No. 729,630. PATENTED JUNE 2, 1903.

J. H. MILANS.

FRICTION HOLDING DEVICE FOR SPRING ACTUATED SHADES.

APPLICATION FILED MAY 25, 1901.

NO MODEL. 3 SHEETS—SHEET 1.

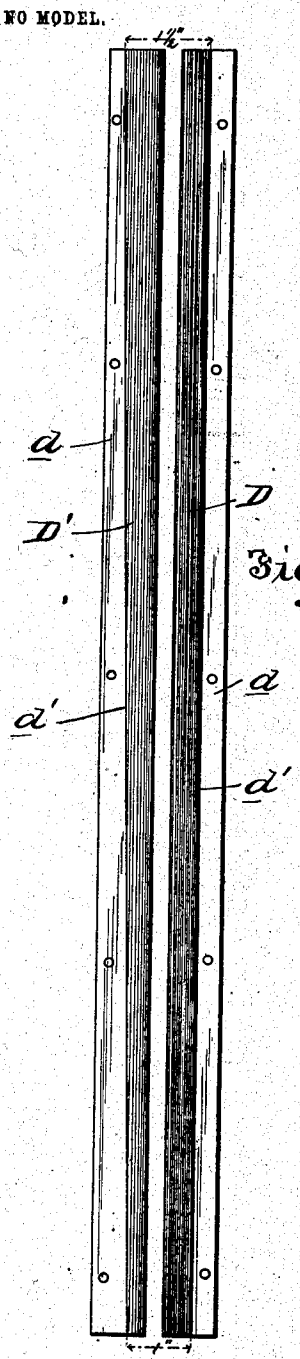


Fig. 1.

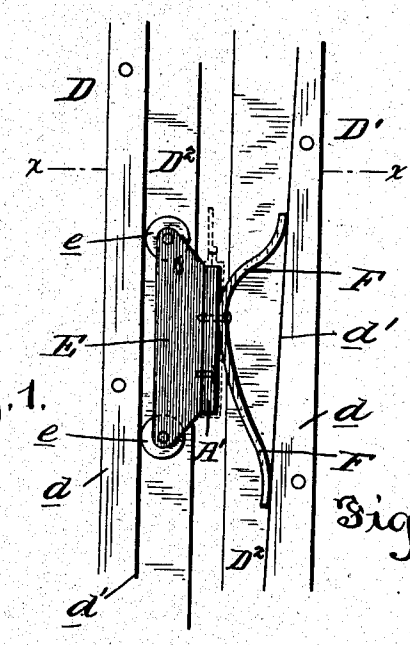


Fig. 2

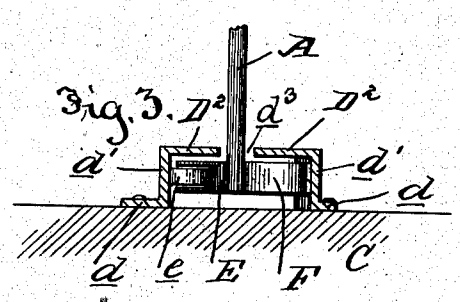


Fig. 3.

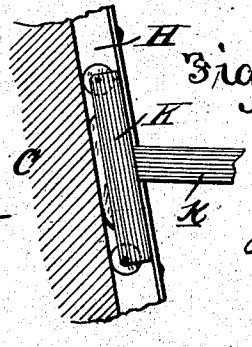


Fig 4.

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APPLICATION FILED MAY 25, 1901.

NO MODEL. 3 SHEETS—SHEET 2.

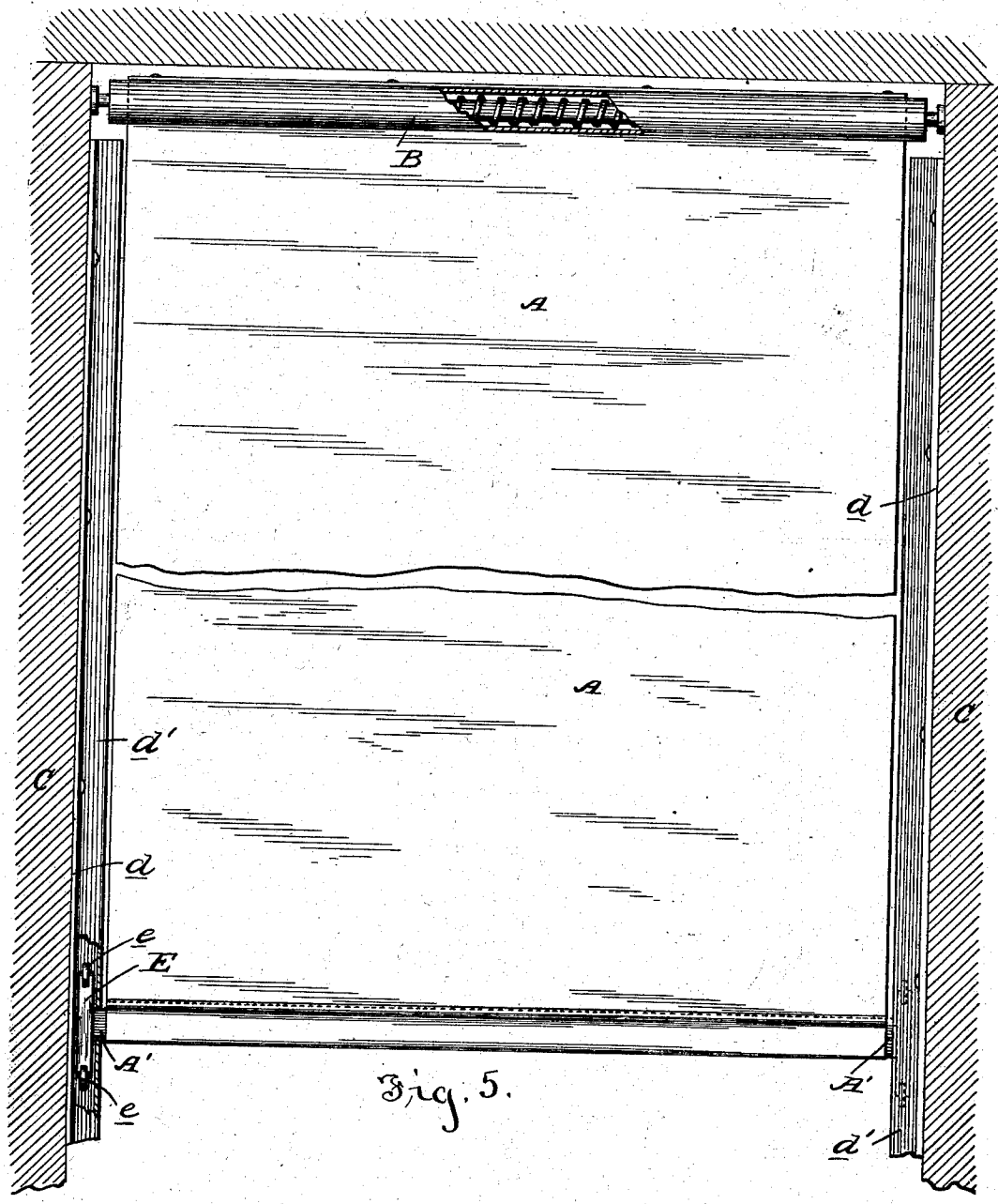


Fig. 5.

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No. 729,630. PATENTED JUNE 2, 1903.

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FRICTION HOLDING DEVICE FOR SPRING ACTUATED SHADES.

APPLICATION FILED MAY 26, 1901.

NO MODEL. 3 SHEETS—SHEET 3.

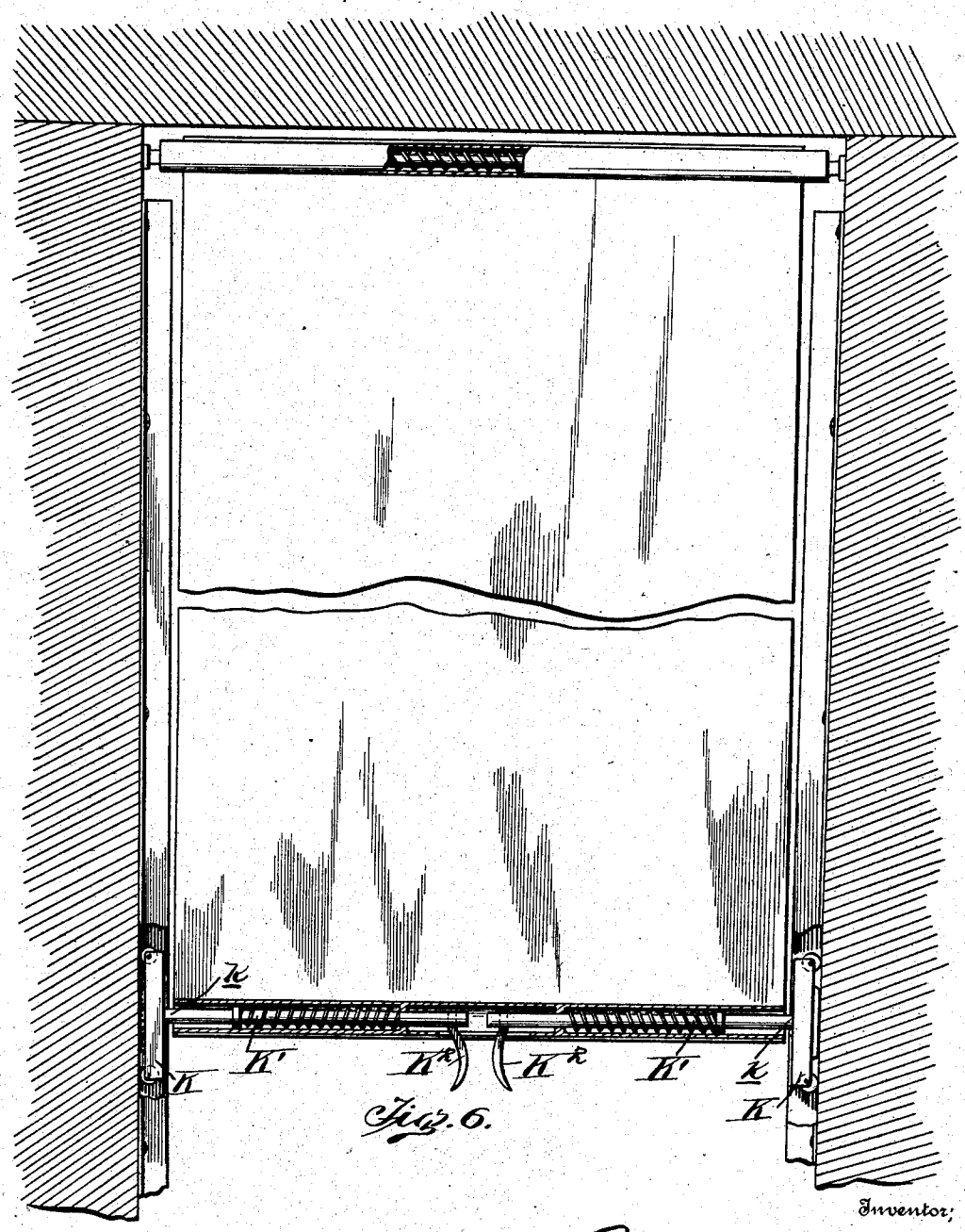


Fig. 6.

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No. 729,630. Patented June 2, 1903.

UNITED STATES PATENT OFFICE.

JOSEPH H. MILANS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO CURTAIN SUPPLY COMPANY, OF JERSEY CITY, NEW JERSEY, AND CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

FRICTION HOLDING DEVICE FOR SPRING-ACTUATED SHADES.

SPECIFICATION forming part of Letters Patent No. 729,630, dated June 2, 1903.

Application filed May 25, 1901. Serial No. 61,898. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. MILANS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Friction-Holding Devices for Spring-Actuated Shades; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in friction-holding devices for spring-actuated shades, and it is embodied in the construction and arrangement of parts presently to be described, and defined in the claims.

In the various types of shade-holding devices wherein springs are employed for creating a friction to retain the shade at the various points of adjustment some considerable trouble has been encountered from the fact that as a shade is drawn down the spring of the shade-roller is put under constantly-increasing pressure, therefore necessitating a normal friction-setting pressure equal to and slightly more than the maximum spring-pressure of the roller created by the unwinding of the shade. This fact is objectionable inasmuch as strong springs are necessitated, and it sometimes happens that the springs of the fixture are not sufficiently strong to resist the pull of the roller-springs when the latter are under a maximum degree of tension. My invention is designed to overcome this defect and to provide a fixture which will exert a variable pressure in proportion substantially or largely to the varying pressure of the roller-spring.

While the principle involved in the present invention may be carried out by various forms of construction, I have illustrated in the accompanying drawings a construction of device embodying the invention and a modified form as further emphasizing the fact that the invention is not limited to the particular construction shown and described.

A further object of the present invention is to provide a holding device for spring-actuated shades which may be employed without the use of pinch-handles and which will avoid the objection of binding caused by unevenness in the guide-grooves or swelling of the wood of the side posts. An objection found to exist in certain types of fixtures is that the position between the shoes or friction-surfaces is fixed to a certain degree, and that therefore any material variance in the distance between the bottoms of the guide-grooves causes the fixture to stick or bind. This fact has rendered the fixed type of fixture or friction device practically useless in this particular art. With my invention the fixed type of friction tip or device can be used, and so with success.

In the drawings, Figure 1 is a front elevation of two guides represented in this particular instance as properly associated for attachment to the side frame or post of a window-frame. Fig. 2 is a reverse view, enlarged, showing the friction-head in position in the groove and also showing the retaining-flanges. Fig. 3 is a section on the line $x\ x$ of Fig. 2. Fig. 4 is a detail elevation of a modified form of fixture and its associated parts. Fig. 5 is an elevation of a curtain with the fixture applied thereto, parts being shown in section; and Fig. 6 is a similar view to Fig. 5, showing the modified form of fixture illustrated in Fig. 4.

In the drawings, A designates the curtain or shade carried by the spring-roller B of that type which exerts a constant upward pull on the shade. The roller is mounted in suitable brackets and supported in the frame C of the window-casing. Secured to the sides of the window-casing are vertically-arranged guide-strips D and D′. These strips are shown as constructed of metal, having securing-flanges d, formed with suitable perforations, through which fastening means may be passed into the frame. These strips I have shown for convenience. The guides D and D′, as shown in Figs. 1, 2, and 3, each have outwardly-extending flanged or guiding portions d' extending at right angles to the securing portions d, and their extreme outer edge portions are bent at right angles parallel to the face of the window-casing to form retaining-flanges D^2. The two guides are arranged in relation to each other so that a narrow space d^3 is left between the two flanges D^2 for the admission of the end of the curtain-stick A′.

To carry out my invention and secure the desired results above stated, I conveniently form the guide-strip D′ with its outwardly-extending flange *d′* inclined slightly from the top to the bottom of the strip, diminishing thereby the width of its flange D^2 from the top to the bottom, thus forming an inclined guiding-surface for the fixture presently to be described. The opposite strip D is fashioned with a straight guiding-surface or outwardly-extending flanged portion *d′* and an overhanging flange of equal width throughout, as shown in Fig. 1. Thus is formed between the two guiding-surfaces *d′*, when in their proper position, a guiding-groove the transverse width of which from top to bottom decreases—that is to say, the space between the two outwardly-extending flanges *d′* varies in width from the top to the bottom.

While the above-described construction of flange or retaining-guide is a convenient and satisfactory construction, yet of course it is to be understood that the particular form is here referred to and shown for the purpose of illustrating the invention and that in the broad aspect the invention can be carried out by any other form of guide, such as that of the usual guide-groove now used extensively in this art, in which instance the one wall of the groove in itself would be inclined, as will be observed. The curtain-stick A′ may be flat, as shown, or formed in any other convenient manner and is attached to the curtain by being pressed through a loop, as is usual. The ends of the stick, passing between the flanges D^2, are secured by suitable screws or otherwise to a transversely-arranged block or truck-body E, which latter is provided at its upper and lower ends with wheels *e*, arranged to engage and rest against the straight vertical guide *d′*. On the opposite side of the block or truck-frame is secured a substantially U-shaped spring F, which is bowed transversely outward, its opposite branches being slightly curved and arranged to engage or lie against the inclined side of the guide-bead *d′*. Conveniently this spring is of unequal formation, the upper leg or arm being somewhat shorter than the lower leg or arm and the connection between the same and the curtain-stick being located somewhat beyond the center. This connection may be effected by suitable bolts, rivets, or other means. By making the spring with unequal arms the danger of breaking is materially avoided, as will presently be explained. The tension of the spring is such as to force the wheels of the truck against the opposite bead and to create sufficient friction to retain the curtain in its proper adjustment.

In operation it will be observed that if the truck is located in the upper part of the guideway its spring will be under but slight compression owing to the width or distance between the opposite walls of the guideway. In this position the roller-spring is under but slight tension. As the curtain-stick is drawn down, thus increasing the tension of the spring of its roller, the spring of the truck will be put under the increased compression, and so throughout its movement from the upper to the lower end of the guide. This feature of the invention is of material importance, and I believe that I am the first to invent a device to accomplish this important result irrespective of the specific construction shown. As the truck reaches the narrow portion of the guide the lowermost point or arm of the spring is under greater compression than the upper one, and to equalize this pressure to a certain extent the lower arm is made longer than the upper arm and extends somewhat below the truck. This, as above stated, avoids the danger of breaking the spring and equalizes the pressure largely between the two springs. In this construction it will be seen that by exerting the friction-pressure on the sides of the guideway or groove as distinguished from exerting it on the base of the groove the fixture, including the stick, may be permitted a slight movement longitudinally of the stick, so that a considerable space can be left between the extreme end of the stick and the base of the guide, and thereby avoid the objection heretofore referred to of binding or cramping of the fixture.

The principle involved in the invention above described can be carried out as stated in various ways and by various different constructions. An illustration of one form of construction is shown in Figs. 4 and 6, wherein I have shown one of the well-known types of elongated friction-heads K, such as are usually carried by spring-actuated rods K′, which in turn are actuated by pinch-handles K^2. This is a well-known type in this particular art. This head is employed in connection with a guide-groove H, formed directly in the window-frame, the bottom of the groove being inclined outwardly from the upper to the lower ends. To preserve the necessary contact between the friction-engaging face of the head K and inclined bottom of the guide-groove, it is necessary to slightly incline the stem *k* of the head in relation to the head (or vice versa) best shown in Fig. 4, wherein the inclinations are somewhat exaggerated. In this type of fixture the retaining-flanges are dispensed with.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, friction-holding means, and means engaging said friction-holding means and cooperating therewith independently of the winding means to vary the holding-pressure to correspond to the increased or decreased tension of the winding means; substantially as described.

2. The combination with a shade, of means

put under gradually-increasing tension by the unwinding of the shade for rewinding the same, oppositely-disposed guides one inclined relatively to the other inwardly in the direction of the unwinding of the shade, friction means carried by the shade normally in contact with said guides and coöperating therewith to vary the frictional contact between the same to correspond to the increased or decreased tension of the winding means without necessitating the withdrawal of said friction means from contact with said guides.

3. In combination with a shade and means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, a friction-holding device carried by the shade, comprising oppositely-disposed members one of said members being yieldable, and oppositely-arranged surfaces with which the members of the holding device engage, one of said surfaces being inclined relative to the other inwardly in the direction of the unwinding movement of the shade; substantially as and for the purpose described.

4. The combination with a spring-actuated shade, of a stick carried by the shade, oppositely-disposed guiding-surfaces one inclined relatively to the other inwardly in the direction of the unwinding movement of the shade, and friction devices carried by the stick comprising a truck and a spring-arm extending above the stick and an auxiliary spring-arm extending below the stick of a length greater than the upwardly-extending arm; substantially as described.

5. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for winding the same, oppositely-disposed contact-surfaces, one inclined relative to the other inwardly in the direction of the unwinding movement of the shade, and a spring-holding device carried by the shade and engaging the contact-surfaces; substantially as described.

6. The combination with a shade and its actuating means, a stick, a truck at the end of the stick, an elongated spring coöperating with the truck to hold the stick in adjusted position, and oppositely-disposed contact-surfaces for said truck and spring, one of said surfaces being inclined relative to the other inwardly in the direction of the unwinding movement of the shade.

7. In combination with a shade and winding means therefor having a variable winding tension, holding instrumentalities associated with the shade and adapted to operate independently of the winding means to impart an equalizing resistance to the varying tension of the winding means incident to the raising and lowering of the shade; substantially as described.

8. The combination with a spring-actuated shade, of oppositely-disposed guide members, inclined toward each other in the direction of the unwinding movement of the shade, and a shade-holding fixture carried by the shade and comprising spring-pressed means engaging said guide members; substantially as described.

9. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, oppositely-disposed guiding-grooves for the shade, the wall of one of said grooves being inclined relative to an opposite wall thereof inwardly in the direction of the unwinding movement of the shade, and means governed by said inclined wall for imparting a variable pressure for holding the shade against the increased or decreased tension of the winding means; substantially as described.

10. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, friction-holding devices associated with the shade, and oppositely-disposed surfaces over which the friction devices are adapted to travel, one of said surfaces being inclined relative to the other inwardly in the direction of the unwinding movement of the shade, substantially as described.

11. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, and holding means for retaining the shade in adjusted position, operating independently of the winding means for varying the strength of the holding-pressure to correspond to the increased or decreased tension of the winding means; substantially as described.

12. The combination with a shade and means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, of holding means carried by the shade, and means mounted independently of the shade coöperating with said holding means for varying the strength of the holding means to correspond to the increased or decreased tension of the winding means, substantially as described.

13. The combination with a shade and means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, of a friction-shoe carried by the shade and adapted to retain the same in adjusted position, and means operating independently of the winding means and simultaneously with the travel of the friction-shoe to vary the pressure thereof to correspond to the variations of the winding means; substantially as described.

14. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, holding means for the shade adapted independently of the winding means to automatically adjust itself simultaneously with the raising and lowering movement of the shade to correspond to the increased or decreased tension of the winding means; substantially as described.

15. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, holding means for the shade including oppositely-disposed guides and heads carried by the shade slidable along said guides while in contact therewith, said guides and heads coöperating to automatically adjust the holding tension independently of the winding means to correspond to the increased or decreased tension of the winding means; substantially as described.

16. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, a stick carried by the shade, friction means at the ends of the stick, and means for automatically creating a variation of the pressure of said friction means simultaneously with the movement of the shade to correspond to the variations of the tension of the shade-winding means; substantially as described.

17. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, and means operating simultaneously with the movement of the shade for creating a variable holding-pressure to retain the shade in adjusted position against the varying tension of its winding means, substantially as described.

18. The combination with a spring-actuated shade, of holding means therefor, and means operating simultaneously with the movement of the shade for varying the holding-pressure of the holding means to correspond to the varying tension of the winding-spring, substantially as described.

19. The combination with a spring-actuated shade, of guides therefor one of which is inclined relative to the other, spring-pressed holding-heads carried by the shade and cooperating with said guides to vary the holding tension of the holding-heads to correspond to the varying tension of the winding-spring; substantially as described.

20. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, yieldable holding means for the shade, and means for varying the holding tension of said means to correspond to the varying tension of the winding means; substantially as described.

21. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, of spring-tensioned holding means for the shade, and means for varying the tension of said holding means to correspond to the increased or decreased tension of the winding means; substantially as described.

22. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, a stick carried by the shade, oppositely-disposed guides one inclined relative to the other, and a friction-holding device carried by the stick and comprising a truck engaging one of the guides and a vertically-disposed spring engaging the opposite guide; substantially as described.

23. The combination with a shade of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, a stick carried by the shade, oppositely-disposed guides one inclined relative to the other, and a friction-holding device carried by the stick and comprising a truck engaging one of the guides, and a vertically-disposed spring engaging the other guide which is inclined and having arms extending the one upwardly and outwardly and the other downwardly and outwardly; substantially as described.

24. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, a stick carried by the shade, oppositely-disposed guides one inclined relative to the other, and a friction-holding device carried by the stick and comprising a truck engaging one of the guides and a vertically-disposed spring engaging the inclined guide and having arms extending the one upwardly and outwardly and the other downwardly and outwardly, the lower arm being of greater length than the upper arm; substantially as described.

25. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, a stick carried by the shade, oppositely-disposed guides one inclined relative to the other, and a friction-holding device carried by the stick and comprising a truck provided with antifriction-rollers engaging one of the guides, and a spring engaging the opposite guide; substantially as described.

26. The combination with a shade, of means put under gradually-increasing tension by the unwinding of the shade for rewinding the same, holding means for the shade including oppositely-disposed surfaces, and heads carried by the shade slidable along said surfaces while in contact therewith, said heads and surfaces coöperating independently of the winding means to automatically adjust the holding tension to correspond to the increased or decreased tension of the winding means when the heads are slid along said surfaces incident to the raising and lowering of the shade, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH H. MILANS.

Witnesses:
CALVIN T. MILANS,
GEO. T. MAY, Jr.