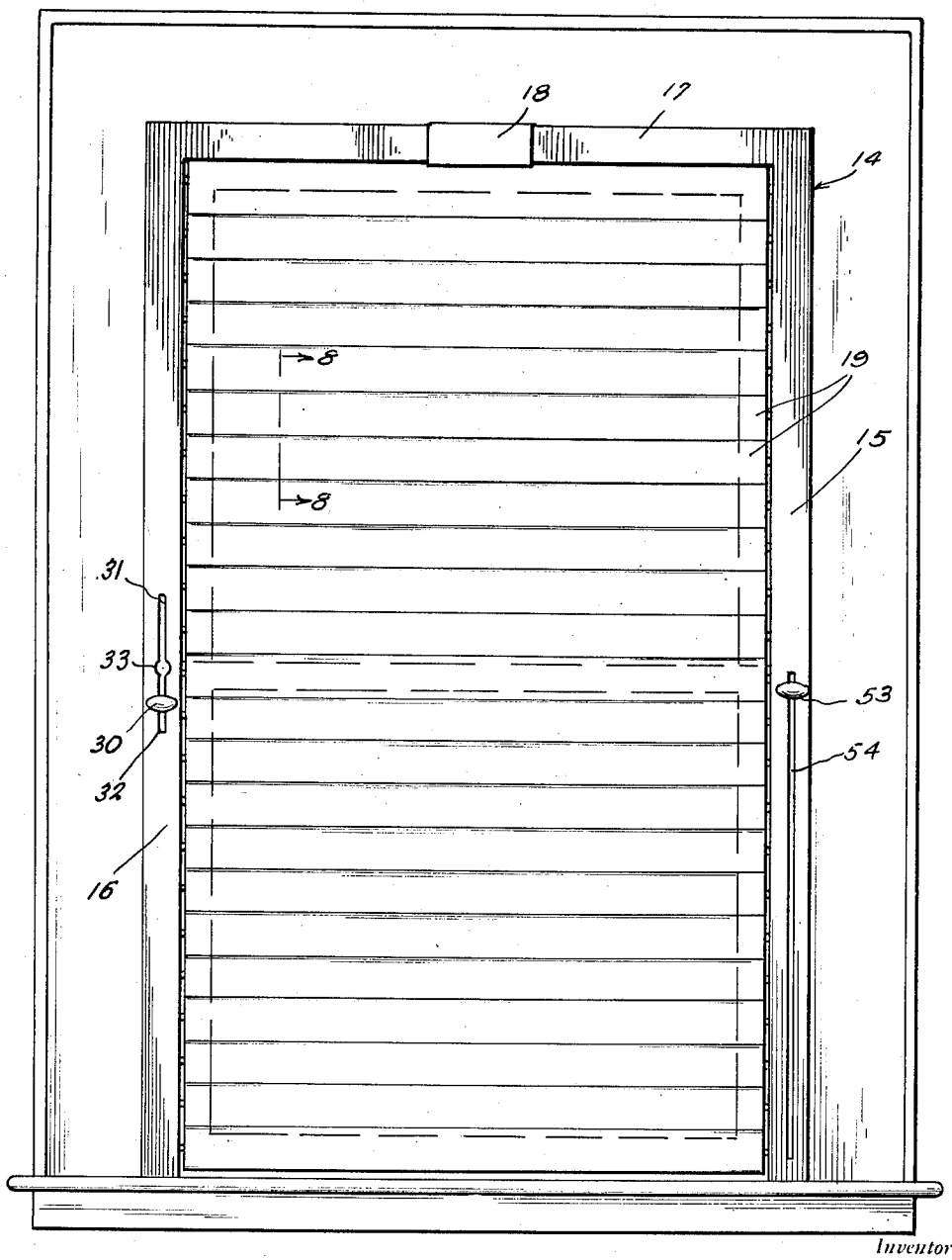
Nov. 27, 1945. A. T. CASTILONIA 2,389,956

VENETIAN BLIND

Filed Nov. 27, 1944 4 Sheets-Sheet 1




Inventor

Fig. 1.

Albert T. Castilonia,

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

Nov. 27, 1945. A. T. CASTILONIA 2,389,956

VENETIAN BLIND

Filed Nov. 27, 1944 4 Sheets-Sheet 2

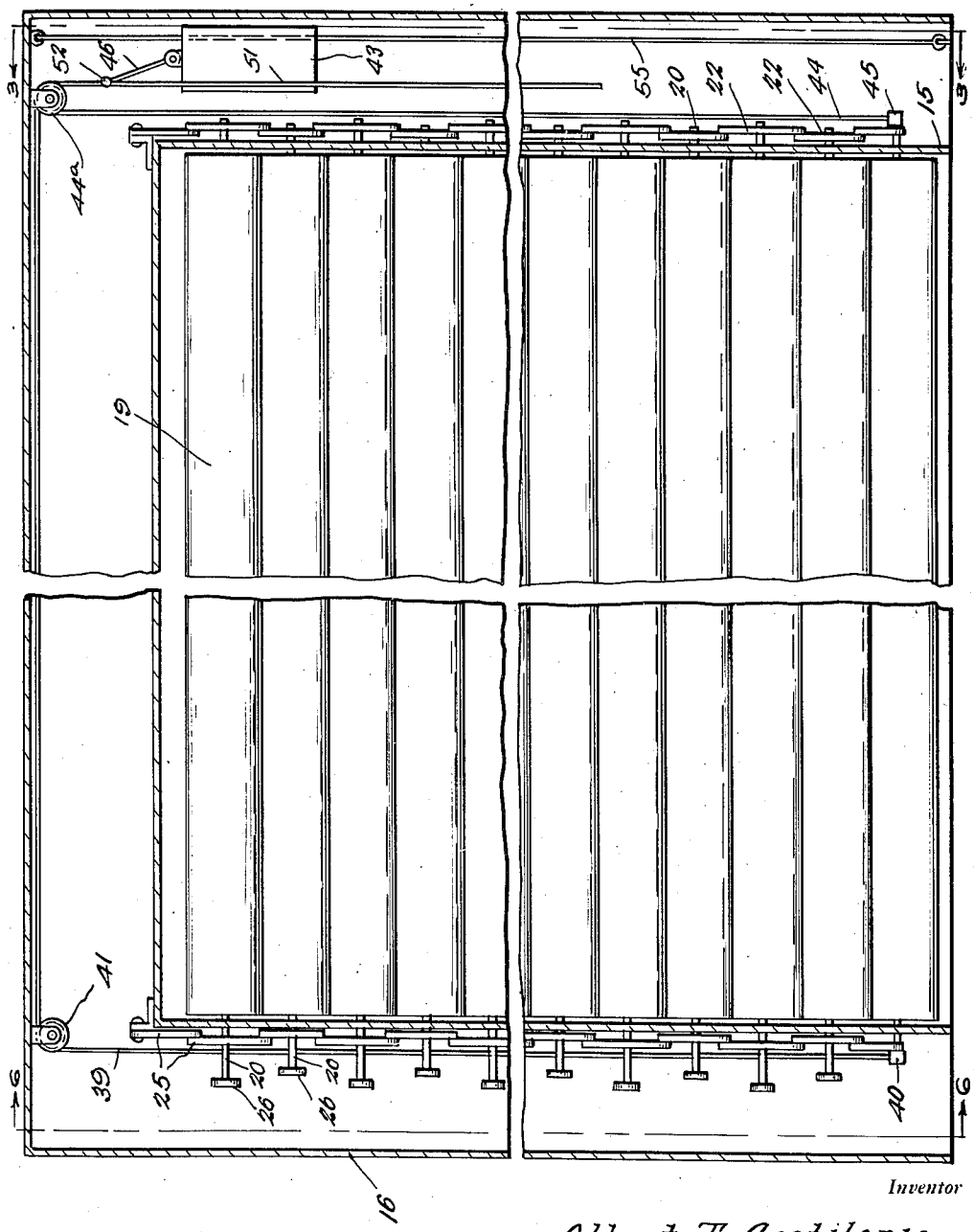



Fig. 2.

Inventor

Albert T. Castilonia,

By Clarence O'Brien and Harvey B. Jacobson

Attorneys

Nov. 27, 1945. A. T. CASTILONIA 2,389,956

VENETIAN BLIND

Filed Nov. 27, 1944 4 Sheets-Sheet 3

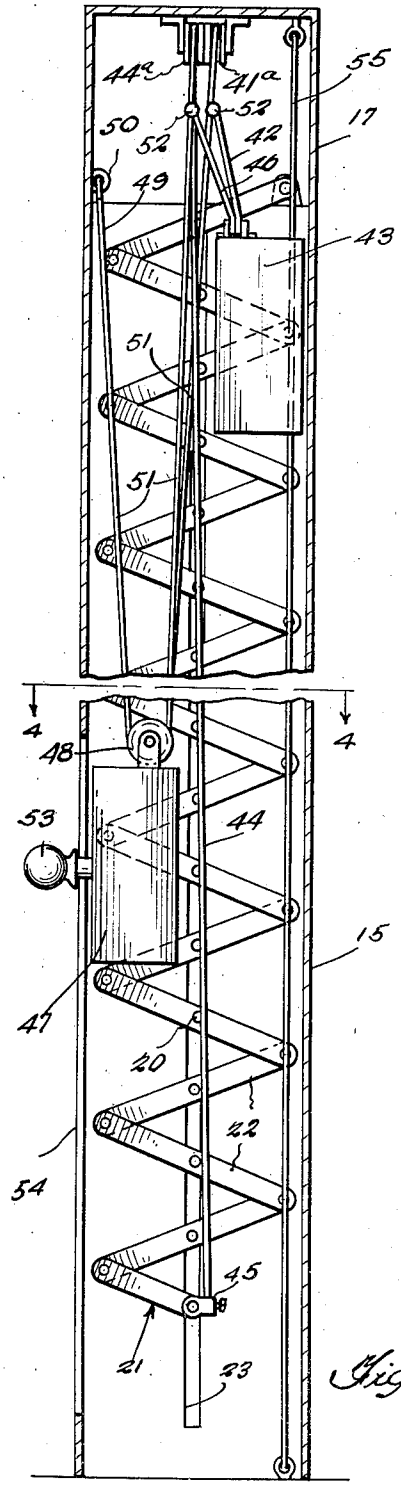



Fig. 3.

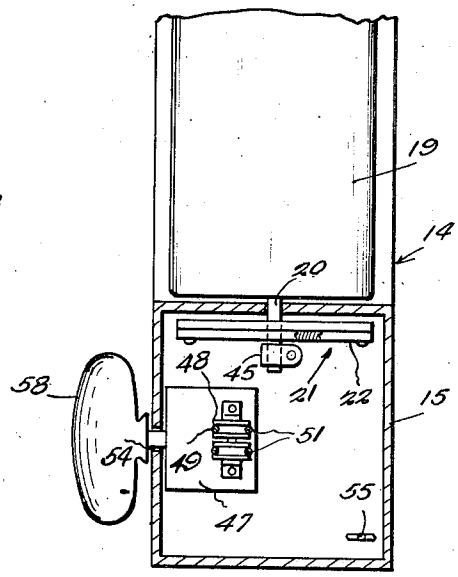



Fig. 4.

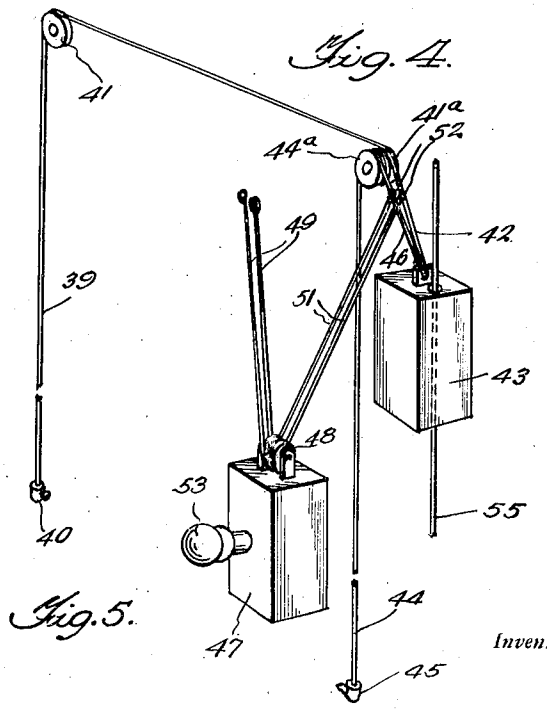



Fig. 5.

Inventor

Albert T. Castilonia,

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

Nov. 27, 1945. A. T. CASTILONIA 2,389,956

VENETIAN BLIND

Filed Nov. 27, 1944 4 Sheets-Sheet 4

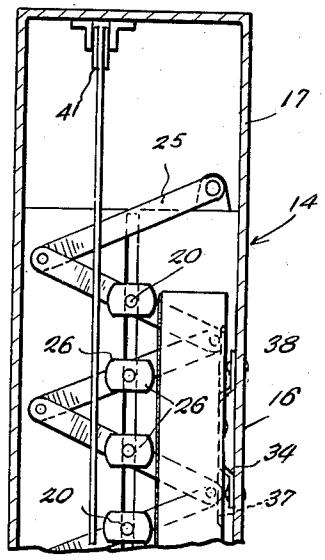



Fig. 11.

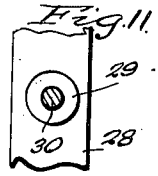



Fig. 7.

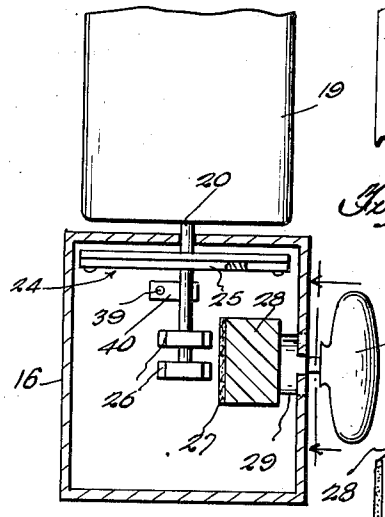



Fig. 10.

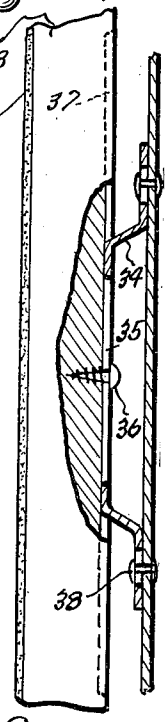
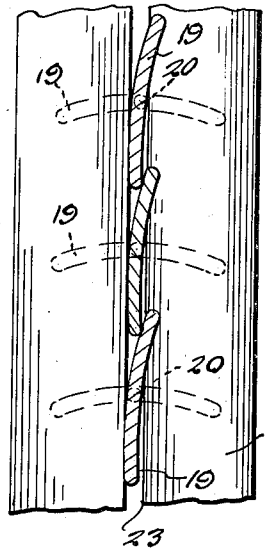



Fig. 8



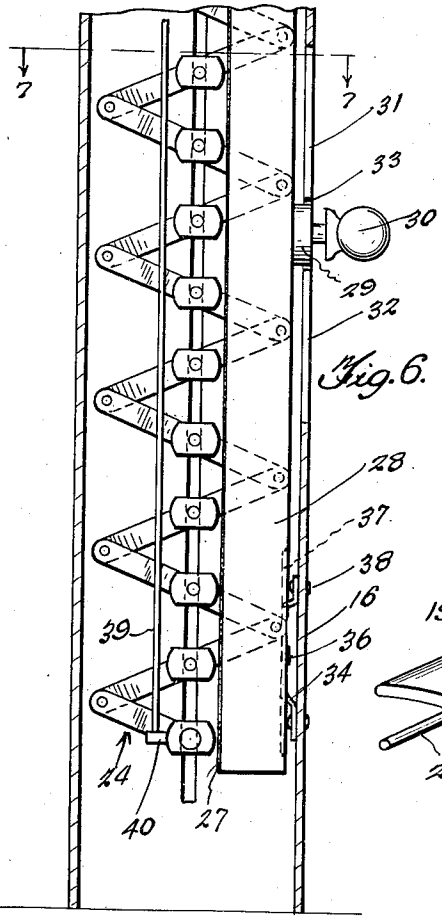




Fig. 6.

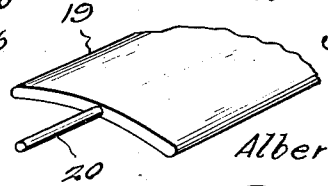



Fig. 9.

Inventor

Albert T. Castilonia,

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

Patented Nov. 27, 1945

2,389,956

# UNITED STATES PATENT OFFICE

2,389,956

## VENETIAN BLIND

Albert T. Castilonia, Yonkers, N. Y.

Application November 27, 1944, Serial No. 565,325

7 Claims. (Cl. 160—172)

This invention relates to a novel and improved Venetian blind and has more specific reference to certain structural refinements and distinctions, these having to do with a combination of properly selected and coordinated mechanical devices and movements such as aptly serve in controlling the raising and lowering of the blind as a unit, and oscillatory tilting of the slats in the slat assembly.

Venetian blinds commonly used embody slat assembling and supporting extensible and retractible ladders, these composed of inner and outer parallel ladder tapes and supporting and tilting staggered step-straps therebetween, the raising and lowering cords or ropes passing through the slots in the slats and said slats being seated on said straps. Means is provided on one side for raising and lowering the entire blind, and means on the other side for tilting the slats.

I have merely covered the conventional blind to bring out the fact that the improved blind construction herein disclosed is appreciably modified and modernized in that it is characterized by a substantially rectangular marginal frame, the frame portions being box-like hollow constructions and containing all of the mechanism and concealing and protecting same, this being one phase of the invention.

Another object of the invention has to do with hand actuated reciprocatory means on one side of the frame structure, this coacting with the slats through the medium of cams whereby to translate the reciprocatory motion of said bar into oscillatory motion for the slats, this through the medium of said cams.

Additional novelty is predicated upon link devices at opposite ends of the journal equipped slats, whose links are apertured to support the journals on the slats to permit the journals to tilt and also to be bodily raised and lowered as the link devices are collapsed or extended, as the case may be.

More particularly, I am especially concerned with weighted cable and pulley means so arranged as to satisfactorily hoist and lower the blind, there being a hand knob equipped counterweight and an arrangement of auxiliary cables coacting therewith and with the main cables to accomplish the desired ends with easy and reliable expediency.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawings.

In the drawings, wherein like numerals are employed to designate like parts throughout the views:

Figure 1 is an inside or what may be called a front elevational view of a regular window frame with the improved Venetian blind structure mounted therein, this showing the bordering frame and slotted portions thereof with the manually manipulated control knobs coacting therewith.

Figure 2 is a substantially vertical section taken centrally through the structure and showing most of the essential parts and elements.

Figure 3 is an enlarged view in elevation and section, this taken approximately on the plane of the line 3—3 of Figure 2, looking in the direction of the arrows.

Figure 4 is a horizontal or transverse section taken approximately on the plane of the line 4—4 of Figure 3, looking downwardly.

Figure 5 is a perspective view of a somewhat diagrammatic type which has been worked out to show the main and auxiliary cable arrangement, pulleys and associated relatively shiftable counterweights.

Figure 6 is a vertical section, this taken on the plane of the line 6—6 of Figure 2, looking in the direction of the arrows.

Figure 7 is a view similar to Figure 4 but on the line 7—7 of Figure 6 to bring out the details on this particular side of the structure.

Figure 8 is an enlarged view on the plane of the line 8—8 of Figure 1, looking in the direction of the arrows.

Figure 9 is a fragmentary perspective view of one end of one of the transversely bowed slats.

Figure 10 is a view partly in section and partly in elevation showing the constructional details of the spring means between the stationary frame and reciprocatory push-button controlled slat tilting bar.

Figure 11 is a section taken approximately on the plane of the line 11—11 of Figure 7.

Referring now to the drawings by distinguishing reference numerals attention comes first to Figure 1 wherein it will be seen that the marginal frame, as a unitary device, is denoted by the numeral 14, this being characterized by a vertical frame member 15 on the right, a similar frame member 16 on the left and a topping or head member 17 at the top. The latter may be made of sections and joined by a sleeve 18 to permit the entire frame structure to be adjusted to accommodate differently sized window frames. The Venetian blind slats are denoted by the numerals 19. These are of the transversely curved form

shown in Figure 9, the same having suitable journals or trunnions 20 at opposite ends.

Reference being had momentarily to Figure 3, it will be seen that the link device 23 is confined in the frame member or casing 15, this embodying conventional zig-zag hingedly connected links 22. The journals 20 connect with the intermediate portions of the links and operate in a perpendicular slot 23. The link device is suitably anchored at the top in the frame portion 17.

Referring now to Figure 6, a corresponding link device is employed and this is conveniently differentiated by the numeral 24. The journals on this side of the structure are slightly longer and pierce the links 25, said journals being provided with cam blocks 26 (see Figure 7). The blocks might be also referred to a slat tilting or oscillating rollers with flattened upper and lower surfaces. Or, they may be simply visualized as blocks with rounded ends forming cams and it will be noted that they are staggered in alternate form and are arranged to coact with the felt or equivalent strip 27 on the reciprocatory slat tilting bar 28. This bar is arranged within the confines of the casing or frame member 16, the same being provided on its intermediate portion with a cylindrical projection 29 which may be conveniently called a shoe. This is connected with a knob 30 through the medium of a reduced shank. The knob is on the exterior of the frame member 16. The shank coacts with the upper and lower portions 31 and 32 of the slot and the shoe coacts with the circular keeper-hole 33 at the exact center of said slot.

Referring now to Figure 10, this in conjunction with Figures 6 and 7, it will be seen that I provide elongated somewhat U-shaped springs 34 having slotted portions 35 mounted by a fastening screw 36 in a depression 37 in the tilting bar. The slotted end portions of the spring are connected at 38 with the adjacent panel or wall of the casing 16.

Returning to Figure 6 of the drawings here we see the combined keeper and shoe element 29 fitted in the keeper hole 33, this is neutral position for the slat tilting knob 30. The springs 34 coact with the bar and knob to hold the parts in this position. It is evident, however, that by pressing the knob 30 inwardly against the tension of the return springs 34, the keeper 29 slips through the hole 33, whereupon the reduced shank or neck may now ride in either the upper or lower portions 31 or 32 of the slot. In either instance this puts the keeper 29 in sliding contact with the inner surface of the casing wall 16 whereupon it acts as a sliding shoe. Moving the knob up or down presses the felt strips 37 against the cams and these in turn are rocked to tilt the slats up or down as desired. It is thus by the guiding function of the keeper 29 and indicator hole 33 and knob 30 that one soon becomes familiar with the "neutral" position as distinguished from the "up" and "down" tilting positions of the slats. This is the aforementioned reciprocatory means, the bar 8 which slides up and down for conversion through the cam blocks 26, to oscillatory or rocking means for the slats 19. It follows, therefore, that on the left-hand side of the frame structure we have means comprising rocker cams and a knob controlled bar for tilting said slats.

We refer now to the means in the frame casing at the right; that is, the casing 15 on the opposite side of the structure. Here, we have housed the coacting weights, cables and pulleys as shown in Figure 5. To begin with, I would direct attention to a long L-shaped cable whose vertical reach 39 is connected by a bracket 40 to the lower end of the link device means 24 in Figure 6. The cable passes up and over a guide pulley 41 and then down over an associated fixed guide pulley 41*a*, where it is connected by the cable-end 42 to a counterweight 43. The companion reach cable 44 is connected by a bracket 45 to the lower end of the link device in the casing 15. The upper end of this cable 44 is trained over a pulley 44*a* and the depending end portion 46 is connected with the counterweight 43. The associated auxiliary controlling and balancing cables are associated with the hand moved companion weight 47. This weight is provided with pulleys 48 and the ends 49 are connected with fixed anchoring brackets 50 (see the upper part of Figure 3), the remaining ends 51 being spliced, as at 52 into the cable-ends 42 and 46. The hand knob on the weight 47, indicated at 53, operates in a slot 54 (see Figure 1). The weight 43 slides up and down on a taut guide or guy wire 55 suitably anchored in the casing 15 as shown to advantage in Figure 2.

In operation it is obvious that weights 43 and 47 act in conjunction with each other as well as with the cables and pulley elements. As both brackets 40 and 45 are attached to the lower ends of the link devices on respective sides, and as these devices are operatively connected with the ends of the slats it is obvious that lifting force is exerted on said link devices by way of the depending cables 39 and 44. These cables are lowered under the force of the downward sliding of the weight 43 on the guy wire 55. To permit this weight to slide down, the operator simply grasps the knob or handle 53 thus pulling down on the weight 47, the shank of the knob riding in the slot in the casing 15. The downward pull of the weight 47 on the cable ends 51 and anchored cable ends 49 obviously exerts pulling force on both of the cable ends 42 and 46. Thus, this down pulling action in conjunction with the gravity lowering motion of the weight 43 serves to lift both depending cables 39 and 44 and consequently the Venetian blind structure as a whole.

It is evident from the description so far that the means depicted in Figure 5 is apparently possessed of novelty. It is thought, too, that the knob controlled shiftable bar 28 (see Figures 6, 7, 10 and 11) is also an ingenious adaptation for tilting Venetian blind slats. In fact, it would appear to be new to provide any sort of link devices at opposite ends of Venetian blind slats to raise and lower the slats and to tiltably support the journals on the slat-ends for rockable oscillation in the link devices. Moreover, and as before explained, it may well be that it is new in this line of endeavor to encase all of the mechanism in the hollow frame members to conceal and protect it and to provide a modernized Venetian blind construction. All of these are features that will now be defined singularly and collectively in the subjoined claims.

A careful consideration of the foregoing description in conjunction with the invention as illustrated in the drawings will enable the reader to obtain a clear understanding and impression of the alleged features of merit and novelty sufficient to clarify the construction of the invention as hereinafter claimed.

Minor changes in shape, size, materials and rearrangement of parts may be resorted to in actual

practice so long as no departure is made from the invention as claimed.

I claim:

1. In a Venetian blind construction of the class described, a marginal frame including hollow vertical frame members having their inner sides slotted, a plurality of coacting slats, said slats having journals at their opposite ends extending through the slots into the interiors of the frame members, means in one frame member for tilting the slats, and means in the other frame member for raising and lowering the slats.

2. In a Venetian blind construction of the class described, a marginal frame including hollow vertical frame members having their inner sides slotted, a plurality of coacting slats, said slats having journals at their opposite ends extending through the slots into the interiors of the frame members, means in one frame member for tilting the slats, and means in the other frame member for raising and lowering the slats, there being an elongated slot in the front face of the lower portion of the secondnamed frame member, a knob on the exterior of said frame member, said knob including a shank and said shank extending into the interior of the frame member by way of said slot and having operating connections with the slat raising and lowering means.

3. In a Venetian blind construction of the class described, a frame comprising hollow casing-like frame members, said frame members having journal accommodating slots in opposed vertical portions, a plurality of parallel slats arranged horizontally between said opposed slotted portions and having journals at opposite ends extending through the slots into the interior regions of the frame members, a link device in each of said opposed frame members, the lower ends of said link devices being connected with the lowermost slats, the upper ends of said link devices being anchored in the frame, the links forming said devices each being apertured proximate the center thereof to provide bearings and said journals being respectively mounted for oscillation in the bearings.

4. In a Venetian blind construction of the class described, a frame including vertical hollow frame members, opposed faces thereof being slotted, slats arranged horizontally between said frame members and having journals on opposite ends extending through the slots into the interior areas of said frame members, vertical link devices, one device being suspended in each frame member, the journals on the ends of said slats being rockably connected with the links of said devices, fixedly mounted pulleys in said frame, cables trained over said pulleys, said cables including depending reaches and the lower ends thereof being secured to the lower ends of the respective link devices, a weight to which corresponding ends of said cables are connected, auxiliary cables connected to the last-named cable-ends, said auxiliary cables being anchored on fixed brackets in the frame, a weight provided with pulleys, said auxiliary cables being trained under said pulleys, said auxiliary weight being provided with a hand knob, and one of said frame members having a slot in which the hand knob is operable.

5. In a Venetian blind construction of the class described, a frame including a vertical frame member in the form of a hollow casing, a plurality of coacting slats, the ends of the slats adjacent said casing being provided with journals and said journals projecting into the casing, cam elements fixedly mounted on the journals, a single shiftable bar coacting with all of said cam elements for rocking same.

6. In a Venetian blind construction of the class described, a frame including a vertical frame member in the form of a hollow casing, a plurality of coacting slats, the ends of the slats adjacent said casing being provided with journals and said journals projecting into the casing, cam elements fixedly mounted on the journals, a single shiftable bar coacting with all of said cam elements for rocking same, a knob for operating said bar, and return springs connected with the bar and an adjacent wall of said casing.

7. In a Venetian blind construction of the class described, a frame including a vertical frame member in the form of a hollow casing, a plurality of coacting slats, the ends of the slats adjacent said casing being provided with journals and said journals projecting into the casing, cam elements fixedly mounted on the journals, a single shiftable bar coacting with all of said cam elements for rocking same, a knob for operating said bar, return springs connected with the bar and an adjacent wall of said casing, said adjacent wall being provided with a slot, and said knob including a portion slidable in said slot.

ALBERT T. CASTILONIA.