July 11, 1939. W. WADE 2,165,669

SHADE

Filed Aug. 27, 1937 2 Sheets-Sheet 1

Fig. 1.

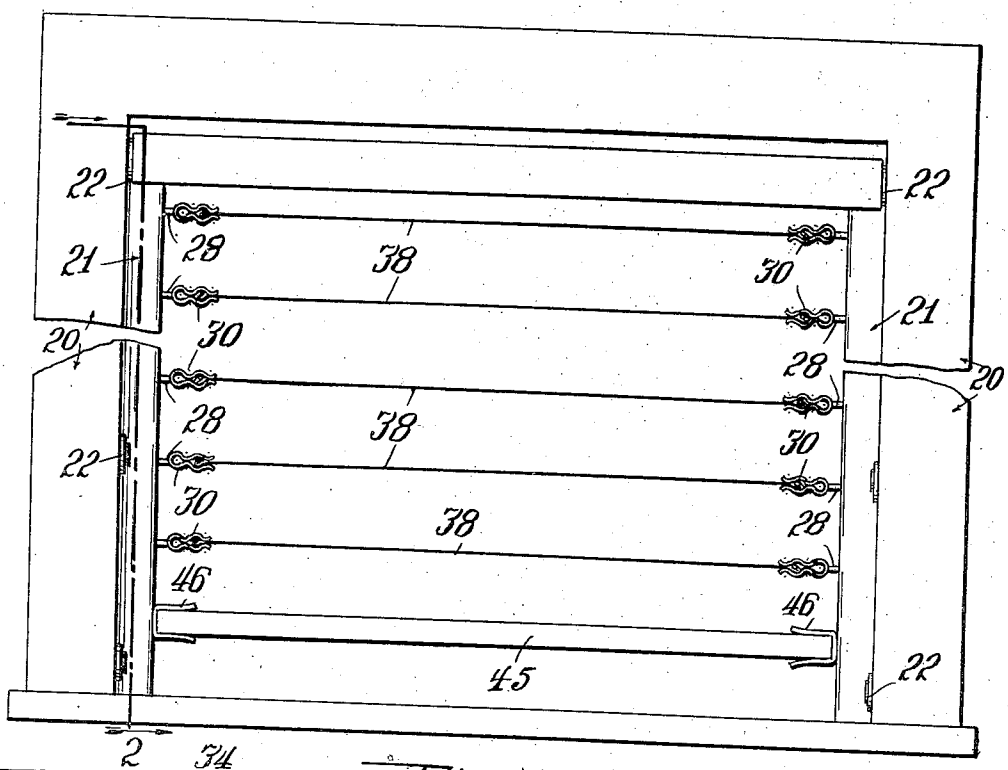


Fig. 6.

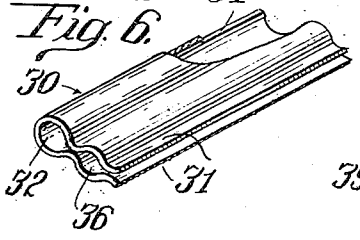


Fig. 7

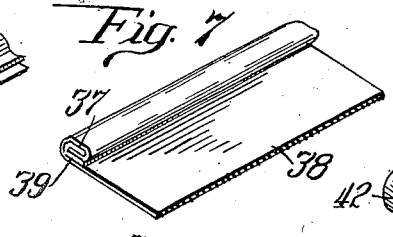


Fig. 10.

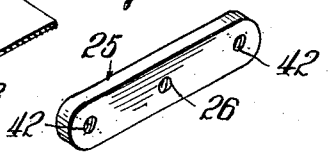


Fig. 9.

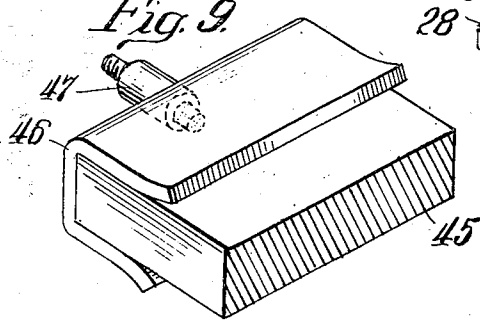


Fig. 8.

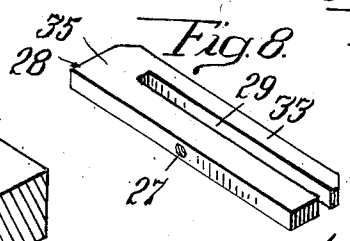


Fig. 11.



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SHADE

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Fig. 2.

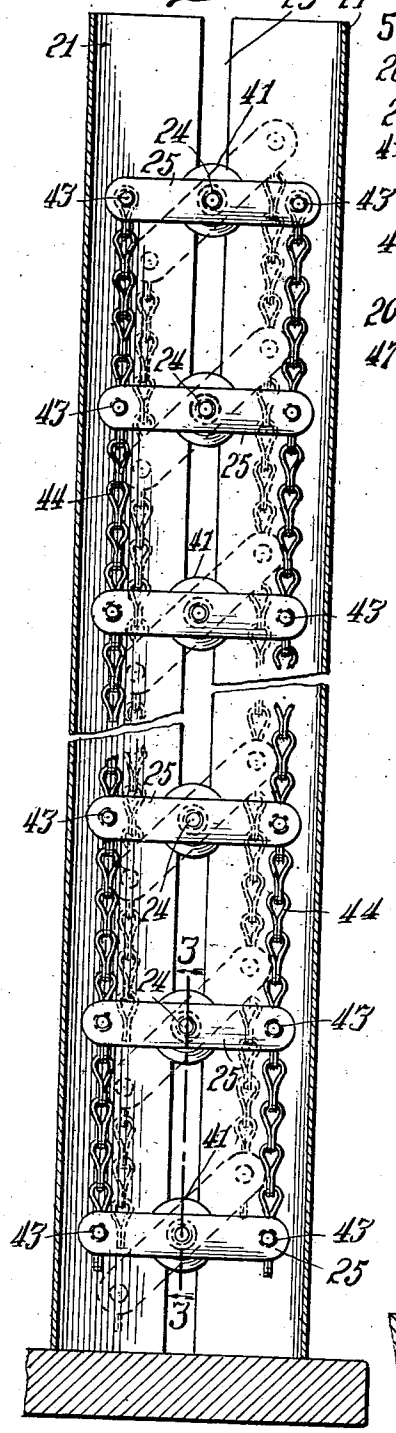


Fig. 3.

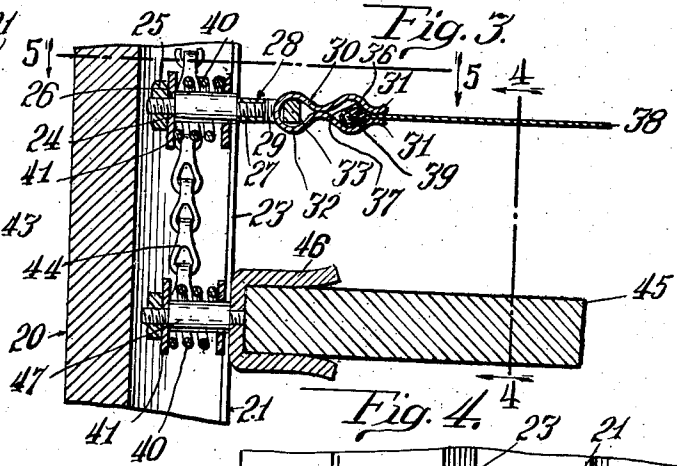


Fig. 4.

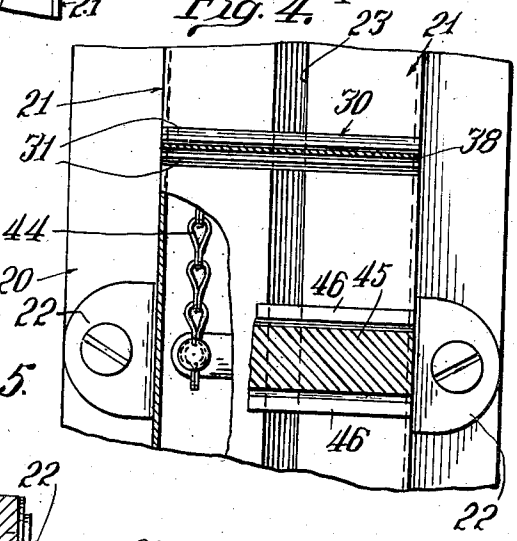
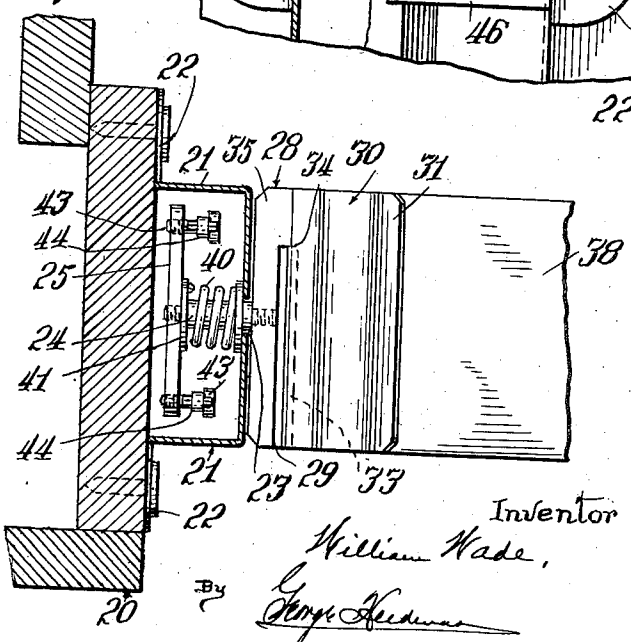


Fig. 5.



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2,165,669

UNITED STATES PATENT OFFICE

2,165,669

SHADE

William Wade, Chicago, Ill.

Application August 27, 1937, Serial No. 161,290

7 Claims. (Cl. 156—17)

My invention relates to shades for windows and the like and has for its object the provision of a shade composed of a preselected number of sections independently and removably secured in place so as to permit the respective shade sections to tilt about horizontally disposed axes; the mounting of the respective sections involving means whereby said tilting action is not only made possible but the respective shade sections made to tilt in unison about the horizontally disposed axes and a maximum spaced relation between the shade sections maintained, while also permitting vertical movement of all the sections toward the top or toward the lower part of the window frame.

The invention involves means whereby the respective shade sections, which may be made of usual shade cloth or other flexible or suitable fabric, with the lower or master rail or strip made of rigid material, may be independently removed and replaced without in any way dismounting or interfering with the shade mounting mechanism or elements.

The invention, its purposes and advantages will all be readily comprehended from the detailed description of the accompanying drawings, wherein:

Figure 1 illustrates, in elevation, the application of my improved shade to a window opening with intermediate portions of the window frame and shade broken away.

Figure 2 is a vertical sectional view, taken substantially on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a sectional view taken on the line 4—4 of Figure 3 as viewed by the arrows.

Figure 5 is a sectional view taken substantially on the line 5—5 of Figure 3 looking in the direction of the arrows.

Figure 6 is a perspective view of one of the shade section holding clips.

Figure 7 is a perspective view of an end portion of a shade strip.

Figure 8 is a perspective view of the clip holding element.

Figure 9 is a perspective view of one end of the bottom strip or rail of the shade and its holding clip.

Figure 10 is a perspective view of one of the cross-arms employed in conjunction with each strip.

Figure 11 is a detail perspective view of the trunnion members for the cross bar.

My invention contemplates the provision of suitable housings or channels adapted to be secured to the sides 20 of the window-frame on the room side of the window-sash and to extend throughout the heighth of the window. In order to enable easy application to window-frames the housings in the particular exemplification of the invention are shown consisting of metallic strips 21, 21 of angle formation in cross section, see Figure 5, with attaching flanges or lobes whereby the respective strips may be secured to the window-frame as indicated at 22 in Figure 5. These strips are secured to the window frame to provide a vertical slotway 23, at each side of the window, extending substantially throughout the heighth of the window-frame for the purpose of receiving one of the reduced ends of the trunnion members 24 shown in detail in Figure 11. The body portions of the trunnion members 24 are of dimensions larger than the width of the slot so as to maintain the trunnions within the channels of the housings. One of these trunnion members is employed for each end of each shade strip or section. The other end of each trunnion member 24 is adapted to have a cross-bar or arm 25 firmly secured thereto to cause the trunnions and the cross-bars to rotate together; the inner end of the trunnion member being secured in the opening 26 of the cross-bar 25. This operative relation between cross-bars and trunnions may be accomplished either by threading the reduced ends of the trunnions and providing the cross-bars with tapped openings, or the reduced ends of the trunnions may be forced into openings in the cross-bars.

The outer reduced end of each trunnion member 24, namely the end which extends through the slotway 23, is intended to operatively fit into an aperture 27 formed in the side of a clip-holding element 28, shown in detail in Figure 8; the relation between the trunnions and the clip holding elements 28 also being such that the trunnions and clip-holding elements will oscillate or rotate together.

It will be understood that a similar clip element 28 is secured to each trunnion and therefore a clip element 28 will be arranged in each channel at opposite sides of the window-opening.

The clip holding elements 28 are slotted at 29 as shown in Figure 8, for the purpose of receiving a shade section or strip holding clip 30, which is preferably made of resilient sheet metal and of the construction shown in detail in Figure 6.

These clip elements preferably each consist of sheet metal folded upon itself lengthwise to pro-

vide the two portions or jaws 31 and these jaws are formed to provide a socket 32 along the closed longitudinal side of the clip for the reception of the prong or bifurcation 33 of the clip-holding element 28; and in order that the clip may completely slide onto or telescope with the holding element 28, the rear or closed longitudinal side of the clip 30, at one end, is slotted at 34 a distance commensurate with the non-slit portion or solid end 35 of the clip-holding element 28. The forward or open ends of the jaws of clip 30 are also preferably formed to provide a socket or longitudinal channel 36 intended to receive the rolled or beaded portion 37 of the shade strip 38, see Figure 7.

The shade strip 38 may be made of opaque shade cloth or any suitable fabric, and in order to obtain a suitable bead to ensure proper gripping on the part of the clips 30, the immediate ends of the strips of shade material may be provided with thin metallic U-shape binding strip 39, see Figure 7. After the ends of the strips of shade cloth have been provided with the binding strip 39, the ends with the binding strips are rolled upon themselves, as shown in Figure 7, to provide the beaded portion 37 which is then inserted endwisely into the groove 36 of each clip 30; the insertion being made from one end of the clip to allow the shade strip 38 to extend through the open jaws of the clip member 30, as shown in Figure 5.

After each end of the shade strip 38 has been beaded as heretofore described and the bead inserted into a clip 30, the clips are then inserted onto the prongs 33 of the holding members at opposite sides of the window opening; the insertion of the clips being made with the slot 34 of each clip disposed toward the clip-holding element 28. The shade-strips, which initially are of length approximating the distance between the clip-holding elements 28 at opposite sides of the window opening, will be firmly and at the same time removably held in place; the shade-strips or sections being so held that they may be separately removed and replaced.

In order to maintain the shade-strips taut and also to frictionally hold each clip-holding element in its adjusted positions, the trunnions 24 located within the housings or channels, formed by angle strips 21, 21 at opposite sides of the window, are provided with suitable tension producing elements which may be in the nature of the coil springs 40 arranged around the trunnions 24, as shown in Figure 5; or any other suitable method may be employed for placing the clip holding members under tension and provide holding relation with the inside of the strips 21 of the housings. To enable the trunnions to be easily rotated, the reduced ends of the trunnion members 24 are shown provided with washers 41, the one bearing against the cross-bar 25 and the other bearing against the inner sides of the supporting frame members 21, 21 which constitute the housing or channel. It is apparent that the springs at opposite ends of each shade-strip or section tend to pull the holding members 28 toward opposite sides of the window-frame and hence will maintain the shade-strips taut and will also frictionally hold the members 28 with the shade-strips or sections in their adjusted positions.

The cross-bars 25, at their ends, are shown provided with suitable openings 42, 42 intended to receive pins 43, 43 to which suitable chains 44 are attached; the chain-links being such that free rotative movement between the pins and the chains is possible. The chains 44 may be continuous from top to bottom with correspondingly spaced links thereof secured to the pins 43 of the respective cross-bars or arms so that the respective cross-arms and associated elements, together with the shade-strips, may be equally spaced apart vertically commensurate with the width of the shade strips 38 so as to permit the shade-strips or sections to be tilted into substantially vertical position and slight lapping relation with each other when it is desired to make a complete closure of the shade.

One of the shade-sections, preferably the bottom section 45, is made of rigid material such as wood. This section or heavy slat 45 is also removably held at its ends by clip members 46, one at each end. These members 46 each have a projection or joural 47 (which may be similar to journal or trunnion members 24) which extends through the slot-way 23 into the housing, with the inner end provided with an enlargement or washer 41, like in the previously described trunnions and a washer 41 adjacent the housing forming strips 21, 21, with a coil spring 40 disposed about the trunnion or journal 47 and between the washers 41, 41, so as to induce frictional holding relation between the bottom section or slat 45 and the housing or holding frame members 21, 21. The inner ends of the journals or trunnions 47 also are provided with cross-bars or arms 25 to which the lower ends of the chains 44 are secured in any suitable manner so that when the slat—or master strip—is rotated about its horizontal axis, namely on the journals or trunnions 47, the chains 44 will cause all of the cross-arms 25 thereabove to be oscillated and their respective members 28 with attached shade-strips 38 to be likewise rotated or tilted.

The operation of the sectional shade is entirely accomplished through manipulation of the bottom rail or master strip 45; the tilted position of the respective sections bein maintained by the pressure of the springs as heretofore described.

When it is desired to raise the shade, the operator grasps the bottom rail and turns it into horizontal position which likewise positions the upper shade-sections and the cross arms. The bottom rail is then forced upwardly causing its trunnions to slide upwardly in the slotways 23 of the housings, causing the succeeding shade-strips or sections to pile up on the bottom rail or master strip 45. The various shade-strips or sections are all returned to their normal positions and spacing by pulling the master strip or bottom rail downwardly until the slack in the chains or flexible element is taken up.

What I claim is:

1. A shade of the character described comprising a plurality of shade-strips of preselected length and width and having beaded ends; shade-strip holding and controlling mechanism composed of a portion provided with an open-ended slotway adapted to edgewisely receive the beaded ends of the shade-strips and a second portion involving horizontally disposed trunnions with laterally disposed arms secured thereto; supporting frames adapted to be secured to the side frames of a window to provide a housing for said second portion of the mechanism and having vertically disposed slots adapted to receive the trunnions of said mechanism; and means associated with said arms whereby all of the mechanisms located at the same side of the window are yieldingly connected together to cause simultaneous rotation of all of the shade-strips.

2. A shade of the character described comprising supporting members adapted to be secured to the sides of the window-frame to provide a vertical slotway at each side of the window; a plurality of holding members provided with laterally disposed trunnions extending into the slotways; a plurality of shade-strips of predetermined width; clip members removably secured to the holding members and adapted to edgewisely receive the ends of the shade-strips and thereby effect interengaging relation therewith; means whereby the holding members are yieldingly held in frictional relation with said supporting members and the shade-strips thereby held taut; and means involving a yielding element operatively associated with the trunnions of the holding members whereby all of said members may be tilted in unison.

3. A shade of the character described comprising supporting members adapted to be secured to the sides of a window-frame to provide vertically disposed slotways; a plurality of shade-strips and a bottom rail all of predetermined width; holding members provided with trunnions rotatably and slidably arranged in said slideways; yielding means whereby the holding members are frictionally held in their adjusted positions; clip members adapted to receive the ends of the shade-strips and of the bottom rail and to slidingly engage the holding members; and yielding means arranged in said slideways and connected with the holding members whereby rotative movement of said bottom rail will cause similar rotative movement of all of the shade-strips.

4. A shade of the character described comprising supporting members adapted to be secured to the sides of a window-frame to provide vertically disposed slideways; a plurality of shade-strips of flexible material and a rigid bottom rail, the strips and the bottom rail being of predetermined width; holding members provided with trunnions rotatably and slidably arranged in the slideways; springs disposed about the trunnions whereby the holding members are drawn toward the slideways and said holding members frictionally held in adjusted positions; clips for gripping the ends of the shade-strips and adapted to slide onto the holding members and to move therewith; a rigid bottom rail removably secured to the lowermost pair of holding members; and chains arranged in the slideways and operatively associated with the trunnions of all of the holding members whereby the maximum spaced relation between the holding members is determined and tilting of the bottom rail induce similar tilting of the shade-strips.

5. A shade of the character described comprising a plurality of shade-strips of preselected length and width, the opposite ends of the strips being formed to provide relatively thicker or beaded ends; clip members transversely slotted from end to end to edgewisely receive the beaded ends of the shade-strips and permit the shade-strips independently to be edgewisely slid out of holding engagement with the clips, the clip members being provided with trunnion forming portions provided with laterally disposed extensions; control elements connected with said laterally disposed extensions whereby tilting of one shade-strip will induce a similar tilt of all of the shade-strips; and means whereby the clips with the shade strips are placed under tension and frictionally held in their adjusted positions.

6. A shade of the character described comprising, in combination with channel forming members adapted to be secured to the side rails of a window-frame, said members being formed to provide vertically disposed slots; a plurality of shade-strips having enlarged or beaded ends; clip members each formed to provide a transverse slot adapted to edgewisely and slidably receive the enlarged or beaded end of the shade-strip, the rear longitudinal edge of the clip member being provided with a trunnion disposed through said vertical slot into the channel formed by said channel forming members, the inner end of said trunnion having laterally disposed arms; means operatively associated with the trunnion and said arms whereby the clip member is frictionally held in its adjusted position and the shade-strip held taut.

7. In a shade of the character described, a plurality of shade-strips of preselected length and width, the ends whereof are provided with binding strips; clip members open at one longitudinal side and at an end to edgewisely receive the ends of the shade-strips with said binding strips to effect holding relation therewith, while the other longitudinal side of each clip member is provided with a trunnion forming portion; a cross-arm secured to said trunnion forming portion; and a spring element mounted on said trunnion forming portion whereby the shade-strips are placed under tension and held in their adjusted positions.

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