(No Model.)

W. H. KIRKMAN.

CURTAIN FIXTURE.

No. 559,103. Patented Apr. 28, 1896.

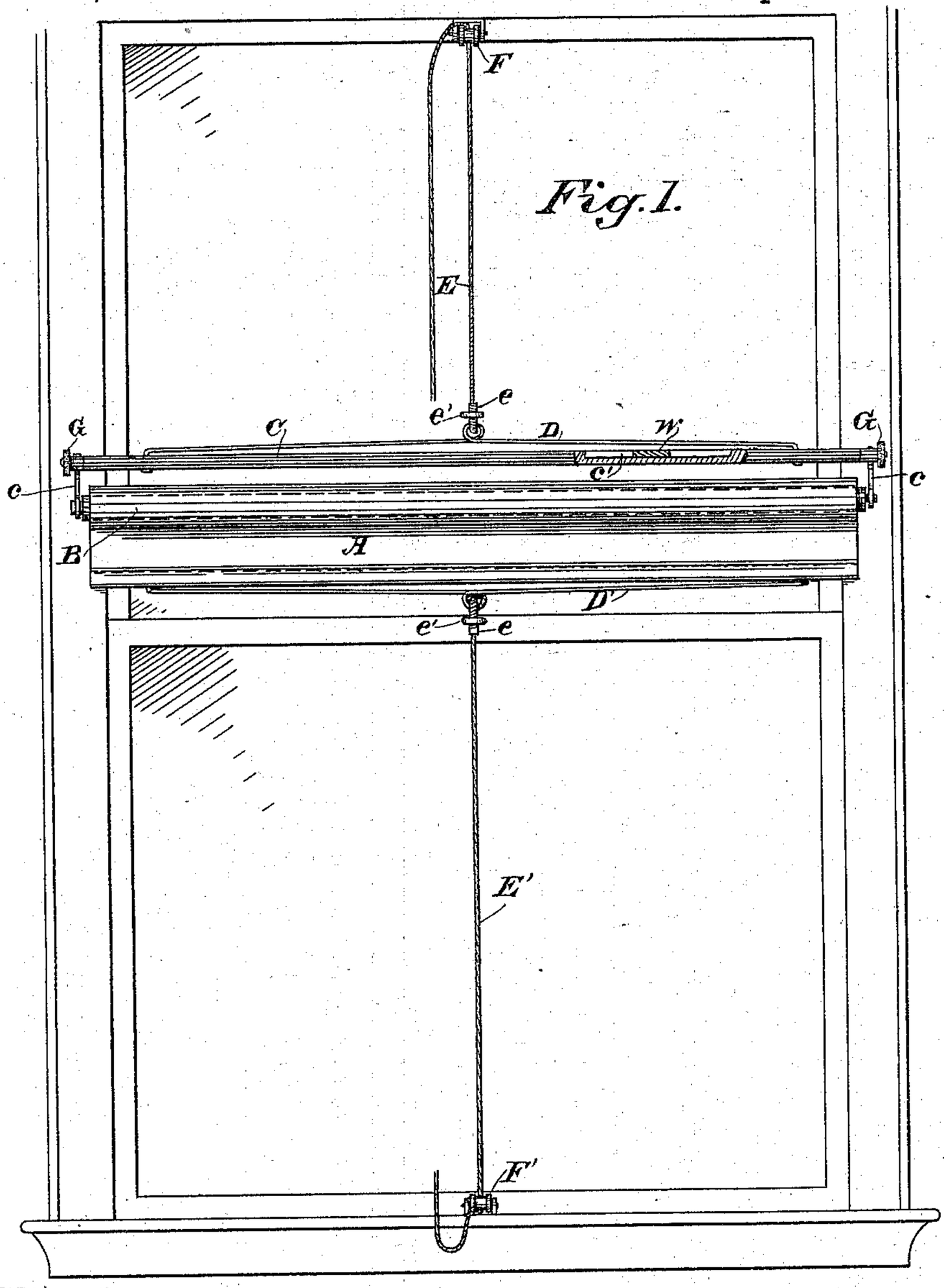

Fig. 1.

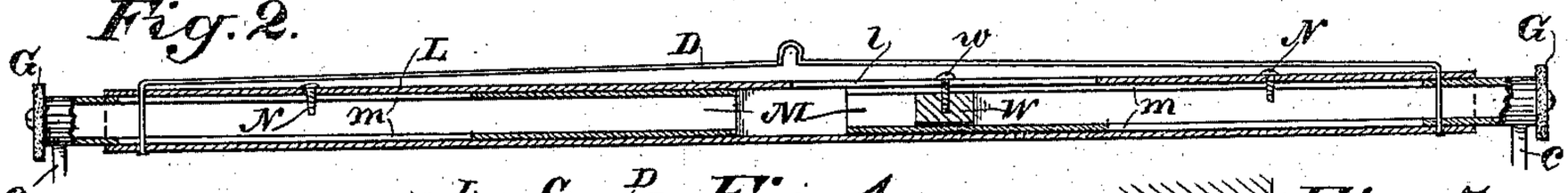

Fig. 2.

Fig. 3.

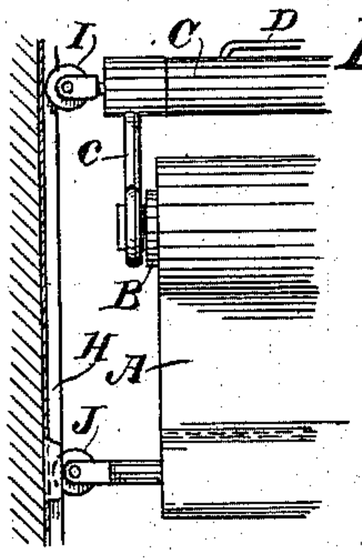

Fig. 4.

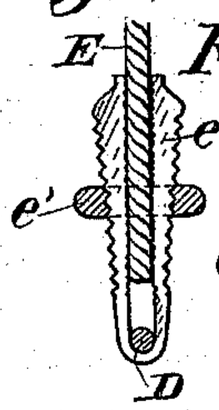

Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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CURTAIN-FIXTURE.

SPECIFICATION forming part of Letters Patent No. 559,103, dated April 28, 1896.

Application filed November 1, 1895. Serial No. 567,633. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. KIRKMAN, a citizen of the United States, residing at Berkeley, county of Alameda, State of California, have invented an Improvement in Curtain-Fixtures; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of curtain-fixtures in which the spring-actuated roller and the curtain which it carries are connected with a hanger suspended by a cord passing over a pulley at the top of the window frame or casing, whereby it is adapted to be raised or lowered and the curtain itself to be rolled up from the bottom or the top, in order to expose or to cover all or any portion of the window desired.

My invention consists in certain novel details of improvement in a curtain-fixture of this class, the objects of said improvements being generally to render the whole device practical, efficient, durable, and easily operated.

The particular objects of each improvement will appear in the course of the following specification.

Referring to the accompanying drawings, Figure 1 is an elevation of my curtain-fixture. Fig. 2 is a longitudinal section of an adjustable hanger. Fig. 3 is an end view showing the roller-guide G. Fig. 4 is a view showing the device working in guides on the window-frame. Fig. 5 is a view showing the ferrule K with its guide-roller G. Fig. 6 is a view of the cord-clamp *e*.

A is the curtain, and B is the spring-actuated roller to which the curtain is secured and upon and from which it rolls and unrolls. This roller may be of any of the usual forms of spring-actuated ones, preferably the Hartshorn roller, either with or without its usual clutch, but preferably without, so that the tendency of the spring is unobstructed and is controlled merely by the cords which operate the device.

C is the cross-bar of the hanger, said cross-bar having extending downwardly from its ends the arms *c*, one of which receives one end of the roller and the other receives the other end, one of said arms being formed with a socket adapted to prevent the rotation of the pin fitting in it, and the other permitting said rotation in the usual manner of the brackets into which the Hartshorn roller is usually fitted.

D is the suspending-wire of the hanger. This is secured at its extremities at or near the extremities of the cross-bar of the hanger, and to the center of said wire is secured the cord E, which passes upwardly to and over a pulley F at the top of the window-casing, and thence downwardly to within reach of the operator.

The connection of the cord with the suspending-wire may be a simple knot or tie, but its best form is that here shown, consisting of a U-shaped clamp *e* fitted over the wire. The inner surfaces of the clamp-jaws are roughened to better hold the cord, and their outer surfaces are threaded to receive the tightening-nut *e'*.

The pulley F is of the type of catch-rollers in common use, adapting the cord to be caught and controlled at any point desired, and said pulley needs no detailed description as its construction and function are well known.

It will now be seen that by operating the cord E the hanger with its attached roller and curtain may be raised or lowered to any point of the window-casing desired, and if now the lower portion of the curtain be held the lowering of the hanger above will cause the spring-actuated roller to wind itself up on the curtain as it descends, thereby exposing the upper portion of the window, or if the hanger be held at a fixed point and the lower portion of the curtain be released it will roll up from below and expose the lower portion of the window. This operation is the same as in curtain-fixtures of this general class, and in order to hold and control the lower portion of the curtain I have a cord E', secured to its lower portion and extending down to and controlled by a catch-pulley F', similar to the catch-pulley F above. In cases, however, where the usual clutch is used on the curtain-roller B said clutch will control the curtain and the lower cord E' may be dispensed with, and this is the case particularly with the curtain which works in grooves or channels, which I shall presently describe.

In the foregoing description I have included

a point of improvement in the presence and attachment of the suspending-wire D, forming part of the hanger.

It has been customary heretofore to attach the operating-cord to the center of the hanger, and in most cases it has been attached directly to the cross-bar of the hanger. This attachment brings the strain upon the center of the hanger, causing it to bend or get out of true, thereby causing its end arms, in which the spring-actuated curtain-roller is mounted, to clamp and bind thereon, preventing its free operation; but by my construction of the suspending-wire, having its extremities fitted to the cross-bar at a point near the latter's extremities, the strain is distributed and carried outwardly to near the ends of said cross-bar, thereby preventing undue strain and bending of the cross-bar, even though preserving the point of attachment of the cord at the center of the hanger, which is preferable to the employment of two cords attached at separated points to said hanger, as is sometimes done.

Another point of improvement in the suspending-wire as I have constructed it is that it is a spring and acts as such, and thereby relieves the curtain of much of the jar and strain placed upon it in operating it and prevents it from tearing out. To further this last result I do not attach the lower cord E′ to the bottom of the curtain directly, but I have a similar spring-wire D′, attached at its ends to the lower wooden strip of the curtain, and to the center of this spring-wire I attach said lower cord by any suitable means—such, for example, as the fastening shown in connection with cord E—thereby providing for relief from jars and strains, as heretofore described.

In curtain-fixtures of the class to which my invention relates a difficulty has been encountered in the want of balance of the device. This is due to the fact that the curtain-roller B has its very heavy actuating-spring located in one end of it, and when the attachment is made at the middle of the hanger, as is preferable for many reasons, the weight of the roller on one end throws the whole hanger out of balance and prevents the curtain from winding up true and straight.

The improvement in my invention consists in counterbalancing the unbalanced roller, and to this end I place the weight in the other end of the fixture. This weight in curtain-rollers to be made in the future may be placed directly in the roller itself, but in adapting present devices to this result I prefer to place the weight in the cross-bar C of the hanger. Accordingly I have shown a weight W in that end of the cross-bar opposite that in which the actuating-spring is seated in the curtain-roller. This weight may be of any suitable character; but in order to nicely adjust it and bring any particular device to its proper balance I make a groove or slot c' in said cross-bar and place the weight therein, so that it may be moved in or out farther from or nearer to the end of the cross-bar, thereby nicely regulating its position and adjusting the balance.

Another difficulty in curtain-fixtures of this class is the tendency of the hanger to bear in against the window-casing and to roll up and down in contact therewith, thereby marring and injuring the surface of the casing, besides producing friction, tending to render less easy the movements of the parts. This inward bearing of the device not only affects the hanger itself, but the curtain also, which, in moving up and down on its roller, comes in frictional contact with the window-casing and is thereby subjected to undue wear. To overcome this difficulty I place guides on the ends of the hanger which will come in contact with the window-casing and move thereon freely, causing the bracket and roller to work smoothly without swaying, and at the same time keeping the roller and curtain far enough from the casing to prevent injury to the curtain. In order to reduce the friction to a minimum, these guides are in their best form roller-guides, such as are shown by the small wheels or rollers at G. In this case I have shown them as operating against the face of the window-casing in planes at right angles to the movement of the hanger; but in other cases, as I have shown in Fig. 4, where it is desired to make the curtain and its hanger work up and down in grooves or channels H in the inner surfaces of the window-casing, I so attach them to the cross-bar, as I have shown at I, that they work in planes parallel with the movement of the hanger, and in such cases I place similar rollers J on the ends of the lower wooden bar of the curtain, so that the curtain itself, as well as the hanger, moves up and down in the channels or groove H.

In some cases I fit the roller-guides to removable ferrules K, adapted to fit the ends of the cross-bar and to be adjusted thereon to suitable points, as may be required.

In some cases it is necessary to provide that the hanger shall be an adjustable one—that is, one which can be extended or contracted in its length to suit different curtains and rollers. In such cases, as I have shown in Fig. 2, the cross-bar of the hanger is composed of an outer tubular shell L and two opposing alined tubular cores M, fitted within said shell from opposite ends. The outer shell has an elongated slit l in order to provide for the sliding adjustment of the counterbalancing-weight W heretofore mentioned, and the inner tubular cores are provided with elongated slits m, in one of which the suspending-screw w of the weight slides. These slits pass freely over the ends of the suspending-wire D to enable said cores to be withdrawn partially to lengthen the hanger or to be forced in farther to shorten it. Tapering screws N are fitted down through the outer shell, and by being caused to enter into the slits m of the inner cores expand said cores sufficiently to bind

and hold them in the place to which they are adjusted. The weight W may be made fast at any point by tightening the screw *w* which suspends it.

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

1. In a curtain-fixture, a hanger provided with means for carrying the spring-actuated roller of the curtain, said hanger consisting of a cross-bar and a suspending-wire secured at its extremities at or near the ends of the cross-bar and having the suspending-cord attached to said wire at its middle.

2. In a curtain-fixture and in combination with the curtain and its spring-actuated roller, a hanger consisting of the cross-bar, arms depending from or near its ends and adapted to receive the spring-actuated roller, and a suspending-wire secured at its extremities at or near the ends of said cross-bar, and a suspending-cord secured to the middle of the suspending-wire.

3. In a curtain-fixture and in combination with the curtain and its spring-actuated roller, a hanger consisting of a cross-bar, arms depending from its ends and adapted to receive the spring-actuated roller, and a suspending-wire of a springing character secured at its extremities at or near the ends of said cross-bar, and a suspending-cord secured to the middle of the suspending spring-wire.

4. In a curtain-fixture, the combination of a suspended hanger, a spring-actuated roller carried thereby, a curtain carried by the roller, and a spring-wire secured at its extremities to the lower bar of the curtain and having a cord attached to the center of said wire.

5. In a curtain-fixture, the combination of a hanger comprising a cross-bar and a suspending spring-wire attached at its extremities at or near the ends of said cross-bar, a suspending-cord attached to the middle of said wire, a spring-actuated roller carried by the hanger, a curtain secured to the roller, a spring-wire secured at its extremities to the bottom bar of the curtain and a cord secured to the middle of said wire.

6. In a curtain-fixture and in combination with a curtain-roller having an actuating-spring in one end thereof, a suspended hanger carrying the curtain-roller and a weight for counterbalancing the weight of the spring of the roller whereby the curtain is adapted to wind up straight.

7. In a curtain-fixture, the combination of a curtain-roller having an actuating-spring in one end thereof, a hanger having means for attaching the roller thereto, and a weight in the end of the hanger opposite to the end in which the spring is seated in the roller.

8. In a curtain-fixture, the combination of a curtain-roller having an actuating-spring in one end thereof, a hanger having means for attaching the roller thereto and a weight in the end of the hanger opposite to the end in which the spring is seated in the roller, said weight being adjustable to or from the end of the hanger to regulate its position and balance the device.

9. In a curtain-fixture, the combination of a curtain-roller having an actuating-spring in one end thereof, a hanger comprising a cross-bar having means at its ends for receiving the attachment of the curtain-roller, and a weight in the end of the cross-bar opposite to that in which the spring is seated in the roller.

10. In a curtain-fixture, the combination of a curtain-roller having an actuating-spring in one end thereof, a hanger comprising a cross-bar having means at its end for receiving the attachment of the curtain-roller, and an adjustable weight in the end of the cross-bar opposite to that in which the spring is seated in the roller.

11. In a curtain-hanger, the combination of a roller to which the curtain is attached, said roller having an actuating-spring in one end thereof, a hanger comprising a cross-bar having arms at its extremities for suspending the curtain-roller, a suspending-wire attached at its extremities at or near the ends of the cross-bar, and a weight in the end of the cross-bar opposite that in which the spring is seated in the roller.

12. In a curtain-hanger, the combination of a roller to which the curtain is attached, said roller having an actuating-spring in one end thereof, a hanger comprising a cross-bar having arms at its extremities for suspending the curtain-roller, a suspending-wire attached at its extremities at or near the ends of the cross-bar, and a weight in the end of the cross-bar opposite that in which the spring is seated in the roller, said cross-bar having a groove or slot in which said weight is adapted to be moved back and forth, to regulate its position.

13. In a curtain-fixture, the combination of a hanger for carrying the curtain-roller and curtain, and a removable ferrule to be fitted to the ends of the hanger and provided with a roller.

14. An adjustable hanger for a curtain-fixture comprising an outer tubular shell, oppositely-moving alined cores fitted in said shell and provided with elongated slits, and a suspending-wire having its ends passing down through the outer shell and through the slits in the sliding inner cores.

15. An adjustable hanger for a curtain-fixture comprising an outer tubular shell, oppositely-moving alined cores fitted in said shell and provided with elongated slits, a suspending-wire having its ends passing down through the outer shell and through the slits in the sliding inner cores, and tapering screws passing from the outside of the shell into the slits of the inner cores whereby said cores are adapted to be expanded whereby they bind and hold in place.

16. An adjustable hanger for curtain-fixtures, consisting of an outer tubular shell

provided with a slit, a weight within one end of said shell and suspended by means of a screw passing through said slit whereby the weight may be adjusted, inner tubular cores fitting and slidable from opposite directions within said shell, said cores having elongated slits through one of which the suspending-screw of the weight passes, and a suspending-wire having its ends passing through the outer shell and through the slits of the inner cores.

17. An adjustable hanger for curtain-fixtures, consisting of an outer tubular shell provided with a slit, a weight within one end of said shell and suspended by means of a screw passing through said slit whereby the weight may be adjusted, inner tubular cores fitting and slidable from opposite directions within said shell, said cores having elongated slits through one of which the suspending-screw of the weight passes, a suspending-wire having its ends passing through the outer shell and through the slits of the inner cores, and tapering screws passing through the outer shells into the slits of the inner cores whereby they are expanded to hold them in place.

18. In a curtain-fixture, the combination, with the cross-bar and its suspending-wire, of the means for attaching an operating-cord, consisting of an exteriorly-threaded U-shaped clamp receiving the suspending-wire in its fold, said clamp having jaws exteriorly threaded, and a tightening-nut embracing said jaws and adapted to tighten them on the cord.

In witness whereof I have hereunto set my hand.

WILLIAM H. KIRKMAN.

Witnesses:
S. H. NOURSE,
WM. F. BOOTH.