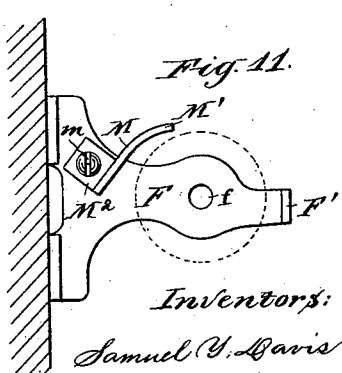
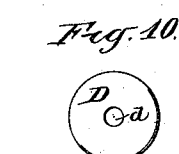
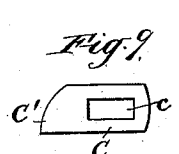
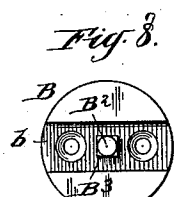
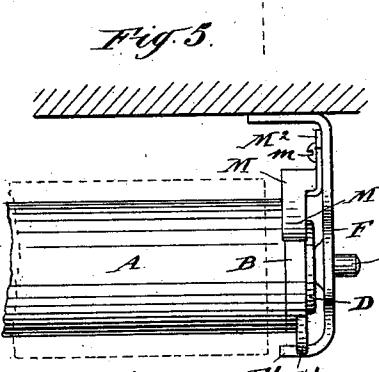
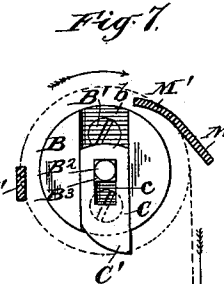
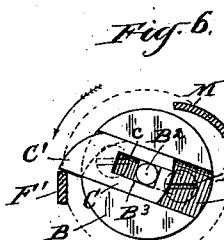
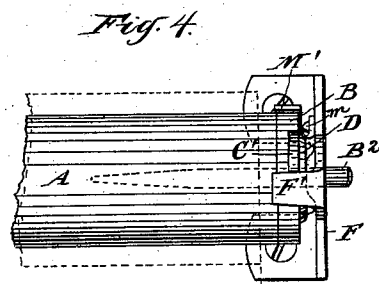
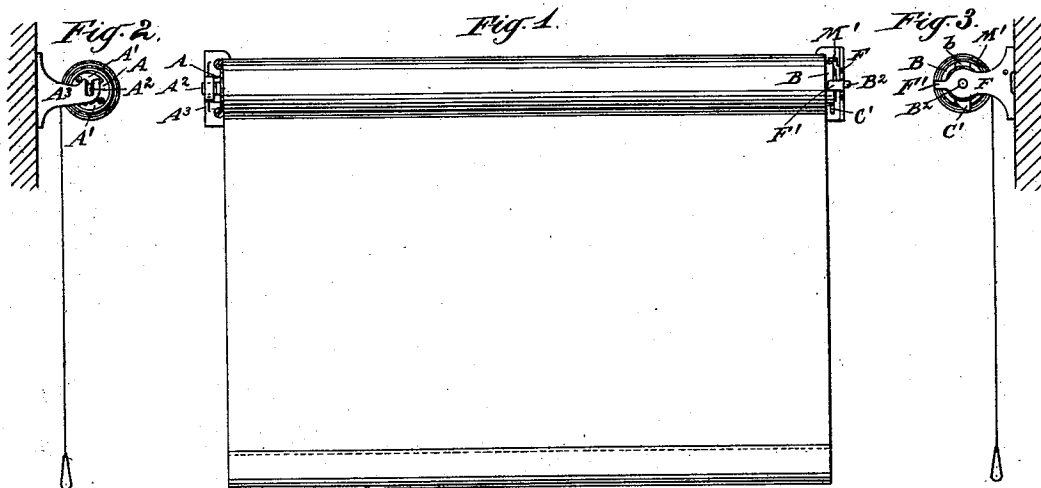


(No Model.)

S. Y. DAVIS & H. O. MOONEY.
SHADE ROLLER.

No. 574,141.

Patented Dec. 29, 1896.



Witnesses:
Chas. E. Searle.
Harry E. Carrington.

Inventors:
Samuel Y. Davis
Herman O. Mooney,
by their attorney
Charles R. Searle

UNITED STATES PATENT OFFICE.

SAMUEL Y. DAVIS AND HERMAN O. MOONEY, OF FARMINGTON, NEW HAMPSHIRE.

SHADE-ROLLER.

SPECIFICATION forming part of Letters Patent No. 574,141, dated December 29, 1896.

Application filed April 11, 1896. Serial No. 587,073. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL Y. DAVIS and HERMAN O. MOONEY, citizens of the United States, and residents of Farmington, in the county of Strafford and State of New Hampshire, have invented a certain new and useful Improvement in Shade-Rollers, of which the following is a specification.

The invention is intended to serve with automatic shade-rollers, and has for its object a device whereby the revolution of the roller will be checked when the speed becomes too great, thereby controlling the rise of the shade and avoiding the annoyance caused by the escape of the shade from the hand in raising or lowering or its accidental release by other causes, and the resultant overrunning, noise, and breakage. It is applied to a "Hartshorn" or similar roller equipped in any ordinary or suitable manner with a winding-spring and engaging mechanism therefor at one end.

It consists of a movable dog arranged at the opposite end to slide radially and be held out automatically by centrifugal force when the speed of revolution exceeds a certain limit, and a fixed stop arranged in the path of the dog to be struck thereby and arrest the roller, and consequently the further rise of the shade, until again released.

The accompanying drawings form a part of this specification and represent what we consider the best means of carrying out the invention.

Figure 1 is a face view of a shade and roller equipped with our invention. Fig. 2 is an end elevation, and Fig. 3 is a corresponding view of the opposite end. The remaining figures are on a larger scale. Fig. 4 is an elevation of a portion corresponding to Fig. 1, and Fig. 5 is a plan or top view of the same. Figs. 6 and 7 are end views, partly in vertical section, showing the principal parts in two conditions. Figs. 8, 9, and 10 are face views of certain of the parts alone. Fig. 11 is an elevation of the bracket.

Similar letters of reference indicate the same parts in all the figures.

A is the roller, of wood or other material, inclosing a spiral spring (not shown) controlled by the swinging catches A' A' engaging in notches in the spring-spindle A². It

is supported at this end in a rectangular notch formed in the bracket A³ matching to a flattened or squared portion of the spindle, all of the ordinary or any approved construction. Our invention is applied at the opposite end of the roller.

B is a circular plate or disk of metal having a diameter corresponding to or a little less than that of the roller and secured upon the end thereof by screws or other fastenings B'. The plate B has a shallow rectangular transverse groove *b* extending across its outer face, in the center of which is set the supporting-pin B² in axial alinement with the spindle A².

The pin is cylindrical throughout its main projecting portion to match to and be received in the opening *f* in the bracket F. The inner portion of the pin next the plate B is squared at B³ and matches to a slot *c* in the mid-length of the dog C. The latter is a flat plate of metal fitted to slide easily in the groove *b* and having a thickness about equal to the depth of the same. It has one of its outer corners curved or beveled off to form a nose C'. The length of the dog is such that it may lie wholly within the circumference of the roller under certain conditions, and the slot *c* is so proportioned relatively to the length of the dog and thickness of the pin at the squared portion B³ that it serves as a stop to limit the endwise movement in both directions and allows it to slide inward out of the way, as above, or to be projected outward sufficiently for the nose C' to strike a fixed stop F' projecting from the inner face of the bracket F and lying across the space between the end of the roller and the bracket, parallel and close to the roller, in the path of the dog C, as shown. The latter is placed in the groove *b* with its curved nose in the direction of the revolution when the shade is being lowered.

D is a thin circular washer having a central aperture *d*, applied over the pin B² and serving to fill any remaining space between the plate B and its sliding dog C and the inner face of the bracket to prevent the accidental displacement of the parts by reducing the amount of play at that point.

The operation is as follows: Suppose the shade is being lowered. The roller A is revolving in the direction of the arrow in Fig.

7, and, as will be readily seen, the dog C stands vertically twice in each revolution, once when the nose C' passes the perpendicular above and again when it passes the same line below the center. At each passage it tends by gravity to slide or fall to the extent allowed by the slot *c* and if the rate of revolution is not too rapid does so fall. When the nose is passing the lower perpendicular, as in Fig. 7, it projects far enough to strike the stop F', but as its beveled face is in the direction of the motion in lowering, the dog is forced back by the contact of the nose with the stop and does not appreciably retard the motion. In raising the shade the direction of the motion is reversed. The roller is first released, as usual, from the catches A' and is allowed to ascend at a rate of speed sufficiently high to preclude their reengagement until the desired height is reached. During this movement the revolution is in the direction of the arrow in Fig. 6 and, as before described, the dog C slides in its groove *b*, dropping back as the nose C' passes the perpendicular on the upper side and, so avoiding the stop F' so long as the rate of revolution is not too high; but if the shade be released accidentally or otherwise or from any cause the speed increases to a rate at which the centrifugal force exerted by the dog exceeds the force of gravity the dog no longer drops in passing the perpendicular, but continues to project and strikes squarely upon the upper edge of the stop F', instantly checking the revolution of the roller and preventing any further rise of the shade. The slot *c* is nearer one end of the dog than the other, and the removal of the metal leaves that end less heavy, so that in the event of the rapid motion occurring while the dog is at the inmost end of its travel the centrifugal force acting more strongly on the heavier end of the dog will throw the latter outward before more than two or three revolutions have been made and check the shade, as before.

By properly proportioning the weight and length of the dog C and the position of the slot *c* therein the sensitiveness of the device may be made to closely conform to the conditions, so that the shade may be raised or lowered as rapidly as is practicable by hand without interference from the check, but in case of accidental release the latter will immediately assert itself and prevent overrunning and its attendant annoyances of noise and danger of breakage.

The device is simple and efficient, adds but little to the cost of manufacture and the labor of attaching, takes little or no additional space, and does not disfigure the fixture.

In the most complete form of our invention we employ an adjustable deflecting-plate serving to prevent the engagement of the dog C with the stop F' until the speed of revolution exceeds a certain well-defined limit.

M is the deflecting-plate, curved at the upper end M' to lie approximately concentric-

ally to and in the path of the dog C. It is secured to the inner face of the bracket F by a screw *m*, extending through a foot M², bent at a right angle to the plate and tapped into the bracket. By slackening the screw the plate M may be turned thereon to increase or diminish the distance between the curved end M' and the periphery of the plate B, and on again tightening the screw the deflecting-plate will be held in the new position.

As the dog passes the lower perpendicular it falls by gravity if the motion be slow, or is held out by centrifugal force if the speed of revolution be high enough, as above described, and the nose C', coming in contact with the obliquely-arranged inner face of the plate M, forces the dog C again inward and does not allow its escape until the curved end M' has been passed. It is then free to fly outward and engage the stop F' if the speed be sufficiently high to cause the outward movement against the force of gravity during the limited period allowed. The end of the curve M' is about one-third of the circumference of the roller behind the stop F', so that the period during which the dog is free is also only one-third of a revolution, and, as the end M' of the deflecting-plate may be adjusted to lie close to or farther from the periphery of the disk B, it will be readily seen that the device may be set to arrest the ascent of the shade at any desired rate of revolution above a certain speed high enough to insure the outward movement of the dog. This allows the shade to be run up at a speed very close to the predetermined limit, but to immediately arrest it so soon as that limit is exceeded.

Modifications may be made in the forms and proportions within wide limits without departing from the principle of the invention.

Although we have described the device as applied to a Hartshorn roller, it will be understood that it may serve with any spring or weight actuated roller.

Instead of the loose washer D shown its place may be taken by a disk rigidly fastened to the plate B, or the fastening means B' for the plate may be driven through holes previously prepared in the disk or washer and matching to those in the plate.

In cases in which there is little or no end play the washer may be omitted, depending upon the closeness of the fit between the plate and inner face of the bracket to hold the dog C against escaping from its groove *b*. We prefer the whole as shown.

We claim—

1. In a shade-roller, the spring winding and holding mechanism arranged at one end, in combination with a sliding dog free to move transversely of the roller at its opposite end in the space between the latter and its supporting-bracket and a stop projecting from said bracket and lying in the path of the dog to check the too-rapid rise of the shade, all substantially as herein specified.

2. In a shade-roller, the spring winding and holding mechanism arranged at one end, in combination with a plate secured to the roller at its opposite end and having a transverse groove therein, a sliding dog guided in said groove and lying in the space between the end of the roller and its supporting-bracket, and a stop projecting from said bracket and extending parallel with the roller in the path of the dog to check the too-rapid rise of the shade, all substantially as herein specified.

3. The roller A, having at one end the spring-spindle A² and catches A' engaging notches in said spindle to hold the shade at the desired height, in combination with plate B having the groove *b*, the pin B², the dog C guided in said groove and having the slot *c* matching to the pin and forming with the latter a stop to limit the motion of the dog, arranged at the opposite end, and with the bracket F receiving the said pin and supporting the end of the roller thereby, and the stop F' extending from the bracket and lying in the path of the dog to check the too-rapid rise of the shade, all substantially as herein specified.

4. The spring-roller A, plate B having the groove *b*, the pin B² and squared portion B³ thereon, the dog C guided in said groove and having the slot *c* matching to said squared portion and forming a stop to limit the motion of the dog and the beveled nose C' on the latter, in combination with the washer D, bracket F receiving said pin and supporting the end of the roller thereby, and the stop F' extending from the bracket and lying in the path of the dog to check the revolutions of the said roller in one direction when struck

by the dog and allow the roller to revolve freely in the opposite direction, all substantially as herein specified.

5. The spring-roller A, plate B having the groove *b*, the dog C guided in the groove, and the beveled nose C' thereon, in combination with the bracket F and stop F' extending therefrom and lying in the path of said dog to check the revolutions of the said roller in one direction when struck by the dog and allow the roller to revolve freely in the opposite direction, all substantially as herein specified.

6. In combination with a shade-roller of the character herein described, a sliding dog arranged to move transversely of the roller in the space between the end of the latter and its supporting-bracket, a stop projecting from said bracket and lying in the path of the dog, and a deflecting-plate arranged in said path to limit the outward motion of the dog and thereby govern its action, all substantially as herein specified.

7. The spring-roller A, plate B having the groove *b*, the pin B², the dog C guided in said groove, in combination with the bracket F receiving said pin, the stop F' extending from the bracket and lying in the path of the dog, the adjustable deflecting-plate M M' and its securing means *m*, all substantially as herein specified.

In testimony that we claim the invention above set forth we affix our signatures in presence of two witnesses.

SAMUEL Y. DAVIS.
HERMAN O. MOONEY.

Witnesses:

HOLLIS B. PEARL,
FRED A. HORNE.