

(No Model.)

2 Sheets—Sheet 1.

H. H. FORSYTH, Sr., H. H. FORSYTH, Jr. & W. H. FORSYTH.
HOLDING MECHANISM FOR SPRING ACTUATED SHADES.

No. 524,060.

Patented Aug. 7, 1894.

Fig. 1.

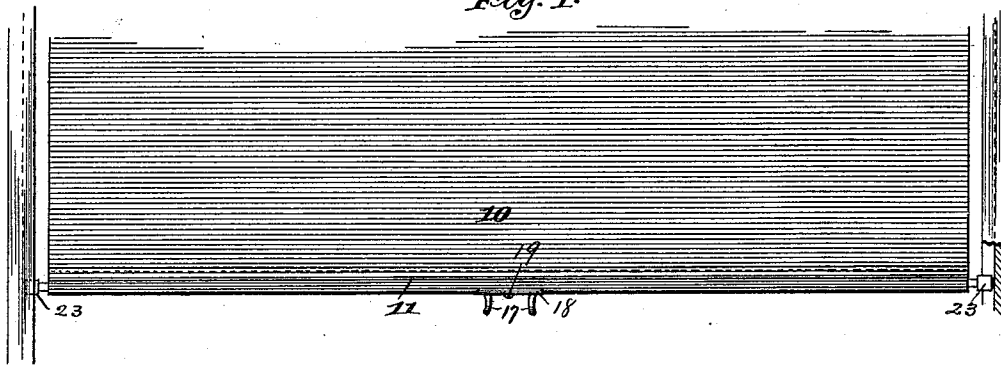


Fig. 2.

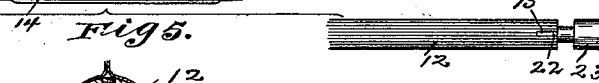
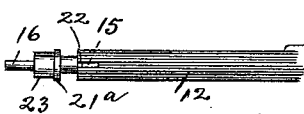
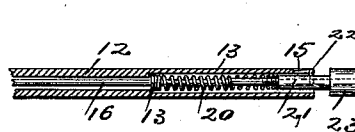
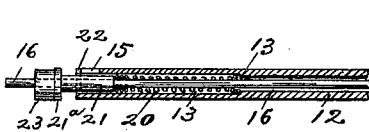
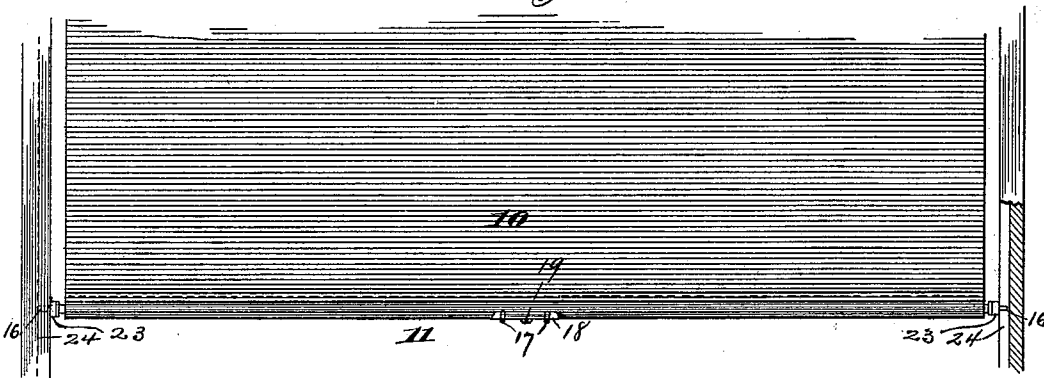


Fig. 9.



Witnesses:
J. Mann
G. B. Goodrum

Inventors
Henry H. Forsyth Sr.
Henry H. Forsyth Jr.
William Holmquist Forsyth
J. Offield, maker of Lithium
Ally.

(No Model.)

2 Sheets—Sheet 2.

H. H. FORSYTH, Sr., H. H. FORSYTH, Jr. & W. H. FORSYTH.
HOLDING MECHANISM FOR SPRING ACTUATED SHADES.

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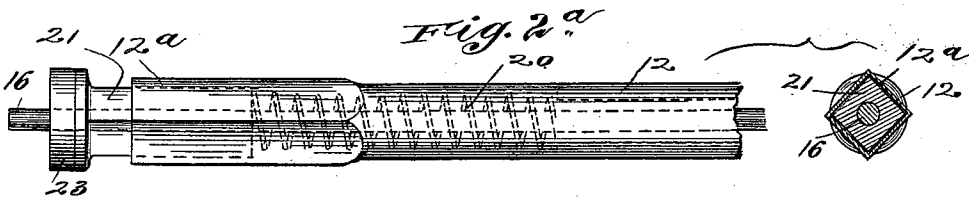
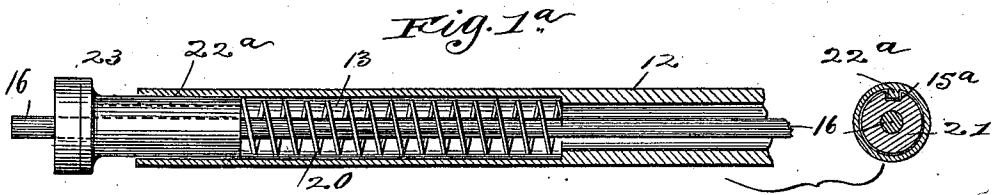


Fig. 3a

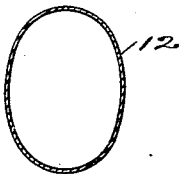
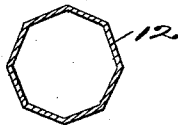


Fig. 4a



Witnesses,

J. Mann
Frederick Goodwin

Inventors,

Henry H. Forsyth Sr
Henry H. Forsyth Jr
William Holmes Forsyth
By Alfred Bowler Smith

UNITED STATES PATENT OFFICE.

HENRY H. FORSYTH, SR., HENRY H. FORSYTH, JR., AND WILLIAM HOLMES
FORSYTH, OF CHICAGO, ILLINOIS.

HOLDING MECHANISM FOR SPRING-ACTUATED SHADES.

SPECIFICATION forming part of Letters Patent No. 524,060, dated August 7, 1894.

Application filed February 15, 1894. Serial No. 500,808. (No model.)

To all whom it may concern:

Be it known that we, HENRY H. FORSYTH, Sr., HENRY H. FORSYTH, Jr., and WILLIAM HOLMES FORSYTH, of Chicago, Illinois, have
5 invented certain new and useful Improvements in Holding Mechanism for Spring-Actuated Shades, of which the following is a specification.

The object of our invention is to provide
10 a holding mechanism for spring actuated shades, adapted especially for use in railway cars.

The invention relates to a novel construction of means for frictionally holding the
15 shade in any adjusted or desired position and means for releasing the frictional holding device to adjust the shade to any new position.

The invention relates particularly: First. To a novel means for slidably connecting the
20 spring actuated friction locking rods with the tube carried by the shade, so as to prevent axial rotation of the rods. Second. To a novel guiding and frictional holding device. Third. To a peculiarly formed escutcheon
25 used in combination with certain other features of construction. Fourth. To certain other features of construction and combinations of parts as hereinafter described and particularly pointed out in the claims.

Devices of this general character are known
30 and have been extensively used, but our invention is directed to certain improvements in the structural features whereby our frictional holding means are caused to operate
35 differently from any now in use and in a superior manner. There is also attained by our invention simplicity in the number and forms of the parts, economy of construction and a capacity for the ready assembling and
40 interchanging of parts quickly and by means of simple tools and without removing the shade from its position.

In carrying out our invention we employ in
45 the preferred construction, a tube, preferably a gas pipe of small bore, which is inserted in or attached to the lower margin of the shade. In this tube are slidably mounted two spring actuated rods carrying the frictional holding means. These rods are extended beyond the
50 friction devices and constitute guides, said guides moving up and down in grooves

formed in the casing. The rods are controlled by hand pieces detachably connected with the rods and projected through an aperture or
apertures, in the tube and through a corre- 55 sponding aperture or apertures, in a curved plate or escutcheon. This plate or escutcheon affords a suitable outer and inner guide and bearing surfaces for the hand pieces, and the end walls of the apertures in the escutcheon form abutments or stops to limit the out- 60 ward movement of the spring actuated rods. These rods are also of peculiar construction. They have a threaded connection with the hand pieces, and these latter are shouldered 65 so as to afford bearing surfaces on the exterior and interior of the escutcheon, and also to prevent lateral movement of the hand-pieces. The outer ends of the rods, or a part connected thereto, carry pins which are 70 adapted to travel in slots in the ends of the tube. The pins serve the purpose of preventing the turning of the rods and their consequent detachment from the hand-pieces, while the ends of said slots form stops which, when 75 engaged by the pins may limit the inward movement of the spring actuated rods.

In the preferred construction the ends of the spring actuated rods are extended to act as guides which travel in narrow slots or 80 grooves formed in the casing or by strips applied to the casing. Instead of employing a frictional disk which travels in the groove and is forced into contact with the rear wall thereof by the spring actuated rod, we preferably employ a friction disk, which is carried 85 by the rod, but does not enter the groove, and which serves to lock the shade frictionally by the impingement of the end of the disk against the outer surfaces of the casing 90 or guide strip adjacent to the groove. By this means the large unsightly slot necessary to be provided in the use of older constructions of frictional shade holders is dispensed with, and the holder is especially adapted 95 not only to finely finished cars, but also to those cars whose casings are narrow and afford no room for large grooves.

In the accompanying drawings, Figure 1 is a broken elevation, partly in section, showing 100 our invention as applied in a construction where friction disks travel within the grooves

or guide ways. Fig. 2 is a similar view showing the preferred construction, where the extended ends of the rods only travel within the guide ways and the ends of the friction disks impinge the surfaces adjacent to the grooves and showing also the preferred construction of hand piece. Fig. 3 is a longitudinal broken sectional elevation, showing at one end the friction disk adapted to travel in the slot and at the other end the extended guide with a friction disk adapted to impinge the surfaces at the sides of the groove. Fig. 4 is a broken plan view of the curved plate or escutcheon in position over the aperture of the tube, the outlines of the aperture of the latter showing by dotted lines. Fig. 5 shows the ends of the tube with its slots and the ends of the rods with their pins and showing the relation of the latter to the slots. Fig. 6 is a transverse sectional elevation through the tube and escutcheon, the margin of the curtain secured in place and the preferred construction of hand piece showing in end elevation in full lines, the alternative construction being indicated by dotted lines. Fig. 7 is an end view of the rod and tube showing the relation of the pin to the slot, and Figs. 8 and 9 show, respectively, the narrow and wide grooves or guide ways in the casing. Fig. 1^a shows in longitudinal and transverse sectional views a modification of the construction wherein the pin is carried by the tube and works in a sleeve carried on the rod. Fig. 2^a shows in elevation and transverse section two views of the modification wherein the pin and slot connection between the tube and rod is omitted, the outer end of the tube being squared, and the sleeve carried by the rod being in corresponding cross-section in order to prevent rotation. Figs. 3^a and 4^a show a transverse sectional elevation of tubes of modified construction.

In the drawings, 10 represents the curtain which is usually attached at its lower margin to a narrow strip of leather 11 doubled upon itself to provide a sheathing to receive the tube.

The tube is marked 12, and is preferably constructed from a gas pipe of small diameter cut to the appropriate length and which is reamed out or enlarged interiorly, as at 13, to provide a spring chamber in each end of the tube. The middle portion of this rod has an aperture 14, and the outer ends of the tube are slotted as at 15. Within the hollow of the tube are slidably mounted the rods 16, whose inner ends have a threaded connection with the hand pieces 17, said hand pieces having the shoulders 17^a 17^b, the former being adapted to ride upon the inner surface of the escutcheon 18, and the shoulders 17^b being adapted to ride on the outer surface thereof, as clearly shown in Fig. 6. The hand piece has its outer end projected beyond the plane of the shade at an angle thereto, so as to permit the shade to be drawn down close to the window sill, to permit the hand pieces to be

grasped without danger of jamming the ends of the fingers against the sash bar; the curtain will also be closer to the sash and the fixture is more sightly.

The curved plate or escutcheon 18 is secured to the tube, by the binding screw 19, and is intended to be held rigidly in place so that it cannot move endwise when in use. It provides a bearing for the shoulders of the hand pieces and has an elongated aperture or apertures 18^a, the outer ends of which form abutments to limit the outward movement of the rods. Two apertures 18^a are shown separated by the bridge 19^a through which the binding screw 19 passes. The rods are normally thrust outwardly by means of the coiled springs 20, which are seated in the spring chambers 13 of the tube 12. The inner ends of these springs take a bearing against the shoulder formed by the reaming out of the bore of the tube, and the outer ends of the springs have a bearing upon the rods, as for example, in the construction shown, by engaging the inner ends of the enlarged sections 21, which are longitudinally bored to slip over the rods and are secured thereto by the pins 22. The sections 21 have the heads 21^a, and the friction disks 23 are slipped over the extended ends of the rods 16, leaving a portion of said rods uncovered, as seen in Fig. 2, and at the left of Fig. 3, said extended ends forming guides which may traverse the narrow groove 24, Fig. 8. The pins 22 are prevented from leaving the slots in the ends of the tube in the operation of the device by reason of the relative length of the apertures in the escutcheon or plate 18, with reference to the aperture 14 in the tube, the escutcheon being secured in place after the parts are assembled.

By reference to Figs. 3 and 4 it will be seen that the length of the apertures in the escutcheon is less than the length of the aperture in the tube. In assembling the parts the escutcheon is placed over the aperture in the tube and the head of one of the hand pieces inserted through the aperture of the escutcheon and into the aperture of the tube. The escutcheon is then moved toward one end of the tube and the rod 16 is inserted and engaged with the hand piece. The escutcheon is then moved toward the opposite end of the tube and the rod inserted from that end and engaged with its hand piece and finally the escutcheon is moved back to its ultimate position, drawing the pin of the secured rod into its slot and the escutcheon is secured by its screw. When in this fixed position the ends of the apertures in the escutcheon form abutments to limit the outward movement of the rods and to prevent the pins carried thereby from at any time leaving the slots. The result of this is that the rods themselves are prevented from axial rotation which would effect their disengagement from the hand pieces; and the pins may be made further to serve the purpose of limiting the in-

ward movement of the spring actuated rods, although the heads 21^a of the enlarged sections 21 may abut against the outward ends of the tubes, and thus limit the inward movement of the rods.

In the construction shown in Fig. 1, the disks 23 enter the slots and impinge upon the bottom wall thereof, thus frictionally locking the shade to any position to which it is adjusted. In the construction shown in Fig. 2, and which is the preferred construction, the extended ends of the rods serve as guides, while the end of the disk impinges upon the outer surface of the casing or strips in which the groove is formed and enables the employment of the narrow groove shown in Fig. 8. In the construction illustrated in Fig. 3 it will be observed that two apertures 18^a are provided in the escutcheon with an intermediate bridge through which the binding screw 19 passes, but as this bridge in this case serves only the purpose of a support for the screw itself, it may be omitted, and the screw applied in a different manner. For example, the screw may pass through the margins of the escutcheon or plate horizontally instead of vertically through its bridge.

By reference to Fig. 6 it will be seen that the escutcheon or curved plate 18 is comparatively narrow and that its margins do not extend to the axial line of the tube. This is preferred because only a small metal surface is thereby exposed and the fixture is kept clean with less labor and its appearance is enhanced.

It is obvious that instead of employing the separate sections 21, the pins 22 might be secured in the rod and form the stops for the outer ends of the springs 19, and the disks 40 might be held upon the rods in other manner than by abutment against the heads 21.

The advantages of the construction will be apparent from the above description. The gas pipe employed is strong and cheap, and an aperture may be provided therein without removing a large section of material, by cutting out a narrow section and then expanding the walls of the tube on either side of the aperture to a sufficient width to receive the heads of the hand pieces. The tube itself need not be accurately and smoothly finished at its central aperture, because the guides for the hand pieces are formed by the escutcheon. The slots in the outer ends of the tubes do not require accuracy of finish, but are made sufficiently large to permit the pins to slide freely therein while preventing the rods from turning. The parts may be readily assembled and when necessary replaced or interchanged without removing the curtain, by the removal of the binding screw 19, whereupon any part of the fixture may be taken out or replaced by hand. By constructing the tube of gas pipe requisite strength may be secured in a tube of very small diameter, and therefore a more sightly fixture can be obtained than where sheet metal tubes are used as

heretofore. By forming the bearing in the escutcheon instead of in the tube, we are enabled to secure a free and smooth working device and the hand pieces having a bearing both upon the inside and upon the outside of the plate are prevented from turning or twisting in any manner or from getting into any position where binding would result and the easy action of the fixture be interfered with.

We have shown and described two oppositely movable rods mounted in the tube, but it will be understood that sometimes only one rod is employed. The means for preventing the rotation of the rod within the tube may be considerably varied, as for example, as shown in Fig. 1^a instead of the form of pin shown in the preceding figures, a lug or key 22^a is employed which is secured to or formed integrally with the tube and works in a slot 15^a of the enlarged section 21 of the rod.

In the construction shown in Fig. 2^a the pin and slot connection is omitted, and the end of the tube is squared as at 12^a, and the enlarged section 21 is also squared.

The word "tube" as is used in the specification and claims is intended to refer to any suitable holder, sheath or covering for the spring actuated rod, and it will be understood that it is not essential to employ a holder of strictly tubular form, or that the tube should be entire or closed, for example, we have shown in Figs. 3^a and 4^a tube sections which vary slightly from the cylindrical, as for example, the form shown in Fig. 3^a being elliptical and the form shown in Fig. 4 polygonal. It will be understood that when tubes of the last named forms are employed and the rods carry enlarged sections of similar shapes, the pin and slot connection between the rod and the tube may be dispensed with as in Fig. 2^a.

It will be obvious from what is said above that the structural features may be considerably varied without departing from the spirit of the invention, and therefore, without limiting our invention to precise details of construction,

We claim—

1. In a holding mechanism for spring actuated shades, the combination with a tube to be carried by the shade, of a spring actuated rod slidably mounted within the bore of the tube, a hand piece detachably connected with the inner end of the rod, means applied to the outer end of the tube for preventing the rotation of the rod and thereby the disengagement of the hand piece, and means for limiting the endwise movement of the rod, substantially as and for the purpose described.

2. In a holding mechanism for spring actuated shades, the combination with a tube to be carried by the shade, of a spring actuated rod slidably mounted within the bore of the tube, means for preventing the axial rotation of the rod, the wall of the tube being slotted, a slotted escutcheon fitted over the slot in the tube and a hand piece projected through the

slots of the escutcheon and tube and detachably connected with the rod, the aperture of the escutcheon being of less length than the aperture of the tube, substantially as and for the purpose described.

3. In a holding mechanism for spring actuated shades, the combination with a tube to be carried by the shade, a spring actuated rod slidably mounted in the tube and projecting beyond the end of the tube, the latter having an aperture toward its middle, a hand piece projecting through said aperture and detachably connected with the rod, a slot and pin connection between the rod and the tube, and an escutcheon having an aperture through which the hand piece also projects, the aperture of the escutcheon being of less length than the aperture of the tube whereby after the parts are assembled, the pin is prevented from leaving the slot, substantially as described.

4. In a holding mechanism for spring actuated shades, the combination with a tube having an aperture in its wall intermediate its ends and longitudinal slots in its wall at its ends, spring actuated rods mounted within the tube, pins carried upon said rods and adapted to enter the slots of the tube, hand pieces connected with the inner ends of the rods and extending in position to be grasped and an escutcheon having an aperture through which the hand pieces project and in which they may slide, said aperture being of less length than that of the tube, whereby the parts may be assembled and the pins are prevented from escaping the slots in operation, substantially as described.

5. In a holding mechanism for spring actuated shades, the combination with a tube having an aperture in its wall intermediate its ends, and longitudinal slots in its wall at its ends, spring actuated rods having pins working in the slots and carrying friction devices beyond the ends of the tube, hand pieces secured to the inner ends of the rods, and an escutcheon having apertures through which the hand pieces work, the apertures in the escutcheon being separated by a bridge and a binding screw passing through a perforation in the bridge and engaging the tube whereby to fix the escutcheon in place, substantially as described.

6. In a holding mechanism for spring actuated shades, the combination with a tube having a spring actuated friction locking rod

mounted therein, a hand piece detachably connected to the inner end of said rod, an escutcheon detachably secured over the aperture in the tube and having an aperture through which the hand piece also projects, said hand piece being provided with shoulders adapted to bear internally upon said escutcheon, substantially as described.

7. In a holding mechanism for spring actuated shades, the combination with a tube having a central aperture, a spring actuated rod slidably mounted in said tube, a hand piece passing through said aperture and secured to the inner end of the rod, and an escutcheon adapted to be secured over the aperture in the tube and having an opening of less width than the aperture of the tube whereby to form side guides or bearings for the hand piece, and the latter having also a bearing on the interior of the escutcheon substantially as described.

8. In a holding mechanism for spring actuated shades, the combination with a tube, of a spring actuated rod mounted therein and provided with a friction device beyond the end of the tube and a guide extended beyond the friction device and adapted to enter a groove or guide way and guide the shade in its vertical movement, substantially as described.

9. In a holding mechanism for spring actuated shades, the combination with a tube, of a spring actuated rod mounted therein and carrying a friction device, the end of the rod being extended beyond the friction device and adapted to enter a groove or guide way, and the frictional device being adapted to impinge the surface adjacent to the opening of the groove or guide way, substantially as described.

10. In a holding mechanism for spring actuated shades, the combination with a tube, of a spring actuated rod mounted therein, the tube being apertured and a hand piece having one of its ends connected with the rod and extending through the aperture in the tube and its outer end turned or bent and projected beyond the plane of the shade, and at an angle thereto, substantially as described.

HENRY H. FORSYTH, Sr.

HENRY H. FORSYTH, Jr.

WILLIAM HOLMES FORSYTH.

Witnesses:

C. C. LINTHICUM,

F. C. GOODWIN.