

(No Model.)

2 Sheets—Sheet 1.

S. HARTSHORN.
SPRING SHADE ROLLER.

No. 328,216.

Patented Oct. 13, 1885.

Fig. 1.

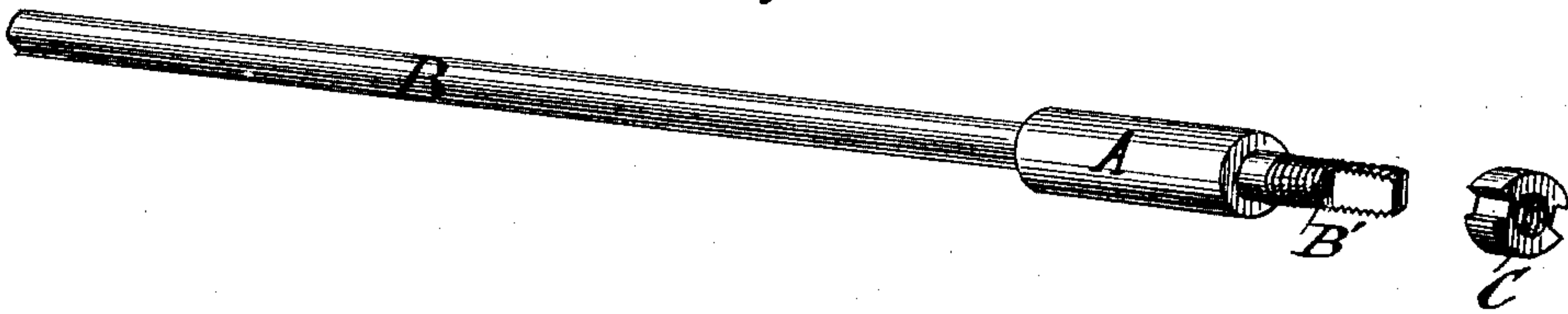


Fig. 2.

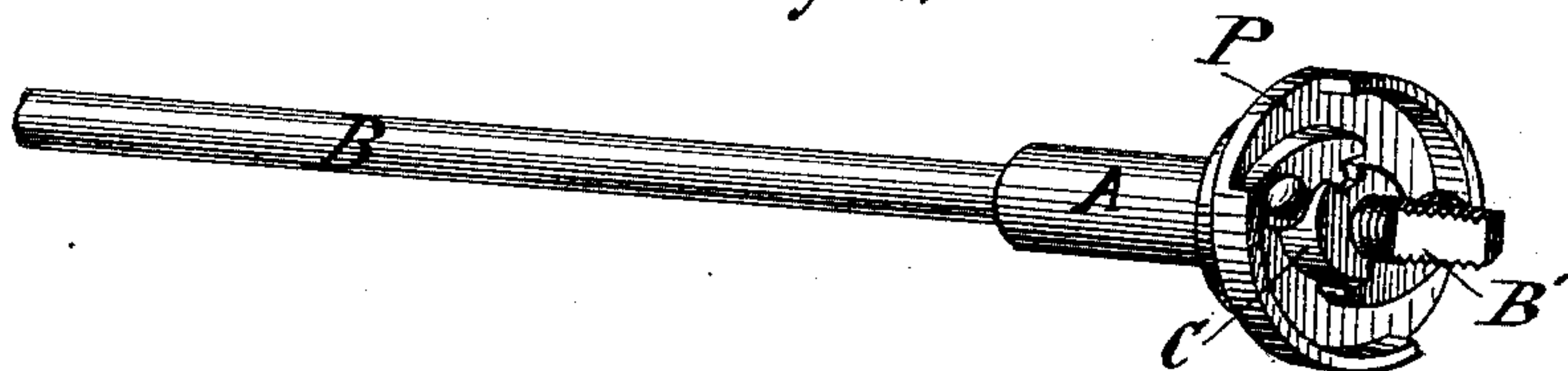
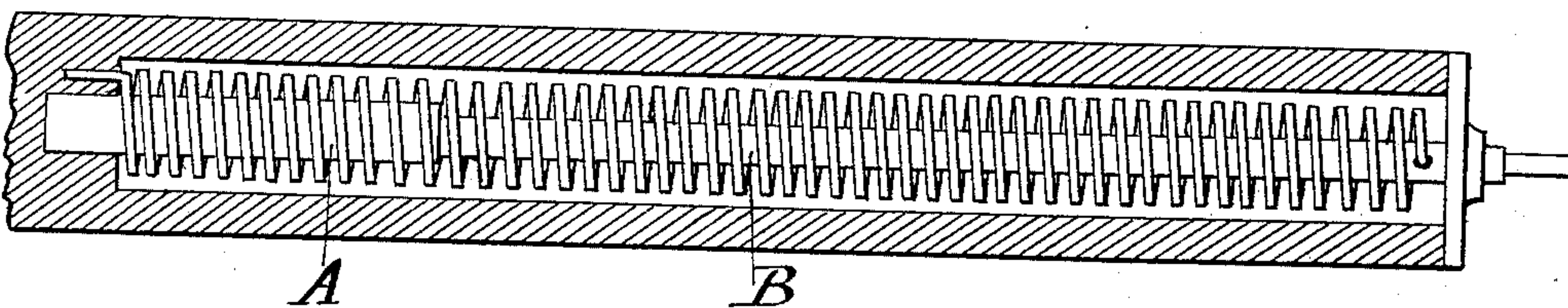


Fig. 3.



Witnesses

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(No Model.)

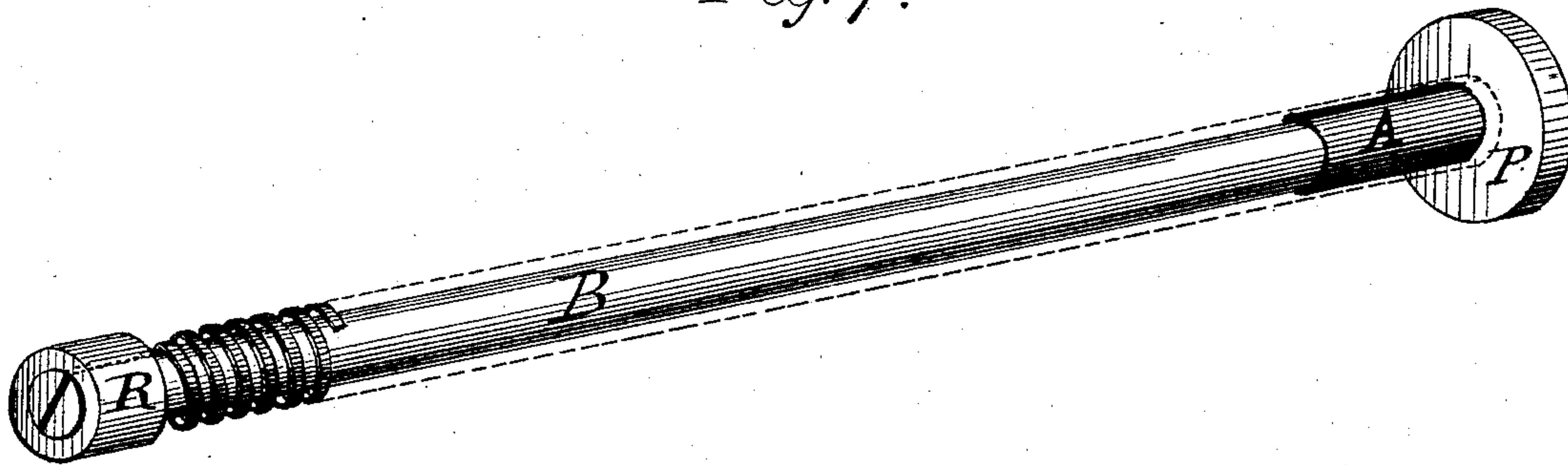
2 Sheets—Sheet 2.

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Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

STEWART HARTSHORN, OF MILLBURN, NEW JERSEY.

SPRING SHADE-ROLLER.

SPECIFICATION forming part of Letters Patent No. 328,216, dated October 13, 1885.

Application filed August 20, 1884. Serial No. 141,077. (No model.)

To all whom it may concern:

Be it known that I, STEWART HARTSHORN, residing in Millburn, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Spring Shade-Rollers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification.

My improvements refer to the spindle or shaft which carries the spring, and to securing the outer end of the spring to the disk or end plate, and the latter to the roller.

In the drawings illustrating my improvements, in which like letters indicate like parts, Figure 1 is a view of my improved spindle. Fig. 2 is a view of the spindle, showing the manner of attaching the end plate to the same. Fig. 3 is a view of my improved spindle when applied to a roller in which the inner end of the spring is connected with the roller. Fig. 4 is a view of a spindle having a ring or collar on the inner end.

My invention consists in combining or arranging with the shaft or spindle, at the end where the spring is attached to the revolving roller, a long ferrule or shell of metal, of a diameter adapted to the diameter of the coil of the spring mounted upon the same, and extending about one third or half the length of the coiled spring. As one end of the spring is attached to the spindle, and therefore remains stationary, as the roller revolves the spring is wound up or coiled only at the end which is fastened to the revolving roller, and as the spring when wound up binds around the spindle, it follows that it will thus touch and come in contact with the latter at and near the end at which it begins to coil. If the diameter of the spindle is much less than the diameter of the coiled spring as it comes from the mandrel, the spring is liable to break or be injured before it touches the spindle. The diameter of the shaft or spindle, therefore, at the end where the spring comes in contact with the same must be large enough to prevent the spring breaking or being injured as it is wound up or tightened; and as the spring will come in contact with the spindle only at the one end this diameter need not extend throughout the entire length of the spindle, or for the whole

length of the spring, but only so far as will suffice to secure the results desired, and the remainder of the spindle may be much smaller in diameter.

By my improved method of construction I surround that end of the spindle which is at the end of the spring which connects with the roller with a ferrule or shell of metal, of a diameter large enough to prevent the spring breaking or being injured, and of sufficient length to take and bear the contractions of the coils produced by the ordinary operations of the roller, by which I am enabled to make the remainder of the spindle smaller, and consequently of less weight, which is a great advantage when the spindle is constructed of metal.

My improved construction, as applied to a metal spindle, is shown in Figs. 1 and 2. As is there seen, the spindle B B' is formed of a small light wire, and the ferrule or shell A, made preferably of thin brass, is firmly attached to the same. I am thus enabled to use a metal spindle, and have the weight no greater than when a wooden spindle is used, and yet have the diameter of the spindle at the point desired large enough to prevent the spring from being injured in tightening.

The spring may be attached to the spindle at either end, the ferrule A being placed at the opposite end. Fig. 3 shows the spring attached to the roller by its inner end, and to the spindle by its other or outer end, the ferrule A being placed on the inner end of the spindle, where the spring is liable to come in contact with the latter.

The spindle B B' may be made of a single piece of wire, adapted at one end to engage with the bracket and at the other to hold the end of the spring, and having the ferrule A secured at one end, as before described; or the spindle may be in two portions, B and B', connected together by the ferrule A.

The disk or end plate, P, may be connected with the spindle by any method now used; but I prefer the mode shown in Figs. 1 and 2. As is there seen, the outer bracket end of the spindle is formed with a screw-thread. The disk or end plate, P, having been placed on the end of the spindle, so as to rest against the ferrule A, a nut, C, is screwed onto the end of the spindle and against the end plate, where-

by the latter is held securely in place. This nut C may form the ratchet, or its equivalent, with which the pawls engage, as is shown in Figs. 1 and 2 of the drawings. This nut, or its equivalent, may be fastened to the shaft in any convenient manner, as by riveting.

The spindle, when of metal, can be made in one piece from ordinary steel wire of uniform diameter, without milling and without other manipulation than flattening the bracket end and connecting the end plate thereto.

When applied to a wooden spindle, as shown in Fig. 4, the metal ferrule or shell A insures a smooth hard surface where the spring comes in contact with the spindle and prevents the coil of the spring sinking or grinding into the wood.

When the inner end of the spring is attached to the inner end of the spindle, the outer end may be secured to the roller, or to the end plate or disk, in any way desired.

The inner end of the spindle may be provided with a ring or collar, as shown at R. Fig. 4, by which, when the inner bearing of the spindle within the roller is dispensed with, the spring is not allowed to touch or come in contact with the walls of the cavity. This ring or collar R may also serve to secure the spring within the slot in the end of the spindle.

I am aware that spindles have been made and used of differing or varying diameters, and I do not therefore claim, broadly, such construction.

What I claim is—

1. In spring shade-rollers, a spindle carrying a coiled spring attached thereto, having at its end adjacent to that part of the roller at which the spring is connected thereto, and around which the first contractions take place, an inclosing metallic ferrule or shell of enlarged metallic diameter, extending only a part of the length of the spring, but sufficient to receive the first or principal contractions thereof, substantially as and for the purposes set forth.

2. In spring shade-rollers, the combination, with the spindle having an outer end adapted to engage with the bracket, so as not to revolve, of the disk or end plate carrying the pawl, and a nut or collar forming the pawl-ratchet, surrounding the spindle for securing the disk or end plate thereto, as and for the purposes set forth.

3. In spring shade-rollers, the combination, with the spindle B B', having at one end a ferrule or enlargement of greater diameter, substantially as described, and the outer end provided with the screw-thread, of the disk or end plate, P, and screw ratchet-nut C, all constructed substantially as described, and for the purposes set forth.

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Witnesses:

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