April 28, 1964 D. W. WALKER 3,130,775

BLINDS

Filed Nov. 13, 1962

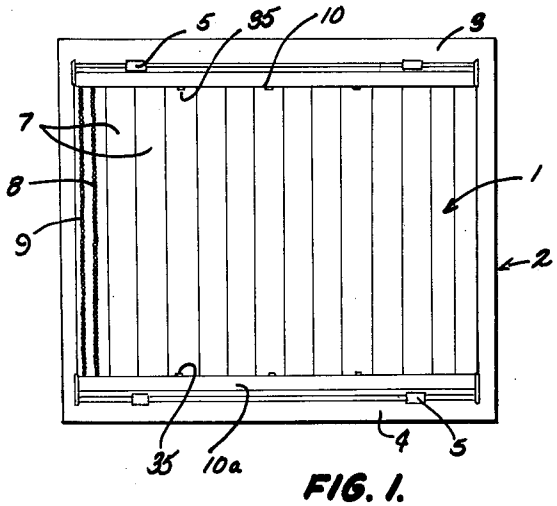


FIG. 1.

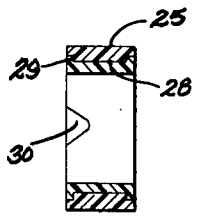


FIG. 3

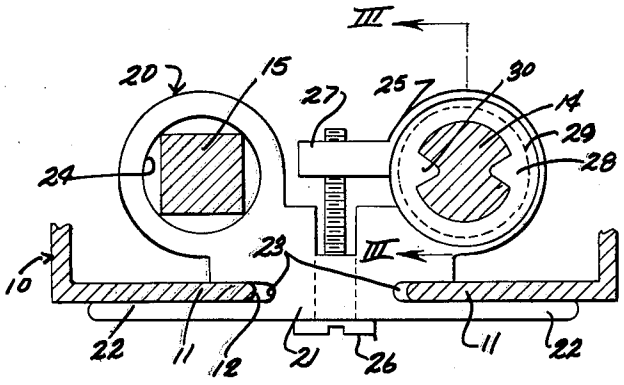


FIG. 2.

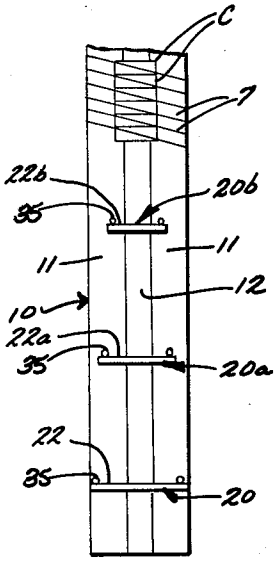


FIG. 4.

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BLINDS

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This invention relates to an improvement in blinds. More particularly, this invention relates to an improved vertical blind of the type having elongated motion transmitting rods for transmitting movement to the louvers, inincluding a unique support means for keeping the rods from sagging.

Vertical louver-type blinds are becoming increasingly more popular in the construction of buildings. This is especially true since current architectural trends call for the use of a large amount of window glass in buildings. These vertical blinds are of a type covering an entire window, usually having a support means at the top of the window opening and another support means at the bottom of the window opening. A plurality of carriages are supported in and slidably movable along these support members. Louvers are vertically positioned and operably connected between respective carriers in the supports, these louvers covering the entire window opening. A highly successful type of vertical blind has included elongated motion transmitting rods positioned within each support member, the rods operably connected to the carriers and having means enabling them to be rotated. Upon rotation of one set of rods, all of the louvers rotate about their vertical axis, adjusting the amount of light permitting through the window opening. Upon rotation of another set of rods, all of the louvers traverse to either one side or half traverse to each side of the window opening, leaving the window opening completely exposed.

Although such blinds have been highly successful in operation, a constant problem which has occurred results when all of the louvers are positioned at one side or half of the louvers are positioned at each side of the window opening. When the louvers are so positioned, these motion transmitting rods are left unsupported along their length and are consequently weakened and damaged because of sagging created by their own weight. Further, when the carriages are traversed along such sagging rods, friction is created since the carriages move in a straight line along the support members, thus forcing the sag out of the rods. The rods are thus worn by this friction and the louvers do not traverse as smoothly as they would if the rods were held perfectly straight. This is a known problem to the art and various attempts have been made to solve the problem. However, one of these attempts have been entirely successful up to the present time.

An object of this invention is to provide an improved means for supporting such motion transmitting rods when the louvers are traversed from the center of the window opening.

Another object of this invention is to provide such a rod support including a unique means for its proper spacing when the louvers are so traversed.

Another object of this invention is the provision of such a rod support which is adjustable to assure its proper positioning and operation.

A further object of this invention is the provision of such a rod support which is simple in construction and inexpensive to fabricate, yet being positive and effective in operation and functioning.

These and other objects of this invention will become obvious to those skilled in the blind art upon reading the following specification in conjunction with the accompanying drawings, wherein:

FIG. 1 is a front elevational view of the louver-type

window blind with which this invention is associated, mounted in a window frame;

FIG. 2 is a cross-sectional view showing the rod support of this invention mounted in position;

FIG. 3 is a cross-sectional view taken along the plane III—III of FIG. 2; and

FIG. 4 is a bottom view of a support member having the louvers traversed to one side thereof, a plurality of the rod supporting elements positioned for support.

Briefly, this invention relates to a louver-type window blind of the type having a plurality of vertical louvers operably connected to carriages movably secured within a support member, including in combination flange means on the support member extending toward each other and a threaded motion transmitting rod positioned within the support member for transmitting transverse movement to the carriages. A support element for this rod is slidably supported on and movable along this flange means. The element envelops the rod and a portion of the element engages the threaded rod whereby rotation of the threaded rod moves the element transversely along the support member. This portion is releasably associated with the element and a stop is provided on the flange means whereby movement of the element along the rod through rotation thereof ceases when the element engages the stop and the portion releases from rigid association with the element.

Referring more specifically to the drawings, the reference numeral **1** designates a window blind of the type with which this invention is associated, the window blind mounted within a window casing **2** and having a top **3** and a bottom **4**. The structure and functioning of this general type of window blind is shown by way of example in U.S. Patent No. 2,993,535 issued July 25, 1961. In the embodiment shown in the present application, a pair of elongated, generally parallel support members **10** and **10***a* are mounted at the top **3** and bottom **4** respectively of the window casing **2** by means of the clips **5**. A plurality of louvers **7** extend between the support members **10** and **10***a*, each louver connected between an opposed pair of carriers C mounted within the support members (FIG. 4). It should be noted that the two support members **10** and **10***a* are of identical construction and positioned in a manner such that one is a mirror image of the other.

The support members **10** and **10***a* (FIGS. 1, 2 and 4) each includes flanges **11** extending toward each other, the opening between them defining a slot **12**. The flanges **11** movably support the carriers C which are operably connected to the louvers **7** through the slot **12**. As is already old and well-known, motion transmitting rods **14** and **15** are provided in each of the support members, the chains **8** and **9** provided for independent rotation thereof. The rod **15** is operably associated with the carriers C to provide rotary motion to the louvers **7** upon rotation of the rod **15**. The rod **14** is helical or threaded, and operably associated with the carriers C whereby rotation of the rod **14** traverses the carriers, and thus the louvers, to the side of the window opening (FIG. 4). As stated hereinbefore, such structure is already old and well-known to the blind art.

A plurality of elements designated by the reference numerals **20**, **20***a* and **20***b* are movably positioned and mounted on the flanges **11** of the support members. Each of these elements is generally of the same construction and element **20** (FIGS. 2 and 3) will be described in detail. Legs **22** extend from each side of the body **21** of element **20**, the legs and body defining slots **23**. It will be seen that the slots **23** receive the flanges **11**, slidably mounting the element **20** thereon. By means of the opening **24** in the body **21**, the motion transmitting rod **15** is enveloped and supported. It will be noted that the ele-

ment **20** is free to slide along the rod **15**. A collar **25** forms a part of the body **21** which envelops the threaded rod **14**. A screw **26** extends through the body **21** and into the end **27** of the collar **25**. It will be seen that rotation of the screw **26** determines the size of the collar **25**, the purpose of which will be explained hereinafter. A ring **28**, enveloping the threaded rod **14**, is positioned within the collar **25**, the ring **28** including flanges **29** to retain it within the collar. The ring **28** also includes dogs **30** associated with the grooves of the threaded rod **14**.

A plurality of stops **35**, comprising screws in the embodiment shown, are positioned on the flanges **11**. As shown in FIG. 4, the stops **35** are spaced lengthwise of the support member and also staggered progressively inwardly from the outer edges thereof, the purpose of which will now be explained in the operation of this device.

Proper adjustment of the screw **26** determines the size of the collar **25**, and thus determines the amount of frictional engagement of the collar **25** with the ring **28**. This amount of frictional engagement is set such that rotation of the threaded rod **14** moves the elements **20** transversely thereof through the dogs **30**. However, the frictional engagement is overcome as the legs of the elements engage the spaced stops **35**. All of the elements are of identical construction except for the length of the legs thereof, the legs **22** of element **20** being longer than the legs **22***a* of the element **20***a*, and the legs **22***a* being longer than the legs **22***b* of the element **20***b*. When the louvers **7** are positioned across the window opening, the elements **20**, **20***a* and **20***b* are all positioned at one side of the window opening. Upon rotation of the threaded rod **14**, the carriers C, and thus the louvers **7**, together with the elements **20**, **20***a* and **20***b* commence transverse movement along the support members. However, when the element **20** engages its associated stop **35**, the frictional engagement of its collar **25** and its ring **28** is overcome and the ring rotates with respect to the collar. Thus, movement of the element **20** ceases and the element is positioned as shown. Likewise, the elements **20***a* and **20***b* are similarly left positioned at their respective stops **35** (FIG. 4), this being accomplished by the length of the respective legs of the elements and the positioning and spacing of the stops **35**.

Since the elements envelop both rods **14** and **15**, they slidably support these rods and as shown in FIG. 4, provide support throughout their length when all the louvers are traversed to one side of the window opening. Through the screw **26**, the frictional engagement between the collar **25** and the ring **26** of each element may be finely adjusted to the exact point where the elements move along the rods but cease movement when engaging respective stops without interfering with rotation of the threaded rod.

When the carriers C are again positioned across the window opening, the elements are again stacked at the end thereof.

It will be seen that this invention has provided a unique device in combination with such window blinds for supporting the motion transmitting rods throughout their lengths when louvers are traversed. The structure is simple in construction, yet capable of fine adjustment for efficient and perfect operation. It will be obvious that the number of elements so provided depends on the length of the rods to be supported. Further, if louvers are traversed to each side of the window opening, it will be understood that the elements would be stacked in the middle of the opening and certain elements would move to each side thereof upon traversing of the louvers.

While only one embodiment of this invention has been shown and described, it may be possible to practice the invention through the utilization of certain other embodiments without departing from the spirit and scope thereof. Such other embodiments are to be included as part of this invention unless the following claims specifically state otherwise.

I claim:

1. A louver-type window blind of the type having a plurality of vertical louvers operably connected to carriages movably secured within a support member, including in combination: flanges on the support member extending toward each other; a threaded motion transmitting rod positioned within the support member for transmitting transverse movement to the carriages; a support element for said rod, said element slidably supported on and movable along said flanges; said element having a collar, said collar enveloping said threaded rod; a ring positioned between said collar and said threaded rod, said ring having a dog engaging said threaded rod; said collar and said ring being in frictional engagement whereby rotation of said threaded rod moves said element transversely along said flange means; the size of said collar being variable whereby the amount of frictional engagement of said collar with said ring being adjustable; and a stop associated with said flanges whereby movement of said element along said flanges through rotation of said threaded rod ceases when said element engages said stop and said ring slips with respect to said collar.

2. A louver-type window blind as described in claim 1, said collar including a screw holding the ends thereof together, rotation of said screw expanding or contracting said collar.

References Cited in the file of this patent

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