(No Model.)

H. T. WARNER.

SPRING ROLLER FOR CURTAIN FIXTURES.

No. 290,821. Patented Dec. 25, 1883.

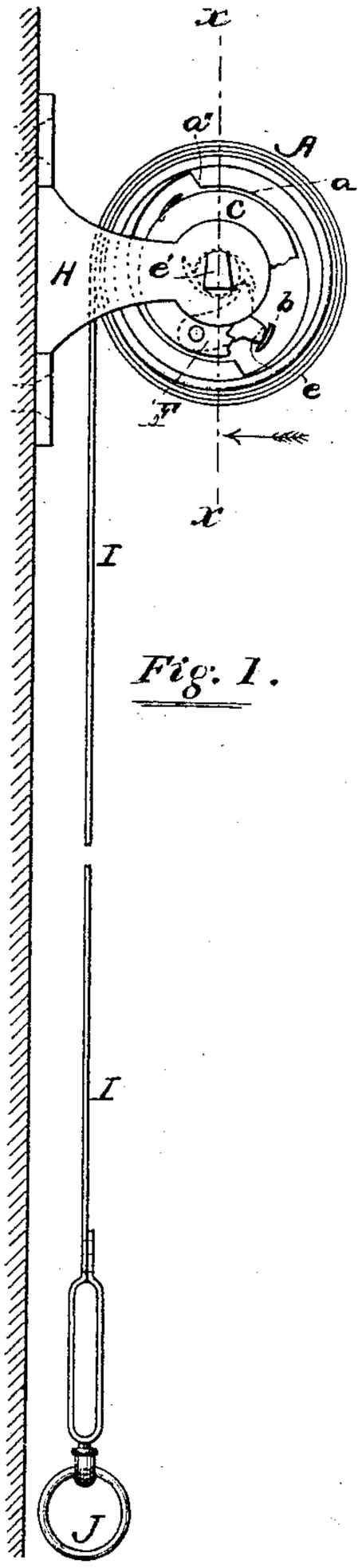

Fig. 1.

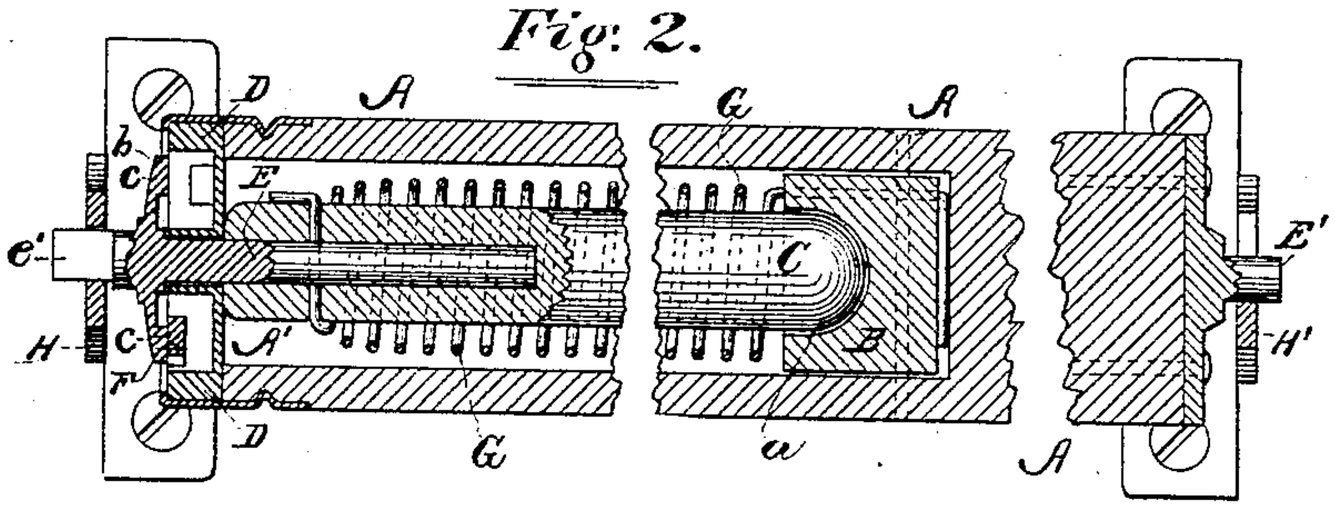

Fig. 2.

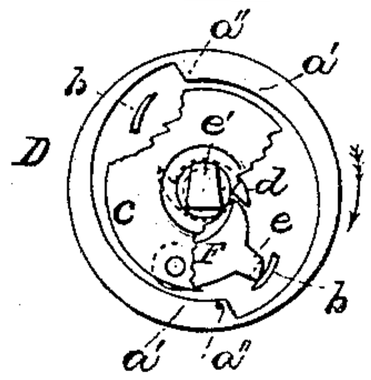

Fig. 3.

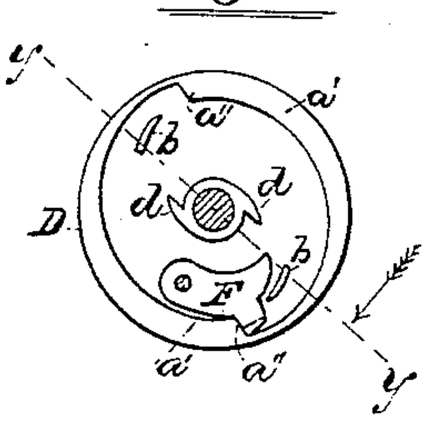

Fig. 4.

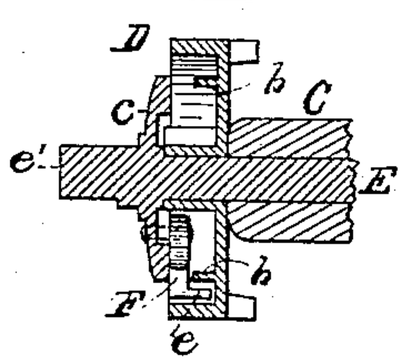

Fig. 5.

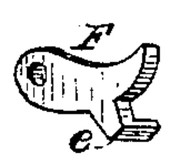

Fig. 6.

Witnesses.
H. Eury Trautwein,
W. L. Baker.

Inventor;
Harry T. Warner.
per: Gridley & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

HARRY T. WARNER, OF CHICAGO, ILLINOIS.

SPRING-ROLER FOR CURTAIN-FIXTURES.

SPECIFICATION forming part of Letters Patent No. 290,821, dated December 25, 1883.

Application filed June 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, HARRY T. WARNER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring-Rollers for Curtain-Fixtures, of which the following, in connection with the accompanying drawings, is a specification.

In the drawings, Figure 1 is an end view of a curtain-fixture embodying my improvements, the same being partly broken away. Fig. 2 is a section in the plane of the line *y y*, viewed in the direction indicated by the arrow there shown. Fig. 3 is an end view of the roller. Fig. 4 is a like representation, showing one of the outer plates removed, and representing the gravitating catch or pawl in position after releasing the roller. Fig. 5 is a section in the plane of the line *y y*, viewed in the direction indicated by the arrow there shown, and showing the relation of the outer plate to the parts covered by it; and Fig. 6 is a detail in perspective of the gravitating pawl or catch.

Like letters of reference indicate like parts.

My invention relates to that class of curtain-fixtures in which the roller is combined with a spiral spring and a stop or catch device for the purpose of adapting the curtain to be raised and lowered and retained in any desired position with facility.

A represents the roller, which has a hollow portion, A′.

B is a block having a recessed face, as shown at *a*, and this block is located at the inner end of the part A′, and there secured rigidly to the roller by means of a pin or other suitable fastening.

C is a core located in the hollow portion A′, and its innermost end rests freely in the recess *a*.

D is a cap or plate secured to one end of the roller rigidly in any suitable or well-known way.

On the external face of the plate D are eccentric flanges or cams *a′ a′*, constituting a rim upon the said plate, and forming internal shoulders, *a″ a″*.

b b are projections or rests extending outwardly from the outward face of the plate D. These rests, however, do not extend outward as far as the rim of the said plate, as is clearly indicated in Fig. 5, and they are located near the shoulders *a″ a″*, and, excepting the space between them and the said shoulders, they form a continuation of the working-faces of the cams *a′ a′*, as will hereinafter more fully appear.

E is a spindle passing through the center of the plate D and into the core C, as is clearly shown in Figs. 2 and 5.

c is a flange on the exposed or exterior part of the spindle E, and *d d* are ratchet-teeth on the hub of the plate D.

F is a detent or pawl pivoted to the inner face of the flange *c*. This pawl has a depending inbent foot, *e*. The pawl F is so located that its free end will gravitate, and so that its foot will rest or ride upon the cams *a′ a′*. The foot *e* is also of such size as to drop freely between the shoulders *a″ a″* and the rests *b b*, as is clearly indicated in Fig. 4. The outer end of the spindle E is polygonal, as shown at *e′*.

G is a spiral spring coiled loosely about the core C. One end of the spring G passes through the core C and spindle E, and the other end passes through the block B, as indicated in Fig. 2, the coil of the spring being such as to turn the roller in the direction indicated by the arrow shown in Fig. 3.

E′ is a spindle applied to the roller A. This spindle is cylindrical in form.

H H′ are supporting-brackets. The opening in the bracket H for receiving the polygonal end of the spindle E is so formed as to receive the end of the spindle, but to prevent it from turning therein. The spindle E′ turns freely in its bracket.

I is the curtain, and J is a ring in the lower slat of the curtain.

The operation of the curtain-fixture, now described, is as follows: To lower the curtain, draw it down by taking hold of the ring J for that purpose. This turns the roller in such a direction as to wind the spring, and the direction in which the roller then rotates is the reverse of that indicated by the arrow shown in Fig. 3. While the roller is being rotated in this direction, the foot of the pawl F rides up over the shoulders *a″ a″*, the said foot and shoulders being beveled slightly, as shown, so as not to result in a locking engagement when thus in contact. After drawing the curtain down the desired distance, I release it, or allow the recoil of the spring to act. This recoil rotates the roller in the opposite direc-

tion until the pawl F reaches the shoulder *a''*, and the rotation is rapid enough to cause the foot of the pawl to jump from the shoulder *a''* upon the rest *b*. By the time the foot of the pawl reaches the rest *b* the tooth *d* is in position to engage the end or point of the ratchet, and further rotation is thereby prevented, and the curtain hangs in the position in which it was arranged, or very nearly in the same position. This result occurs, for the reason that the rotation of the roller, when the recoil of the spring is not resisted, is so rapid that the action of gravity upon the pawl F is not exerted quickly enough to prevent the pawl from reaching and resting upon the rest *b;* or, in other words, the rest *b* passes underneath the horizontal part of the foot *e* before the pawl or its foot is allowed to drop into the space between the shoulder *a''* and the rest *b*. The position of the pawl and ratchet, when in locking engagement, is represented in Figs. 1 and 3.

To raise the curtain I draw it down very slightly and slowly, thus allowing the rest *b* to move away from the foot of the pawl, and the pawl then falls between the shoulder *a''* and the rest *b*. If I now permit the recoil of the spring to exert itself slowly, the horizontal part of the foot *e* will remain below the rest *b*, and hence the engagement of the pawl and ratchet will not occur. Consequently the curtain will be raised and wound upon the roller. The relative positions of the pawl, rest, and ratchet, which permit the raising of the curtain, are shown in Figs. 4 and 5. After the curtain has been raised sufficiently, I release it wholly, or enough to permit the pawl to jump upon the rest *b* in the manner already described, and the curtain will remain in its raised position.

It will be perceived, from the foregoing description and from reference to the drawings, that if the curtain be released entirely and unintentionally while being either raised or lowered, the rotation of the roller will be immediately stopped, and consequently the curtain cannot be drawn up between the brackets, and the spring cannot spend its force by then being left free to act. There will be no necessity, therefore, of removing the roller from the brackets for the purpose of again winding the spring.

In the example shown two shoulders, *a'' a''*, two rests, *b b*, and two teeth or stops, *d d*, are represented; but it is obvious that while it is preferable to employ two sets of these parts, so as to prevent a complete rotation of the roller, one set only are essential.

I desire also to state that the operation will be the same, though in my opinion not so reliable, if the eccentric or cam *a*, the tooth or catch *d*, and the rest *b* be applied to a fixed part and the pawl F to the roller or a rotary part.

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

1. The combination, in a spring curtain-fixture, of a gravitating pawl, a tooth or stop, and an eccentric or cam for carrying the said pawl into engagement with the said stop, the said cam having in its supporting or working face a space or recess to permit the gravitation or disengagement of the pawl with its stop, substantially as and for the purposes set forth.

2. The combination, in a spring curtain-fixture, of the eccentric or cam *a*, the rest *b*, the tooth or stop *d*, and the gravitating pawl F, all arranged substantially as specified with relation to each other, for the purposes set forth.

3. The combination, in a spring curtain-fixture of the gravitating pawl F, having a bent foot, *e*, and the plate D, having an eccentric rim, a rest, *b*, and a tooth or stop, *d*, the said rest not extending outward to the outer edge of the said rim, substantially as and for the purposes specified.

4. The combination, in a spring curtain-fixture, of the rotary plate D, applied rigidly to the end of the roller, and having thereon the eccentric or cam *a'*, a tooth, *d*, and a rest, *b*, and the gravitating pawl F, applied to a fixed part, substantially as and for the purposes specified.

HARRY T. WARNER.

Witnesses:
N. COWLES,
W. S. BAKER.