

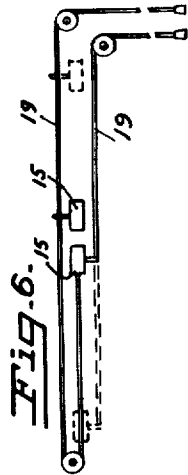
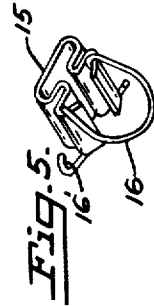
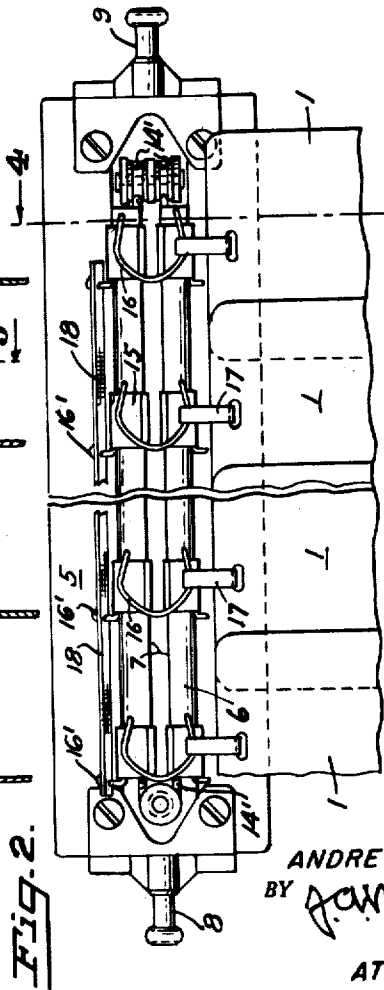
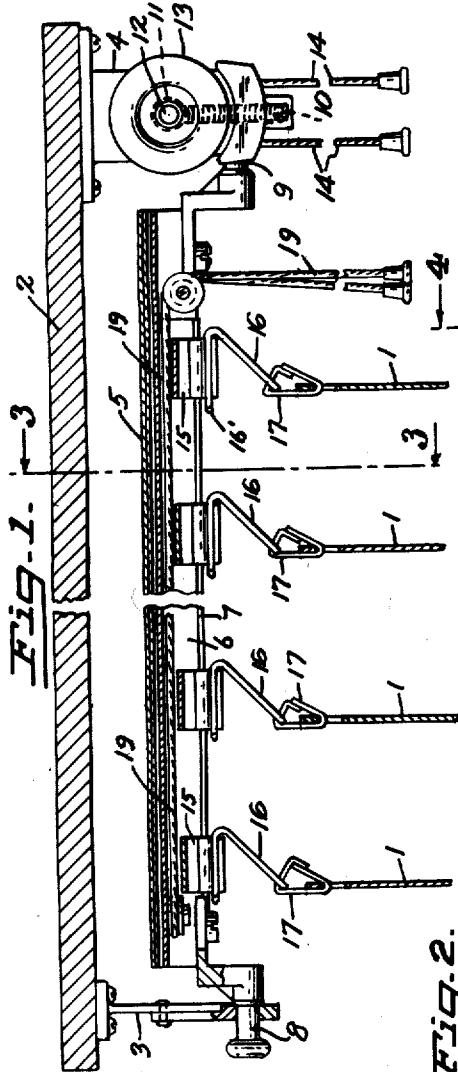
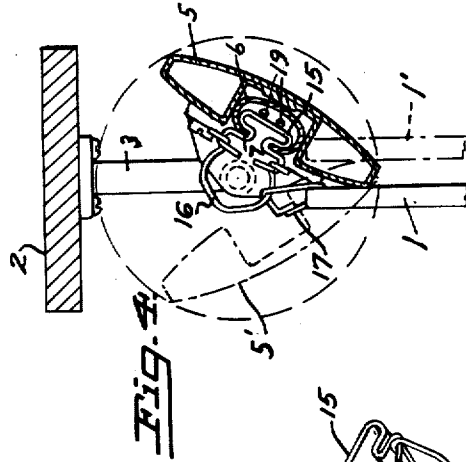
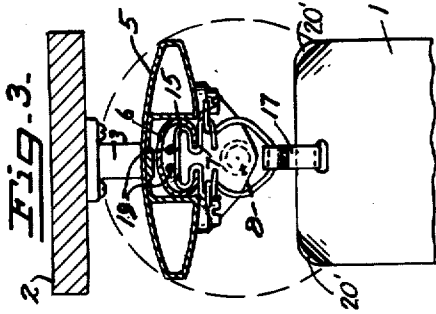
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VERTICAL SLAT BLIND MOUNTING

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VERTICAL SLAT BLIND MOUNTING

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15 Claims. (Cl. 160—176)

This invention relates to Venetian blinds of the type in which the slats each hang vertically suspended solely from its upper end in a manner so that they may be turned on vertical axes to open and close the spaces between them, and with the slats suspended from track means for moving bodily along to stack against the side of the window the blind normally extends across.

The principal object of the present invention is to provide improved suspension or mounting, and control of the movements of the vertical slats in a simpler and more positive manner and lower cost than heretofore achieved.

Other objects and advantages of the invention will appear in the following description and accompanying drawings:

In the drawings:

Fig. 1 is an elevation partly in section broken in length showing a few vertical slats in open position suspended by my improved overhead mounting of the rocker-bar type.

Fig. 2 shows the overhead bar of Fig. 1 transversely rocked or tilted to somewhat over 90 degrees and the slats thereby swung around to closed position and held shut.

Fig. 3 is a vertical cross section taken along the line 3—3 of Fig. 1.

Fig. 4 is a cross section of Fig. 2 taken along the line 4—4 thereof.

Fig. 5 is a perspective view of one form of the slidable slat hangers with their suspension loops.

Fig. 6 is a diagrammatic sketch showing one of the operating control-cord hook-ups to the slat-hangers for sliding the slats along the track.

Before describing the drawings in detail it may be stated that instead of turning the slats by pivoted lever connections to their pivots or the pulling of chains or strings attached to their edges as heretofore, the present invention employs as one feature a simple loose vertical suspension from the slidable slat-hangers and they are stabilized in turned position by a laterally movable overhead bar, rod or rigid strip, which is swung or moved bodily against all of the outer edges or sides of the upper part of the slats, and which may tightly hold them in closed position. There were two main species of the underlying invention shown in the present application as filed, but one has been divided out and is the subject of a divisional patent application filed under Serial No. 511,346, May 26, 1955.

In Figs. 1-5, inclusive, there is shown horizontal substantially rigid overhead member or track-bar 5 from which the vertical slats are all suspended solely from their upper ends and movable along the bar on special track and slat-hangers. The track bar is pivotally mounted to rock transversely back and forth to cause the slats to turn vertically to slant right or left from their hangers as the case may be, and to a finally closed position with said member or track-bar tilted down into contact with the sides of the slats to hold them closed. But

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it should be noted that the slats will turn on their suspension in this species when the bar is tilted even if the bar is not wide enough to contact them or tilted far enough.

Detailed description of the drawings:

The slats 1 of the blind may be flat or may be the common spring-metal (or plastic) arched variety, or any other, as the showing is made for simplicity only. The numeral 2 indicates the ceiling or lintel above a deep set window, or a horizontal mounting head board suitably secured as by brackets against the wall above a window and against which the special suspension brackets 3 and 4 to carry the blind are suitably secured.

The slats 1 are suspended from an overhead tiltable strip member or rocker bar 5 which may be of wood but is here shown as of hollow sheet metal construction and including a longitudinally extending sheet metal channel track 6 at its normally underside and open at the bottom and formed with re-entrant edges 7, there being sufficient space above the track for slat-hangers to slide, and also their operating control-cords.

The rocker bar is fitted with preferably downwardly offset axles 8, 9 pivotally supported in the suspension brackets 3 and 4 respectively, and axle 9 is secured to a gear dotted at 10 engaged by a worm dotted at 11, the shaft 12 of which carries a sheave 13 over which the control cords 14 pass, so that the rocker track-bar may be tilted in either direction to any desired degree to somewhat over 90 as shown in Fig. 3 and will be locked in any adjusted position by the worm drive as well understood in the art where such worm drive units for raising and lowering common Venetian blinds are often used and therefore need no detailed drawings.

Within the channel track 6 is a row of side grooved carriers or slat-hangers 15 which slidably engage the re-entrant edges 7 of the track and each hanger is provided with a downwardly and angularly extending portion or loop 16 from each of which loops one of the slats 1 is suspended as by a flat link 17 as best shown in Fig. 3 where the slat hangs from the extreme offset end of the hanger loop 16 and at right angles to the track, when the rocker-bar or tiltable member 5 is in central or horizontal position.

When the rocker track-bar is tilted either way together with its slat hangers it tends to lift each link and slat with the rising lower end of the loop, with a result that the weight of the slat causes the link to slide down the loop to a new lower position, and as the direction of the run of the loop changes it will cause the link to turn and likewise the slat, all so that when the rocker is tilted to substantially vertical position as shown in Fig. 2 the slat 1 will be hanging flat along the rocker track-bar at right angles to the position shown in Figs. 1 and 3, and since the hangers are limit spaced as by a small flexible tape 18 or otherwise a distance apart less than the width of a slat, the slats when so "closed" will overlap slightly at the margins. Thus far the slats are gravity operated, and by gravity will recover their original open position when the rocker-bar is righted.

However, it should be noted that although the slats will turn on their vertical axes as their hangers are tilted transversely by rocking the track-bar, the action may be made duplex by proportioning and positioning the rocker-bar so that it will contact the slats at fully open position and force the slats to turn if for any reason the suspension connections of the slats to their hangers got gummed up (as possible in kitchen use) and this is illustrated in Fig. 3 wherein the upper corners of the slats are bent forwardly as at 20' away from the general plane of the slat or its vertical suspension axis, all so that the rocker-bar will strike these offset corners first in its down-

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ward movement and start to turn the slats, even from fully open position. It is obvious that the slat connections to their hangers may vary greatly. Also, when the slats are finally turned to closed position, and to hold the slats then in snug overlapping contact, the rocker-bar is rocked still further to substantially the angle shown in Fig. 4 and it will have contacted all of the closed slats and also will hold them in place as against any breeze blowing through the window the blind is covering. The rocker-bar will operate in either direction in the manner described and as indicated by the dotted opposite position 5' of the rocker-bar in Fig. 4 but which turns the slats in the opposite direction. This opposite directional turning of the slats is important in some cases to control the sun's rays from shining through the partially turned slats as when the rocker-bar is tilted about a quarter turn, but where not important a rocker-bar with but one side extending sufficiently far tilting the slats but one way may be used.

The small hanger-limit spacing tape or chain 18 may pass along either side of the hangers and secured to each as by an extension 16' of one end of the slat suspending loops 16 or otherwise.

The control cords for pulling the slats all toward the side of the window are indicated as extending through the space above the channel track as at 19 in Figs. 3, 4, and their general operative arrangement may take several forms and is well understood in the art. One of the several possible arrangements of the cord is shown in the diagram Fig. 6 where the cord 19 and its connection to the two adjacent central carriers 15, 15' is indicated to pull half the slots one way and the other half the other way—though any other hook-up may be used as well known in the art.

Having thus described my improved vertical slat blind mounting involving a laterally tiltable overhead strip for controlling the turning of the slats, and some of its modifications, what I claim is:

1. In a slat blind of the character described, a series of vertically extending spaced slats, an elongated rigid bar member extending horizontally along adjacent the upper ends of the slats, means turnably and traversably suspending said slats wholly from their upper ends from said bar member, means pivotally mounting said bar member to rock transversely of its length into contact with all of the slats and turn them on their vertical suspension and contact them when closed, and means for rocking said bar member and holding it in position rocked.

2. In a slat blind of the character described, a series of vertically extending spaced slats, an elongated rigid bar member extending horizontally along adjacent the upper ends of the slats, means turnably and traversably suspending said slats wholly from their upper ends from said bar member, means pivotally mounting said bar member to rock transversely of its length either way into contact with all of the slats and turn them on their vertical suspension and contact them when closed, and means for rocking said bar member either way and holding it in position rocked.

3. In a structure as set out in claim 1, the part of the slats where first contacted by said bar member when rocked being laterally offset in the same general direction from the general plane of the slat and from the vertical axes of turning of the slats to insure the slats turning from fully open position when so contacted.

4. In a Venetian blind having a series of vertically extending slats, means for suspending the slats wholly from their upper ends comprising an overhead bar extending horizontally above and along the upper ends of the slats, bearing means supporting said bar for rocking transversely of its length, means for rocking said bar and holding it in rocked position, slat hangers slidably engaging said bar for moving therealong and tilting therewith as the bar is rocked, and means connecting said hangers respectively with and automatically turning said

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slats as the bar is rocked, said bar provided with a side extending edge arranged to contact all of the slats and hold them in turned position when the bar is rocked.

5. In a Venetian blind having a series of vertically extending slats, means for suspending the slats wholly from their upper ends comprising an overhead bar extending horizontally above and along the upper ends of the slats, bearing means supporting said bar for rocking transversely of its length, means for rocking said bar and holding it in rocked position, slat hangers slidably engaging said bar for moving therealong and tilting therewith as the bar is rocked, and means connecting said hangers respectively with and automatically turning said slats as the bar is rocked, said bar provided with extending opposite edges arranged to respectively contact all of the slats and hold them in turned position when the bar is rocked in either direction.

6. In a slat blind of the character described, a series of vertically extending spaced slats, an elongated rigid bar member extending along above the upper ends of the slats and from the normally under side of which said slats are suspended, means mounting said bar member for tilting transversely of its length, and manually operated means for tilting said bar member, means for suspending the slats from said bar member including a series of hangers engaging said bar member for sliding therealong and tilting therewith, each hanger including a substantially rigid loop to which one slat is linked, the loops extending transversely of the member and normally downward at an angle to the vertical and the slat link connection slidably engaging said loop in a manner to slide along the loops to follow their form and turn the slat each on a vertical axis as the bar member is tilted.

7. In a slat blind of the character described, a series of vertically extending spaced slats, an elongated rigid bar member extending along above the upper ends of the slats and from the normally under side of which said slats are suspended, means mounting said bar member for tilting transversely of its length, and manually operated means for tilting said bar member, means for suspending the slats from said bar member including a series of rigid hangers engaging said bar member for sliding therealong and tilting therewith, rigid means connecting the slats respectively to the hangers arranged and adapted to turn the slats substantially on their vertical axes by gravity as said hangers are tilted upwardly upon rocking the bar member.

8. For a vertical slat blind in which the slats are turnably suspended wholly from their upper ends, means for so suspending the slats comprising a bar adapted to be transversely rockably mounted along the upper ends of the slats, said bar provided with an open channel track extending along its normally under side formed with spaced confronting edges adapted to slidably engage slat hangers for suspending the slats, and said bar provided with an extension, along one side of the channel track adapted to engage across all of the slats when the bar is rocked.

9. For a vertical slat blind in which the slats are turnably suspended wholly from their upper ends, means for so suspending the slats comprising a bar adapted to be transversely rockably mounted along the upper ends of the slats, said bar provided with an open channel track extending along its normally under side formed with spaced confronting edges adapted to slidably engage slat hangers for suspending the slats, and said bar provided with extensions along opposite sides of the channel track adapted respectively to engage across all of the slats when the bar is rocked either way.

10. For a vertical slat blind of the character described and in which the slats are turnably suspended wholly from their upper ends to turn about vertical axes respectively by contact of a slat engaging member, the improvement comprising slats provided with their upper corner portions bent over at an angle both away from the same side of the slat out of line with said axes to make the

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suspended slats turn more easily from open position when contacted at said portions by a relatively moving member.

11. In a vertical Venetian blind, a horizontal tube mounted to rotate about a horizontal axis and having a horizontal slot therethrough, a string of sliders supported by and rotatable with said tube and extending in said slot, a slat for each slider, means suspending each slat from a slider, said means being constructed and arranged to automatically turn said slats about substantially vertical axes pursuant to rotation of said tube, a sheave adjacent an end of and rotatable with said tube, a traverse cord looped about said sheave, both portions of said cord extending directly from said sheave within and along said tube, one portion of said cord within said tube being connected with an end slider of said string, whereby said cord is operative to selectively collapse and extend said string, and means for turning said tube about said axis.

12. In a rocker bar for a vertical slat blind as set out in claim 8, said bar formed with at least one longitudinally extending hollow closed channel to impart rigidity.

13. In a structure as set out in claim 11 said tube being of a size and shape to directly contact all of said slats when the tube is turned.

14. In a structure as set out in claim 11 said tube

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provided with a side extension therealong arranged and adapted to contact all of the slats when turned on their axes as the tube is turned.

15. In a structure as set out in claim 11 said tube provided with a pair of side extensions therealong on opposite sides of said slot arranged and adapted to respectively contact the sides of all of the slats when turned on their axes as the tube is turned in either direction.

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