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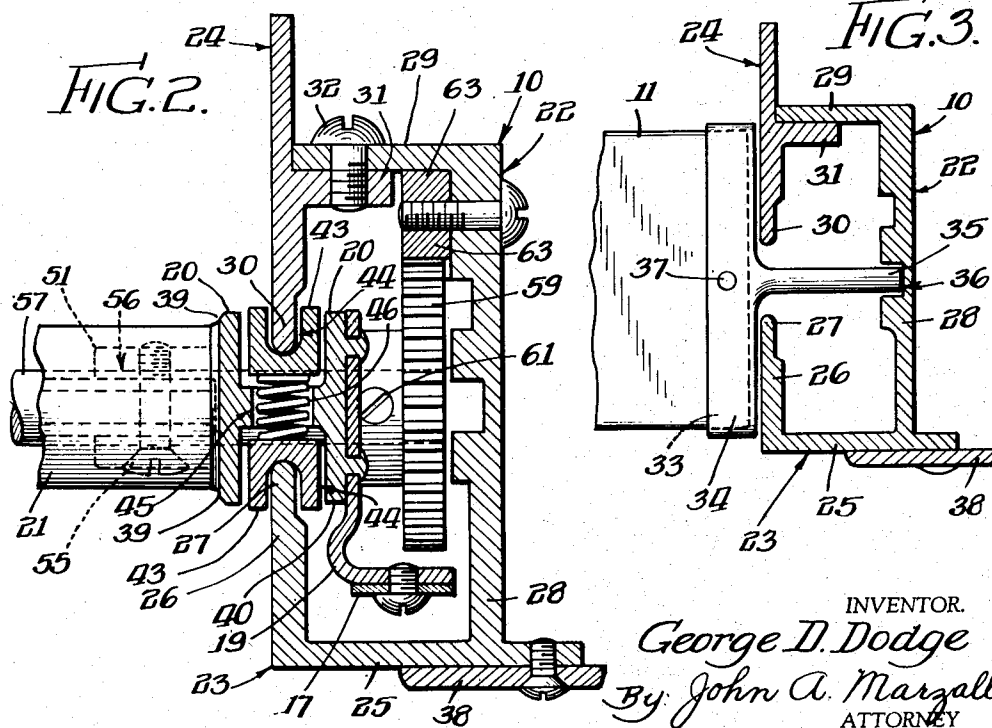
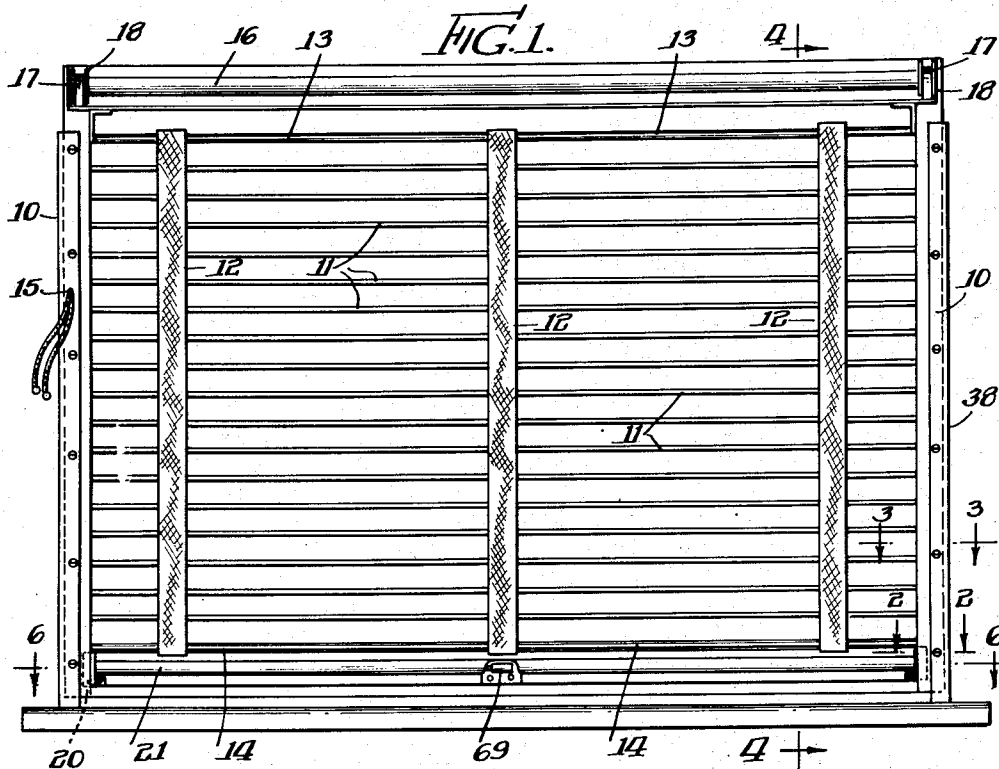
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2,268,858

BLIND AND CURTAIN

Filed Feb. 16, 1940

3 Sheets-Sheet 1



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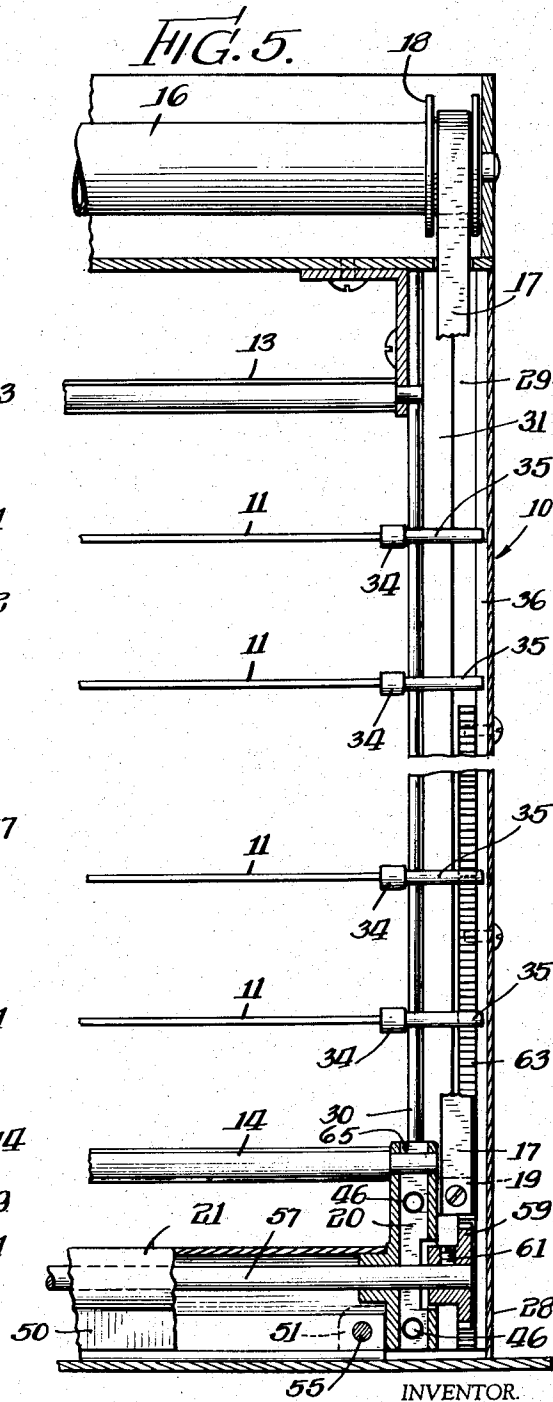
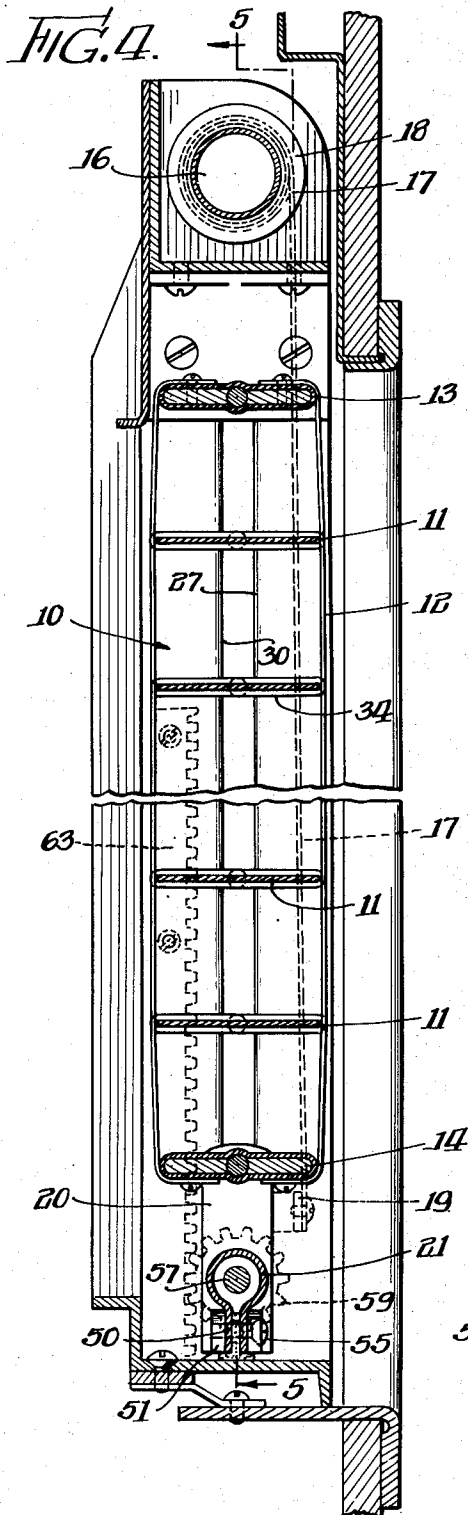
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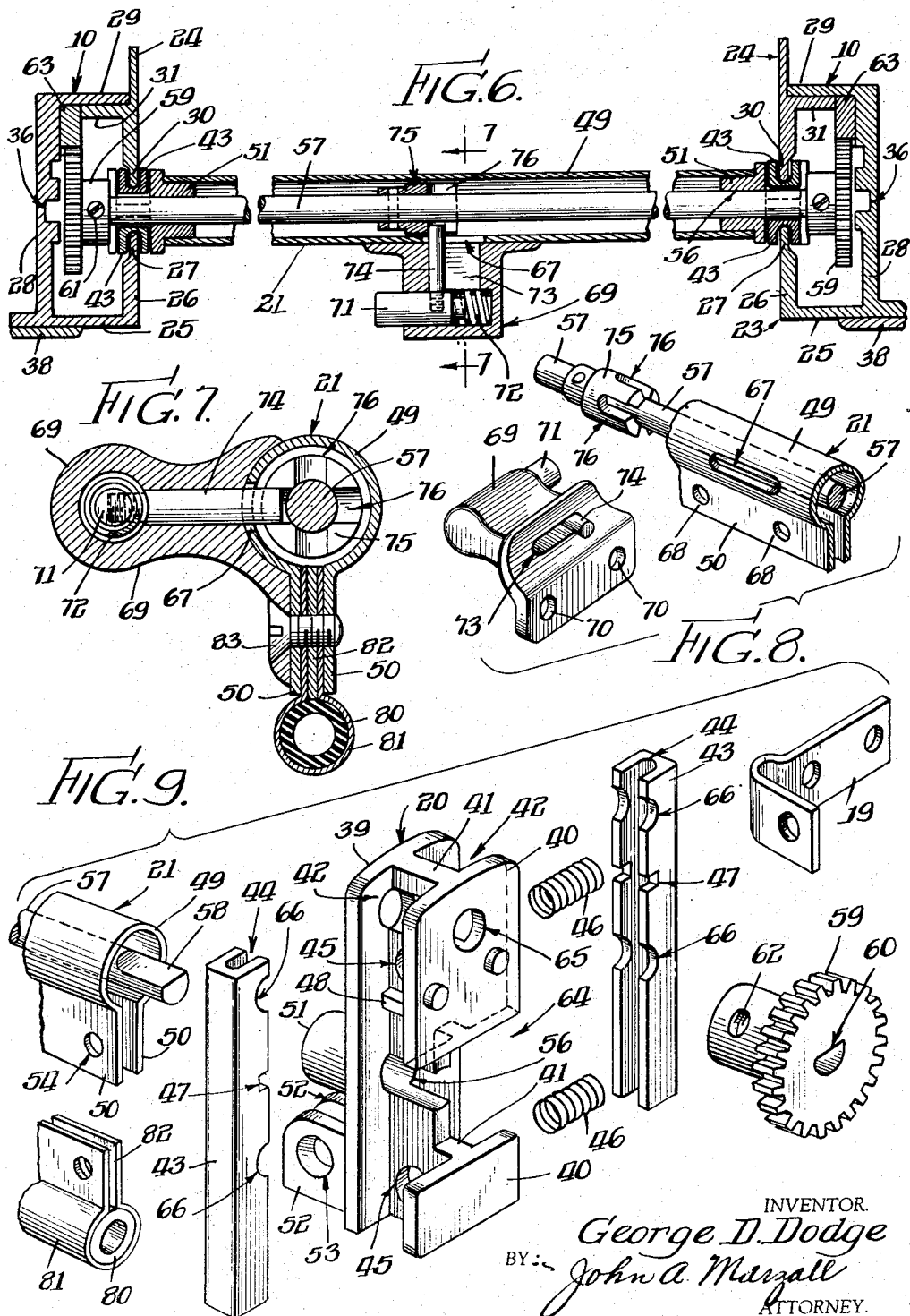
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UNITED STATES PATENT OFFICE

2,268,858

BLIND AND CURTAIN

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8 Claims. (Cl. 156—17)

This invention relates to blinds and curtains in general, and particularly to Venetian blinds for use in trains, Pullman cars, street car windows and other places.

An important object of the present invention is to provide a practical, easy operating, manually controlled device for blinds and curtains so that when the curtain or blind is raised manually, the curtain will stop at the exact position released and cannot be operated again until a control or latch element of mechanism is manually operated.

Another object of the invention is to provide mechanism and means for blinds and curtains so that when the blinds or curtains are raised or lowered, an operating rod or stick will be prevented from shifting, raising, lowering, tilting or racking.

A further object of the invention is to provide a new and improved manually operated latch mechanism whereby the curtain or blind is maintained at a predetermined height when the latch mechanism is released and remain in such position until the latch mechanism is operated, the curtain or blind being incapable of being raised or lowered except upon manipulation of a manually controlled latching element which permits free and easy raising and lowering of the blind.

A further object of the invention is the provision of friction means engageable with a flange or portion of a frame so as to prevent noises or rattling from occurring even should the blinds be subject to vibration, the said means causing the curtain or blind to be held frictionally at any predetermined position, there being release mechanism provided to permit easy raising and lowering of the blind or curtain mechanism.

A still further object is the provision of a friction device to prevent rattling and movement of the blind or curtain and to prevent tilting or racking of the blind or curtain in combination with an additional element for preventing operation thereof except when the blind or curtain is intentionally operated to free the engagement of rack and pinion mechanism.

Numerous other objects and advantages will be apparent throughout the progress of the following specification.

The accompanying drawings illustrate a selected embodiment of the invention and the views therein are as follows:

Fig. 1 is a detail elevation of a Venetian blind mounted in a window frame and embodying the invention;

Fig. 2 is a detail sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a detail sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a detail vertical sectional view on the line 4—4 of Fig. 1;

Fig. 5 is a detail sectional view at right angles to Fig. 4 and showing some of the operating mechanism;

Fig. 6 is a detail sectional view on the line 6—6 of Fig. 1;

Fig. 7 is a detail transverse sectional view on the line 7—7 of Fig. 6;

Fig. 8 is a detail perspective view showing the manually controlled or manipulated latching mechanism and the cooperating latch keeper; and

Fig. 9 is a detail perspective view of the several parts comprising the end member, the friction guide means and the rack and pinion means.

The herein locking and holding mechanism is applicable for blinds and curtains of various types and kinds including Venetian blinds, and for the purpose of illustrating the invention a Venetian blind is shown. The Venetian blind, Fig. 1, comprises side jambs 10 which are mounted on the sides of the window opening. Slats 11 are supported on spaced tapes 12 which have their upper ends fastened to a top tilting bar 13 and their lower ends to a pivotally mounted cross bar 14. The tilting bar 13 is for varying the angular position of the slats 12 and may be controlled and operated by manually manipulating operating cords 15, Fig. 1, which operate tilting mechanism (not shown). A spring roller 16 is arranged at the top of the opening in which the blind is installed and carries supporting tapes 17 on each end between end reels 18. Each of these tapes 17 is connected to a bracket 19, Fig. 2, which is fixed to a guide block 20 to permit easy operation of the blind or curtain, the spring roller 16 being adapted to counterbalance the weight of the Venetian blind through the tapes 17. A bottom bar 21 is rigidly connected to the guide block 20, and this bottom bar 21 carries the mechanism which controls operation of the Venetian blind. If the conventional fabric curtain is used, the tilting mechanism, of course, would not be used as the curtain would be connected directly to the spring roller 16. In such latter case, the tapes 17 also would be dispensed with.

The frame or jamb members 10, Figs. 2 and 3, each comprise a fitting or guide member 22 which may be made in one or more pieces. In the embodiment herein shown it comprises an inner front member 23 and an inner rear member 24. The front member 23 comprises a straight front portion 25 and an outwardly extending integral flange portion 26, the portion 26 carrying a guide flange 27. An end plate 28 is rigidly and integrally connected to the front portion or face 25 and extends into the window opening and a rear closing edge, arm or face 29 is integral with the member 28 and extends parallel with the front face 25. The member 24 extends forwardly a

predetermined distance and carries a guide flange 30 which is in alignment with the previously mentioned guide flange 27, Fig. 2. The member 24 also is provided with an inwardly extending arm or flange 31 which engages the face member 29 being fastened together in any convenient manner such as by a screw or bolt 32, Fig. 2.

The Venetian blind slats 11 Figs. 3 and 5 are provided with end pieces 34 which are preferably made of molded material and have a socket 33 Fig. 3 into which the end of the slat 11 extends. The member 34 also has an elongated finger 35, which is adapted to extend into the fitting or guide member 22. The end plate 28 of the member 23 is provided with a longitudinal recess 36 formed on its inner face to receive and guide the end of the finger 35. The end piece 34 may be fastened to the slat in any conventional manner such as by a rivet 37.

A strip or trimming edge 38 may be attached to the member 23 along the face 25 thereof so as to conceal the joint between this front member 23 and the window jamb, making a neat trim, and giving an ornamental appearance, Figs. 1, 2, 3 and 6.

The guide block 20, Figs. 2 and 9, comprises a front face 39 and one or more rear sections 40 which are connected to the front face 39 by one or more webs 41, Fig. 9. The web 41 connecting the front face 39 and the rear portion or portions 40, provides oppositely disposed vertically extending recesses 42, into which there are received blocks or guide runners 43, Figs. 2 and 9, the runners having U-shaped grooves 44 to receive the guide flanges 27 and 30. These guide blocks or runners 43 are arranged back to back in the recesses 42 of the guide block 20 so that the U-shaped grooves or recesses 44 will face in opposite directions and receive the ends of the guide flanges 27 and 30, Fig. 2. The web 41, Fig. 9, is provided with upper and lower holes 45, into which coil springs 46 are arranged. These coil springs 46 engage the facing surfaces of the guide blocks or runner 43 and urge them outwardly into tight frictional engagement or contact with the guide flanges 27 and 30. These guide blocks or runners 43 are preferably made of molded material such as fiber or Bakelite so as to insure quiet operation and prevent rattling during vibration. The guide blocks 43 are also provided with notches 47, Fig. 9, which engage small flanges or projections 48 on the large web 41 so as to position properly the guide blocks or guide strips with respect to the other operating elements and insure that these guide blocks or strips are inserted in the fitting 20 always in the same proper relative position and in proper alignment.

The bottom bar 21, Figs. 2, 4 to 9, is tubular in cross section and comprises the tubular or circular portion 49, Figs. 6 to 9, and two downwardly extending depending legs 50, Fig. 9. The ends of the tubular portion 49 of the bottom bar 21 fit over circular bosses 51 formed inwardly of the surfaces 39 on the guide block 20, while the extending legs 50 of the bottom bar 21 fit in the space between spaced ears 52 Fig. 9 also formed on the surface 39 of the member 20. Alined holes 53 and 54 are formed in the ears 52 and the extending legs 50 respectively for receiving fastening means 55 Fig. 2 to fasten securely the bottom bar 21 to the guide block 20.

The bosses 51 are provided with holes 56 Fig. 9 and receive a rod 57 which extends completely

through the tubular portion 49 and a predetermined distance through the bosses and inside the fitting or guide member 10, 22, Figs. 2, 6 and 9. The outer end of the rod 57 is provided with a flat portion 58, Fig. 9, and a pinion 59, Figs. 5 and 9, is adapted to fit over the end 58 of the rod 57. The opening in the pinion 59, Fig. 9, is provided with a flat surface 60 to coincide with the flat portion 58 on the end of the rod 57. The pinion is held in position on the end of the rod by a set screw 61, Fig. 2, threadedly engaging the opening 62, Fig. 9, in the hub of the pinion 59. The pinion 59 on each end of the rod 57 is preferably made of metal and has meshing relation with fiber or composition racks 63, Fig. 2, fixed to the fitting or member 10 at the corner where the leg or arm 29 joins the plate 28. The web 41 and the rear face of the member 40 is cut away as indicated at 64, Fig. 9, to provide room for the pinion, and providing a space in the member 40 as clearly shown in Fig. 9.

Each of the members 20 is also provided with alined holes 65, Figs. 5 and 9, into which a pivot bearing of the bottom slat or member 14 extends, and each of the fiber guide strips 43, Fig. 9, is provided with upper cutaway surfaces or recesses 66 to accommodate the rod on the bottom pivot bar 14 which passes through the holes 65 and with lower recesses 66 to accommodate the rod 57.

The bottom bar 21, intermediate its ends, is provided with a slot 67 and a pair of holes 68, Fig. 8. A latching mechanism 69 is adapted to be connected to the bottom bar and is provided with holes 70 which align with the holes 68 formed in the flanges 50 of the bottom bar to receive fastening means for fastening the locking mechanism 69 to the bottom bar. The latching mechanism 69, Figs. 7 and 8, has a casing in which there is slidably mounted a plunger element 71, Figs. 7 and 8. This plunger element 71 has a spring 72 behind it, Fig. 7, so as to urge the plunger 71 outwardly at all times. The base of the casing is provided with a slot 73 through which a pin 74 extends. The pin 74 is rigidly fastened to the plunger 71 and is normally urged to the end of the slot as clearly shown in Fig. 8 by the spring in the casing urging the plunger 71 outwardly. Thus, when the plunger 71 is pressed inwardly, the pin 74 will move from the position it occupies in the slot shown in Fig. 8 to the other end of the slot 73 which would be toward the left, Fig. 8. The slot 67 in the tubular portion 49 of the bottom bar 21 coincides with the slot 73 in the casing 69 when the latching mechanism is fastened in position. The rod 57 has a fitting 75 fastened thereto and this fitting is provided with a plurality of spaced slots 76 into which the finger 74 is adapted to be received. When the pin 74 is in a notch 76, the rod 57 cannot rotate and therefore the pinions 59 which engage the rack 63 cannot rotate. Therefore, the blind or shade is maintained in stationary position. When it is desired to raise or lower the blind or shade, the plunger 71 is pressed inwardly, thereby moving the pin or finger 74 out of the slot 76 and no longer preventing rotation of the rod 57 but instead permitting free rotative movement of the rod 57. Raising and lowering of the shade or blind is, therefore, easily accomplished and when the blind or shade is raised or lowered to the proper position and the plunger 71 is released, the pin or finger 74 will again become engaged in the slot 76 on the fitting 75 on rod 57 and

there again locking the rod in rigid position and again preventing mobility of the blind.

If desired, a flexible tube 80 supported in flexible material 81, Figs. 7 and 9, may be connected to the bottom bar to provide tight engagement of the bottom of the shade with the window sill. A strip 82 may be fastened between the flexible material 81 and extend upwardly in the form of legs in between the legs 50 on the tubular member 49 of the bottom bar 21 and clamped by means of fastening means 83, Fig. 7, passing through the legs 50 and the extensions surrounding the tubular member 81. Thus, when the fastening means 83 are securely fastened, the legs 50 squeeze the free ends of the flexible material 81 and the filler strip 82 in between the legs 50 and cause the flexible sill-engaging or bumper portion to be tightly in position with respect to the lower edge of the bottom bar. Therefore, quite operation is insured and the window sill is prevented from becoming scarred or damaged.

The invention provides operating mechanism for curtains and blinds including Venetian blinds whereby rattling by reason of vibration or other causes is reduced to a minimum and the danger of the blind shifting, tilting or racking during operation is completely overcome. The vibration guide elements spring pressed against the guide flanges prevent movement of the blind in a front to rear direction while the elongated point on the end of the slot which engages a recess in the supporting frame housing prevents longitudinal or axial movement of the blind. Furthermore, the ends of the blind are provided with elements to reduce noises. Moreover, the invention includes a rack and pinion construction which prevents one side of the blind from moving faster than its companion side and therefore racking of the blind in the groove, guide, or runner is prevented. The latching and locking mechanism causes the blind to be held in any desirable position and prevents the blind from being moved at all until the latching mechanism is manually operated to permit movement. The rack and pinion construction, in connection with the flexible vibration guide elements, holds the blind in any position desired, permits free and easy operation of the blind or guide and overcomes and reduced noises and rattling sounds should the blinds be subject to vibration of the train, by the wind or other reasons.

Changes may be made in the form, construction, and arrangement of the parts without departing from the spirit of the invention or sacrificing any of the advantages thereof, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. A blind or shade member comprising a rod arranged at the bottom thereof, means cooperating with said rod to selectively permit or prevent rotation thereof, a pinion on said rod, a rack with which the pinion meshes, a guideway with which a part of said member co-operates, a guide block on the member and in engagement with the guideway, and means carried by the guide block to create a friction between the guide block and the guideway.

2. A blind or shade comprising a guide member, a grooved member carried by the blind or shade and cooperating with the guide member, spring means for creating a friction between said members, and manually operated means opera-

tively connected to a part of the blind or shade to raise and lower the blind or shade.

3. A blind or shade comprising a member having a grooved carried by the blind or shade, a guideway provided with a slot within which said member slides and having a portion adjacent the slot extending into said groove, resilient means for urging said member and said guideway portion into frictional engagement, and means operatively connected to a part of said blind or shade for releasably locking the blind or shade in adjusted position.

4. A blind or shade comprising a guideway, a grooved guide member carried by the blind or shade and cooperating with the guideway, spring means for creating a friction between said guide member and said guideway, means operatively connected to the blind or shade and to said guide member, a rack in said guideway, a pinion meshing with the rack, a rod connected to a part of the blind or shade and connected to the pinion, and manually operating means to permit operation of the pinion.

5. A blind or shade comprising a slotted guide member having a guide portion at each side of the slot, a pair of grooved members receivable within said slot with a groove, said guide portions extending into the respective grooves, spring means interacting between said grooved members for urging the two members against said guide portions to create a friction therebetween, said grooved members being operatively connected to a part of said blind or shade, and manually controlled means on a part of the blind or shade to permit raising or lowering of the blind or shade.

6. A blind or shade comprising a side guideway member having a slot, a guide member on the blind and extending into the slot, spring means for creating a friction between the two members, a rotatable rod operatively connected to a part of said blind or shade, and manually controlled means to permit raising or lowering of the blind or shade, including a rack mounted on said guideway member and a pinion attached to said rod, a locking member on the rod, a co-operating locking member carried by said blind or shade and adapted for locking engagement with the first locking member and a spring pressed member controlling the operation of said second locking member to bring the locking members into and out of locking relationship to selectively prevent rotation of said rod.

7. A shade or blind member comprising a tubular support, a rod revolvably mounted in the support, a locking member on the rod, a locking member extending into the support and adapted for locking engagement with the first locking member, and operable means to bring said locking members into locking relationship, said members, when in locking relationship, preventing rotary movement of the rod.

8. A shade or blind member comprising a tubular support, a rod revolvably mounted in the support, a notched member fixed to the rod, a locking pin extending into the tubing and adapted for locking engagement with the notched member, and a spring urged depressible member normally urging the locking pin into locking engagement with the notched member, said depressible member, when depressed, causing disengagement of the locking pin with the notched member and permitting free rotation of the rod.

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