Nov. 29, 1932. LE ROY J. STEFFEN 1,889,226

VENETIAN BLIND

Filed July 13, 1931

Fig. 2

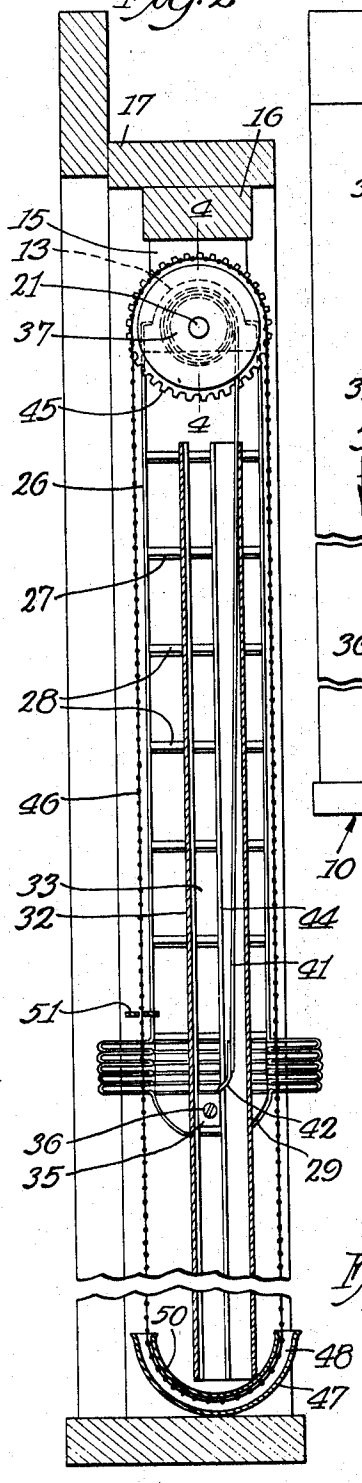


Fig. 1

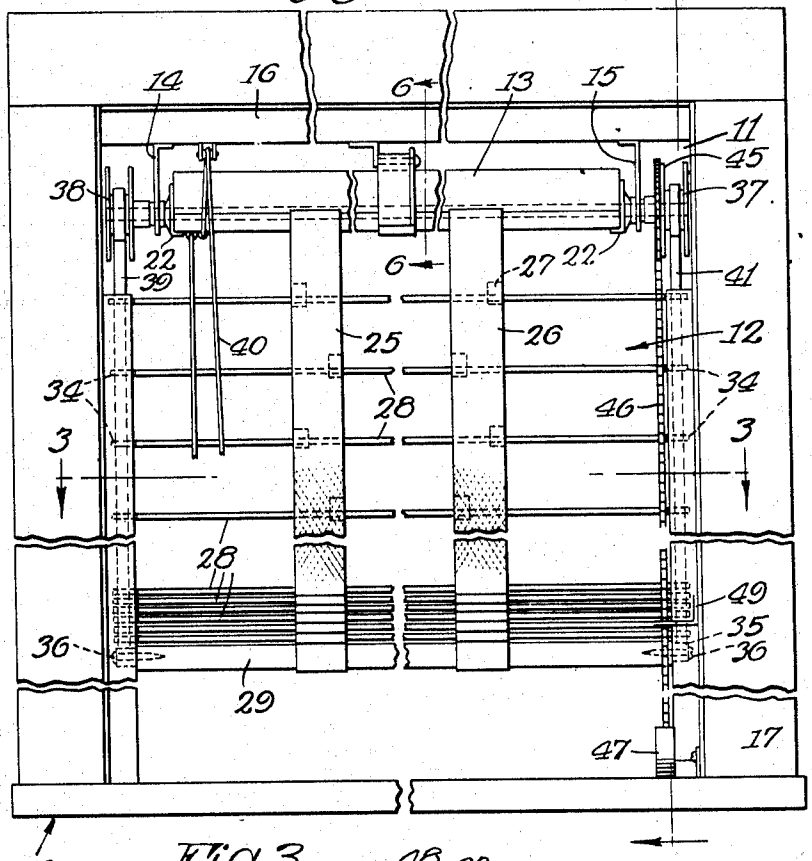


Fig. 3

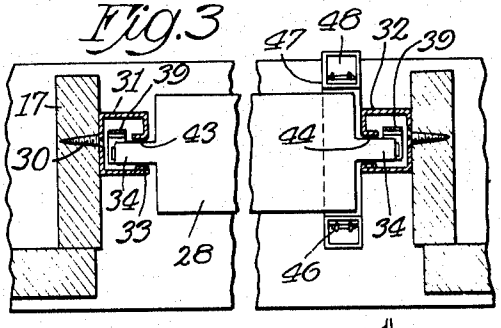


Fig. 5

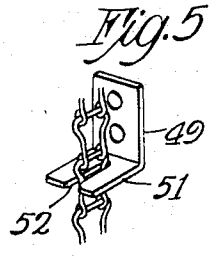
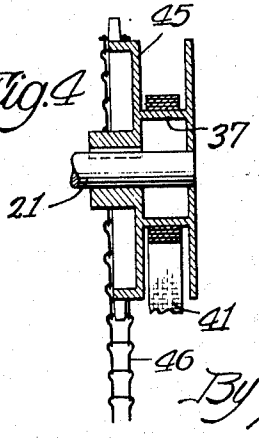


Fig. 4



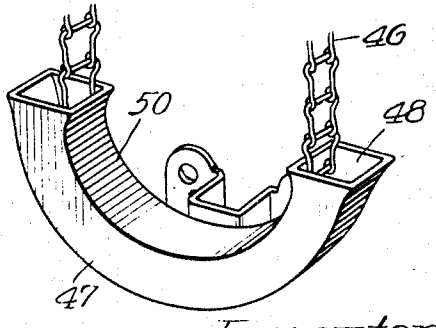
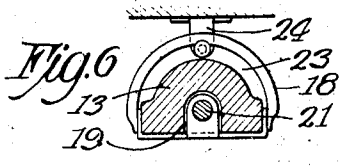


Fig. 6



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Patented Nov. 29, 1932 1,889,226

UNITED STATES PATENT OFFICE

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VENETIAN BLIND

Application filed July 13, 1931. Serial No. 550,407.

This invention relates to blinds and the like and more particularly to the type of devices known as Venetian blinds.

One of the objects of the invention is the provision of new and improved mechanism for raising and lowering Venetian blinds and the like.

Another object of the invention is the provision of new and improved elevating and lowering means for Venetian blinds, having novel guides associated with said means.

A further object of the invention is the provision of new and improved mechanism for raising and lowering Venetian blinds and for holding the same in any desired elevated position.

Another object of the invention is the provision of a new and improved Venetian blind including novel mechanism for operating the same, that is simple in construction, inexpensive to manufacture and install, efficient in use, and that is not likely to become broken or get out of order.

Further and other objects and advantages of the invention will appear from the following description taken in connection with the accompanying drawing, in which

Fig. 1 is a side elevation of a portion of the building with the invention in position therein;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a section on the line 4—4 of Fig. 2;

Fig. 5 is a perspective view of the guide and holding members showing the same somewhat enlarged from that shown in the other figures; and

Fig. 6 is a section on the line 6—6 of Fig. 1.

Referring now to the drawing, the reference character 10 designates generally a building having an opening 11 therein opposite which the Venetian blind, represented generally by the reference character 12 is mounted. The blind 12 comprises an upper swingboard 13 supported by end brackets 14 and 15 from the head rail 16 secured to the frame 17 surrounding the opening 11. If desired, one or more intermediate supports 18 may be provided for the swingboard, especially if the latter be of an extended length. The swingboard 13 is curved on its upper side and is provided on its underside with a recess 19 for receiving a shaft 21. The outer ends of the swingboard 13 are provided with bearings 22 within which the shaft 21 rotates. The bearings 22 are journaled in brackets 14 and 15 and in the intermediate bracket 18. The intermediate bracket 18 extends about the upper surface of the swingboard and is spaced from the same to form an arcuate slot 23 which is concentric with the shaft 21. A bracket 24 rigidly attached to the headrail 16 is provided with means for engaging the slot 23 whereby the intermediate portion of the swingboard will be supported from said headrail and will be permitted to oscillate or tilt. The lower portion of the bracket is provided with a journal for the shaft 21. Attached to each side of the swingboard 13 are a plurality of ladder tapes 25 and 26 having the cross members 27 on which suitable slots 28 are supported, as is usual in such constructions.

The lower ends of the ladder tapes 25 and 26 are connected to a lower swingboard 29, whereby when the upper swingboard is oscillated by a cord 40 in the usual manner, it will swing the slats 28 into a horizontal position as shown in Figs. 1 and 2, or into an inclined position to direct air and light entering between them either upwardly or downwardly, as is well known in the art.

In order to prevent the slats from blowing inwardly or outwardly by the wind, suitable means are provided for guiding the ends of the slats in their vertical movements, and for preventing the same from moving inwardly or outwardly beyond a predetermined path.

In the form of construction shown, a pair of guide members 31 and 32 are provided for this purpose. These guide members are attached to the inner sides of the frame 17 as by fastening members 30, see Fig. 3. These guide members may be of any suitable construction. As shown, each of these guides is formed from sheet metal having a slot 33 extending longitudinally thereof, the edges of the slot being bent inwardly in order to

form a smooth edge. The slats are each provided with reduced extensions 34 which are adapted to engage in the slots for guiding the slats in their vertical movement and for preventing the slats from moving laterally.

The lower swingboard 29 has attached to each end thereof a guide block 35. These blocks are pivotally connected to the end of the swingboard in any suitable manner, as by means of the screws 36, see Figs. 1 and 2.

Suitable means are provided for raising and lowering the blind and for holding the same in adjusted position. In the form of the construction shown, which is by way of example only, this means comprises a winding mechanism including drums 37 and 38 which are rigidly mounted on the shaft 21 at each end thereof. Hoisting tapes 39 and 41 are attached respectively to the drums 37 and 38 and are adapted to be wound thereon. The free end of the tape is attached to straps 42 rigidly connected to the guide blocks 35, see Fig. 2. The tapes 39 and 41 may be and preferably are contained in the guide members 31 and 32, the inturned edges 43 and 44 of the guide members 31 and 32 forming a channel through which the tapes are adapted to extend, as clearly shown in Fig. 3 of the drawing.

Means for rotating the drums for raising and lowering the blind will now be described. In the form of the device shown, a sprocket wheel 45 is rigidly mounted on the shaft 21 and an endless cable or sprocket chain 46 is trained over this sprocket wheel and extends downwardly on each side of the blind.

A suitable guide 47 for the lower loop of the chain 46 is rigidly secured to the frame 17 at the lower portion thereof. This guide is curved and is provided with a curved channel 48 for receiving the lower loop of the chain. It will thus be seen that by rigidly connecting the winding drums 37 and 38 to the shaft 21 and by connecting the sprocket 45 to the shaft, when the sprocket is rotated by pulling up or down on the chain 46, both drums will be operated in unison to wind up the tapes 39 and 41 for elevating the blind or for rotating them in the opposite direction for lowering the blind.

By means of this arrangement, the chain may be placed in fairly taut position so that it will not interfere with the raising and lowering of the blind, and since there are no moving parts except the chain, there is no danger of the operator having his clothing entangled in the mechanism or becoming injured in raising or lowering the device.

Suitable means are provided for fastening the chain in adjusted position for holding the blind in a predetermined position. As shown, an angular bracket 49 is attached to the inner side of the frame 17 and has a laterally extending portion 51 which is provided with an open slot 52 for receiving the chain. The slot is of sufficient width to receive the intermediate portion of the link of the chain but will not permit the passage of the ends or connecting portions of the links.

When it is desired to raise or lower the blind, the operator removes the chain from the slot and pulls up or down on the chain, depending on whether he wishes to raise or lower the blind.

The guide 47 is preferably, though not necessarily, curved. It, at least, is provided with a curved passage both ends of which open upwardly, one in front of the blind and the other in the rear thereof.

In order that the blind may extend substantially to the bottom of the window, or other opening, the guide 47 is provided with a recess or concavity 50 for receiving the swingboard 29 when the same is in lowered position. The lower surface of the swingboard 29 may, if desired, be curved to engage this concavity.

What I claim, therefore, is:

1. In a Venetian blind comprising a plurality of slats, and means for raising and lowering said slats, said means comprising drum means, rotating means for turning said drum means and flexible members connected to the lower portion of said blind and windable on said drum means; a stationary guide having a curved passageway rigidly mounted adjacent to the lower end of said blind, and a flexible member trained over said rotating means and extending along said curved passageway and guided thereby for operating said rotating means.

2. In a Venetian blind having an upper swing board, a plurality of slat members, means for supporting said slat members from said upper swingboard, means for raising and lowering said slat members, comprising winding mechanism and means including an endless cable for operating said mechanism; a guide for said last named means extending in a plane transversely to said slat members.

3. In a blind raising and lowering mechanism, a guide member having a curved passageway therethrough with both extremities opening in the same direction for receiving the loop of an operating cable and for guiding the same, and means for rigidly connecting said member to its support.

4. In a Venetian blind an upper swingboard, a plurality of slats, flexible members for supporting said slats in spaced relation from said swingboard, a lower swingboard to which said flexible members are attached, means for tilting said upper swingboard for tilting said slats, a shaft associated with said upper swingboard, a winding drum on each end of said shaft, flexible members connected to said drums and said lower swingboard for raising and lowering said blind when said drums are rotated, guides for the ends of said slats for limiting the lateral and endwise

movement of said slats, said guides receiving said last named flexible means, and a wheel fixed to said shaft; a stationary guide beneath said lower swingboard, said guide forming a curved channel therethrough substantially in the plane of said wheel and beneath the same, an endless flexible element of varying thickness trained over said wheel and extending through said channel and guided thereby to the front and rear of said blind whereby said wheel may be rotated for raising and lowering said blind, and a bracket having a slot therein for engaging a thin portion of said flexible element for holding said flexible element and wheel in adjusted position.

5. In raising and lowering mechanism for a blind, a guide element comprising a member of sheet metal having a curved passage therethrough, each end of said passage opening upward, and an attaching bracket rigidly connected to said member for rigidly attaching said member to a support.

In testimony whereof I affix my signature.

LEROY J. STEFFEN.