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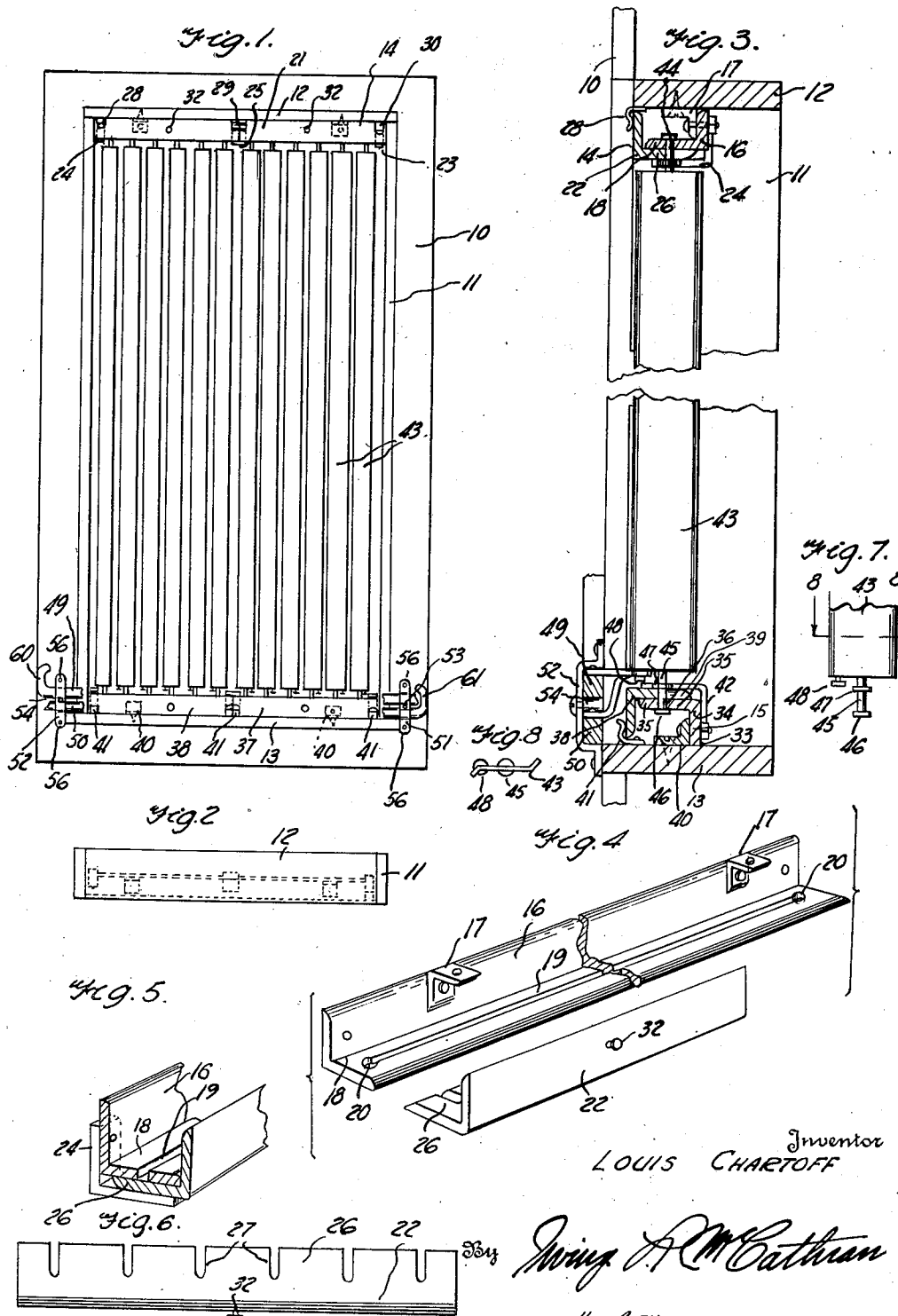
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2,552,406

DUSTLESS VENETIAN WINDOW BLIND

Filed July 16, 1948

3 Sheets-Sheet 1



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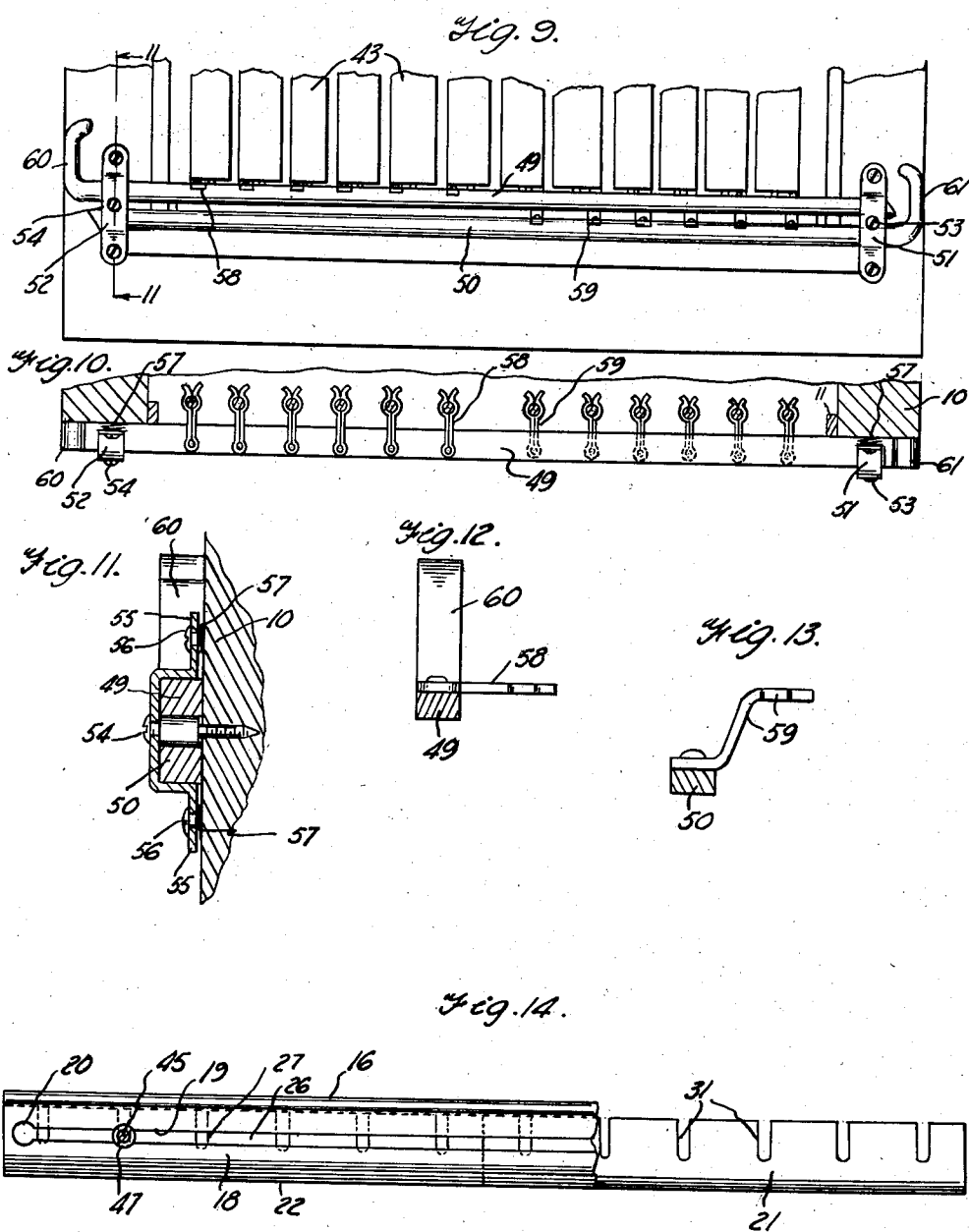
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DUSTLESS VENETIAN WINDOW BLIND

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3 Sheets-Sheet 2



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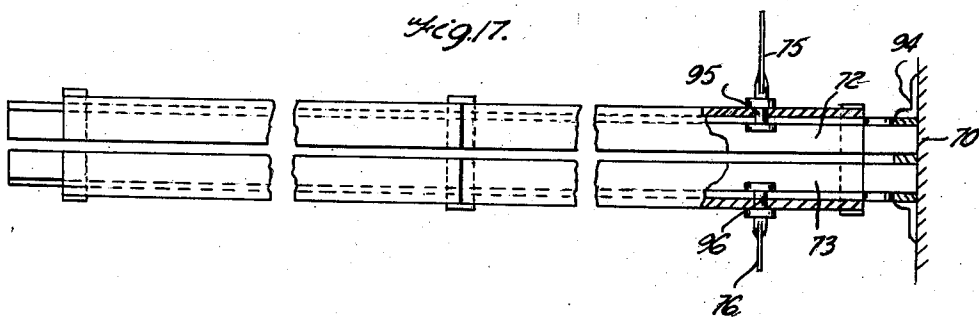
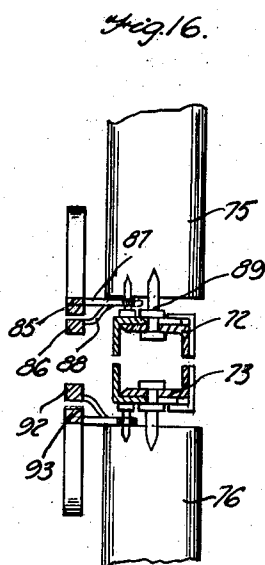
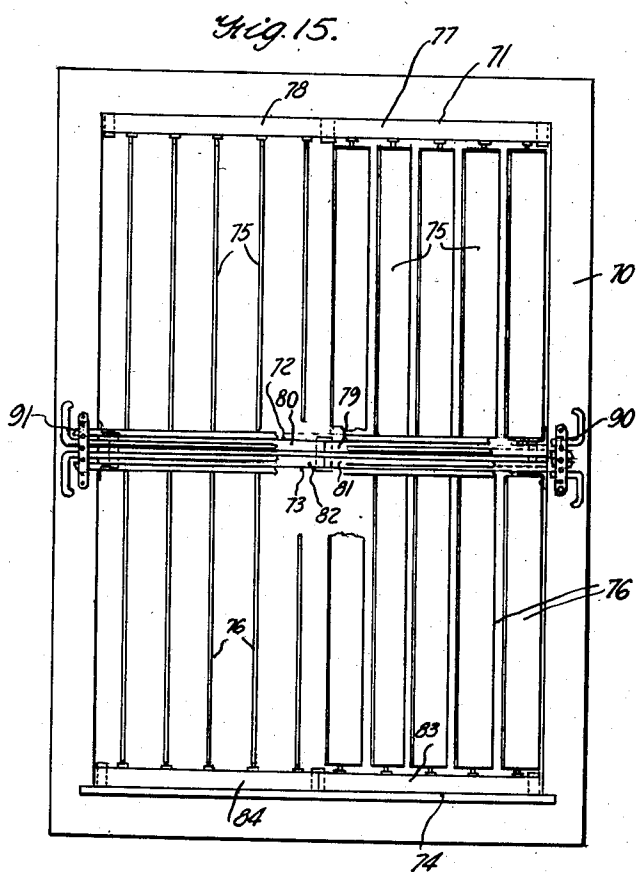
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DUSTLESS VENETIAN WINDOW BLIND

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UNITED STATES PATENT OFFICE

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DUSTLESS VENETIAN WINDOW BLIND

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4 Claims. (Cl. 20—62)

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This invention relates to dustless Venetian window blinds, wherein the louvers or slats are supported in a vertical position and are interconnected in a manner whereby they may be turned about their vertical axes to open and close the louvers or slats.

One of the principal objects of this invention is the production of a simple and efficient means for detachably or removably supporting the louvers or slats of the Venetian blind so that the slats or louvers may be removed or replaced when desired, and also to efficiently support the same in rotatable vertical position.

A further object of this invention is the production of a simple and efficient means for shifting the vertical louvers or slats to and from an open and shut position.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawings—

Figure 1 is a front elevational view of the Venetian blind with certain parts broken away;

Figure 2 is a top plan view of the frame of the blind;

Figure 3 is an enlarged vertical sectional view;

Figure 4 is a group perspective view of the upper slat-supporting member, and one of the pivot pin anchoring plates;

Figure 5 is a fragmentary sectional perspective view of the upper slat-supporting member and one of the anchoring plates, and also showing one of the retaining spring clips;

Figure 6 is a top plan view of one of the pivot pin anchoring plates;

Figure 7 is a fragmentary side elevational view of the lower end of one of the slats;

Figure 8 is a transverse sectional view taken on line 8—8 of Figure 7;

Figure 9 is an enlarged front elevational view illustrating the lower end of the Venetian blind and frame, and showing the shifting bars in place;

Figure 10 is a top plan view of the shifting bars in position upon the frame, the frame and pivot pins of the slats being shown in transverse section;

Figure 11 is a vertical sectional view taken on line 11—11 of Figure 9;

Figure 12 is a transverse sectional view through the upper shifting bar;

Figure 13 is a transverse sectional view through the lower shifting bar;

Figure 14 is a top plan view of the upper slat-supporting member and the slat-anchoring

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member assembled, a portion of the supporting member being broken off to show the construction of the anchoring member.

Figure 15 is a front elevational view of a modified form of the invention, wherein the slats are divided into upper and lower groups, separately operated;

Figure 16 is an enlarged fragmentary vertical sectional view taken on line 16—16 of Figure 15 showing the central slat-supporting means detached from the window frame;

Figure 17 is a front elevational view of the central slat-supporting means shown in Figure 15 and illustrating one end of the slat-supporting means anchored to the window frame.

By referring to the drawings, it will be seen that 10 designates the window frame within which is preferably set a window blind frame 11, as shown in Figure 1. The window blind frame 11 is provided with a top member 12 and a sill member 13. An upper louver or slat-carrying means 14 is secured to the under side of the top member 12, and a lower louver or slat-carrying means 15 is mounted upon the sill member 13, as shown in detail in Figure 3.

The upper louver or slat-carrying means 14 comprises an elongated angle member or bar 16 which is suspended from the top member 12 by means of suitable suspending brackets 17. The member or bar 16 is provided with a forwardly extending flange 18 and this flange 18 is provided with a longitudinally extending slot 19 which slot 19 terminates at the opposite ends of the flange 18 in enlarged apertures 20. A pair of slat-anchoring plates 21 and 22 which are angular in cross section, slidably engage the bar 16, as shown in Figure 3. The anchoring plate 22 is provided with an inwardly extending flange 26 which snugly fits against the under face of the flange 18 of the bar 16. Retaining brackets 23 and 24 are secured to the rear face of the bar 16 near its ends and extend under the outer ends of the anchoring plates 21 and 22 to assist in supporting the anchoring plates 21 and 22 in position on the bar 16. A central retaining bracket 25 of similar construction spans the inner ends of the anchoring plates 21 and 22 to support the inner ends of the anchoring plates 21 and 22 in place. Spring clips 28, 29 and 30 preferably are secured to the top member 12 and releasably engage the front faces of the anchoring plates to releasably hold the anchoring plates in a set position. The flange 26 of the plate 22 is provided with inwardly extending transverse slots 27 which extend inwardly from the outer

edge of the flange 26 toward the longitudinal center thereof, as shown in Figures 6 and 14. The companion anchoring plate 21 is similarly provided with spaced slots 31. A knob 32 is carried by each plate 21 and 22 to facilitate the placing of the plates into position, or the removing of the plates. Each plate 21 and 22 preferably extends for one-half of the length of the bar 16.

A bottom or lower slat-carrying member 33 rests upon the sill member 13 and comprises an angle bar 34 in an inverted position having its flange 35 extending in a forward direction in alignment with the flange 18 of the bar 16. The flange 35 is provided with a longitudinal slot 36 having an aperture at each end similar to the aperture 20 shown in Figure 4. A pair of slat-retaining plates 37 and 38 similar to the plates 21 and 22 fit upon the bar 34 in a manner similar to that described relative to plates 21 and 22 only in an inverted position, as shown in detail in Figure 3 as to plate 38. The plates 37 and 38 are provided with transverse slots similar to the slots 27 and 31 of plates 22 and 21 such as the slot 39 shown in Figure 3. The slots in the plates 21 and 22 are in vertical alignment with the slots of plates 37 and 38. The bar 34 is anchored to the sill member 13 by means of brackets 40 and the anchoring plates 38 are detachably held in place upon the bar 34 by the front spring clips 41 similar to the brackets 24 previously described.

A plurality of louvers or slats 43 are arranged in vertical relation within the blind frame 11. Each slat 43 is provided with an upper journal shaft 44 and a lower journal shaft 45. The upper shafts 44 fit within the slot 19 of the bar 16 and the lower shafts fit in a similar slot 36 of the lower bar 34. It should be understood that the bars 16 and 34 are constructed as shown in Figure 4 and are only mounted in reverse position, the structure being the same as illustrated in Figure 4. The plates 21 and 22 and the plates 37 and 38 are all constructed as shown in Figure 4, and the plates 37 and 38 merely are mounted in a reverse position to the mounting of the plates 21 and 22. The illustration in Figure 4 is typical of the structure of plates and bars above mentioned. The shafts 44 and 45 are inserted in the slots of the bars 16 and 34 by inserting the enlarged heads such as the head 46 through one of the apertures such as the aperture 20 and then moving the slat to its proper position relative to the other slats. Each shaft 44 and 45 is constructed in accordance with the detail showing in Figure 7, comprising the outer head 46 and the inwardly spaced collar 47. The transverse slots 27 and 31 of the plates 22 and 21 engage the respective shafts 44 to hold the same in spaced relation within the slot 19, and similar transverse slots such as the slot 39 shown in Figure 3 in the plates 37 and 38 hold the respective shafts 45 of the slats 43 in spaced relation in the slot 36 of the lower or bottom bar 34. The slats 43 preferably are divided into two groups, one group being anchored in position by the plates 21 and 37, and the other group being anchored in position by the plates 22 and 38 as shown in Figure 1. In this way one-half of the slats may be removed or released at a time when and if desired.

Each slat 43 is provided with a depending headed pin 48 at its lower end near one side edge thereof. A pair of actuating rods 49 and 50 are mounted transversely of the window frame 10 below the lower ends of the slats 43 and are slidably

mounted through the supporting brackets 51 and 52, these brackets being secured at opposite sides of the frame 10. The rods 49 and 50 are mounted one above the other, as shown, and are separated by the central transverse anchoring screws 53 and 54 of the brackets. The brackets are provided with ends 55 which receive anchoring screws 56 (see Figure 11) and coil springs 57 are interposed between the ends 55 and the frame 10 to yieldably space the brackets away from the frame 10 and provide a means for increasing or decreasing the tension of the brackets upon the rods 49 and 50 in a manner as will be obvious by considering Figure 11. By tightening the screws 56 the frictional engagement of the brackets upon the bars 49 and 50 may be regulated to hold these bars against accidental sliding movement after the tilting position of the slats has been selectively set.

The bar 49 is provided with a plurality of spaced spring clips 58 which may be of any suitable design to detachably engage the depending pins 48 of a selected group of slats. The bar 50 is also provided with spaced spring clips 59 which are bent upwardly to engage the pins of the remaining group of slats, the bar 50 being located below the bar 49. In this way the clips will have their pin-gripping ends in alignment. The clips preferably are secured to the actuating bars by being secured thereto in countersunk relation. However, they may be secured in any desired manner without departing from the spirit of the invention. The bar 49 is provided with an upwardly extending handle 60 located at one side of the frame 10 and the bar 50 is provided with a handle 61 located at the opposite side of the frame 10 to facilitate the sliding of the bars and the swinging of the slats to the desired position upon their vertical axes.

The structure set forth above provides a Venetian blind, the slats of which are mounted in a vertical position which position will tend to prevent dust from settling thereon as would be the case if the slats extended in a horizontal position. By operating or rotating the slats in individual groups, one group may be moved to an open or partly open position, while the other group may be closed, or vice versa. It should be noted that any number of groups may be selectively operated by adding the desired number of actuating bars, such as the bars 49 and 50 without departing from the spirit of the invention. The slats also may be mounted so that any desired number or groups may be removably held in place by the anchoring plates, such for instance as by the plates 21, 22, 37 and 38.

In Figures 15 to 17 inclusive, there is shown a modified form of the invention wherein a window frame 70 is illustrated which supports an upper slat supporting means 71, intermediate slat-supporting means 72 and 73, preferably near the center of the frame 70, and a bottom slat-supporting means 74. Each slat-supporting means is of the same general structure as described relative to Figures 1 to 14 inclusive, and a description of the details which are common to both forms is not necessary. A plurality of upper slats 75 are supported between the upper slat-supporting means 71 and the upper intermediate slat-supporting means 72. A plurality of lower slats 76 are supported between the upper intermediate slat-supporting means 73 and the lower slat-supporting means 74, thereby dividing the slats into upper and lower groups. The slats 75 are in turn divided into two separate groups and the slats 76

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also are divided into two separate groups. The upper slats 75 are detachably anchored in separate groups upon the supporting means 71 and 72 by means of removable plates 77, 78, 79 and 80. The lower slats 76 are detachably anchored in separate groups upon the supporting means 73 and 74 by means of removable plates 81, 82, 83 and 84 of the same structural type as described and illustrated relative to Figures 1 to 14 inclusive.

Operating or actuating bars 85 and 86 are detachably connected to the slats 75 of the respective groups by means of spring clips 87 and 88 respectively in a manner similar to that illustrated in the preferred form to rotate the slats 75 on their vertical axes 89. These bars 85 and 86 are slidable transversely of the frame 70 through the brackets 90 and 91 mounted upon opposite sides of the frame. Similar actuating bars 92 and 93 actuate the lower slats 76 in a similar manner as shown in Figures 15 and 16. These bars 92 and 93 also are slidably mounted through the brackets 90 and 91. The handles of the bars are so arranged as not to interfere with the selective operation of the bars. The bars may be suitably spaced within the brackets 90 and 91 by any desired or convenient means, such for instance as by means of screws similar to the screw 54 shown in Figure 11.

The two intermediate slat-supporting means 72 and 73 preferably are supported in position upon the frame 70 by means of suitable brackets such as the bracket 94 shown in detail in Figure 17. These brackets 94 preferably are secured to the inner faces at opposite sides of the frame 70 to hold the slats 75 and 76 in vertical alignment. The slats 75 and 76 are secured to the intermediate slat-supporting means by means of the journals 95 and 96 respectively, in a manner similar to the journals 44 and 45 shown in Figure 3.

Having described the invention, what is claimed as new is:

1. A Venetian blind comprising, a vertically disposed frame defining an opening to be served by the blind, a pair of elongated bars secured adjacent the upper and lower extremities of the frame and horizontally transverse the opening, an elongated slot formed longitudinally in each of said bars, a plurality of blind slats disposed vertically in said frame opening, each slat being provided with journals extending beyond the extremities thereof and said journals having sliding engagement in the slots of the two remote bars, a plurality of elongated plates each provided with a series of longitudinally spaced slots extending transversely from one common edge of said plates, said plates being secured adjacent both slat supporting bars to overlap the longitudinal slots therein, each transverse slot in said plates engaging one journal of one of said slats locking the slats in spaced relationship longitudinally of the support bars, spring clips secured to the frame and urging the plate members into overlapping engagement with the supporting bars, and means for rotating said slats about their journals.

2. A Venetian blind comprising, a vertically disposed frame defining an opening to be served by the blind, a pair of elongated bars secured adjacent the upper and lower extremities of the frame and horizontally transverse the opening, an elongated slot formed longitudinally in each of said bars, a plurality of blind slats disposed vertically in said frame opening, each slat being provided with journals extending beyond the ex-

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trémities thereof and said journals having sliding engagement in the slots of the two remote bars, a plurality of elongated plates each provided with a series of longitudinally spaced slots extending transversely from one common edge of said plates, said plates being secured adjacent both slat supporting bars to overlap the longitudinal slots therein, each transverse slot in said plates engaging one journal of one of said slats locking the slats in spaced relationship longitudinally of the support bars, spring clips secured to the frame and urging the plate members into overlapping engagement with the supporting bars, a rod slidably secured transverse the frame, said rod having quick releasable connection with each of said slats, and said connection being at a point on said slats eccentric to the journal axis thereof.

3. A Venetian blind comprising, a vertically disposed frame defining an opening to be served by the blind, a pair of elongated bars secured adjacent the upper and lower extremities of the frame and horizontally transverse the opening, an elongated slot formed longitudinally in each of said bars, a plurality of blind slats disposed vertically in said frame opening, each slat being provided with journals extending beyond the extremities thereof and said journals having sliding engagement in the slots of the two remote bars, a plurality of elongated plates each provided with a series of longitudinally spaced slots extending transversely from one common edge of said plates, said plates being secured adjacent both slat supporting bars to overlap the longitudinal slots therein, each transverse slot in said plates engaging one journal of one of said slats locking the slats in spaced relationship longitudinally of the support bars, spring clips secured to the frame and urging the plate members into overlapping engagement with the supporting bars, a pair of elongated rods slidably supported transverse the bottom of the frame, one of said rods having quick releasable connection with one group of said slats at a point on each of said slats eccentric to the journal axis thereof, said second rod having quick releasable connection with each of the remaining slats at points thereon eccentric to the journal axes thereof, and handle means formed on one extremity of each of said rods for moving the same transversely of the frame.

4. A Venetian blind comprising, a vertically disposed frame defining an opening to be served by the blind, a pair of elongated bars secured adjacent the upper and lower extremities of the frame and horizontally transverse the opening, a second pair of elongated bars secured in parallel adjacency horizontally transverse the frame opening centrally intermediate the height of the frame, an elongated slot formed longitudinally in each of said bars, a plurality of blind slats disposed vertically in said frame opening and being divided into two groups, one group of said slats being disposed vertically in that portion of the frame opening above the centrally disposed bars and the second group being disposed in that portion of the opening below the centrally disposed bars, each slat being provided with journals extending beyond the extremities thereof, the journals of that group in the upper portion of the frame opening being slidably retained in the slots in the upper bar and the top bar of the centrally located pair of bars, the journals of the second group of slats being slidably retained in the slots in the lower frame bar and the lower bar of the central pair of bars, a plurality of

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elongated plates each provided with a series of longitudinally spaced slots extending transversely from one common edge of said plates, said plates being secured adjacent the slot supporting bars to overlap the longitudinal slots therein, each transverse slot in said plates engaging one journal of said slats supported by the adjacent bar locking the slats in spaced relationship longitudinally of the support bar, a pair of elongated rods slidably secured transversely of said frame, one of said rods having quick detachable connection with each of said slats in the upper group at a point eccentric of the journal axis thereof, and the second rod having quick detachable connection with each slat of the second group at a point eccentric to the journal axis

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thereof, whereby the slats of the two groups may be selectively rotated by their respective rod.

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