May 15, 1951 R. J. CHARBONNEAU 2,552,841

VENETIAN BLIND

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FIG. 1

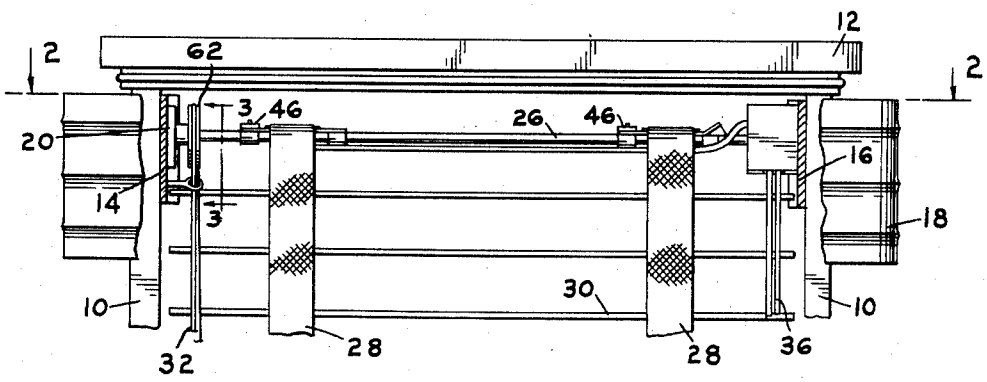


FIG. 2

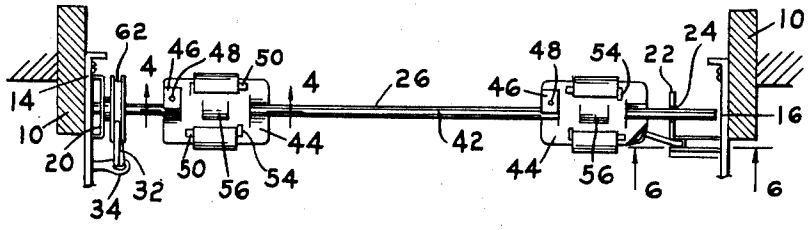
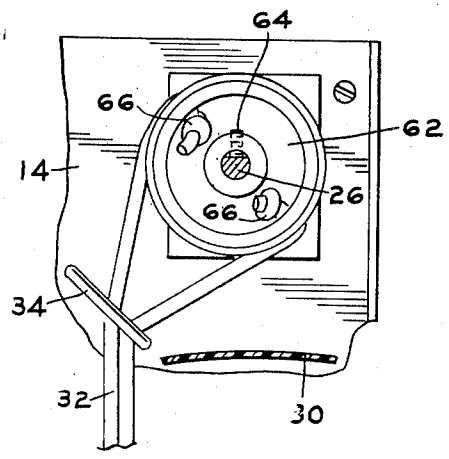


FIG. 3



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FIG. 4

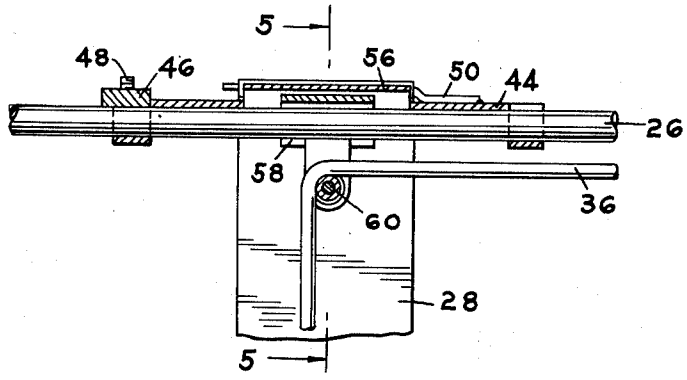


FIG. 5

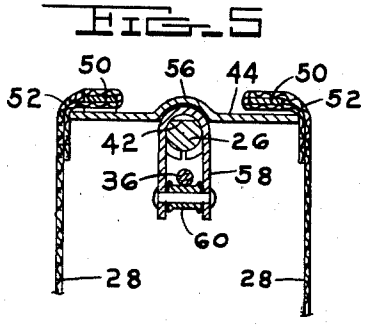


FIG. 6

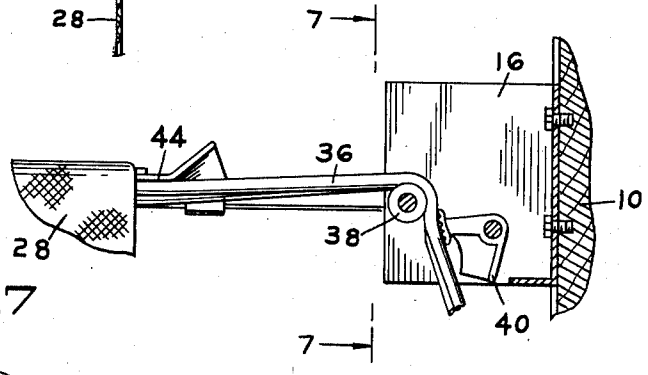
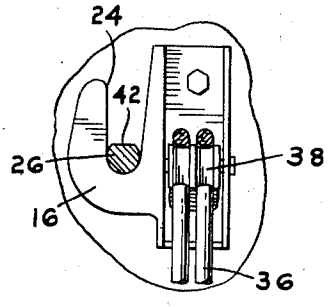


FIG. 7



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Patented May 15, 1951

2,552,841

UNITED STATES PATENT OFFICE

2,552,841

VENETIAN BLIND

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Application February 9, 1949, Serial No. 75,397

2 Claims. (Cl. 160—168)

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This invention relates to improvements in Venetian blinds.

The invention is concerned primarily with Venetian blind operating mechanism having specific reference to the rotatable tilt shaft assembly which includes the shaft itself, the mountings for the ladder-like slat supporting tapes, which mountings are carried by the shaft, the mounting of the lift pulleys over which the lift cords travel, which mounting is coupled with the shaft, and the mountings whereby the tilt cords are connected with the shaft.

An object is to provide a Venetian blind assembly of the character described which is simple, inexpensive, employs a minimum number of parts, is of a strong and rugged construction, may be quickly mounted in position or removed therefrom, and is easy to operate.

My improved Venetian blind assembly eliminates the conventional head rail which normally carries the lift pulleys over which the lift cords pass. It eliminates the conventional cylindrical rollers to which the slat carrying ladder-like tapes are normally connected.

An object of my invention is the provision of an improved Venetian blind sub-assembly which consists of a rotatably supported shaft having flat plates mounted thereon to which plates the slat carrying tapes are connected and having lift pulleys mounted thereon in association with the plates which lift pulleys have limited swingable movement about the shaft and limited movement lengthwise over the shaft between the ends of the plates. My tilt cords are so coupled with the shaft that a small amount of movement of the cords are sufficient to tilt the shaft to shift the slats from the open to the closed position and vice versa.

Other objects, advantages, and meritorious features of the invention will more fully appear from the following specification, claims and accompanying drawings, wherein:

Fig. 1 is a front elevation, partly broken away, of the Venetian blind assembly embodying my invention and mounted within a window opening;

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

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

Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 2;

Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 4;

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Fig. 6 is a sectional view taken on the line 6—6 of Fig. 2; and

Fig. 7 is a sectional view taken on the line 7—7 of Fig. 6.

In the drawing, a window opening is indicated in Figs. 1 and 2 as defined by a pair of upright jamb members 10 surmounted by a header member 12. My Venetian blind assembly is shown as supported by a pair of end brackets 14 and 16 secured by screws or the like to the jamb members 10. To finish off the assembly I provide a cornice board 18 which may be supported by the brackets in any suitable manner. The cornice board and its support forms no part of this invention.

The bracket 14 is provided with a part 20 adapted to serve as a support for one end of the tilt shaft assembly hereinafter described. The bracket 16 is bent into angular and channel form and is provided with a portion 22 which is notched as at 24 to provide a seat for one end of the tilt shaft. One end of the tilt shaft may, therefore, be inserted through an opening in the bearing member 20 of the bracket 14 and the opposite end of the tilt shaft may be dropped into the notch 24 of the bracket 16. The tilt shaft proper is indicated as 26.

The complete Venetian blind assembly includes the usual slat supporting tapes 28 which carry slats 30. The tapes are in the conventional ladder-like construction whereby the slats are supported therebetween. A tilt cord 32 is provided and coupled with the shaft in a manner hereinafter described to oscillate the shaft to tilt the slats. This tilt cord extends through an eye 34 carried by the bracket 14. Lift cords 36 are provided and connected in the usual manner with the slats to lift the same. These lift cords extend over a pulley 38 carried by bracket 16 and are held at adjusted positions by a swingable dog 40. This structure is conventional.

My invention pertains particularly to the tilt shaft assembly which includes the tilt shaft 26 heretofore referred to and the parts associated therewith. This tilt shaft is flatted lengthwise along its upper face as at 42 as shown in Figs. 2 and 5. A pair of flat metal plates 44 are mounted upon the shaft 26 to rotate therewith. These plates are spaced apart upon the shaft and spaced from the ends thereof. Each plate is cut out as shown in Figs. 2, 4 and 5 so as to be engaged with the shaft to rotate with the shaft but to expose a portion of the shaft below the plate as illustrated particularly in Fig. 4. Each plate has a securing part 46 held thereto by a screw 48,

Figs. 2 and 4, and which is adapted to engage the flat side 42 of the shaft 26 to hold the plate to rotate with the shaft. The plates are adjustable lengthwise upon the shaft. The screws may be tightened down at any time to secure the plates to the shaft.

Each plate is provided with a pair of tape securing fingers 50 to which the looped ends of the tapes 30 are adapted to be fastened, as shown in Fig. 5. The looped ends of the tapes are indicated by the numeral 52 in Fig. 5. Each finger projects upwardly spaced above the plate as shown in Fig. 4 and extends lengthwise of the shaft and is provided at its free end with an angular lug 54, as shown in Fig. 2, which serves to retain the tape thereon when the tape has been passed over the finger.

Each plate is bumped up intermediate its ends as at 56 to expose therebelow a portion of the shaft between the ends of the plate as particularly shown in Figs. 4 and 5. A pulley frame 58 is mounted upon this exposed portion of the shaft. This pulley frame carries a pulley roller 60 as shown in Fig. 5. Such pulley is mounted upon the exposed portion of the shaft to have permitted swingable oscillation rotatably of the shaft as limited by the plate. Such pulley is mounted upon the shaft so as to have limited lengthwise movement over the shaft between the ends of the plate. This limited swingable movement of the pulleys permits them to hang vertically at any position of tilt of the shaft. The limited lengthwise play of the pulleys over the shaft limits them to accommodate themselves so that the lift cords will at all times extend vertically in the raising and lowering of the blind slats.

In order to tilt the shaft assembly there is mounted upon the shaft 26 a grooved pulley 62. This pulley 62 is secured to the shaft by means of a screw 64 which engages the flat side of the shaft as shown in Fig. 3. This pulley is provided with a peripheral groove as shown. The opposite ends of the tilt cord extend through the groove in the pulley and are anchored to the pulley as shown in Fig. 3 as at 66, diametrically opposite each other whereby the pulleys and consequently the shaft may be rotated in either direction by pulling one or the other of these tilt cords. Each cord is adapted to swing the pulley through substantially one half of a complete revolution at which point the cord arrives at the bottom of the arc of rotation of the pulley and further movement stops. A very small amount of movement, therefore, is sufficient to tilt the slats from an open to a closed position and vice versa.

This tilt shaft assembly is of simple construction and all the parts are mounted on the shaft. The pulleys are so associated with the tape carrying plates that the lift cords always operate along a vertical line with a small amount of effort being required to actuate them to raise the slats. The pulleys accommodate themselves to hang vertically at any tilted position of the shaft.

What I claim is:

1. In a Venetian blind, a shaft rotatably supported for oscillation, a pair of flat plates mounted upon the shaft to oscillate therewith, each plate having a pair of tape anchoring fingers extending lengthwise thereof upon opposite sides of the shaft, a pair of slat supporting tapes, a plurality of slats supported upon the tapes, said pair of tapes connected at their ends to the two tape anchoring fingers of the two plates for tilting of the slats upon rotatable oscillation of the shaft, each plate having a part intermediate its ends bumped out of the plane of the plate spaced above the shaft exposing that portion of the shaft below said bumped out portion, a pair of lift pulleys one for each plate, each lift pulley comprising a U-shaped frame supporting a pulley wheel between its two arms, the U-frame of each pulley looped over the shaft below the bumped out portion of a plate for swingable movement about the shaft, the U-frame of each pulley having a width less than the length of the bumped out portion of the plate whereby said pulley frame has permitted slidable adjustment lengthwise over the shaft underneath the bumped out portion of the plate and lift cords extending over the pulleys and downwardly through the slats connected therewith to lift the slats.

2. A Venetian blind assembly of the character defined in claim numbered 1 characterized in that the shaft is flatted on one side extending lengthwise thereof and each plate has a portion adjacent each end offset laterally, the plane of the plate forming end seats for the shaft and each plate has the portion between said end seats offset, the plane of the plate in the opposite direction forming an intermediate seat for the shaft, said intermediate offset portion having a part offset to a greater extent and constituting said bumped out portion spaced above the shaft.

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