

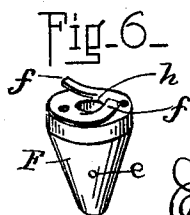
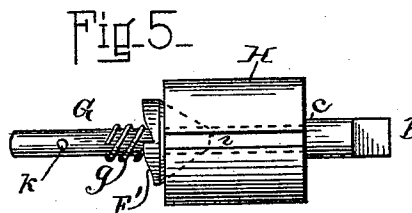
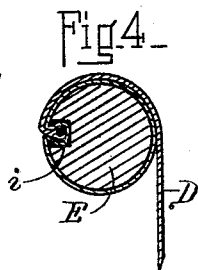
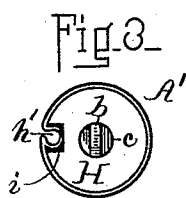
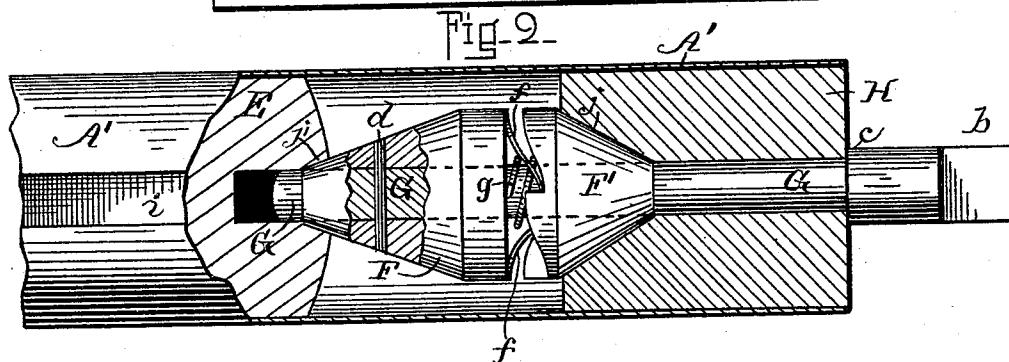
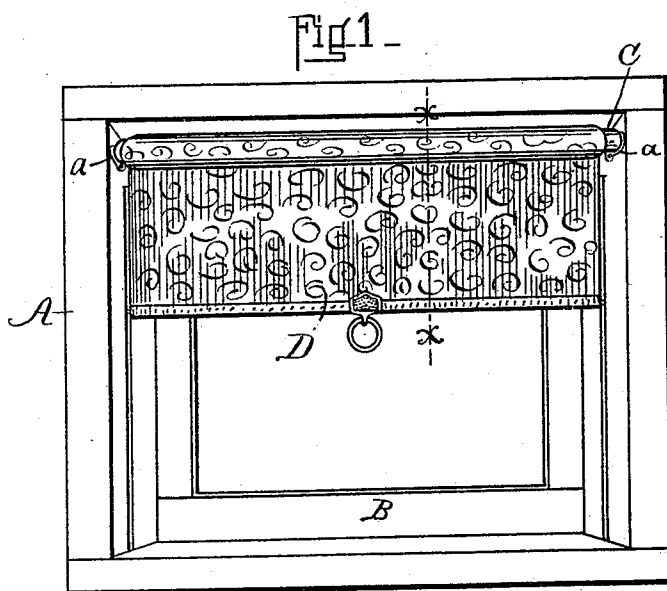
(No Model.)

2 Sheets—Sheet 1.

G. A. CRISSON.
FRICTION ROLLER.

No. 471,467.

Patented Mar. 22, 1892.



WITNESSES

WITNESSES
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Jamil. St. Jacobson

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Lewis Abraham
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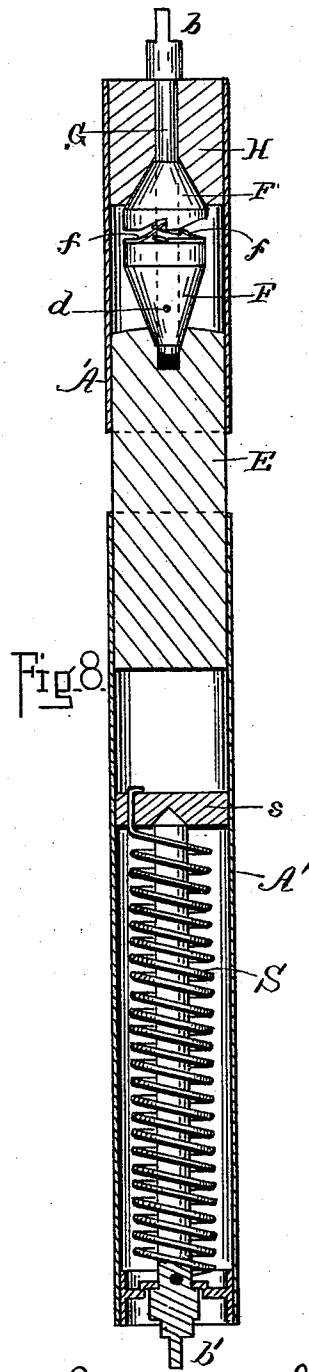
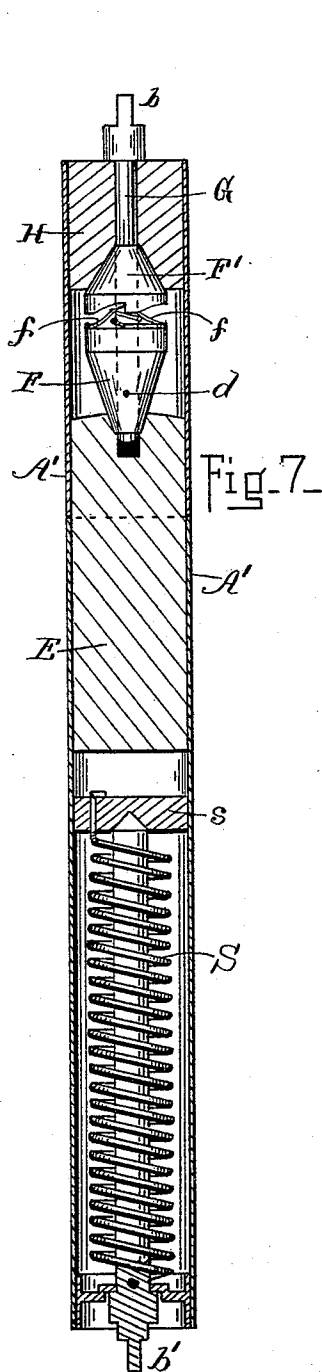
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

GEORGE A. CRISSON, OF TARRYTOWN, NEW YORK.

FRICTION-ROLLER.

SPECIFICATION forming part of Letters Patent No. 471,467, dated March 22, 1892.

Application filed December 3, 1891. Serial No. 413,912. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. CRISSON, a subject of the Queen of Great Britain, residing at Tarrytown, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Friction-Rollers; 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.

My invention relates to spring-rollers for window-curtains of the class wherein a friction device is employed; and my invention consists in a novel and useful construction whereby the ascent and descent of the curtain will be automatically controlled at any desired elevation.

My invention further consists in a device whereby the length of the roller can be regulated so as to fit openings of diverse widths, and in the combination thereof with friction-clutches and attachments thereof, all as hereinafter fully described, illustrated in the drawings, and specifically pointed out in the claims.

Referring to the accompanying drawings, wherein like letters of reference point out similar parts on each figure, Figure 1 is a front perspective view of a window-frame having adjusted therein a shade according to my invention. Fig. 2 is an enlarged view, partly in section, of the roller, parts being broken away to show interior construction. Fig. 3 is an end view of the same; Fig. 4, a vertical section on the line *xx* of Fig. 1; Fig. 5, a side elevation of the friction-clutch and related parts; Fig. 6, a perspective view of axially-bored abutment provided on its face with spring-pawls. Fig. 7 is a sectional view of a roller provided with my improved friction-clutches. Fig. 8 is a like view showing the roller extended in length.

A is the window-frame; A', the casing of the roller, preferably composed of sheet metal; B, window-sash; C, shade-roller; D, shade; E, extensible wooden roller; F, abutment; F', friction-clutch; H, sleeve; *a a'*, roller-brackets; *b b'*, flattened terminal ends of spindle; *c*, shoulder near end of spindle; *d*, pin to secure part F in place on spindle G; *e*, orifice on F for reception of pin *d*; *ff*, spring de-

tents or pawls on surface disk of F; *g*, short spiral spring surrounding spindle G intermediate of members F F'; *h*, axial bore in F to receive spindle G; *i*, recess in rollers to receive folded upper end *h'* of shade; *j*, conical recess for reception of cone of friction-clutch F'. *j'* is a similar recess in roller E for reception of abutment F when made in the form shown. Said recess will, however, be of suitable size and shape to conform to the construction of said abutment, the lower extension from its face being not necessarily conical.

The inner end of spindle G is supported in a recess in the end of wooden roller E for the purpose of keeping said spindle axially central, and thus avoid unequal friction of the clutch.

k is an orifice in spindle for reception of ends of pin *d*; S, torsion-spring; *s*, wooden disk within the tube A', to which the inner end of said spring is secured and having a central recess forming a bearing for the inner end of the spindle around which the spring is wound.

My invention is adapted principally for employment on blinds for railway-cars, although I do not limit it to such application. It is equally adaptable to any form of rollers where it is desirable to control the movements of window-shades in order to arrest their upward and downward movements at any desired elevation.

No special torsion winding spring to operate the shade is claimed, as my improvement is adjustable to any well-known devices of this character. The outer tube is divided into two sections, the main section carrying the winding-spring, as plainly shown in Fig. 8.

Permanently attached within one section of the tube A' is the solid roller E, which can be slid its full length within the tube toward the disk *s* (see Fig. 7) or withdrawn a given distance to increase the length of the roller and attachments, as plainly shown in Fig. 8. It will thus be understood that the roller, with its attachments, can be graded for adjustment within openings of diverse dimensions.

I do not claim, broadly, the means for extending the length of the device by utilization of an interior sectional roller, as I am aware such devices have been used previous to my present improvement thereon.

Within one end of the tubing A' is a metallic sleeve H, centrally bored nearly its full length for the reception of spindle G. The opposite ends of this sleeve are flat (see Fig. 5) at the inner terminal end of the bore for passage of spindle. The sleeve is provided with conical recess *j*, forming a socket within which the cone-clutch F' is free to rotate and will axially turn therein. Its outer face is provided with ratchets for a purpose presently set forth. The abutment is provided with axial bore *h* for passage therethrough of spindle G, and is connected thereto by pin *d*, passing through aperture *k*, whereby it is held fast to said spindle.

The face of abutment F is provided with a series of spring-pawls *f*, whereby when motion is imparted to the roller and the abutment and cone are brought into juxtaposition the pawls and ratchets will be engaged and released and operate the clutch within the seat of sleeve H. A small spiral spring *g* encircles the spindle intermediate of the cone-clutch and abutment and keeps them normally separated a slight distance. (See Fig. 2.)

When cone F' is forced within its aligning socket, it will be understood that a graduated friction will be imparted to the obliquely-inclined coinciding surfaces without any sudden shock or jolt, the grip imparted thereto being correlative to the torsion of the main spring and the balance-weight at the end of the shade, and it will be easily held at and released from any desired elevation and be thereat maintained without risk of being displaced by any sudden jolt imparted to the frame in which the shade is suspended.

The sleeve H is provided on its periphery with a lengthwise recess *i*, and the roller E is provided with a like recess its full length, whereby when said sleeve and roller are within the tube A' a continuous channel is formed for reception of the overturn of the fabric of which the shade is composed, as common in analogous devices.

In Fig. 1 I have illustrated a shade with a lower rod, the opposite ends of which are inserted within vertical grooves of the frame A; but I do not restrict myself to such construction or combination. The lower rod, however, must be weighted to counterpoise torsion of spring S, so that the shade D will not rise until gentle upward force is imparted to said weighted end.

It is intended to place a small knob or button on the weighted rod where a ring is shown in the drawings for facilitating the movements of the shade.

From the foregoing description, in connection with the drawings, the nature and object of my invention will be readily understood by all familiar with the class to which it is allied. Its operation may be thus briefly described: When the shade is pulled down, the torsion-spring is tightened in the well-known manner. When it is desired to elevate the shade, gentle pressure is imparted to the weighted rod

at its lower end, causing the sleeve H and cone F' to turn on their axes. As revolution progresses the spring-pawls on the abutment F' will intermesh with ratchets on cone F', and will continuously overcome any tendency for the shade to drop as the two members of the clutching device will be interlocked.

Thus my invention broadly consists of a compound reversing friction-clutch controlling the vertical movements of the shade during its downward and upward movements.

Having thus fully described my invention and its operation, what I claim, and desire to secure by Letters Patent of the United States of America, is—

1. The within-described compound friction-clutch for curtain-rollers, consisting of a sleeve with an interior conical recess, a revoluble cone seated therein, and a fixed abutment F, said cone and abutment having on their juxtaposing faces intermeshing ratchet and spring pawls, in combination with a torsion-spring, all arranged within tubular casing A', substantially as described.

2. The abutment F, centrally bored for passage of spindle G, provided with transverse aperture for reception of pin *d* to connect it through aligning orifice *k* to said spindle, said abutment having pawls *f*, roller E, having recess-bearing for end of spindle G, cone F', its surface provided with outwardly-extending ratchets, said abutment and cone mounted on spindle G and maintained separated thereon by spiral spring *g*, coiled over the spindle intermediate of their faces, the cone-clutch F' loosely seated in socket of metallic sleeve H, all in combination with said sleeve and fixed spindle of spring-actuated curtain-roller, substantially as described.

3. In a spring curtain-roller, an attached shade having folds of its upper edge inserted within lengthwise channel of outer tubular casing A' and a counterpoise weighted rod at its opposite edge, said casing divided into sections, one section provided with interior torsion-spring S, the other section supplied with extensible wooden roller E, adapted to be extended lengthwise, said roller having seated within one of its ends terminal point of spindle G, abutment F, secured to the spindle, and metal sleeve H, adjusted within one end of the tubular casing, said sleeve having conical recess *j*, into which is loosely seated friction cone-clutch F', said abutment and clutch provided on their juxtaposing surfaces with intermeshing pawls and ratchets, all in combination with spindle passing axially through the sleeve, abutment, and cone F', substantially as described.

4. The combination, in a curtain-roller having within one end of incasing tube A axially-revoluble spindle G, of torsion-spring S, friction cone-clutch F', abutment F, provided on their respective faces with intermeshing ratchets and spring-pawls, revoluble sleeve H, and a weighted shade, all arranged as set forth and illustrated, whereby the attached shade

is automatically maintained during ascent and descent at any desired elevation, substantially as described.

5 The combination, in a spring-actuated curtain-roller, of an outer tubular casing containing a winding-spring within one section of its length and an interior extensible wooden-roller-carrying abutment F, and an aligning
10 revoluble sleeve H, having on its inner face an obliquely-inclined socket *j*, into which is seated cone-clutch F', said clutch and abutment having on their juxtaposing faces ratchets and intermeshing spring-pawls, said sleeve,
15 dle G, having short coiled spring *g*, surround-

ing the spindle intermediate of the faces of said cone and abutment, whereby as rotary motion is imparted to the roller in either direction said cone will be gradually pressed against its seat within the sleeve, and thereby control the upward and downward motion of shade attached to the device, as and for the purpose intended, substantially as described.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

GEORGE A. CRISSON.

Witnesses:

SAML. H. JACOBSON,

W. P. YOUNG.