

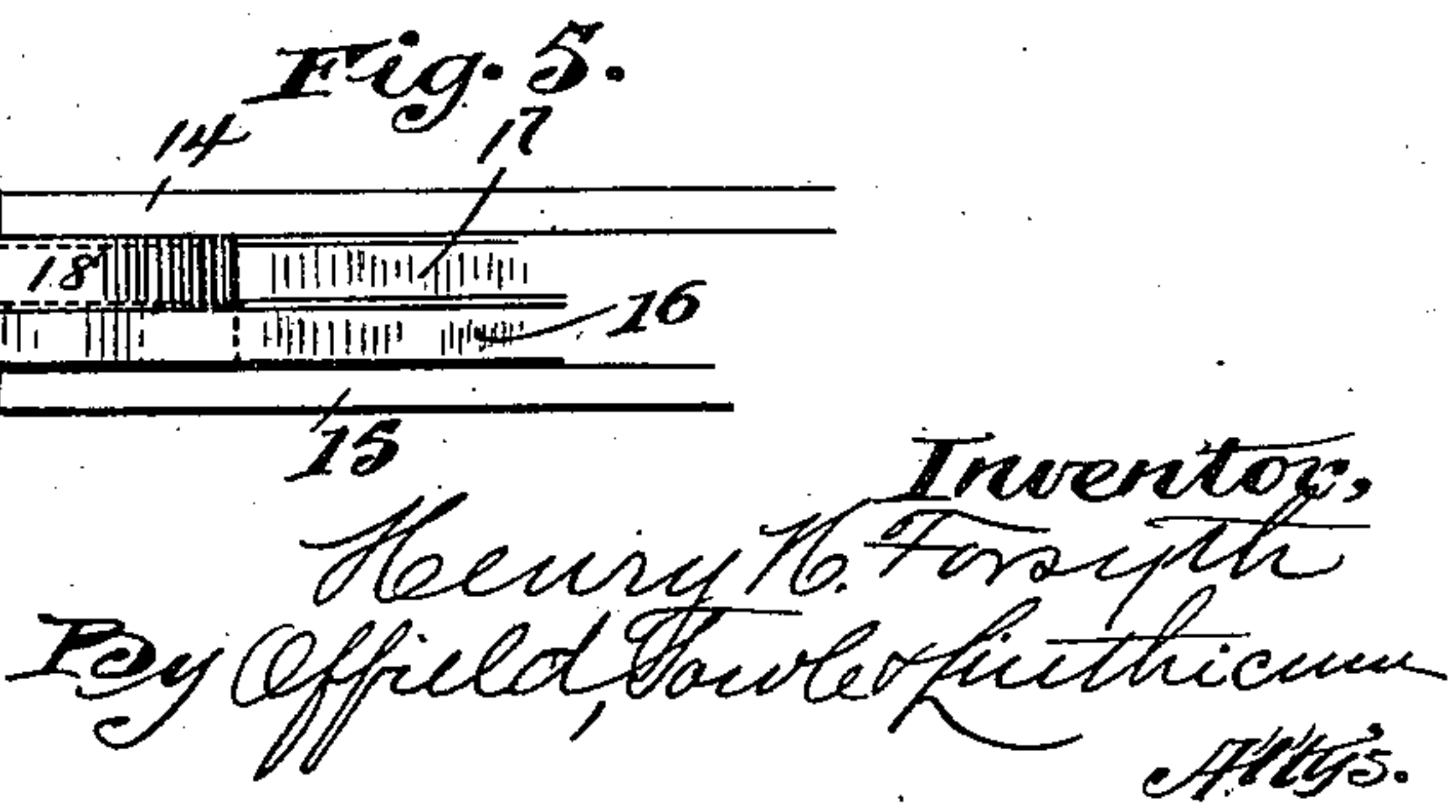
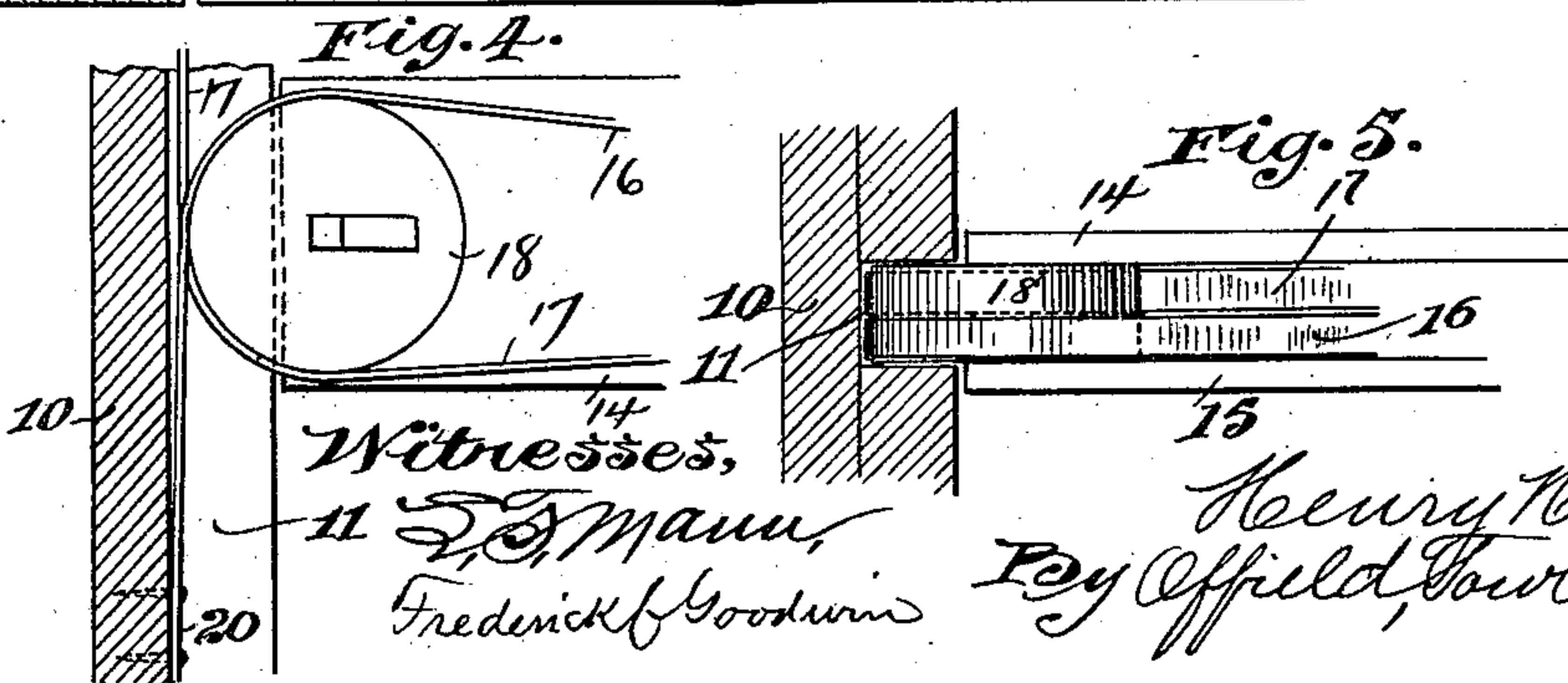
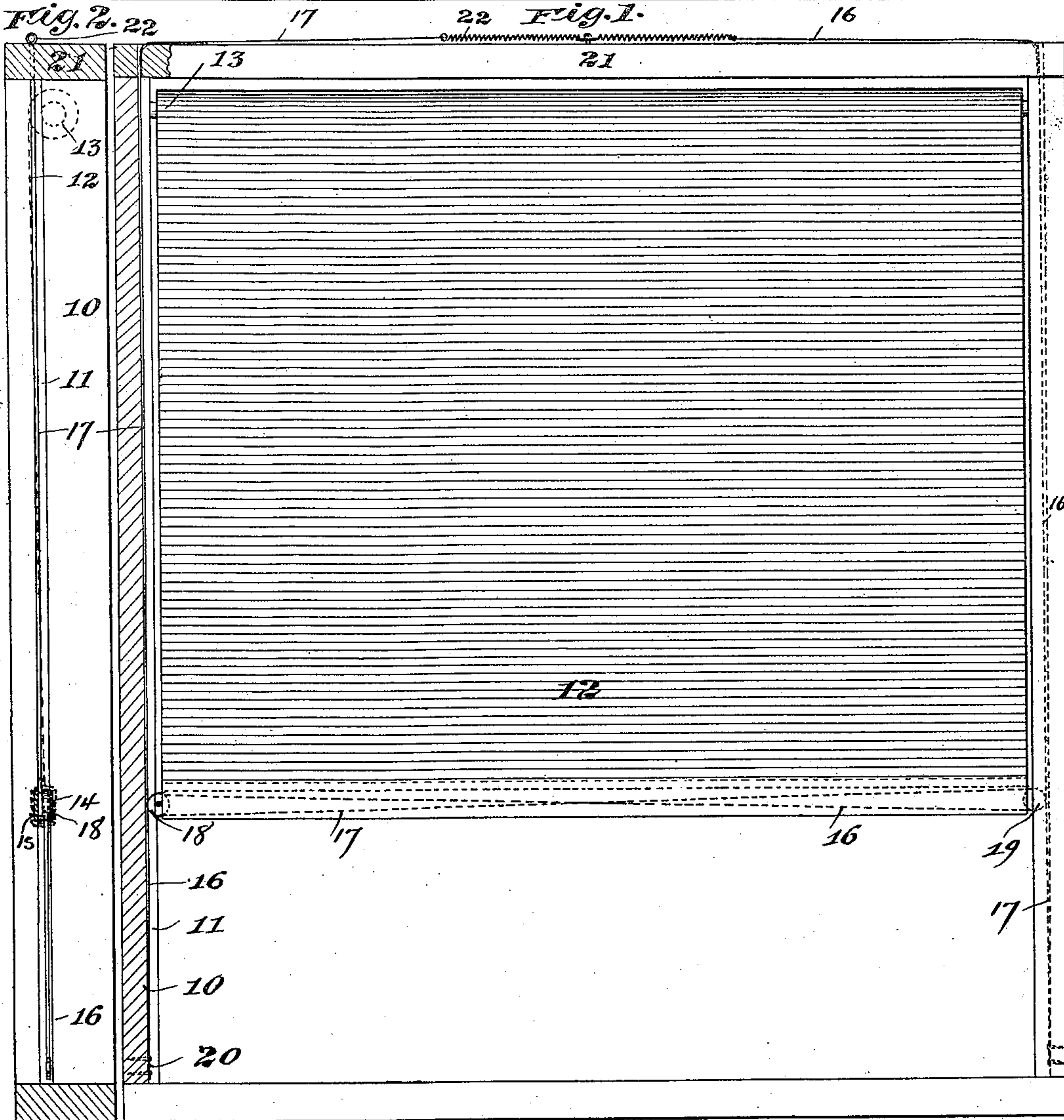
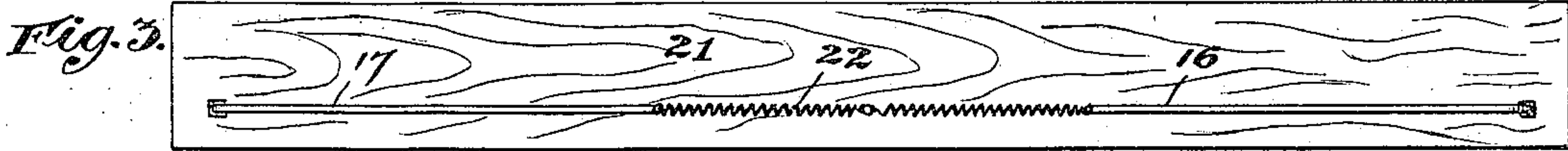
(No Model.)

2 Sheets—Sheet 1

H. H. FORSYTH.
SHADE HOLDING MECHANISM.

No. 577,244.

Patented Feb. 16, 1897.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 6.

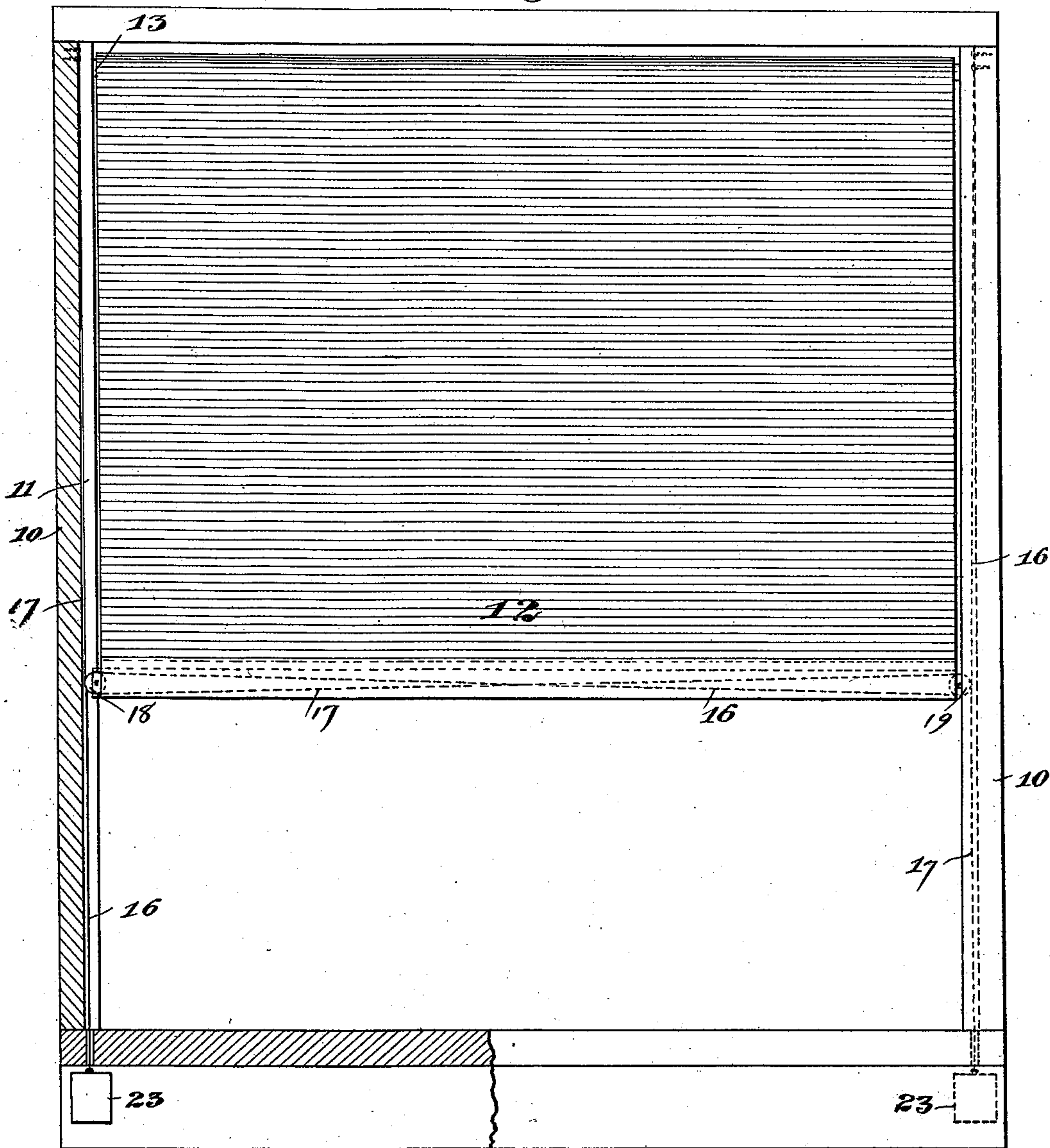


Fig. 7.

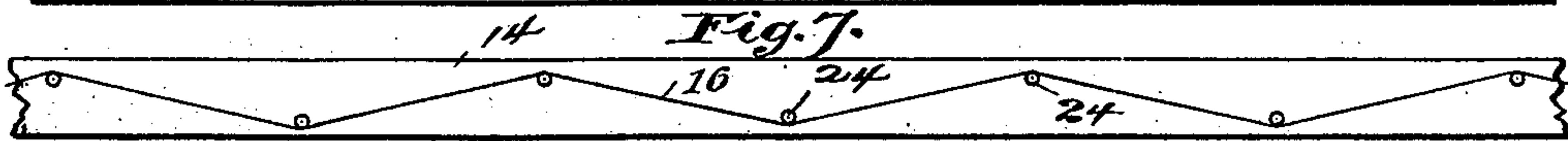
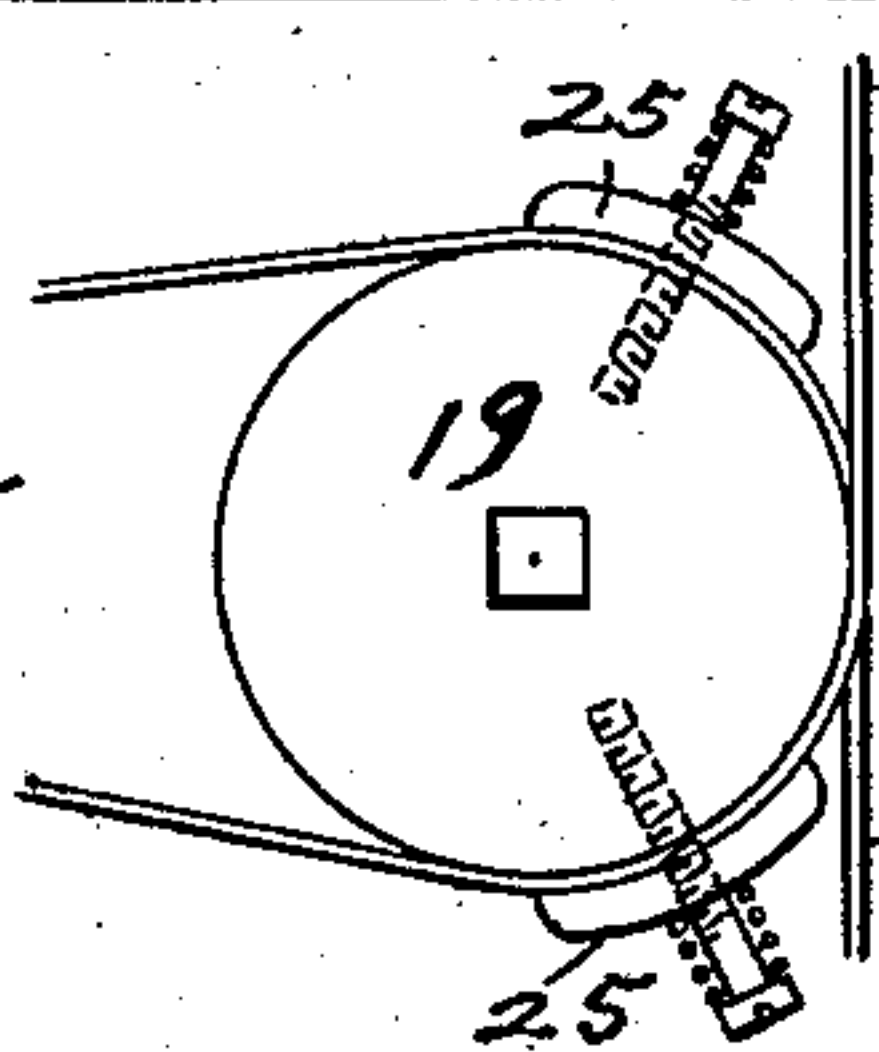


Fig. 8.



Fig. 9.



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UNITED STATES PATENT OFFICE.

HENRY H. FORSYTH, OF CHICAGO, ILLINOIS.

SHADE-HOLDING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 577,244, dated February 16, 1897.

Application filed November 16, 1896. Serial No. 612,259. (No model.)

To all whom it may concern:

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

This invention relates to a shade-holding mechanism of that class in which a shade or curtain is attached at one end to a spring-actuated shade-roller and is guided, controlled, and frictionally held in any adjusted position by means of flexible cords or strands operating upon the opposite end of the shade.

Difficulties have been encountered heretofore in the use of shade-holding devices of the general class above described due to the fact that no provision has been made for automatically tensioning the cords or flexible strands. These cords stretch in use, and as the operation of the device depends altogether upon friction it is obvious that the stretching of the cords lessens their frictional holding power and necessitates frequent manual adjustment. In some cases wire cords have been used, said cords passing through metal tubes carrying funnel-formed guides at their ends, and these wire cords, by reason of their stiffness, roughness of surface, and tendency to rust in use, retain a certain frictional capacity compensating to a limited extent for the stretching of the cords; but all such devices become worthless unless adjusted more or less frequently. A further objection to the use of wire cords is that the strands thereof become crystallized by continual flexure and break, while cotton or other cords would become frayed in use and would be more objectionable than the wire cord on account of the ease with which they would stretch.

My invention relates to the provision of means whereby the cord or strand or other flexible connections are maintained under constant and uniform tension, which tends to preserve the frictional power of the cord and also compensates for the stretching thereof by taking up its slack.

My invention relates, further, to the employment of flexible metal ribbons or tapes and the combination therewith of friction devices whereby said flexible ribbons are made effective to properly hold the shade in the

adjusted position. This flexible metal tape or ribbon has many advantages in use over cords—viz., it runs smoother, is less liable to crystallize than the wire cord, it will not become frayed in use, and does not stretch to the same extent. The metal tape or ribbon, while possessing these advantages over the cord, does not have the same amount of frictional capacity, and therefore it is necessary to provide suitable friction devices to render the use of the metal tape practicable. This my invention does.

In the preferred embodiment of my invention I employ two flexible tapes or ribbons, which are preferably made fast at one point in grooves formed in the window-stops. These tapes are then carried across the lower margin of the curtain over or around friction devices, preferably consisting of friction-blocks having curved surfaces projecting beyond the side margins of the curtains and entering the grooves. The friction-blocks may be secured between two flat bars supported by the lower margin of the curtain, and the tapes crossing each other intermediate the ends of the bars are passed over the blocks, each tape passing over a block at one end of the shade, so as to contact with a considerable portion of its surface, and thence under the block at the opposite end of the shade, the ends of the tapes being then extended to the opposite end of the window-frame parallel to the side margins of the shade, where they may be connected together by a single spring or each of them separately connected to a spring or to weights or other means for exerting constant tension upon them. The springs in the one case and the weights in the other not only serve to increase the friction by tensioning the tapes, but they also serve to take up any slack or stretching, and therefore maintain the parts automatically in properly-adjusted relation. These yielding tension devices aid in securing the necessary friction, take up the slack, and afford a smooth-running and durable fixture.

The construction and arrangement of the parts may be considerably varied, and I have shown in Figures 7, 8, and 9 some of the many modifications which might be made—as, for

example, the friction-blocks might be of other form, and instead of using a single block at each end two might be placed side by side.

In the accompanying drawings, Fig. 1 is an elevation, partly in section through a portion of the window-frame, showing the spring take-up. Fig. 2 is a transverse sectional view at right angles to the plane of the shade. Fig. 3 is a plan view showing the ends of the tapes and the springs connected thereto. Fig. 4 is an enlarged sectional elevation, and Fig. 5 an enlarged sectional plan, showing the manner in which the tapes pass over the friction-blocks. Fig. 6 shows a construction wherein weights are used to tension the tapes. Fig. 7 is a broken section of one of the bars carried by the shade and having a row of pins placed in a staggered position therein to increase the friction of the tape. Figs. 8 and 9 are views showing a spring-actuated friction device or brake-shoe.

In the drawings, let 10 represent the window-frame, provided, as is usual, with vertical grooves 11.

12 represents the shade, which is made fast at its upper end to the usual spring-actuated shade-roller 13. To the lower margin of the shade I preferably attach two parallel bars 14 15, which may be inclosed by the usual leather-finish strip or binding. The bars 14 15 are separated sufficiently to permit the tapes 16 17 to pass therein edgewise. Between the outer ends of these bars are secured friction-blocks 18 19. These friction-blocks may be metal disks with their edges projecting beyond the ends of the bars and the side margins of the shade, so as to enter the grooves 11. The tapes are preferably secured at one end. In the construction shown in Figs. 1, 2, and 3 the tapes are fastened at their lower ends, as shown at 20, the secured ends resting in the bottoms of the grooves 11. The tapes pass upwardly from their connected ends, the one marked 16 passing over the friction-block 18, thence across transversely of the shade between the bars 14 15 and around the friction-block 19 from the lower side, thence to the upper end of the window-frame and through an aperture in the top bar 21, where it is attached to one end of a spiral spring 22. The tape 17 passes from the lower right-hand corner of the window-frame up over the friction-block 19, thence transversely across the shade between the bars 14 15 and around the block 18 from the lower side, thence up along the groove at the left-hand side of the window through an aperture in the top rail 21, and is attached to the opposite end of the spring 22. Said spring may be fastened at its middle, thus making it in effect two independent or single springs, or it may be left free, in which case it serves as an elastic connection between the ends of the tapes 16 17. In either case the strength of the spring should be such as to give proper tension to the tapes and to take up any slack therein. The pull of the spring will serve to

increase the friction of the tapes, but the friction of the latter is considerable by reason of the fact that they are in rubbing contact with the extended curved surfaces of the friction blocks or disks 18 19. The same effect is produced by the weights 23, and the construction shown in Fig. 6 is otherwise the same except that the upper ends of the tapes are made fast instead of their lower ends. Again, to increase the friction upon the tapes the staggered row of pins 24 might be employed and the tapes passed alternately over and under said pins, as shown in Fig. 7, thus increasing their frictional hold. With such construction the tension devices might in some cases be dispensed with and the friction-blocks might also be dispensed with or modified in construction. In Figs. 8 and 9 I have shown a spring-actuated brake-shoe 25 for increasing the friction of the tapes in passing over the disks 18 19.

While I have described my invention as applied to a shade-holding mechanism in which the flexible strands are fixed at one point and stationary relatively to the shade, yet my tension device may be applied to an endless cord or cords or other flexible connection running with the shade.

The modifications above described are intended as suggestive merely, and it will be understood that some of the features of my invention may be employed in a structure where others are omitted. For example, while I prefer to use the flexible tapes, my tension devices would be of material benefit if applied to the cord devices now in use.

The operation of my invention will be readily understood. In manipulating the shade it may be pushed up or pulled down by taking hold of its lower margin at any point. As the shade moves its lower margin is held in a horizontal position, and the friction of the tapes must be sufficient to hold the shade in any adjusted position against the pull of the spring of the shade-roller.

I claim—

1. A shade-holding mechanism comprising in combination a stationary spring-actuated roller to which the shade is attached, a flexible strand engaging and guiding the opposite end of the shade and means for automatically tensioning said flexible strand, substantially as and for the purpose described.

2. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade having fixed guides near its side margins, flexible strands passed over said guides from opposite sides of the shade and secured against longitudinal movement and means for automatically tensioning said flexible connections, substantially as and for the purpose described.

3. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade having fixed guides

near its side margins, flexible metal tapes passed over said guides from opposite sides of the shade and each having one end thereof extending upwardly and the other extended
5 downwardly parallel to the side margin of the shade and secured against longitudinal movement and suitable friction devices carried by the shade and contacting with said tapes, substantially as described.

10 4. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade carrying a rigid bar or shade-stick, guides mounted upon the ends
15 of said bar and a flexible tape or tapes having strands thereof extending transversely of the shade over said guides and extending parallel to the margins of the shade and means for automatically tensioning said tapes, substantially as described.
20

25 5. A shade-holding mechanism comprising in combination a spring-actuated shade-roller, a shade attached at one end thereto, parallel bars carried by the opposite end of said shade, guides secured between the outer ends of said bars and projecting beyond the ends thereof, flexible tapes passing over said guides and between said bars and thence parallel to the side margins of the shade and means for

tensioning said tapes, substantially as described. 30

6. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade having fixed guides
35 near its side margins, flexible tapes passed over said guides from opposite sides of the shade and secured against longitudinal movement and a spring or springs connected to said tapes, substantially as described. 40

7. A shade-holding mechanism comprising in combination a spring-actuated roller to which one end of the shade is attached, the opposite end of the shade having fixed guides
45 near its side margins, flexible metal tapes passed over said guides from opposite sides of the shade and each having one end thereof extending upwardly and the other extended downwardly parallel to the side margin of the shade and secured against longitudinal
50 movement, suitable friction devices carried by the shade and contacting with said tapes and automatic means for tensioning said tapes, substantially as described.

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