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SHADE HOLDING DEVICE.

No. 559,446. Patented May 5, 1896.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5, Fig. 6.

Fig. 7.

Witnesses.

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SHADE-HOLDING DEVICE.

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Application filed November 19, 1885. Serial No. 599,383. (No model.)

To all whom it may concern:

Be it known that we, HENRY H. FORSYTH and HENRY H. FORSYTH, JR., of Chicago, Illinois, have invented certain new and useful Improvements in Shade-Holding Devices, of which the following is a specification.

This invention relates to that class of devices which are used for holding spring-actuated shades and which are attached to the lower margin of the shade to guide it in its adjustment as well as to lock it in any desired position.

Shade holding and locking mechanisms have been provided in which spring-actuated rods are slidably mounted in a pocket or tube in the lower margin of the shade and carrying friction-tips at their outer ends adapted to traverse grooves in the stop, the rods being normally thrust outwardly by the springs so as to cause the tips to impinge the bottoms or sides of the grooves, locking the shade in any position in which it is released. The tip-holders and tips have heretofore been constructed in various ways, but usually with a metal body constituting the holder and having a block of leather or rubber constituting the tip-shoe or friction-surface. As heretofore constructed, the friction-tips have been usually short, and when made of rubber wear rapidly and by exposure to the air become solidified and brittle. Furthermore, when it is attempted to adjust the curtain by grasping the shade-stick near one end the opposite end will remain stationary owing to the constant and excessive frictional impingement of its friction-shoe, while the end which is being moved will come out of the groove. Leather is a better and more durable material than rubber; but the ordinary leather shoe has the disadvantage of being so hard and dense that it requires an excessive spring-pressure to make it frictionally hold. Moreover, the bottoms of the grooves rarely stand in vertical parallel planes, and hence a continuous bearing-shoe is limited in its contact to a small portion of its bearing surface. The principal difficulty to be overcome in the use of these devices is their tendency to frequent displacement and the liability of the friction ends to come out of the grooves owing to the manipulation of the shade by grasping its lower edge by the hand and forcing it up or drawing it down without withdrawing the locking-rods against the action of their outwardly-forcing springs. Should the bottom of the curtain be merely displaced and the ends of the fixtures remain in the grooves, the shade will retain its angular position with the older types of tips.

It is one of the chief objects of this invention to construct a shade-holding mechanism which will not only firmly hold the shade against the action of the spring shade-roller, but which will also be self-righting or capable of returning to its proper position when moved therefrom by grasping the end of the shade either in raising or lowering.

Another object of this invention is to render possible the use of a leather frictional-holding shoe without employing an excessive spring-pressure.

Furthermore, our invention provides means whereby the shade-holding device may be conveniently assembled in the factory and afterward be readily adjusted in application to windows of slightly-varying widths. Herefore it has been customary to effect this adjustment by the selection of parts of different lengths. This is expensive, because it necessitates the carrying of a number of parts of various dimensions and requires much time in adjusting the fixtures.

In our improved construction we make a tip-holder of considerable length, and instead of employing a single short and continuous bearing-point we preferably provide a plurality of bearing-points arranged adjacent to the rods on which the tip-holders are mounted and extend the ends of the tip-holder beyond said bearing-surfaces, so that when the lower margin of the shade is forced into an angular position the metal surfaces at the ends of these extended tip-holders come into contact with the bottoms of the grooves, and having small frictional-holding power it results that the shade will right itself automatically when released, and, moreover, the shade may be moved up and down by grasping it at any point and without any liability of the holding devices being withdrawn from the grooves. We also provide antifriction-rollers, which are journaled in the extended ends of the tip-holders and which facilitate the self-righting of the fixture by reducing the friction of the ends of
the tip-holders upon the wall of the grooves when the shade is tilted, but remain inactive when the shade is in the normal position. Again, special provision is made so that the ends of the spring-actuated rods neither interfere with the efficiency nor mar the appearance of the fixture.

By means of our improvements a perfectly operating shade-holding device of simple and economical construction is provided.

In the preferred embodiment of our invention we employ two locking-rods slidably mounted in a pocket in the lower margin of the shade, a spring or springs normally thrusting said rods outwardly and metal heads or tip-holders carried upon the projecting ends of the said locking-rods, said heads having longitudinal grooves in their outer edges and said grooves containing two separate friction tips of leather or a single long tip cut away at the point where the rod projects through the head. The ends of these heads extend beyond the leather tips, so that when the lower margin of the shade is tilted into an angular position these metal ends will make contact with the bottoms of the groove and the fixture will quickly right itself. In order to reduce the friction of these contacting ends to a minimum, we may provide them with antifriction rollers. These heads may be loosely mounted on the rods, and the latter are sufficiently long to permit the longitudinal movement of the heads to adjust them to windows of slightly-varying widths between the bottoms of the grooves, and for the purposes of this adjustment we provide split collars or washers, which are adapted to be passed over the body of the rod between the metallic head and a collar or shoulder on the rod.

In the accompanying drawings, Figure 1 is a face or plan view of a window-frame with the stops partly broken away, showing a shade applied thereto, and two positions of the lower margin thereof being indicated by full and dotted lines respectively. Fig. 2 is a similar view showing the shade in an adjusted position and the dotted lines indicating the bottoms of the grooves and the stops being broken away to show the bottom walls of the grooves and the tips impinging thereon. Fig. 3 is a broken elevation, partly in section, showing the preferred manner of constructing the fixture and having the adjusting-collars applied thereto. Fig. 4 is a detail view of one of the heads shown in Fig. 5, the antifriction-rollers being omitted. Fig. 5 is a rear edge view of one of the heads, showing the rod and rod-carrying tube in section and a sleeve on the rod in end elevation. Fig. 6 is a similar view of the front edge of a head having the antifriction-rollers. Fig. 7 is a side elevation, partly broken away, of the head having the antifriction-rollers, the locking-rod being projected into the plane of the front edge of the holder. Fig. 8 shows a modified construction of a self-righting fixture, wherein a single elastic tip is employed at each end and the sliding rods and their actuating-springs are omitted. Fig. 9 is a detail view of one of the split collars, and Fig. 10 is a detail view of one of the rollers.

In the drawings, 10 represents the sh. e., which is provided at its lower end with a pocket 11 to contain the tube 12. Within this tube are mounted the sliding rods 13, which are normally thrust outwardly by means of the springs 14. These rods project beyond the end of the tube 12 and into the apertures 15 of the heads 16. The aperture 15 is provided with a shoulder 17, the bore of the aperture being enlarged at its outer end. The rods 13 are upset, as shown at 18, and this enlargement or upset portion engaging with the shoulder 17 prevents the heads 16 from separating from the rods. The body of the head has a transverse aperture, as indicated at 19, and the rod 19 has a similar aperture 20, through which a pin 21 may be thrust in order to furnish means for turning the rods and engaging their inner ends, which are threaded, with the threaded sockets of the pendants 22.

The construction above described is particularly shown in Figs. 4 and 7, but an equivalent, simpler, and therefore preferred construction is shown in Fig. 3, where the outer face of the head 19 is notched or cut away, as shown at 23, thus providing space equivalent to the enlarged bore of the aperture 15, within which the outer end of the rod may work or play when the tip is to be adjusted. The widths of the windows vary somewhat, owing to irregularities in construction of cars, the depth of the grooves, &c., and in order to properly adjust the fixtures having parts of uniform lengths or dimensions to these slightly-varying conditions the head is provided with this enlarged bore or cut-away portion to receive the projecting end of the rod, as shown in Fig. 4, or when the window is wider a split collar 24, Fig. 3, may be slipped over the rod between the head 16 and the sleeve 25, which is fixed on the rod. By means of these split collars the fixture may be readily applied and quickly adjusted.

It will be observed that the head is made quite long and its outer face is preferably grooved or channeled to receive the friction-tips 26. Preferably two of these friction-tips are mounted in the groove of each head with a suitable interval between them, so as to provide separated bearings, which are much more efficient than a single bearing of equal length, and hence permit of the use of a much weaker spring-pressure. It is desirable to use a weak spring, because if the spring be strong the fixture will not right itself. The heads extend beyond the friction-tips and the front corners of said heads are preferably rounded, as shown in the drawings.

In some cases, and particularly in street-car work, which is not so highly finished as railway-coaches, sleeping and parlor cars, it
may be found expedient to journal antifriction-rollers in the extended ends of the tip-holders. Such rollers (marked 27) may be provided with lateral slits 28, adapted to enter apertures 29 in the bifurcations 30 of the extended ends, and said bifurcations, when the tip-holder is constructed of a malleable material, may be spread sufficiently to admit the journals and then closed, so as to confine them in their bearings. When these rollers are employed, the friction of the extended ends upon the walls of the groove when the shade is tilted into an abnormal position is reduced to a minimum and the shade will right itself, even though the spring-pressure be excessive, owing to carelessness or unskillfulness in construction. The tips may be made of some other material than leather—e.g., a harder substance which would have of itself less frictional power and a heavier spring-pressure used, in which case dependence would be had upon the strength of the spring to frictionally lock the shade in the adjusted position. Thus the provision of the antifriction-rollers permits a wider range of selection of material and compensates for carelessness or lack of skill in construction.

When the fixture is applied to the window and properly adjusted, the friction exerted by the tips will be slightly greater than the power of the shade-roller spring, so as to require the exertion of some force to move the shade up or down. This force may be applied either upon the pendants, so as to withdraw or decrease the friction, or the shade may be raised or lowered by grasping a portion of its lower margin. In practice it is found that the shade is more often adjusted in this latter manner than in any other, and hence arises the necessity for the feature of self-righting which forms the important part of our invention. This feature is provided for by employing heads or tip-holders having their ends extended beyond the friction-tips. If it be attempted to adjust the shade by pulling up or pulling down one end thereof, the lower margin of the shade will be deflected into the angular position shown in Fig. 1. Now with the old construction if pressure was released while the shade was in that position it would so remain; but in our improved construction it will be seen by reference to Fig. 1 that when the lower margin of the shade is placed in such angular position the friction-tips are released from contact with the bottom wall of the groove and the metal ends of the heads are alone in contact. The metal has very slight frictional power as compared with the leather, and hence will not resist to the same extent the pull of the head holding the shade, which, drawing on the taut edge of the shade, will return the fixture into the horizontal position. There are several advantages derived from the employment of these long heads. In the first place by the employment of these long heads when the shade is adjusted by taking hold of its lower margin near one end, so as to raise the shade at that end, the heads rock upon their extremities, carrying the friction-tips out of contact with the bottom walls of the grooves, the tube in the pocket of the shade stick serving as the lever and the end of the head as the fulcrum, by means of which the withdrawal of the friction-tips from contact with the bottom of the groove is effected. They further provide for carrying separated frictional bearing-surfaces and journal bearers for the antifriction-rollers.

It will be observed that the friction-tips project beyond the plane of the outer edge of the head, so that when the bottom of the shade is in the normal position or horizontal the friction-tips only contact with the bottoms of the grooves. When, however, the bottom of the shade is tilted to an abnormal position, the metal ends contact with the bottom of the grooves and rock the tips away from frictional contact. As these metal ends offer but a slight frictional resistance to upward pull of the springs of the shade-roller they easily slide along the grooves. The instant the curtain is released the shade at once rights itself and the tips again come into frictional contact with the bottom of the grooves, thus holding the shade in the adjusted position.

Of course the provisions above described would be unnecessary if the shade were always operated by means of the pendants drawing the rods equally or the shade were grasped at its middle portion; but the shade is so seldom operated in this manner, or at least is so likely to be operated by grasping it near its ends, that it is important to provide against the accidental removal of the tips from the grooves and for making the shade self-righting when left in an abnormal position.

While the construction above described is preferred, modifications thereof embodying the principle of our invention may be made. Thus in Fig. 8 is shown a head having a single central friction-tip 81 of rubber fastened to the head and the latter being carried by a non-sliding rod or support mounted in the lower margin of the curtain, the rod-actuating springs being omitted. In this construction the rubber has sufficient frictional power to hold the shade and is sufficiently elastic to yield to force in adjusting the shade while the extended heads operate in the adjustment and in self-righting, as before described.

The form of tip-holder shown in Fig. 8 may also be employed with a leather tip of the same form as the rubber tip therein shown, and the rods may be actuated by springs of suitable strength in the same manner as the actuating-springs above described.

While we have described metal tip-holders and leather tips, we do not confine ourselves to these particular materials, as other materials may be found efficient.

We claim—

1. A self-righting holding mechanism for
spring-actuating shades comprising, in combination with the shade, heads carried thereby, said heads having separated bearing or contact points of diverse frictional holding power and arranged in such relation to each other that when the margin of the shade is moved from a horizontal position the bearing-point of least resistance will be engaged and the bearing-point of greater frictional power wholly or partially withdrawn from contact whereby the shade may resume its normal horizontal position, substantially as described.

2. A self-righting holding mechanism for spring-actuated shades comprising in combination with a shade, heads carried thereby, said heads having projecting friction-tips in the vertical faces thereof, and antifriction-rollers journaled in the extremities of said heads on opposite sides of the friction-tips, said heads and rollers adapted to bear upon the same opposing surface whereby when the shade is moved from a horizontal position, the roller will be brought into contact with such surface and the tip wholly or partially withdrawn from contact and the shade resume its normal horizontal position when released from the moving force, substantially as described.

3. A holding mechanism for spring-actuated shades, comprising in combination spring-actuated rods slidably mounted in the lower margin of the shade and having heads whose outer faces extend at right angles to the lower margin of the shade, friction-tips carried by the heads and normally projecting beyond the plane of the edges thereof and said heads having bearing-points above and below the tips and on which the fixture may rock when force is applied to the shade near one side thereof, substantially as described.

4. A holding device for spring-actuated shades, comprising in combination sliding rods mounted in the lower margin of the shade, heads carried by said rods, a plurality of friction-tips mounted in said heads and providing separated bearings and said heads being extended above and below the tips and adapted to contact with the window-frame when the lower margin of the shade is moved into an abnormal position, substantially as described.

5. In a spring-actuated shade-holding mechanism, a rod carried by the shade and projecting beyond the edge thereof, a tip-holder mounted upon the projected end of said rod and adapted to be adjusted lengthwise thereof and a split collar adapted to be applied over the rod without the removal of the tips, substantially as described.

6. A holding device for spring-actuated shades, comprising in combination rods adapted to be mounted in the lower margin of the shade, tip-holders carried upon the projected ends of said rods and adapted to be adjusted lengthwise thereof, said tip-holders having apertures to receive the extended ends of the rods and said apertures being enlarged at their outer ends to receive and protect the ends of the rods in adjustment, substantially as described.

7. In a shade-holding mechanism, the combination with a sliding spring-actuated rod having its end projected beyond the side margin of the curtain, a pendant having threads to engage threads on the inner end of said rod, a metallic head or tip-holder applied to the projected end of the rod and said projected end and said tip-holder having registering apertures to receive a pin whereby to lock the tip-holder and rod together, substantially as and for the purpose described.

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