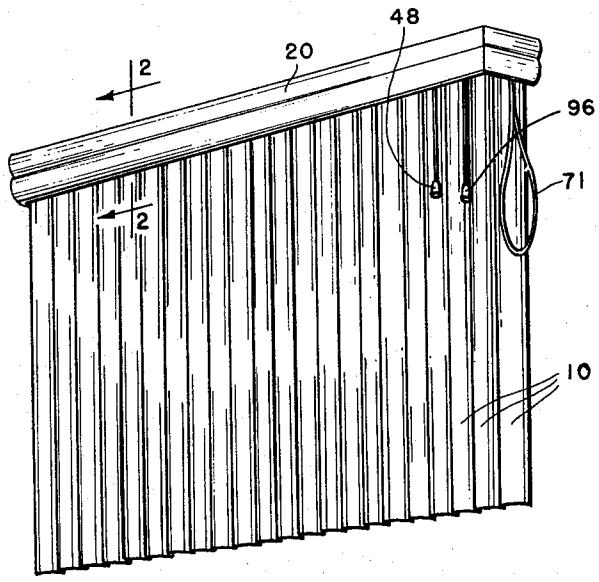
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VERTICAL SLAT BLIND

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FIG. 1



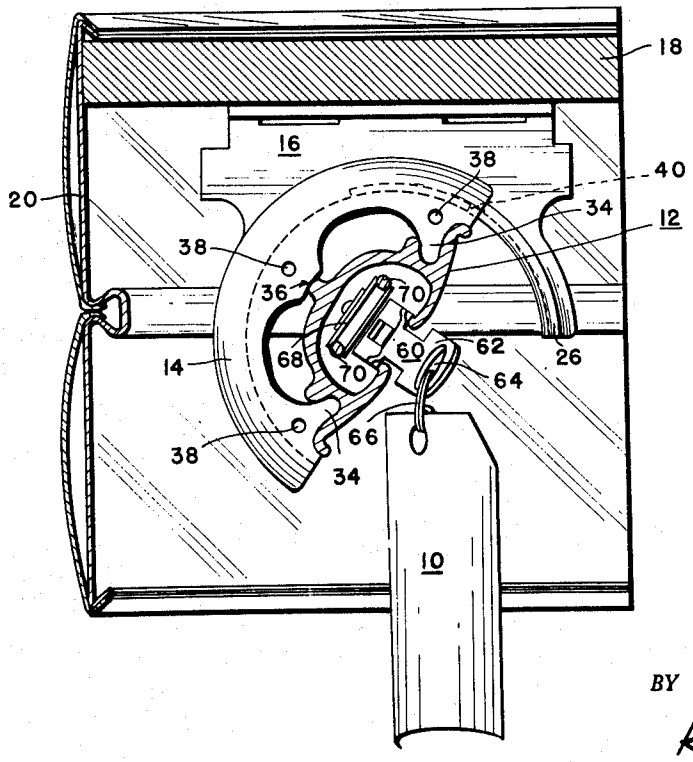


FIG. 2

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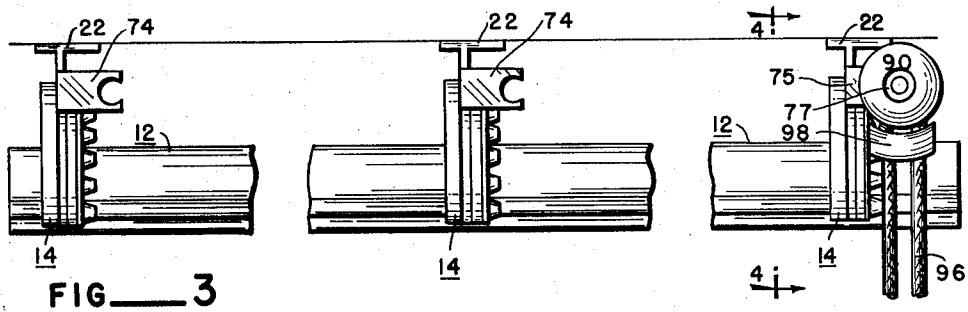


FIG. 3

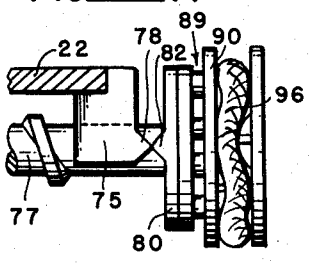


FIG. 11

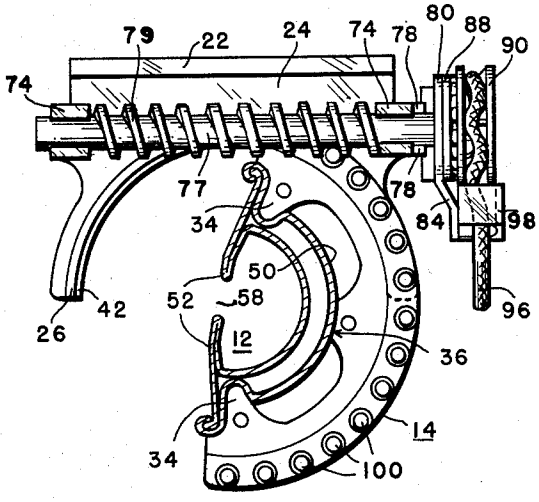


FIG. 4

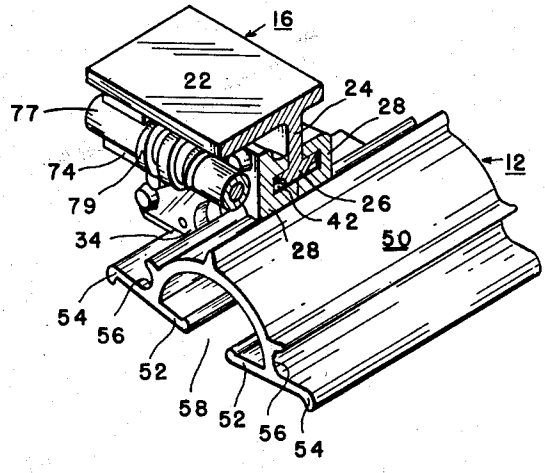


FIG. 5

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FIG. 6

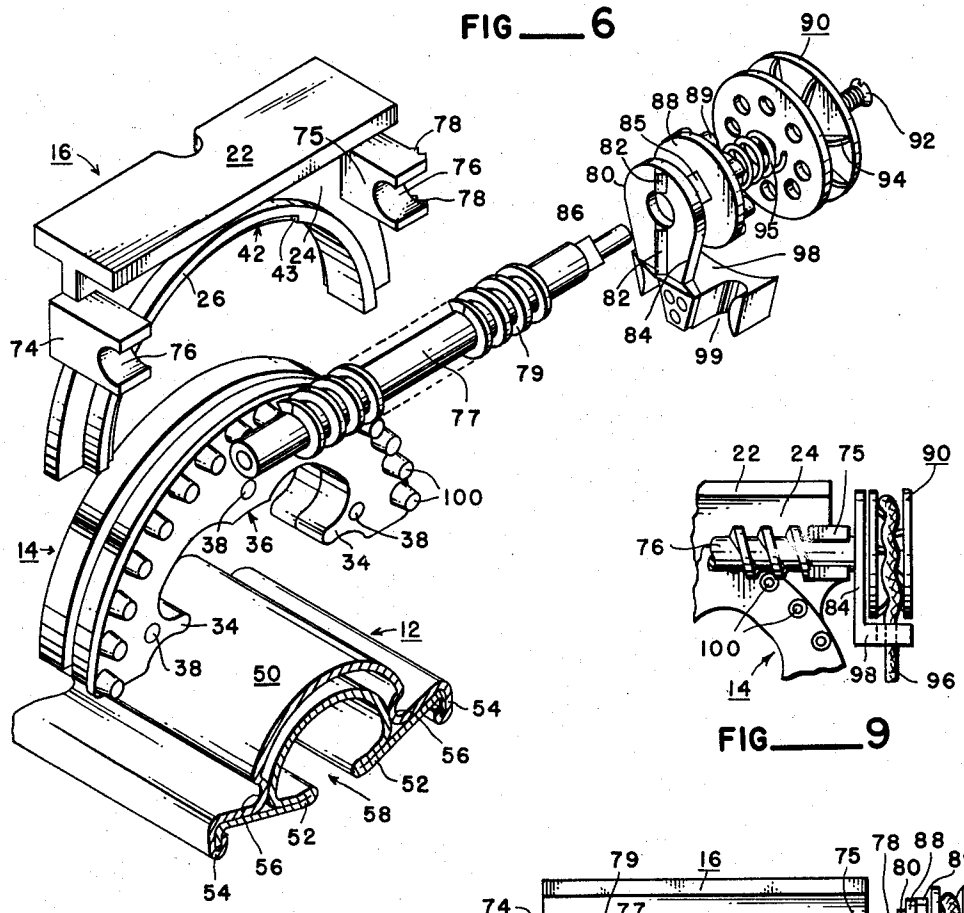


FIG. 9

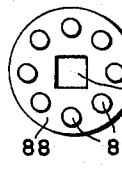


FIG. 10

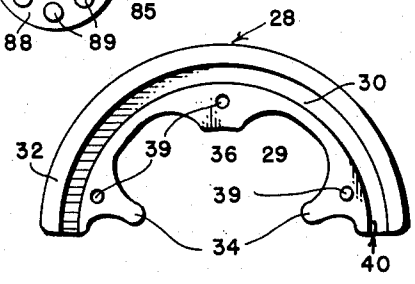


FIG. 8

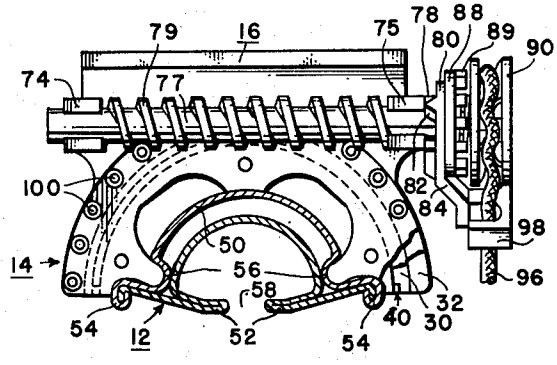


FIG. 7

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3,068,938

VERTICAL SLAT BLIND

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Filed June 13, 1958, Ser. No. 741,942
4 Claims. (Cl. 160—176)

This invention relates to a vertical slat blind and, more particularly, to the support and tilting mechanism for such blinds.

Among the important objects of the invention have been the provision of a simple rockable support structure for an elongated horizontal track; of a compact and easily produced and assembled tilting mechanism for the rockable support structure; of a sheave operated tilting means which may be temporarily and quickly disengaged for cord adjustment and other purposes without disassembly; and of simple and inexpensively produced components for a support and tilting mechanism which may be assembled and used by persons of lesser skill and mechanical ability.

These and other objects are attained from the structure described in the following specification and shown in the accompanying drawings, in which

FIGURE 1 is a perspective view of a vertical slat blind;

FIGURE 2 is an enlarged cross section on line 2—2 of FIGURE 1;

FIGURE 3 is a side view of the tiltable support mechanism of my vertical slat blind, portions being broken away and omitted for convenience of illustration;

FIGURE 4 is an enlarged cross-section in line 4—4 of FIGURE 3, with the track in tilted position;

FIGURE 5 is a fragmentary perspective view, partially in cross-section of the support mechanism for the tiltable track of my blind;

FIGURE 6 is an enlarged exploded perspective view of the tilting mechanism of my blind;

FIGURE 7 is a view, similar to FIGURE 4, with the track in non-tilted position;

FIGURE 8 is a face view of a track carrier segment;

FIGURE 9 shows simplified form of shaft rotating mechanism;

FIGURE 10 is a face view of a clutch disc; and

FIGURE 11 is an enlarged detail view of the sheave clutch showing the cam and cam follower elements in plan.

Like reference characters refer to like parts through the drawings and specifications.

Referring to FIGURES 1 and 2, a blind comprises a series of vertical slats **10** suspended from an overhead tiltable track **12** supported by a track carrier **14** rockably mounted on base member **16**. Normally, a dust cap **18** is mounted on a wall **19** over a window in suitable manner and base members **16**, at least in pairs, are attached thereto on the underside. An ornamental facia or housing **20** is ordinarily attached to the face and ends of the dust cap **18** to enclose the supporting and tilting elements of the blind.

A typical base member **16**, as seen in FIGURE 6, comprises a base flange **22** attachable to an overhead support and from which depends web **24** that supports the arcuate track flange **26** in a downwardly open manner. Track flange **26** is concentric and normally is semicircular.

The track carrier **14** is formed of two arcuate segments **28** (see FIGURE 8) comprising the body **29**, grooved at **30** and having the marginal flange **32**. The arcuate body **29** has a pair of opposed horns **34**, **34** and abutment **36** for receiving a track **12**.

A pair of segments **28**, **28** are brought into face-to-face relation with the grooves **30** open toward each other to form a track carrier **14**. Rivets **38**, passed through

matched holes **39**, secure the paired segments **28**, **28** together. It will be understood that the paired segments are preferably secured together while the edges of track flange **26** are disposed in grooves **30**, **30**. A boss **40** near an end of groove **30** moves in a matching groove **42** of track flange **26** as the track carrier is rocked on the arcuate track flange. Abutment of the boss **40** with the end **43** of the matching groove **42** limits rocking of the track carrier.

The slat track **12** may be extruded or die-molded metal or plastic as shown in FIGURES 2 and 5, or it may be formed of metal strip material shaped and assembled in the form shown in FIGURES 4, 6 and 7. In either event, the slat track includes a laterally curved backbone **50** having inwardly directed flanges **52**, **52** and outwardly directed flanges **54**, **54**. A groove **56** is formed at each juncture of the backbone **50** with a flange **54**. Spacing flanges **52**, **52** apart provides slat **58** along the underside of the slat track.

The slat track **12** is engaged in the downwardly open mouth of track carriers **14** in such way that horns **34**, **34** enter the grooves **56**, **56** and the backbone **50** is pressed to the abutment **36**. A practical mode of manufacture is to mold the track carriers of a resilent plastic material, for example, nylon or similar molding compounds. The attachment of the track **12** is then accomplished by merely pressing the backbone **50** between horns **34**, **34** until their ends snap into grooves **56**, **56** whereupon the resilient carrier returns to its normal shape.

A plurality of sliders **60** are fitted to move in groove **58** of the slat track. Each slider has an ear **62** provided with a hole **64** to receive a link **66** from which hangs a slat **10**. When the slat track is tilted the sliders **60** likewise tilt to cant the holes **64**. This causes hanger links **66** to rock and cause the slats to likewise rock or twist into overlapping position. When the track is not tilted the slats normally hang parallel to each other in the "open" position. Rocking "closes" them to screen the opening.

A middle slider usually carries a sheave **68** around which passes a cord **70** whose ends in conventional manner are led to an end of the assembly and permitted to hang in a loop **71** convenient for manual operation to draw open or close the blind slats.

The tilting mechanism is best seen in FIGURES 6 and 7 to which attention is directed. Journal blocks **74**, **75** outstand from web **24** on a side of base member **16** and provide journals **76** to receive shaft **77** for rotation. Blocks **74**, **75** may be formed of nylon or the like and, by insuring that the journals are greater than half circular, the shaft may be snapped into place as shown. Shaft **77** is provided with screw thread **79** between the journals.

Journal block **75** has cam surfaces **78**, **78** on the outer face above and below the journal **76**. A cam disc **80** is loosely mounted on shaft **77** in close juxtaposition with the outer face of journal block **75**. Disc **80** has cam follower protruberances **82**, **82** which cooperate with cams **78**, **78** so that, when aligned, the cams and cam followers separate disc **80** from journal block **75**. Disc **80** has an arm **84** depending therefrom by which the disc may be revolved about the shaft **77**.

Shaft **77** has a spline portion **86** to which is fitted clutch disc **88** having at its center a hole **85** matching the shaft spline **86**. Disc **88** may slide along the shaft but may not revolve freely thereon. The outer face of disc **88** carries an annular series of outstanding pins **89**.

A sheave **90** is mounted on the outer end of shaft **77** for independent rotation and there held against displacement by screw **92**. The annular groove of sheave **90** is provided with alternately disposed ears **94** to receive and frictionally engage a cord looped over the sheave with its ends hanging from the sides. A pull on

one or the other of the cord ends results in rotation of the sheave. That face of the sheave juxtaposed to disc 88 has mating recesses to receive and be engaged by the outstanding pins 89 of disc 88. This constitutes a male-female couple between the clutch disc and the sheave.

An expansion spring 95 between disc 88 and sheave 90 tends to bias them apart, this bias being overcome and the spring compressed through the action of cams 78 and cam followers 82 when they are aligned. At such times as arm 84 is swung to misalign the cams and cam followers, the spring 95 acts to open the clutch whereupon free rotation of the sheave is possible.

Arm 84 carries a cross-head 98 which has grooves 99 through which cord 96 depends. An operator wishing merely to tilt the mechanism pulls straight down on one cord end or the other. Should the operator wish to adjust the cord ends without tilting the blind, he does so by pulling the cords to the left or right causing arm 84 to swing and produce de-clutching of the sheave. While this condition exists, he may then freely involve the sheave and vary the relationship of the cord ends. Upon returning the cords to the vertical position, the sheave is again clutched and locked to shaft 77.

In FIGURE 9 a slight variant is shown in which there is no clutch and the cam and cam followers have been omitted. Such is useful where a clutch may be dispensed with.

Shaft 77 lies alongside a carrier 14, one face of which has outstanding bosses 100 that, acting as pinion elements, engage in the thread 79. When the latter turns, the carrier 14 is rocked one way or the other.

It will be apparent to those skilled in the art to which this invention pertains that changes and alterations in shape, proportion, materials, and the like may be made to fit varying circumstances. Those which fall reasonably within the spirit of the subjoined claims, it is my intention, are to be covered hereby.

Having thus described my invention, I claim:

1. In a vertical slat blind, a horizontal slat track downwardly open from end to end; a plurality of slats serially suspended from said track; downwardly open track carriers in spaced apart relation on said track between its ends; a guide member to support each track carrier; means between each guide member and its track member forming an arcuate guideway for the latter; a shaft journalled on one of said guide members transverse to and above the slat track and adjacent the upper portion of the related track carrier; worm and pinion gear means between said shaft and the related track carrier;

a sheave freely rotatable on said shaft and cord passed thereover for manual manipulation of said sheave; a clutch disc non-rotatably splined on said shaft adjacent said sheave and engageable therewith to couple the sheave to the shaft; spring means biasing said clutch disc out of engagement with said sheave; means forming a cam surface adjacent said clutch disc; a rotary cam-follower disc interposed between said cam surface and said clutch disc; and means to rotate said cam-follower disc relative said cam surface.

2. The structure according to claim 1 in which the means to rotate said cam-follower disc comprises a depending arm slidably receiving said cord.

3. In a vertical slat blind, a base member; a downwardly open carrier member rockably mounted on said base member and supporting a slat track passing therethrough; spaced apart journal means on the base member adjacent the upper portion of the carrier; a shaft rotatably mounted in said journal means above said slat track; gear means between said shaft and carrier member operable, upon rotation of said shaft, to rock the carrier member relative said base member; a protruding cam surface on the outer face of a journal adjacent the shaft; a cam disc rotatable on the shaft and having a protuberance to follow said cam; an arm depending from said cam disc; a clutch disc splined to said shaft; a sheave to be engaged by said clutch disc and freely rotatable on shaft; a spring between said sheave and clutch disc biasing the latter to nonclutching relation; a cord passing over said sheave and guide means receiving and passing said cord ends and carried by said arm whereby lateral movement of the cord ends rotates said cam disc; said surface and the protuberance on said cam disc being located to insure engagement of said clutch disc with said sheave when said arm depends vertically relative said shaft.

4. The structure according to claim 3 in which there are inter-engageable male and female members between said clutch disc and said sheave.

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