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(54) Operating wand for venetian blinds

(57) An operating wand (10) has a handle (20), an upper rod (40) connected by an intermediate rod (30) having one end pivotably attached to the upper end of the handle (20) and the opposite end pivotably attached to the lower end of the upper rod (40). A sleeve (12) slides along the upper rod between a first position and a second position. When in the first position the sleeve (12) covers a portion of the upper rod (40), the handle (20), and the intermediate rod (30), keeping the handle (20), intermediate rod (30) and upper rod (40) in a co-linear alignment. When the sleeve (12) is in the second position, the handle and intermediate rod are fully exposed allowing the intermediate rod to be moved relative to the handle and the upper rod so that the intermediate rod is normal to the handle and normal to the upper rod. With the sleeve in the second position the wand (10) can be operated like a crank.

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Fig. 2

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Description

Field of Invention

The invention relates to venetian blinds and wands used to operate the tilt mechanism in a venetian blind.

Background of the Invention

Venetian blinds are popular window coverings. This type of blind has a series of slats hung on ladders that extend between a headrail and a bottom rail. The slats can be tilted by moving the rungs of the ladders in opposite directions. Typically, the upper end of each ladder is attached to a drum. The drum for each ladder is on a common axle. Consequently, the slats can be tilted by turning the axle clockwise or counter clockwise. This drum and axle together with any gears that may be coupled to the axle is called the tilt mechanism or tilter.

The tilt mechanism could be operated by a motor but typically is manually controlled. One type of manual control is a cord loop that engages a wheel connected to the axle. A second manual control is a wand that is connected to the axle, typically by a universal joint and one or more gears. Because of child safety concerns, loop drive systems are disfavored. One could substitute two pull cords for the cord loop and some manufacturers have done this. But, a two pull cord system is more expensive and difficult to make than a cord loop. Of even more concern is that users tend to mistake the pull cords that operate the tilter for the lift cords that raise and lower the blinds. No such confusion occurs when a rod or wand is used to operate the tilter.

To operate a tilter using a wand, the operator must grasp the wand and rotate the wand about an longitudinal axis. Some people, particularly people who have arthritis in their hands, have difficulty grasping and rotating a rod. The art has developed a variety of wands which can be rotated by moving an outer sleeve up and down a central rod whose upper end is attached to the tilt mechanism. The central rod is threaded. Those threads engage threads on the inside of the sleeve. Consequently, movement of the sleeve along the rod will cause the rod to rotate. Examples of this type of tilt wand can be found in United States Patent Nos. 6,089,303 and 6,298,897. One problem with this type of wand is that the sleeve must be moved up and down several times to move the slats from a closed position to an open position and from an open position to a closed position.

Some vertical venetian blinds have a single control which rotates the vanes and moves the vanes across the headrail. Commonly, this type of control has a cord loop. Pulling one side of the cord loop of an extended open blind with vanes perpendicular to the window initially rotates the vanes while continued pulling causes the vanes to move along the headrail. Pulling the opposite side of the loop initially rotates the vanes in an opposite direction. Continued pulling will move the vanes along the headrail in an opposite direction. This same action can be achieved in a horizontal blind using a control system in which the drums for the ladders and the spools on which lift cords are wound are all on a single axle. That axle is then operated by a cord loop as in the vertical blind. A wand or crank could be substituted for the cord loop. Because many rotations of the wand or crank are needed to raise the blind, a crank is much easier to operate than a wand.

Consequently, there is a need for an operating wand for a venetian blind tilt mechanism, or for a combination tilt and lift cord control device which is easy to operate by any user, even if the person has arthritis in his or her hand.

Summary of the Invention

We provide an operating wand having a handle and an upper rod connected by an intermediate rod having one end pivotally attached to the upper end of the handle and the opposite end pivotally attached to the lower end of the upper rod. A sleeve slides along the upper rod between a first position to a second position. When in the first position the sleeve covers a portion of the upper rod, the handle, and the intermediate rod, keeping the handle, intermediate rod and upper rod in a co-linear alignment. When the sleeve is in the second position, the handle and intermediate rod are fully exposed allowing the intermediate rod to be moved relative to the handle and the upper rod so that the intermediate rod is normal to the handle and normal to the upper rod. The wand can be attached to the tilt mechanism, the lift mechanism or a combination tilt and lift mechanism of a venetian blind. When the wand is in the first position with the sleeve covering the handle and the intermediate rod, turning the sleeve will turn the upper rod. With the sleeve in the second position the wand can be operated like a crank.

In a present preferred embodiment the upper portion of the handle has a hex shaped portion that fits into a hex shaped bore in the sleeve when the sleeve covers the intermediate rod and handle. Consequently, when the sleeve is turned the entire wand will rotate in the same direction. The handle may be configured so that the sleeve will rest upon a shoulder at the base of the handle. In another embodiment the handle has a central rod extending from the hex portion and a sleeve that fits over the central rod and rotates freely around the rod.

Other objects and advantages of the present invention will become apparent from the detailed description of certain present preferred embodiments shown in the drawings.

Description of the Figures

Figure 1 is a perspective view of a venetian blind
having an operating wand in accordance with the present invention.

Figure 2 is a perspective view of the operating wand in the venetian blind of claim 1 wherein the sleeve is in a first position.

Figure 3 is a perspective view similar to Figure 2 wherein the sleeve has been raised to a second position.

Figure 4 is a perspective view similar to Figure 3 wherein the handle of the operating wand is parallel to the upper rod portion of the operating wand and the wand is operable by a cranking motion.

Figure 5 is an enlarged view of the joint between the handle and the intermediate rod.

Figure 6 is a sectional view taken along the line VI-VI in Figure 2.

Figure 7 is a perspective view of a second present preferred handle that can be used in the operating wand of the present invention.

Description of the Preferred Embodiments

[0011] A venetian blind 1 shown in Figure 1, has a headrail 2, a bottomrail 4 and a series of slats or vanes 6 hung on ladders 8 extending between the headrail and the bottomrail. The upper ends of the ladders are connected to a tilt mechanism (not shown) within the headrail 2. The tilt mechanism alone may be operated by rotation of operating wand 10. In a present preferred venetian blind the drums to which the ladders are attached and the spools on which the lift cords are wound and unwound are on a common axle. Rotation of the wand in either direction initially tilts the slats while continued rotation raises or lowers the blind.

[0012] A present preferred operating wand 10 has two operating configurations. The first configuration is shown in Figures 1 and 2 and the second operating position is shown in Figure 4. When the operating wand is in the first configuration of Figures 1 and 2 the rod is turned by grasping and rotating the sleeve 12 which is now located at the lower end of the operating wand 10. When the wand 10 is configured as in Figure 4, the wand is turned using handle 20 as one would operate a crank. This cranking action is easier for people who suffer arthritis of the hand than rotating the wand as configured in Figures 1 and 2. But, the configuration in Figure 4 is not as sleek as the configuration of Figures 1 and 2 and will more readily become caught in drapery or furniture that is near the blind. In those blinds where a single wand is used to control both tilt and lift cords, some customers may choose to use the configuration of Figure 4 to raise and lower the blind because several rotations are required. Yet, those same customers may choose to use the configuration of Figures 1 and 2 to change the tilt of the slats or vanes because a partial turn or a few rotations is all that is needed to change the tilt of the slats to a desired position.

[0013] The present preferred construction of the operating wand 10 can be seen most clearly in Figures 3 through 6. A handle 20 has a cylindrical body 21 of a selected diameter with base 21 of slightly larger diameter which provides a shoulder 23. The upper end of the handle 20 has a device 24 whose base 27 is a hex nut. The base may be attached to or formed as part of the handle 20. Arms define an opening which receives the first end 31 of the intermediate rod 30. Pin 36 secures the intermediate rod 30 to the clevice 24 to provide a pivoting joint. One could use other structures for each pivoting joint, such as a hinge having two leaves and a pivot pin similar to a door hinge.

[0014] Upper rod 40 has a connector 41 at its upper end which engages a universal joint in the headrail. The lower end of the upper rod has a clevice 42 which receives the second end 34 of the intermediate rod.

[0015] We prefer to provide a lock which will retain the intermediate rod in a position normal to the handle and normal to the upper rod as shown in Figure 4. This lock could be a hemispherical projection 35 on each end of the intermediate rod which is adjacent the clevice arms when the operating wand is in the crank position shown in Figure 5. Another possibility is to provide a slot (not shown) on the inside surface of one clevice arm which receives end 31 of the intermediate rod when the intermediate rod is positioned as in Figures 4 and 5. A spring provided between the opposite arm of the clevice and the end of the intermediate rod would push the end into the slot. Yet another type of lock could be mating crown gears on the inside surface and the end of a clevice arm of the intermediate rod. Other locking structures known in the art could also be used.

[0016] In the operating configuration shown in Figure 4, the intermediate rod is at right angles to the upper end and the handle. Although this is the preferred angle other angles less than 90°, such as 45°, could be provided. Moreover, the two angles may be different. Such other angles can be chosen so that the upper rod, intermediate rod and handle will not be co-linear and the operating wand can be operated as a crank.

[0017] When the upper rod 40, intermediate rod 30 and handle 20 are co-linear as in Figures 1, 2 and 3, and hanging from a blind, sleeve 12 rests on the shoulder 23. The sleeve covers the handle, intermediate rod and a portion of the upper rod. A portion of sleeve 12 will encircle the hex base 27. As can be seen in Figure 6, the bore 16 of that portion of the sleeve has a hexagon cross-section so that the sleeve engages the base 27. Consequently, rotation of the sleeve in either direction will rotate the handle 20, intermediate rod 30 and upper rod 40 in the same direction. While we prefer that the shape of the base 27 and bore 16 be a hexagon, the cross-section could be any noncircular shape including any polygon as well as an oval. Of course, polygon cross-sections with more than eight sides are more likely to slip than those with fewer sides. If desired, bore 16 could be configured to provide a shoulder which rests on the hex base 27 when the sleeve is positioned as in Fig-
ures 1 and 2. In that event, the sleeve may not rest on shoulder 23 of handle 20.

[0018] If the sleeve 12 is designed to rest on the hex base 27 rather than a shoulder 23 near the base of the handle, one could use the handle shown in Figure 7. This handle 50 has a similar clevice 51 with a hex base 52. A cylindrical shaft 54 extends from the base 52. A sleeve 56 is provided on the tubular shaft 54 and is free to rotate around the shaft.

[0019] The operating wand 10 could be made of metal or plastic. In a present preferred embodiment, sleeves 12 and 56 are plastic and the remaining parts are metal. We prefer to make the upper rod of aluminum, while the intermediate rod and handle are stainless steel. Each of the upper rod, intermediate rod and handle could be multi-piece structures. Indeed, the upper rod could be configured to separate in the middle to allow insertion of an extension segment to length the upper rod. Or, the rod could be configured to enable attachment of an extension segment to either end. Additionally, the upper rod could be a telescoping rod.

[0020] Although we have described and illustrated the operating wand in combination with a venetian blind, its use is not so limited. The operating wand could be used for awnings, skylights, and any other device which is manually operated by rotation of a rod that extends beyond the reach of the user.

[0021] While we have described and illustrated certain present preferred embodiments of our operating wand alone and in combination with a venetian blind, it is to be distinctly understood that our invention is not so limited and may be variously embodied within the scope of the following claims:

Claims

1. An operating wand comprising:

   a handle having an upper end and a lower end;
   an upper rod having an upper end and a lower end;
   an intermediate rod having a first end and a second end, the first end pivotably attached to the upper end of the handle and the second end pivotably attached to the lower end of the upper rod; and
   a sleeve on at least a portion of the upper rod, the sleeve sized to cover the handle, intermediate rod and a lower portion of the upper rod, keeping the handle, intermediate rod and upper rod in a co-linear alignment, when the sleeve is in a first position, the sleeve capable of being slid up the upper rod to a second position allowing the intermediate rod to be moved relative to the handle and the upper rod so that the intermediate rod is not co-linear with the handle and not co-linear with the upper rod.

2. The wand of claim 1 wherein the intermediate rod is attached to the handle by a first clevice and the intermediate rod is attached to the upper rod by a second clevice.

3. The wand of claim 1 wherein a portion of the handle is configured to have a portion having a cross-section which is non-circular and the sleeve has a bore having a mating portion having a cross-section which is a mating non-circular shape, such that when the mating portion of the sleeve is aligned with the portion of the handle having the non-circular cross-section, rotation of the sleeve will rotate the handle.

4. The wand of claim 3 wherein the non-circular cross-section is a polygon.

5. The wand of claim 4 wherein the polygon is a hexagon.

6. The wand of claim 1 also comprising a first lock member at the first end of the intermediate rod, the lock member retaining the intermediate rod in a position normal to the handle when the lock mechanism is engaged.

7. The wand of claim 1 also comprising a second lock member at the second end of the intermediate rod, the lock member retaining the intermediate rod in a position normal to the upper rod when the lock member is engaged.

8. The wand of claim 1 wherein the handle, intermediate rod, upper rod and sleeve are metal or plastic.

9. The wand of claim 1 also comprising a hemispherical projection on at least one of the first end and the second end of the intermediate rod.

10. The wand of claim 1 also comprising a connector attached to the upper end of the upper rod.

11. The wand of claim 1 wherein the intermediate rod can be moved to a position normal to the handle and normal to the upper rod when the sleeve is in the second position.

12. An improved blind of the type having a plurality of vanes or slats manually operated by a tilt mechanism wherein the improvement comprising an operating wand connected to the tilt mechanism, the operating wand comprising:

   a handle having an upper end and a lower end;
   an upper rod having an upper end and a lower end;
   an intermediate rod having a first end and a second end, the first end pivotably attached to the upper end of the handle and the second end pivotably attached to the lower end of the upper rod; and
   a sleeve on at least a portion of the upper rod, the sleeve sized to cover the handle, intermediate rod and a lower portion of the upper rod, keeping the handle, intermediate rod and upper rod in a co-linear alignment, when the sleeve is in a first position, the sleeve capable of being slid up the upper rod to a second position allowing the intermediate rod to be moved relative to the handle and the upper rod so that the intermediate rod is not co-linear with the handle and not co-linear with the upper rod.
upper end of the handle and the second end pivotably attached to the lower end of the upper rod; and

a sleeve on at least a portion of the upper rod, the sleeve sized to cover the handle, intermediate rod and a lower portion of the upper rod, keeping the handle, intermediate rod and upper rod in a co-linear alignment, when the sleeve is in a first position, the sleeve capable of being slid up the upper rod to a second position allowing the intermediate rod to be moved relative to the handle and the upper rod so that the intermediate rod is not co-linear with the handle and not co-linear with the upper rod.

13. The improved blind of claim 12 wherein the intermediate rod is attached to the handle by a first clevice and the intermediate rod is attached to the upper rod by a second device.

14. The improved blind of claim 12 wherein a portion of the handle is configured to have a portion having a cross-section which is non-circular and the sleeve has a bore having a mating portion having a cross-section which is a mating non-circular shape, such that when the mating portion of the sleeve is aligned with the portion of the handle having the non-circular cross-section, rotation of the sleeve will rotate the handle.

15. The improved blind of claim 14 wherein the non-circular cross-section is a polygon.

16. The improved blind of claim 15 wherein the polygon is a hexagon.

17. The improved blind of claim 12 also comprising a first lock member at the first end of the intermediate rod, the lock member retaining the intermediate rod in a position normal to the handle when the lock mechanism is engaged.

18. The improved blind of claim 12 also comprising a second lock member at the second end of the intermediate rod, the lock member retaining the intermediate rod in a position normal to the upper rod when the lock member is engaged.

19. The improved blind of claim 12 wherein the handle, intermediate rod, upper rod and sleeve are metal or plastic.

20. The improved blind of claim 12 also comprising a hemispherical project on at least one of the first end and the second end of the intermediate rod.

21. The improved blind of claim 12 also comprising a hook attached to the upper end of the upper rod.

22. The improved blind of claim 12 wherein the blind is configured so that rotation of the wand controls tilt and operates tilt cords.

23. The improved blind of claim 12 wherein the blind is a venetian blind.

24. The improved blind of claim 12 wherein the blind is a vertical blind.

25. The improved blind of claim 12 wherein the intermediate rod can be moved to a position normal to the handle and normal to the upper rod when the sleeve is in the second position.
Fig. 5
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The present search report has been drawn up for all claims.

Place of search: Munich  
Date of completion of the search: 2 December 2005  
Examiner: Merz, W

CATEGORY OF CITED DOCUMENTS
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