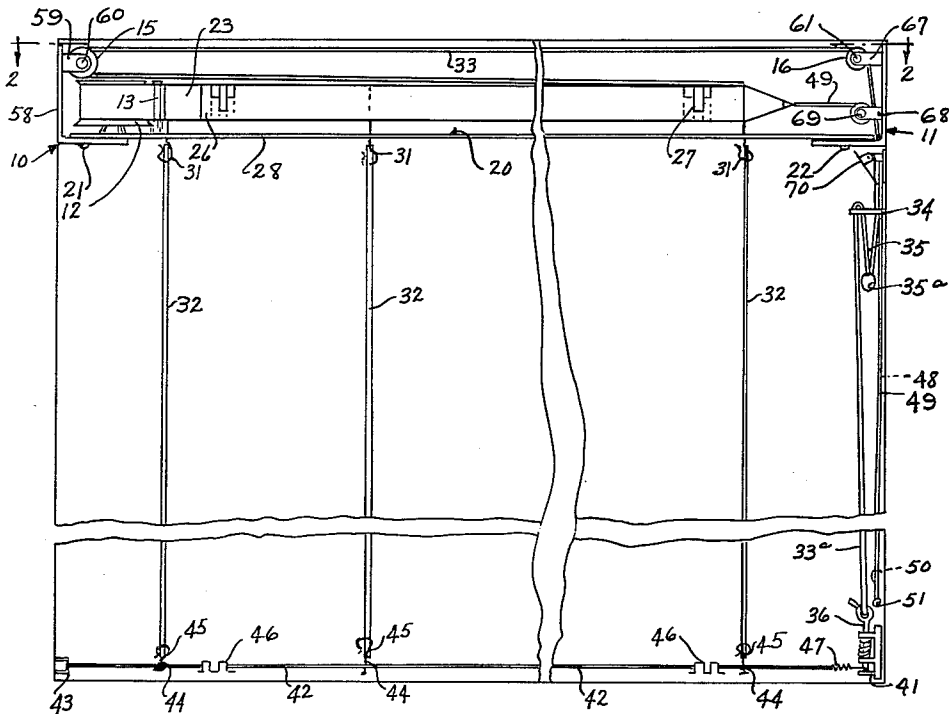


FIG. 1

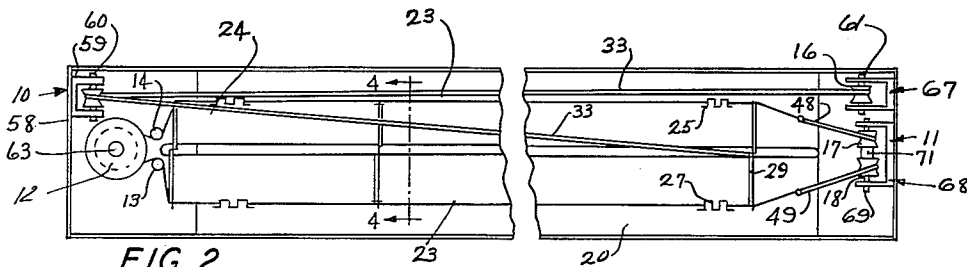


FIG. 2

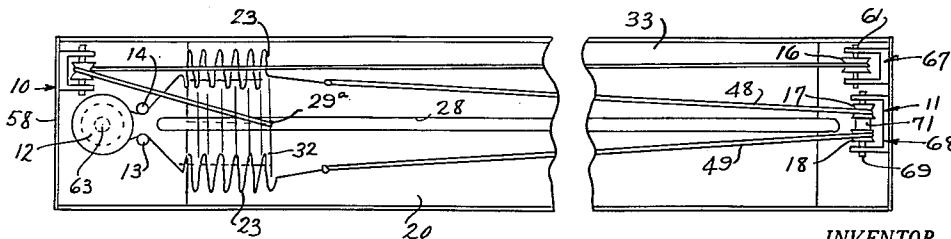


FIG. 12

INVENTOR.
MARTIN GREEN

BY

Van Dusen + Shively
ATTORNEYS

March 5, 1963

M. GREEN
VENETIAN BLIND

3,079,988

Filed May 23, 1962

3 Sheets-Sheet 2

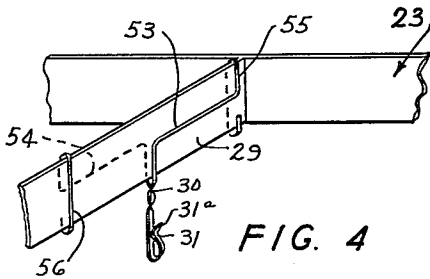


FIG. 4

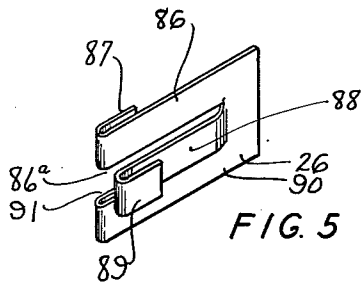


FIG. 5

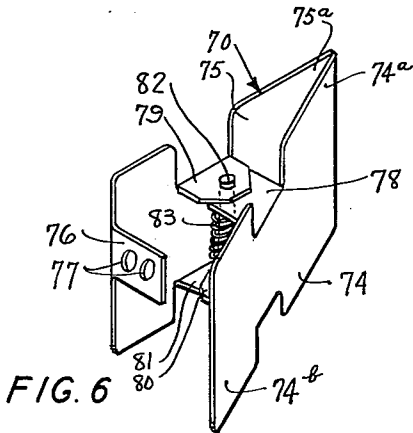


FIG. 6

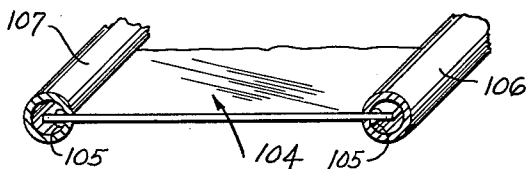


FIG. 9

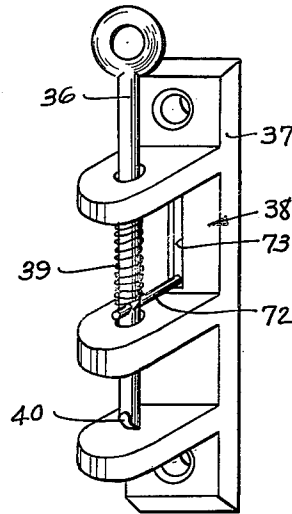


FIG. 3

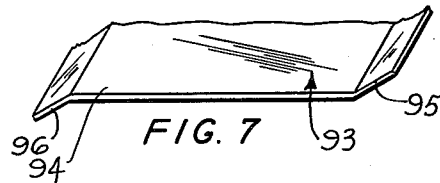


FIG. 7

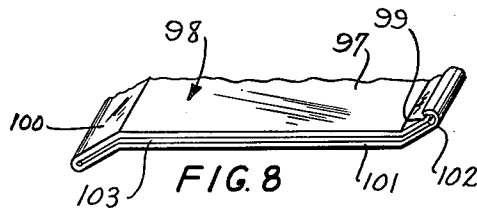


FIG. 8

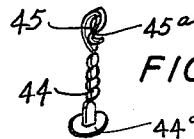


FIG. 11

INVENTOR.
MARTIN GREEN
BY

Van Dusen & Shively
ATTORNEYS

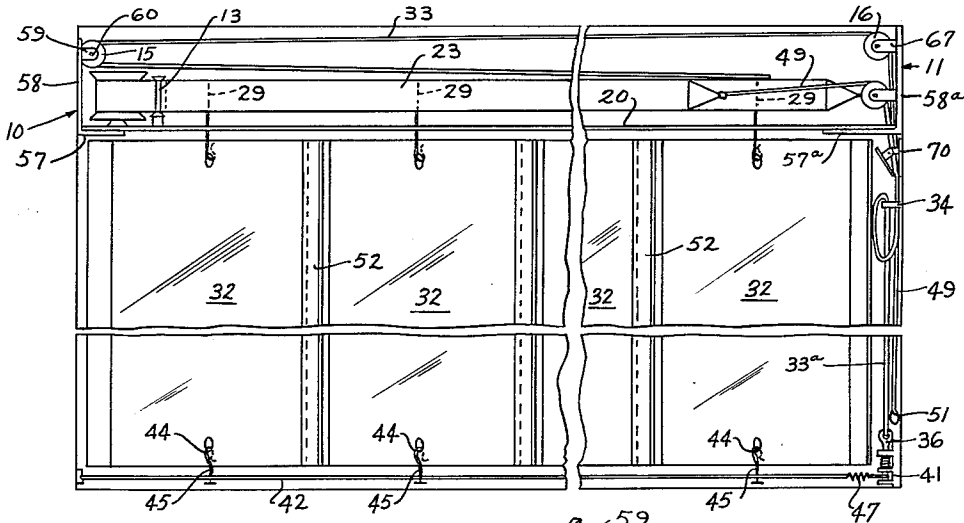
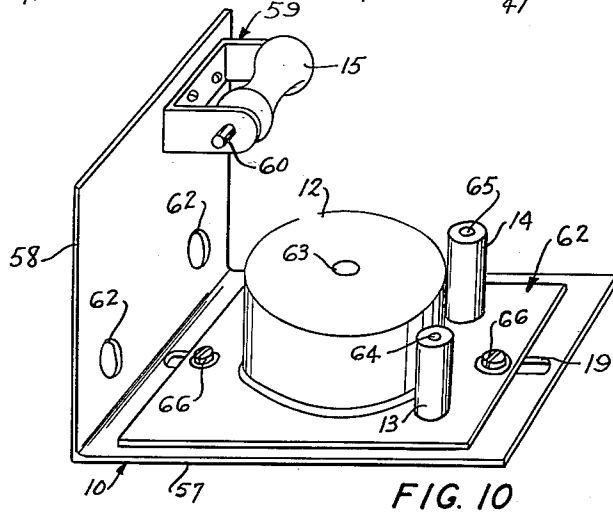
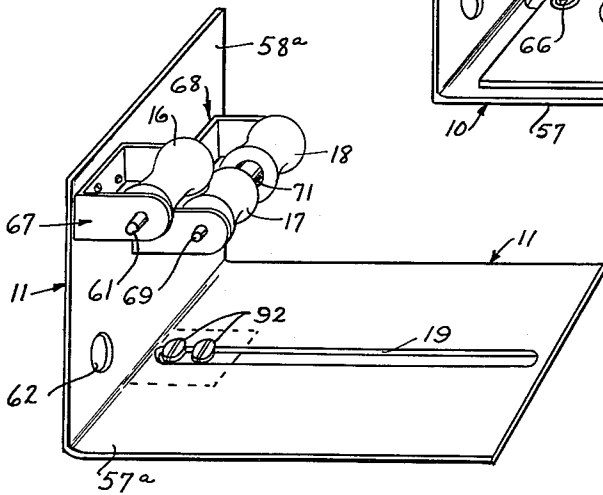
March 5, 1963

M. GREEN
VENETIAN BLIND

3,079,988

Filed May 23, 1962

3 Sheets-Sheet 3



INVENTOR.
MARTIN GREEN
BY
Van Deren & Shively
ATTORNEYS

1

3,079,988

VENETIAN BLIND

Martin Green, 155 Airmount Road, Mahwah, N.J.

Filed May 23, 1962, Ser. No. 203,674

6 Claims. (Cl. 160—168)

This invention relates to improvements in blinds and is directed more particularly to blinds of the Venetian type which comprise a plurality of slats or louvers which may be adjusted spacially, partially rotated and which may be moved bodily to open and close the blind. However, most Venetian blinds have the slats disposed on a horizontal plane, while in my improved blind the slats are disposed on a vertical plane, and when the controls are moved to open the blind the entire window opening is unobstructed by the slats, since the latter are moved laterally or in a horizontal sense. The slats are also moved about their vertical axes.

One of the objects of the invention is the provision, in a Venetian blind, in which the axes of the individual slats are vertical, of novel combined means for supporting said slats on said vertical axes and at the same time adapted to move said slats horizontally for varying the spaces between said slats and/or for bodily moving them from open to closed positions or vice versa.

Another object of the invention is the provision of novel means, connected to the bottoms of the slats for steadying them and providing pivots for permitting them to rotate in unison with the tops of said slats.

Other objects and advantages of the invention will be apparent to those skilled in the art, upon a study of this specification and the accompanying drawings in which:

FIGURE 1 is a side elevation showing my improved Venetian blind and showing my novel structural details;

FIGURE 2 is a view of my blind taken along the line 2—2 of FIGURE 1;

FIGURE 3 is a perspective view of a bracket carrying plunger means for controlling the lower ends of the slats;

FIGURE 4 is a fragmentary view taken on the line 4—4 of FIGURE 2;

FIGURE 5 is a perspective view of a buckle of a type employed in my blind;

FIGURE 6 is a clamp for locking the cords in set positions;

FIGURE 7 is a cross-sectional view of a modified slat employed in my blind;

FIGURE 8 is a cross-sectional view of another modified form of slat;

FIGURE 9 shows a cross-section of yet another modification of the slats;

FIGURE 10 is a perspective view of my improved bracket, positioned in the upper left hand corner of the blind, for conjointly supporting a top supporting element for certain operative elements of the blind, and also supporting some of the cord pulleys;

FIGURE 11 is a perspective view of one of my new and improved blind hooks;

FIGURE 12 is a view similar to FIGURE 2, in which the blinds are in close order at one end of the frame for giving a maximum clear opening of the window;

FIGURE 13 is a view similar to FIGURE 1, except that the blinds per se are shown closed instead of open; and

FIGURE 14 is a perspective view of the bracket positioned in the upper right hand corner of the blind shown in FIG. 1.

Referring first to FIGURE 1, F, F, denotes the side frames of a window or other opening to be spanned by the blind. Secured to these side frames are the brackets 10, 11. The bracket 10 supports pulleys and rollers 12, 13, 14, and 15, while the bracket 11 supports the rollers 16, 17, 18.

2

Referring to FIGURES 1 and 10 a bracket 10 has a horizontal leg 57 and a vertical leg 58. The horizontal leg has an elongated slot 19 formed therein, while the vertical leg has a pair of mounting holes 62 formed therein. A U shaped bracket 59 is secured on said vertical leg near the upper edge thereof and the right hand edge in any suitable manner, as by welding. A shaft 60 is mounted in aligned holes in said bracket and has the roller 15 journaled thereon.

Adjustably mounted on the horizontal leg by means of screws 66 extending through the slot 19 is a plate 62. This plate carries a stud shaft 63 upon which the larger roller 12 is journaled, and it also carries studs 64 and 65 upon which the rollers 13 and 14 respectively are journaled. This bracket is carried in the upper left hand corner of the blind, as may be clearly seen in FIGURE 1.

Referring now to FIGURE 11, the bracket 11 has a horizontal leg 57a and a vertical leg 58a, and this bracket per se is identical with the bracket shown in FIGURE 10. It also has the elongated slot 19 and also the mounting holes 62. Mounted on the vertical leg 58a is a U shaped bracket 67 which is spot welded or otherwise, secured thereto. This bracket has a shaft 61 mounted in aligned holes therein, and the roller 16 is journaled on said shaft. A second bracket 68 is also U shaped and is spot welded to the bracket leg 58a at a point which will clear the head of a mounting screw in the hole 62.

The bracket 68 also has aligned holes formed in the ends thereof, and a shaft 69 is mounted in said holes and carries a roller 17, a spacer sleeve 71, and a second roller 18.

The elongated slots 19 in each bracket (10 and 10a) are for a purpose to be presently described. Suitable means 28, FIGURE 2, comprising a channeled guideway has an elongated slot 28 formed therein. This guideway is placed on the brackets and is adjustably secured thereto by means of bolts 21 and 22, or in any other suitable manner. The slots 19 are provided to allow the blind to be adjusted to windows of various widths, thereby eliminating the necessity of cutting the guideway 20 to various lengths.

A flexible belt or tape 23 is supported near the left side of FIGURE 1, adjacent to the top thereof, by the pulley 12 and it passes around guide pulleys 13 and 14, as best seen in FIGURE 2. These last mentioned pulleys permit the two parallel sides of the belt 23 to approach each other when the belt is moved in a manner to close the louvers or slats, as will be hereinafter described, yet the pulling effect of the large pulley 12 is utilized for supporting and moving the belt.

The belt is split, and buckles 24', 25', and 26' and 27' or other suitable means are inserted at these points to permit the belt to be lengthened or shortened in accordance with the window opening.

Spanning the space between the sides of belt 23 and overlying the slot 28 of the guideway 29 are flexible bridging members or short tapes 29, which span the space between the inner and the outer portions of the belt 23, and which have their extremities secured to said portions in any suitable manner, one of these transverse tapes 29 being provided for each of the louvers or slats forming the blind.

A suitable suspension means, for example a wire hook element 30 is attached to each of the tapes 29, as may best be seen in FIGURE 4, and the lower portion is in the form of a hook 31 which extends downwardly through the slot 28 and engages a hole in the upper end of a louver or slat 32 of the blind, and thereby the latter is suspended thereon. The hook element 30 has lateral extensions 53 and 54 having on their extremities embracing loops 55 and 56, respectively, for retaining the hook elements on the bridging members. Normally the

plane surfaces of the slats 32 hang parallel to the tapes 29 and perpendicular to the plane of tape 23, thus leaving the slats 32 in their open positions, as shown in FIGURE 1.

To sweep all of the slats 32 to one side of the window, as shown in FIGURE 12, the cord 33 is connected to the first cross tape 29a on the right, FIGURE 1, and passes over pulleys 15 and 16 and extends downwardly to the bracket 34 where it is formed into a loop 35 and then continues downwardly, as shown at 33a and is secured to the plunger 36 of my improved locking member 37. A pull upon the loop 35 disengages the plunger 36 from the lower support in a manner to be presently described. The loop 35 carries a ring 35a to facilitate the pulling of the cord 33 and when the plunger is released and a pull is exerted upon the cord 33 via said ring the group of slats is pulled over to the left, as shown in FIGURE 12, leaving the window wide open.

As shown in FIGURE 3, for example, the member 37 may have the plunger 36 slidably carried in a frame 38. A spring 39 normally urges the plunger 36 downwardly. A pin driven through a hole in the plunger 36 has one end extending into a slot 73 formed in the bracket 38 and is therefore held against rotative movement.

The lower end of 36 is beveled as shown at 40 to permit the easy insertion below it of an eye or catch 41 which is secured to the tape 42, which normally spans the bottom of the window opening and is secured to the left side of the window opening at 43. The tape 42 has secured thereto a plurality of fasteners 44 having hooks 45 adapted to engage holes in the lower edge of the slats 32.

The fasteners 44 are spaced apart on the tape 42 so that the slats 32 will hang vertically when in the position shown in FIGURE 1 and suitable buckles or other means 46 similar to the means 24, 25, 26, 27, inserted in the belt 23 are used to lengthen and shorten the tape 42 as desired. Spring means 47 is employed to keep the bottom tape 42 stretched when in use.

It will now be noted that when the slats 32 are open, as shown in FIGURE 1, by the act of pulling downwardly on the loop 35, the plunger 36 will be raised, releasing both the catch 41 and tape 42. Then if the loop 35 in cord 33 is pulled downwardly all the slats 32 will be moved to the left, as seen in FIGURE 12, carrying the cords 48, 49 with them until all the slats assume the position shown in FIGURE 12. In this position the tape 23 is bunched as shown, and the slats are also closely grouped together, leaving the window opening clear and unobstructed. The free ends of the cords 48, 49 may have the knobs or handles 50 and 51 respectively secured thereon to facilitate pulling said cords.

To adjust the slats 32 about their axes, when the slats are in open positions, as shown in FIGURES 1 and 2, the cord 48 is pulled by means of the handle 51, thereby moving the upper tape 23, FIGURE 2, to the right (FIGURE 13). This obviously will move all the cross tapes 29 and thereby rotate the hooks 31 and the slats 32 hanging thereon, closing the slats to the position shown in FIGURE 13. The blind will now be closed, and the edges 52 of the slats 32 may overlap if desired.

By pulling on handle 50 the cord 48 is pulled to the right, FIGURE 1, and the foregoing operation is reversed with the result that the slats 32 are opened.

In all positions of the blind, using the cords 48, 49, the lower edges of the slats turn about the elements 31 and 44 which are located on the vertical axes of the slats, therefore the slats are held vertically at all times.

Referring now to FIGURE 6 and FIGURE 1, a cord clamp 70 is comprised of two parts. One is a plate-like member 74 which has ears 78 and 80 with aligned holes formed therein, and cooperating with these ears are ears 79 and 81 formed integral with a second plate 75. These ears also have aligned holes therein and a

hinge pin 82 is mounted in these aligned holes and it is embraced by a spring 83 which has extensions on each end, one of which engages one of the plates and the other of which engages the other plate and urges the ends 74a and 75a together to form an apex. A plate member 70 has a lug 76 formed integral therewith and this lug is provided with two holes 77 by means of which the clamp 70 may be mounted on the lower face of the bracket 11, as shown in FIGURES 1 and 14, by means of screws 92 which pass through the slat 28. The cords 33 and 48 and 49 pass through the apex portion of the clamp 70 and they are thereby arrested against movement. When it is desired to open or close the blinds or change the spacing thereof, the user engages the end 74b of the clamp and thereby forces the ends 74a and 75a in a direction away from one another and away from the cords, leaving the latter free to be moved in order to obtain the desired adjustment.

In FIGURE 5, I show a perspective view of one of the buckles which are used for increasing or decreasing the length of the belt or tape so as to adjust the blind for a given window. This buckle comprises a plate 26 which has parallel legs 86 and 90 having portions 87 and 91 near the extremities bent back upon themselves. A third leg 88 is offset outwardly and has an extremity portion 89 bent back upon itself in such a manner that spaces are provided between the portions 87, 89, 91 and the legs of which they form an integral part.

In use, one strand of the belt or tape is passed between the leg 86 and the portion 87 then through the space 86a and over the leg 88 and under the portion 89. Then it is passed through the space between the leg 88 and the leg 90 and behind the leg 90, as seen in FIGURE 5, and between it and the portion 91. Then the second tape is brought through this buckle from the opposite direction so that it passes over the first mentioned tape and between it and the leg 90, thence over the leg 88 and the other portion of the tape thereon and then under the leg 86 and atop the tape thereon. All of these operations are performed with the portions 87, 89 and 91 loosely engaging the tape so that it may be taken up to get a desired length, following which the portions 87, 89 and 91 are pinched with a pair of pliers so that they are clamped to the two tape ends which pass through the buckles.

In FIGURE 11, I show an enlarged detail of one of the bottom hooks 44 which has a hook portion 45 on the upper end, a twisted portion 44 and a head 44a on the bottom which engages the tape 42. The hook portion 45 has its extremity 45a bent back and resiliently engaging the opposite portion of the hook 45 so that when it is snapped through a hole formed in one of the blinds it remains in engagement therewith until a user takes his thumb and raises the hook portion 45a to release the blind. The hook 31 may also have its extremity formed as shown at 31a to function in a manner similar to that described above for the hook 45.

In FIGURE 7, a special form of slat 93 comprises a flat portion 94 with one edge 95 angular with the surface of the portion 94 and having a second portion 96 angular with the opposite face of the portion 94, the angles of 95 and 96 being substantially equal and opposite.

In FIGURE 8, I show another modification which is similar to the one shown in FIGURE 7 except that it is laminated and has a provision for enabling the user to match or complement certain decorative effects. This slat 98 is comprised of a flat portion 97 of transparent material having an angular portion 99 integral therewith on one edge. Along the other edge of the portion 97 is a generally U-shaped portion 100 which is angular with respect to the surface 97 and which joins angularly and is integral with a substantially parallel flat portion 101 and the right extremity of the portion 101, which is 102, as seen in FIGURE 8, is U-shaped in cross-section and it overlaps a portion of the angular portion 99 and it may be disengaged therefrom so as to make space be-

tween the portions 97 and 101 and to allow for the insertion of a decorative strip or sheet 103 which is thin enough to conform to the bends above described.

A further modification of the slat is shown at 104 in FIGURE 9, wherein a strip or slit has deformed portions 105 adjacent to the edges thereof, and mounted on the slat and embracing the deformed portions 105 is a tubular member 106 along one edge of the strip and a second tubular member 107 embraces the left end of the strip 104 and engages the deformed portions 105.

Although I have herein shown and described by way of example a preferred embodiment of the invention and several modifications of the slats, it will be understood that I am not to be limited to the exact showing since many changes may be made in the arrangements shown and described within the scope of the following claims.

I claim:

1. In a Venetian blind adapted to be mounted in an opening in a wall, a channelled guideway having a longitudinal guide slot formed therein, bracket members comprised of a pair of L-shaped members having horizontal portions and vertical portions, said horizontal portions being secured to each end of said guideway, plate means adjustably carried on the horizontal portion of one of said brackets, said plate means being adapted to be adjusted thereon, means to lock said plate in an adjusted position, said plate carrying a main pulley with its axis vertically disposed and a pair of auxiliary pulleys adjacent thereto, tape means supported on said first pulley and guided by said auxiliary pulleys, other pulleys carried by said brackets with their axes horizontally disposed for supporting and guiding cords, a series of slats suspended from said tape means, and means controlled by said cords for varying the relation of said slats to one another.

2. The invention according to claim 1 in which a cord clamp is secured to one of said brackets said clamp being adapted to be manually actuated in a position where at least one of the cords passes therethrough, for releasing the cords.

3. A Venetian blind adapted to be mounted in an opening in a wall, a channelled guideway spanning said opening and having a longitudinal guide slot formed therein, pulley means supported at one end of said blind and near the top, a tape spanning said pulley and extending therefrom, said tape having its extremities in spaced-apart relation, a series of cross-tapes joining said extremities, individual means reinforcing said cross-tapes and carrying hooks extending through said longitudinal guide slot, a series of slats suspended by said hooks, other corresponding hooks on the lower ends of said slats and extending through a displaceable guide means, means to rotate said slats on axes extending between the upper and the lower hooks for changing the relation of the slats to one another, and means for displacing said bottom support when it is desired to move all of the slats to one side of the window and leave the latter fully open.

4. A Venetian blind according to claim 3 in which said means to rotate said slats about vertical axes extending between the upper and lower hooks are comprised of a

first cord connected to one of the extremities of said first mentioned tape and a second cord secured to the other extremity of said first tape, said cords passing over pulleys supported at one end of said blind, and in which a third cord connected to the last slat in said group on the right extends to and over a pulley on the left and thence to a pulley on the right and downwardly to means for disengaging said bottom support, whereby the first pull on said cord releases the bottom support and a further pull moves the entire array of slats to said first mentioned end of the window in close order.

5. A Venetian blind according to claim 3 in which said bottom support is comprised of a web extending across the bottom of the window opening fixed at one end thereof and detachably engaged with an element on the opposite end thereof and means to detach said support from said last end for the purpose of moving all said slats to the opposite side of said blind, and a single control element within said blind acting to perform both functions.

6. In a Venetian blind adapted to be mounted in an opening in a wall, a channelled guideway having a longitudinal guide slot formed therein, bracket members secured to each end of said guideway and carrying pulleys some of which have their axes horizontal and some of which have their axes vertical, one of said last mentioned pulleys having a substantial diameter, tape means spanning said last pulley, other smaller pulleys engaging said tape means for guiding it to and from said larger pulley, a series of cross-tapes secured to the free portions of said tapes on one side of said last pulleys and also secured to the tapes on the other side of said pulleys, a series of supports reinforcing said cross-tapes and carrying hooks extending through said longitudinal slot and individually engaged with a series of slats, bottom support means extending from one side of the window to the other at the bottom thereof and including spring means to keep the same taut, said support means being detachably secured to the window on one side thereof, said bottom support also carrying upwardly extending hooks which engage said slats near the bottom ends thereof, means to rotate said slats on the axes extending through said supports, and other means independent of said first means for disengaging said bottom support and moving said slats to one side of the window in a close array.

References Cited in the file of this patent

UNITED STATES PATENTS

309,258	Shelby	Dec. 16, 1884
344,110	Johnson et al.	June 22, 1886
1,602,929	Parker	Oct. 12, 1926
1,896,029	Gunther	Jan. 31, 1933
2,180,863	Clancy	Nov. 21, 1939
2,296,010	Balthasar	Sept. 15, 1942
2,503,441	Kamm	Apr. 11, 1950
2,558,225	Solomon	June 26, 1951
2,782,848	Cereceda	Feb. 26, 1957

FOREIGN PATENTS

735,886	Germany	May 31, 1943
1,130,070	France	Sept. 17, 1956