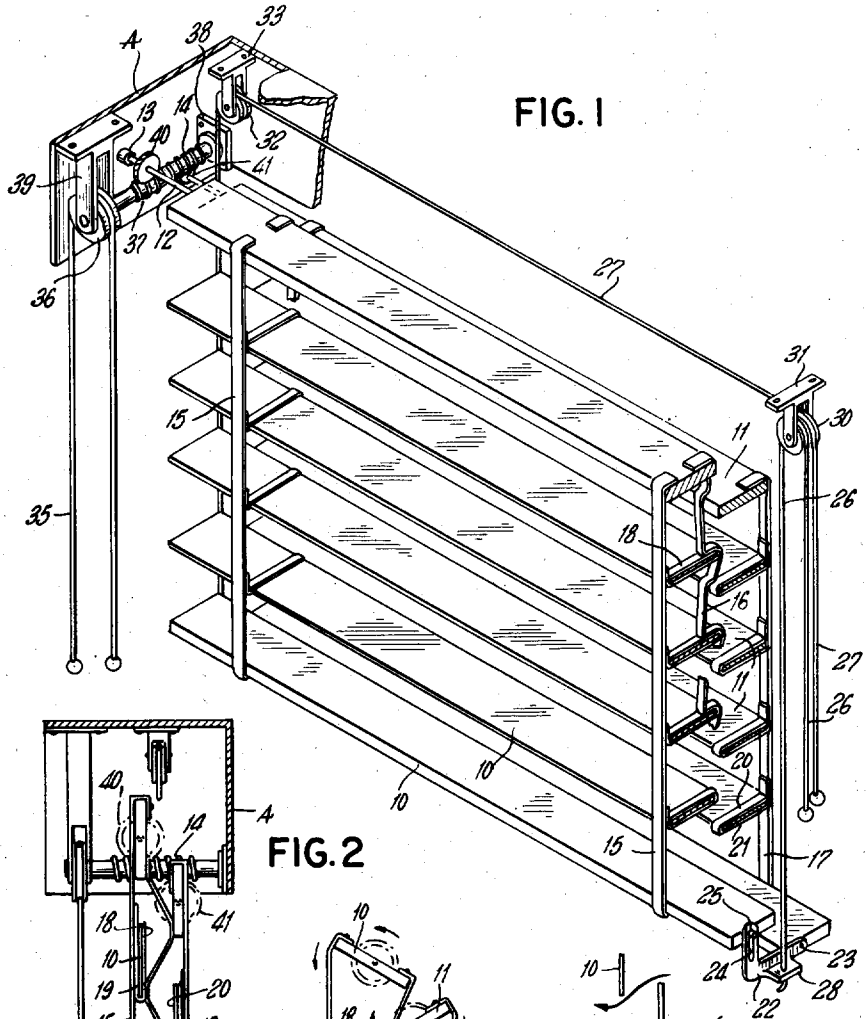
Jan. 12, 1960 V. L. FALOTICO 2,920,694

VENETIAN BLIND

Filed June 24, 1958

FIG. 1



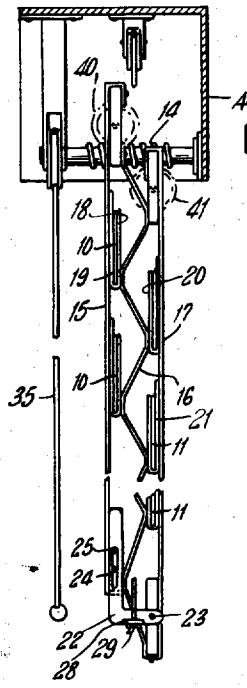


FIG. 2

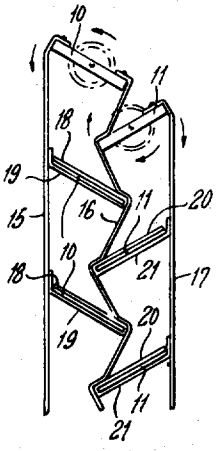


FIG. 3

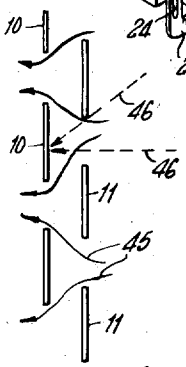


FIG. 4

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VENETIAN BLIND

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3 Claims. (Cl. 160—114)

This invention relates to an improved Venetian blind and, more particularly, to a Venetian blind through which air currents can pass freely to insure proper ventilation even when the blinds are fully closed.

In conventional Venetian blinds, a series of closely spaced slats are hung upon a ladder web adjacent a window, and provision is made for tilting the slats to regulate light and visibility. Inasmuch as the slats are in close overlapping relationship when so tilted to shut out light or obstruct visibility, ventilation is virtually cut off.

The object of the present invention is to provide a Venetian blind in which the slats are adjustable to open position to permit passage of light and to closed position to cut off passage of light, while permitting the free passage of air currents therethrough, whether open or closed.

This object is achieved in the present invention by a Venetian blind in which the slats are hung in staggered relationship in at least two groups, one group lying somewhat forwardly of the other, with the slats of each group spaced apart from each other by distances which exceed the widths of the slats of that group. The slats of both groups are arranged to be tilted by a common control means so that they can be adjusted between open and closed positions as desired. In full open position the slats of both groups are adjusted to planes which are substantially parallel to the direction of the light rays, whereas in closed position the slats of both groups are adjusted to planes which are substantially normal to the direction of the light rays. Notwithstanding the fact that there are spaces between adjacent slats of each group when the blind is closed, the passage of light through the spaces between slats of one group is effectively prevented by the position of the slats of the other group. However, even when the slats are adjusted to closed position to shut out light, the spaces between the slats of both groups form passages for air currents so that ventilation is not in any way curtailed.

For a more complete understanding of the present invention, reference may be made to the detailed description which follows, and to the accompanying drawings, in which:

Figure 1 is a perspective view of the Venetian blind of the present invention, illustrating the slats in their open positions;

Figure 2 is a cross-sectional end view of the Venetian blind shown in Figure 1;

Figure 3 is a fragmentary view similar to Figure 2, illustrating the manner in which the slats are tilted when the blind is adjusted from closed to open position; and

Figure 4 is a schematic view of the slats in closed position, illustrating how light is blocked without blocking the passage of air currents therethrough.

Referring to Figure 1 of the drawings, the Venetian blind of the present invention comprises two groups of slats 10 and 11, one group lying somewhat forwardly of the other. The slats 10 are equally spaced apart, as are the slats 11. Also, the slats of one group are in staggered relationship with the slats of the other group. The spacing between corresponding edges of adjacent slats 10 exceeds the width of the slats 10 but the gap between the slats 10 when closed does not exceed the width of the intermediate slats 11. Similarly, the spacing between corresponding edges of adjacent slats 11 exceeds the width of the slats 11 but the gap between the slats 11 when closed does not exceed the width of the intermediate slat 10.

The uppermost slat 10 is supported at both ends by shafts 12 (only one of which is shown in the drawings) rotatably mounted in bearings 13 of a mounting frame A. Also, the uppermost slat 11 is supported at both ends by shafts 14, also rotatably mounted in suitable bearings (not shown) affixed to the mounting frame A. When rotation is imparted to the shafts 12 and 14, the uppermost slats 10 and 11 are pivoted about central horizontal axes.

All of the slats 10 and 11 are suspended from the uppermost slats by tapes 15, 16 and 17. There may be two or more sets of the tapes 15, 16 and 17 at spaced apart intervals across the width of the blind. The slats 10 are supported between the tapes 15 and 16. Similarly, the slats 11 are supported between the tapes 16 and 17. The slats may be supported in various ways. For example, in the form of the invention illustrated in the drawings, each of the slats 10 is supported between upper and lower cloth strips 18 and 19 extending between the tapes 15 and 16. Similarly, the slats 11 are supported between upper and lower strips 20 and 21 extending between the tapes 16 and 17. This arrangement facilitates the removal of the slats for cleaning or replacement.

The lowermost slats of both groups are joined at both ends by brackets 22. Each of the brackets 22 is pivotally mounted by a pin 23 to the lowermost slat 11. The bracket 22 extends forwardly and then upwardly, with the upstanding portion thereof containing a slot 24 which accommodates a pin 25 extending from the end of the lowermost of the slats 10. The pins 23 and 25 are preferably each located on the pivotal axis of the respective slat.

The blind is adapted to be raised and lowered by the cords 26 and 27. The free ends of the cords 26 and 27 are readily accessible at the right side of the blind. The end of the cord 26 opposite the free end is joined to the right-hand bracket 22, and the cord 27 is joined in similar fashion to the corresponding left-hand bracket. For this purpose, the brackets 22 are each formed with a horizontal tab 28 having a hole therein through which the respective cord is threaded. The end of the cord is knotted as at 29 (see Figure 2), and the knot will support the bracket at the desired height.

As shown in Figure 1, the cord 26 passes around a guide pulley 30 which is rotatably supported between the downwardly depending arms of a bracket 31. The bracket 31, in turn, is anchored to the mounting frame A. The cord 27 is guided not only by the pulley 30 but also by the pulley 32 at the opposite side of the Venetian blind. The pulley 32 is rotatably supported between the downwardly depending arms of a bracket 33. The bracket 33 is affixed to the mounting frame A. From the foregoing arrangement it will be apparent that when the free ends of the cords 26 and 27 are pulled downwardly, the lower slats of the blind are raised upwardly, just as in conventional Venetian blinds. As in conventional Venetian blinds, a suitable locking mechanism is provided for the pulley 30 or the cords 26 and 27 so that the height of the lower end of the blind can be adjusted as desired.

The slats 10 and 11 are adapted to be tilted simultaneously, although in opposite directions, between open and closed positions by common control means, namely,

the cord 35 which is looped around the pulley 36. The pulley 36 is affixed to one end of a worm 37. The worm 37 is supported for rotation at one end by a bearing 38 and at the other end by the bracket 39. Both the bearing 38 and the bracket 39 are affixed to the mounting frame A.

The shaft 12 which supports the uppermost slat 10 is provided with a pinion 40 which is adapted to be driven by the worm 37. Similarly, the shaft 14 which supports the uppermost slat 11 has affixed thereto a pinion 41 which also meshes with the worm 37. When the worm 37 is rotated in one direction or the other by the manipulation of the cord 35, the pinions 40 and 41 are driven in opposite directions, thereby rotating the uppermost slats 10 and 11 in opposite directions. Because of the manner in which the slats 10 are supported from the uppermost slat by the tapes 15 and 16, all of the slats 10 are pivoted in unison to the same angular position as the uppermost slat 10. In similar fashion, because of the manner in which the slats 11 are supported from the uppermost slat 11 by the tapes 16 and 17, all of the slats 11 will be adjusted in unison to the same angular position as the uppermost slat 11.

When the Venetian blind of the present invention is closed, as illustrated in Figure 2, the slats 10 and 11 are disposed in the manner indicated in Figure 4. Because there are spaces between all of the slats 10 and 11, air currents, represented by the flow lines 45, readily pass through the Venetian blind to provide proper ventilation. However, because of the staggered relationship of the slats 10 and 11, light rays, depicted by the broken lines 46, are effectively blocked and it is impossible to see through the blind.

When it is desired to open the Venetian blind and adjust the slats to the positions illustrated in Figure 1, the appropriate end of the cord 35 is pulled downwardly, rotating the worm 37 and thereby rotating the pinions 40 and 41 in opposite directions. As viewed in Figure 3, the pinion 40 is rotated in a counterclockwise direction and the pinion 41 is rotated in a clockwise direction. The rotation of the uppermost slats 10 and 11 in the directions indicated in Figure 3 lifts the intermediate tape 16 and lowers the outboard tapes 15 and 17. This action causes all of the slats 10 to rotate in the same direction as the uppermost slat of that group about horizontal axes which lie in substantially the same vertical plane and all of the slats 11 to rotate in the same direction as the uppermost slat of that group about horizontal axes which lie in substantially the same vertical plane. However, the two vertical planes are laterally offset from each other.

Although the slats 10 and 11 pivot in opposite directions in moving from the closed condition illustrated in Figure 2 to the open condition illustrated in Figure 1, they move in synchronism, so that when the slats 10 are horizontally disposed, the slats 11 are also horizontally disposed. If desired, however, the slats can be rotated in unison in the same direction.

To afford maximum advantage of the Venetian blind of the present invention, the width of the passage between adjacent slats 10, adjacent slats 11 and adjacent slats 10 and 11 should in each case be equal to provide a passage of uniform size for the flow of air through the closed blind. Therefore, preferably the spacing between corresponding edges of adjacent slats 10 exceeds the width of the slats 10 by an amount equal to the horizontal distance between the vertical axes of the two groups of slats. Preferably, the horizontal distance between the slats should not exceed the width of the slat 11. The abovementioned arrangement of distances between the slats provides a constant cross-sectional area between the two groups of slats and between the slats in the respective groups. If the cross-sectional areas are not constant, the ventilation benefits will be reduced in proportion to the restriction resulting from reducing the cross-sectional area either between the two groups of slats or between the slats of each group.

Although the invention has been described above in a preferred form, it is understood that the same results can be obtained by hanging the slats 10 and 11 from tapes which are completely independent of each other, thus eliminating the need for the common tape 16, but utilizing in its place two independent tapes. If separate tapes are used for both groups of slats, however, the slats would have to be spaced further apart. Nevertheless, this alternative embodiment is contemplated as being within the scope of the present invention. Also, the groups of slats can remain in the same relationship shown in Figures 1, 2 and 3 by staggering the tapes of each group and slotting the inside edges of the slats at the locations of the tapes of the opposite group of slats.

The invention has been shown in preferred form and by way of example only, and obviously many variations and modifications may be made therein without departing from the spirit of the invention. The invention, therefore, is not to be limited to any specified form or embodiment, except insofar as such limitations are set forth in the claims.

I claim:

1. A Venetian blind comprising a plurality of slats, mounting means for supporting the slats in uniformly spaced-apart, staggered relationship, alternate of said slats forming one group which is spaced forwardly of the remaining slats forming another group, the slats in each group being spaced apart far enough to prevent overlapping of the slats in that group in closed positions, the slats of one group being positioned intermediate the slats of the other group, and common adjusting means for imparting pivotal motion to the slats of one group about axes which lie in one plane, and for imparting pivotal motion to the slats of the other group about axes which lie in another plane parallel to and separated from the first plane, said common adjusting means moving the slats from open positions to closed positions in which the slats of one group lie substantially in the one plane, and the slats of the other group lie substantially in the other plane, so that in all positions of adjustment the slats are spaced apart to provide passages for the flow of air currents.

2. A Venetian blind as set forth in claim 1, in which the common adjusting means includes first connecting means joining all of the forward edges of the slats of one group, second connecting means joining all of the rear edges of all of the slats of the other group, connecting means intermediate the two groups of slats connecting all of the rear edges of one group and the forward edges of the other group, and means for imparting motion in the same direction to the first and second connecting means, and motion in the opposite direction to the intermediate connecting means for the adjustment of the slats of the blind between open and closed positions.

3. A Venetian blind as set forth in claim 1 in which the spacing between the pivotal axes of adjacent slats of each group is equal and equal also to the spacing between the two planes in which the pivotal axes lie, providing, when the slats of both groups are closed, passages of uniform width between the slats of one group, between the slats of the other group, and between oppositely facing slats of the two groups.

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