

(No Model.)

H. W. SIMMS.
SHADE ROLLER FIXTURE.

No. 420,417.

Patented Jan. 28, 1890.

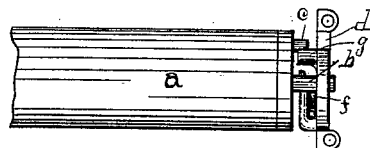


Fig-1 -

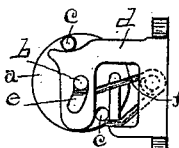


Fig-2 -

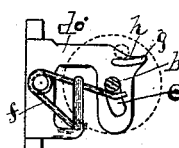


Fig-3 -

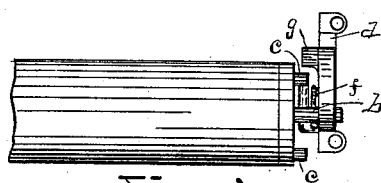


Fig-4 -

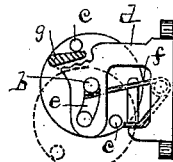


Fig-5 -

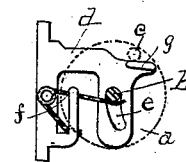


Fig-6 -

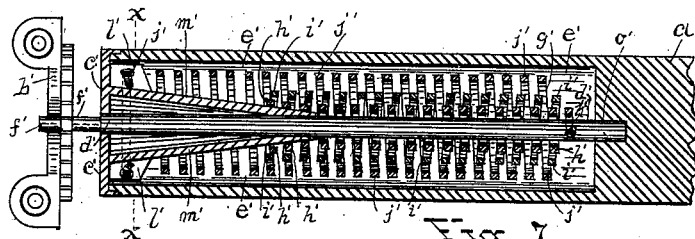


Fig-7 -

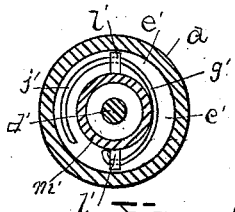


Fig-8 -

ATTEST:
J. B. Thomas
F. A. McKay.

INVENTOR:
Henry W. Simms
By Jas. B. Thomas
Atty.

UNITED STATES PATENT OFFICE.

HENRY W. SIMMS, OF BAY CITY, MICHIGAN.

SHADE-ROLLER FIXTURE.

SPECIFICATION forming part of Letters Patent No. 420,417, dated January 28, 1890.

Application filed December 3, 1888, Serial No. 292,487. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. SIMMS, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful improvements in Shade-Roller Fixtures; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The first portion of my invention relates to the supporting and locking devices used in that class of shade-fixtures in which an inclosed actuating-spring furnishes the power for properly revolving the roller for raising the shade, and pertains especially to that class of supporting devices which has a slotted bracket and a lifting-spring for carrying the roller and for placing the parts in a proper position for locking; and this part of the invention relates particularly to improvements on the device set forth in Letters Patent of the United States granted to me July 20, 1886, No. 345,812, and is withdrawn from the application filed by me on June 19, 1888, Serial No. 277,541; and the second portion of my invention relates to devices for properly supporting the coils of the actuating-spring in relation to each other, whereby a freer and more uniform operation of the spring upon the roller is provided and the trouble of kinking or interlocking the overlapped coils which takes place when the spring is entirely wound up or given its full tension is avoided; also, in shade-fixtures of the class mentioned, as commonly constructed great trouble and annoyance are caused by the pawl or catch slipping from one notch to another on the ratchet, the impact of the revolving roller and ratchet-wheel against the catch causing the lifting-spring to recede slightly and permit the catch to pass over several notches with a rattling noise, and this action of the parts also allows the roller to wind up or lift more of the shade than is intended when the shade is released by the operator before the pawl

is securely engaged with the teeth of the ratchet; and a further object of my invention is to provide devices for locking the roller in any desired position readily and positively and without noise or rattling, whereby the shade may be lifted to any desired position and there retained after being released without liability of being raised above the height intended by a further movement of the roller.

My invention is illustrated in the accompanying drawings, Figure 1 therein being a front view of one end of a shade-roller supported by my invention in position with the roller locked. Fig. 2 is an end view of the same. Fig. 3 is a view of the inside of the bracket shown in Fig. 2. Fig. 4 is the same as Fig. 1, with the roller unlocked for winding the shade thereon. Fig. 5 is the same as Fig. 2, partly sectional and showing the locking device in a modified form. Fig. 6 is a view of the opposite side of the bracket shown in Fig. 5. Fig. 7 is a longitudinal section of the opposite end of the roller and of the actuating-spring device for sustaining the spring. Fig. 8 is a section taken at $x x$ in Fig. 7, looking to the left.

Similar letters indicate the same parts throughout the several views.

a is the shade-roller, and upon one end of the roller is secured an end piece a'' , which, for convenience, is provided with a flange which fits over the end of the roller, and b is a roller-journal, which projects from the center of the end piece.

$c c$ are lugs, which project outwardly from the end piece or the end of the roller and are preferably located between the journal and the periphery of the end piece.

d is a supporting-bracket provided with a vertical slot e , in which rests the roller-journal b , and which is lifted to and retained in position in the upper portion of the slot by a lifting-spring f , suitably secured upon the inner side of the bracket d . Upon the portion of the bracket d which extends upwardly above the slot e is a lug or clutch g , arranged to project toward the roller and in a suitable position to allow the lugs c to catch upon or engage therewith when the journal is in the upper portion of the slot e ,

as shown in Figs. 1, 2, 3, and 5, and to permit the lugs to pass without engagement therewith when the roller-journal is held in the lower portion of the slot, as shown in Figs. 4 and 5.

The lug or clutch *g* is shown in the illustrations as arranged with a curved or concaved upper side *h*, the contour of the curve or concave being so formed as to bring the forward portion thereof in front of the lug *c*, and also to reach the rear portion thereof beneath the lug as the roller is revolved by the actuating-spring while the roller-journal is in the upper portion of the slot, and the lug, being caught in this manner, at once stops the revolution of the roller, and at the same time retains the journal in the upper portion of the slot until the roller is revolved backward, which movement instantly releases the lug from engagement with the clutch *g*. The result of this arrangement and construction is that when the lug *c* is thrown into engagement with the lug *g* with great force it is there retained in a positive and sure manner, which avoids a tendency and liability of the roller-journal *b* moving downward in the slot *e*, from the action of the jarring and recoil of the engagement upon the lifting-spring and allowing the lugs to pass beneath the clutching device *g* with a jarring and rattling noise, an action frequently obtained when the lug *c* is caught upon its side portion, instead of beneath, as in the device herein shown. The opposite end of the roller, as shown in Fig. 7, is provided with a cap-piece secured to the end of the roller *a*, and *d'* is a spindle passed through the center of the cap-piece and extending longitudinally through a chamber *e'*, which is provided in the end of the roller, and also projects into a suitable step or bearing *o'*, which is centrally located in the inner end of the chamber to retain the spindle in position, while the outer end of the spindle is provided with a journal *f'* to engage with the bracket *b'* and support the roller, and also to retain the spindle against revolution when the roller is revolved for manipulating the shade, which is secured thereon in the usual manner.

Referring to Figs. 7 and 8, *g'* is a spring coiled around the spindle *d'* within the chamber *e'* in the usual manner, beginning with an inner series of coils *h'*, which are coiled about the spindle from the inner end portion thereof outwardly, and continuing with an intermediate series of coils *i'*, which are coiled about the inner series *h'* from the outer end of the series inwardly, and continuing with an outer series of coils *j'*, which are wound over the intermediate series *i'* from the inner portion thereof to the outer, the three series being formed of one continuous wire. One end *k'* of the wire at the beginning of the series *h'* is secured to the spindle by being passed through a transverse opening in the inner portion of the spindle and bent over, while the opposite or outer end of the wire at

the end of the outer series of coils *j'* is passed through and secured to the lugs *l'*, which project inwardly from the cap-piece *c'*.

m' is a tapering sleeve surrounding the outer portion of the spindle within the chamber, and is herein shown as being cast integral with the cap-piece *c'*, but may be made separate therefrom, if desired. This sleeve extends inwardly beyond and within the outer end of the inner coil *h'*, and is at the inner end scarcely larger than the coil, while the outer end, which is between the lugs *l'* and the spindle, is of a dimension to nearly fill the outer coil *j'*, so that when the roller is revolved for unwinding the shade therefrom and the coils of the spring are wound tightly upon each other the ends of the outer series *j'* and the intermediate series *i'* of the coils are supported by the sleeve in a manner that prevents any abrupt bending or breaking down of the wire, which, on account of the wire being secured to the outer portion of or near the walls of the chamber, is liable to take place when the coils are drawn closely upon each other without a central support. It will be observed that the taper of the sleeve avoids any shoulder or abrupt surface beneath the coils, so that the intermediate end coils are supported in any position which they may naturally assume, so that the outer coil overlapping the inner cannot interlock therewith and bind or catch, by which means a free and easy action of the spring is obtained, even though the coils are wound to their utmost tension.

For use the required tension is placed in the actuating-spring and the roller-journal *d* is placed in the slot *e'* above the lifting-spring *f*, and the journal *f'* is then placed in the bracket *b'* and provided against revolution in any suitable manner, and the actuating-spring then operating to revolve the roller brings the lug *c* into engagement with the lug or clutch *g*, and securely retains the roller against revolution; but by drawing downward upon the shade the roller revolves backward, or against the tension of the actuating-spring, and disengages the lug *c* from the clutch *g*, and the journal *b* then moves to the lower portion of the slot *e*, and the shade may then be wound upon the roller by slightly relaxing the power exerted downwardly thereon, retaining, however, sufficient downward force to retain the roller-journal in the lower portion of the slot *e*, which leaves the roller free to revolve and wind the shade thereon until the desired position for the shade is reached, and then the downward force is entirely released and the lifting-spring *f* at once raises the roller-journal to the upper portion of the slot *e*, and the lug *c* is then caught by the clutch portion *g*, and the shade remains securely held in that position.

It is very evident that on releasing the shade from the downward force exerted thereon one of the lugs *c* will be thrown into engagement with the clutch *g*—that is, the lug

on passing the upper portion of the revolution around the journal reaches over and is caught by the curved upper side *h'* of the inwardly-projecting clutch *g*—so that the curvature of the side *h* while arresting the rotary movement of the roller at the same time operates to retain the roller-journal in the upper portion of the slot until the roller is revolved backwardly or against the tension of the actuating-spring by drawing downwardly upon the shade, and of course it will be seen that by this means the tendency common with this class of fixtures to jar as the engagement takes place and recoil the lifting-spring, and thereby permit the lugs to pass beneath the locking device, is entirely avoided and the liability of the roller to wind up more of the shade than is desired is entirely obviated, as on the shade being released the locking parts at once engage in such a manner that no recoil of the lifting-spring can take place.

I have described the upper face *h* of the clutching device *g* as being of a curved form, so as to come in front of the moving-lug *c* and also beneath the lug; but I do not confine my invention entirely to a curved form, which may, perhaps, be more convenient and sure, still another form, which is illustrated in Fig. 5, and which shows the upper surface of the clutch *g* as nearly or quite straight and with its rear portion more elevated than its front portion, could be used with a like effect and result, so long as the locking device is so arranged as to arrest the rotary movement of the roller and permit the downward recoil of the lifting-spring, as before set forth.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a shade-roller fixture, the combination of the shade-roller having an inclosed actuating-spring and provided with a roller-journal projecting from the center of one end, and with the lugs *c* projecting from the end and located near the periphery of the roller, a supporting-bracket having the vertical slot *e*, carrying the roller-journal, and a lifting-spring *f* beneath the journal, and provided with a clutch portion *g*, projecting inwardly from the portion of the bracket above the said slot *e* and engaging with the under side of the upper lug *c* when the roller-journal is resting in the upper portion of the slot, substantially as and for the purpose set forth.

2. In a shade-roller fixture, the combination, with the roller having in one end a longitudinal chamber *e'*, a cap-piece *c'*, secured to and covering the end of the roller and provided with the lugs *l'*, projecting into the chamber, a spindle *d'* within the chamber and with its end passed through the cap-piece, and the spring *g'*, surrounding the spindle within the chamber and with one end secured to the inner end of the spindle and with its outer end secured to the said lugs *l'*, of a tapering sleeve *m'*, surrounding the outer portion of the spindle within the chamber, and with its inner tapering surface beneath the outer and intermediate series of coils of the spring, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY W. SIMMS.

Witnesses:

G. P. THOMAS,
JAS. E. THOMAS.