

E. H. ROSE.
SHADE ROLLER.

APPLICATION FILED MAR. 2, 1908.

930,233.

Patented Aug. 3, 1909.

Fig. 1.

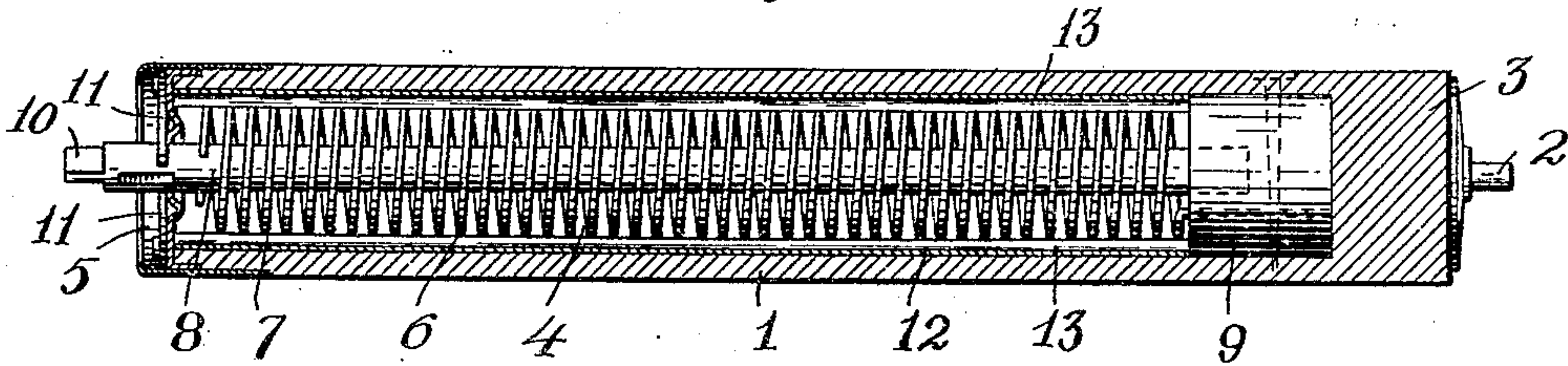


Fig. 2.

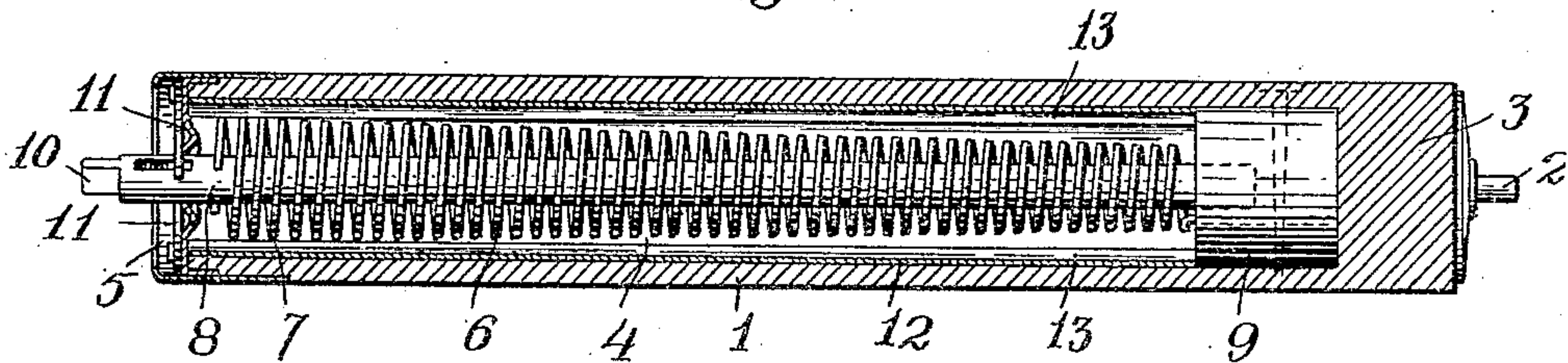


Fig. 3.

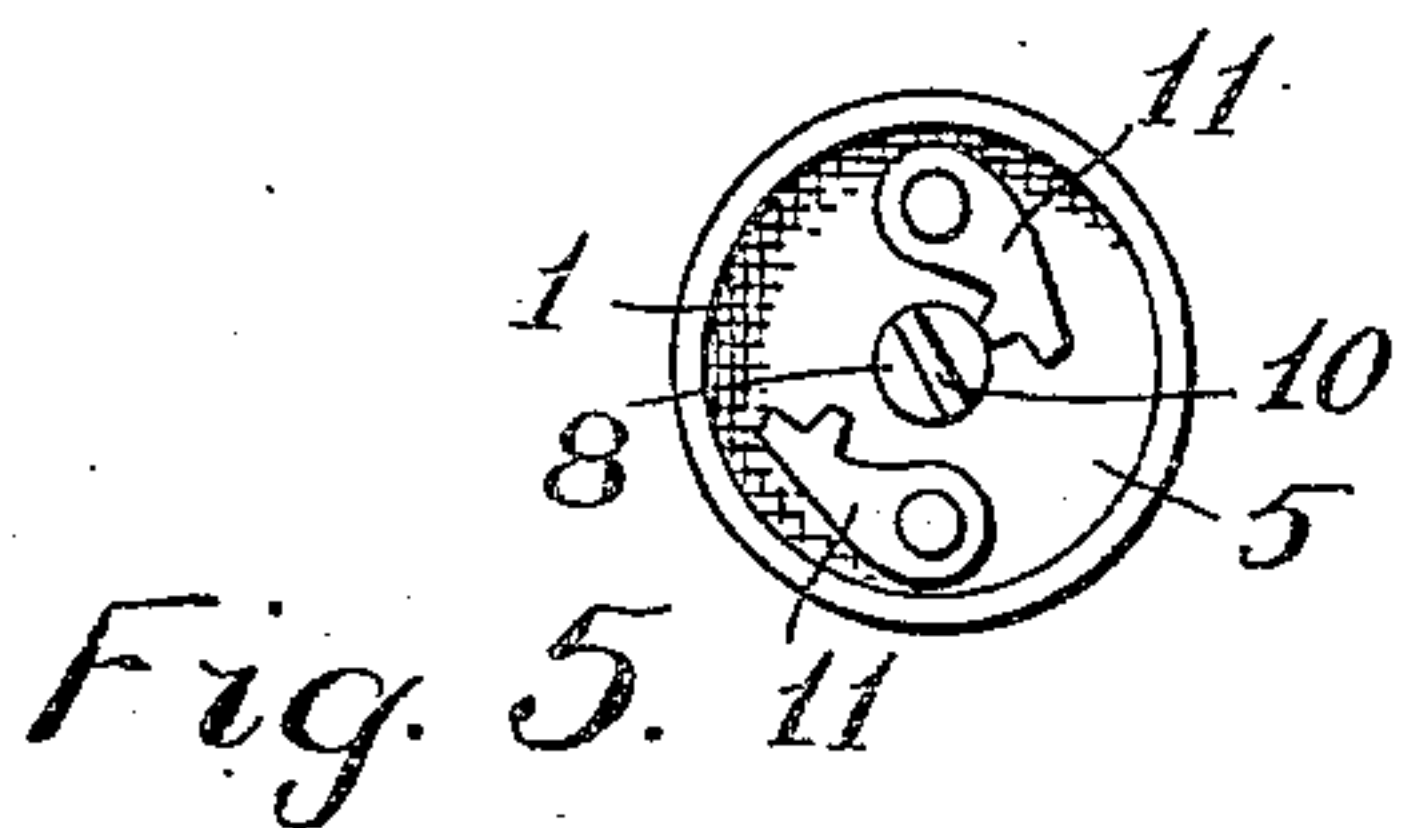
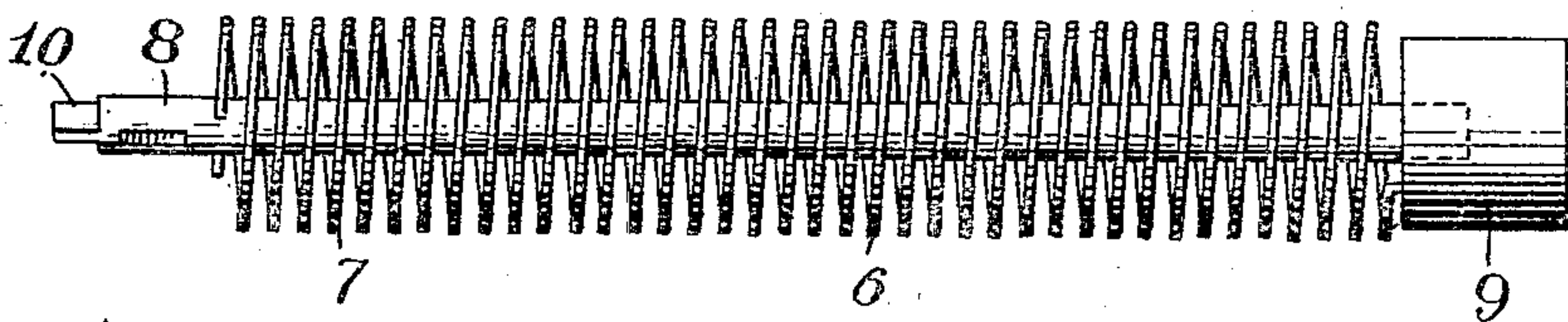
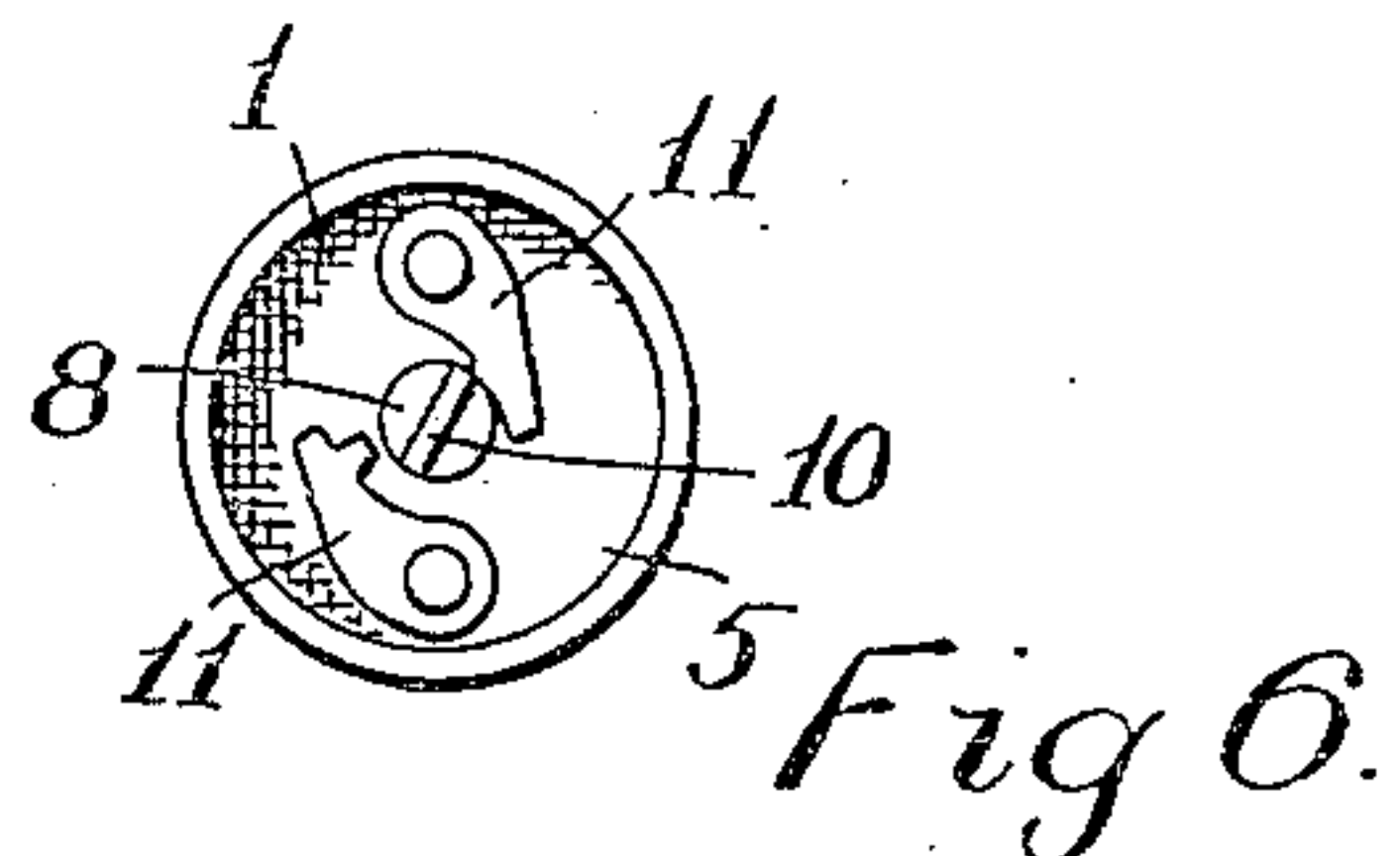
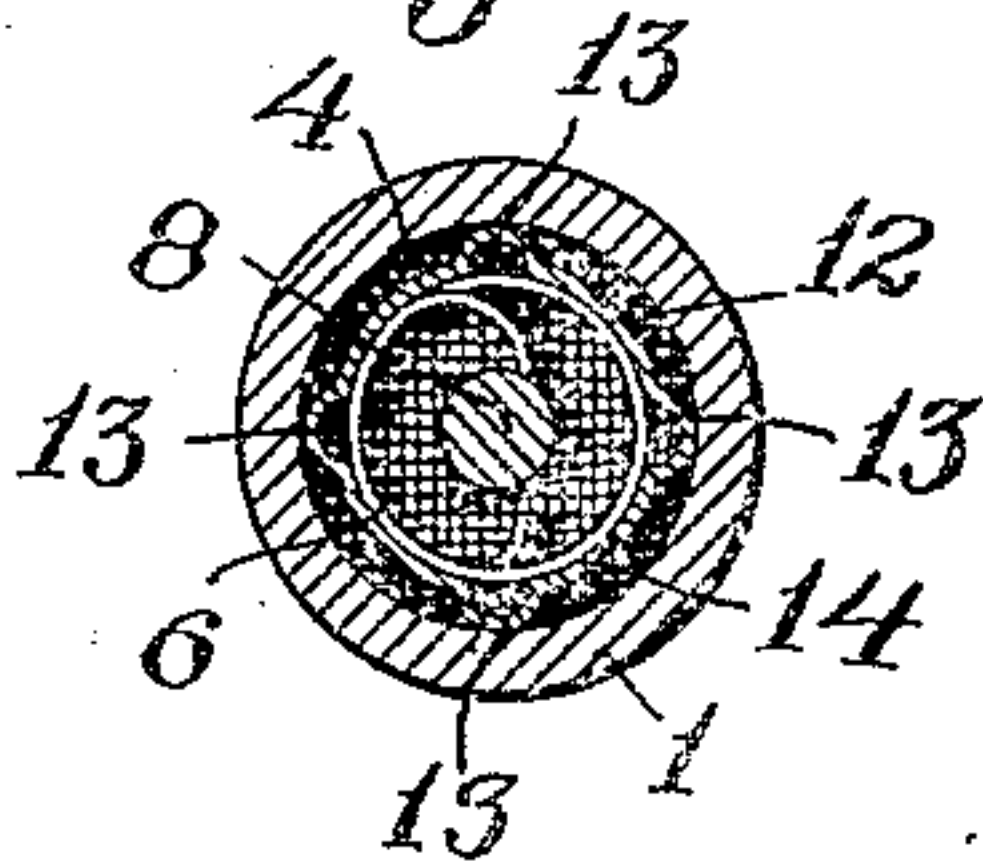


Fig. 4.



Witnesses

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SHADE-ROLLER.

No. 930,233.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDSON H. ROSE, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Shade-Rollers, of which the following is a specification, accompanied by drawings, forming a part of the same, in which—

Figure 1 is a central longitudinal sectional view of my improved shade roller, showing the position of the spring contracted to provide sufficient tension to support the curtain. Fig. 2 is the same showing the spring still further contracted by lowering the curtain. Fig. 3 is a side view of a spring expanded to its normal size and too large for insertion in my improved shade roller. Fig. 4 is a cross section of my improved shade roller with the spring in the position shown in Fig. 1. Fig. 5 is an end view of the shade roller, as shown in Fig. 1, with the retaining pawls disengaged from the spindle, and Fig. 6 is an end view with the pawls engaging the spindle to hold the spring under tension, as shown in Fig. 2.

Similar reference figures refer to similar parts in the different views.

My invention relates to a shade roller provided with an interior spiral spring arranged to be contracted and to expand, thereby assisting in the manipulation of the shade, and comprises means in contact with the periphery of the spring for permanently holding the spring under sufficient tension to counterbalance the weight of the shade, and it consists in the construction and arrangement of parts as hereinafter described and pointed out in the annexed claims.

Referring to the accompanying drawings 1 is the shade roller having a bearing 2 at one end 3. A cylindrical chamber 4 opening at the end 5 of the roller is formed within the roller and arranged to receive a spiral spring 6, one end 7 of which is attached to a spindle 8 journaled within the roller and the other end to a block 9 which is attached to the roller. The spindle 8 extends beyond the end 5 of the roller forming the usual parallel sided bearing 10 for insertion in a supporting bracket. Pawls 11 engage recesses in the spindle 8, in the usual manner, to hold the spindle 8 when the

spring 6 is contracted by pulling down the shade.

In the usual construction of shade rollers the chamber 4 is of sufficient diameter to receive the spring 6 in its completely relaxed condition. If, in this condition, the curtain be completely wound upon the shade roller and the shade roller placed in position with its spindle held from rotation by its support, the spring cannot rewind the curtain when the shade roller is drawn down to cover a window opening, and a certain amount of additional tension, depending upon the weight of the curtain, must be imparted to the spring to enable it to rewind the curtain. This additional tension I term initial torsion. This initial torsion necessary to support the shade is gained in the ordinary type of roller by the rotation of the spindle and the roller relative to each other in order to wind the spring. It requires considerable skill to adjust correctly in this manner the tension of the spring, but a correct adjustment is necessary to a proper manipulation of the shade. If too little tension is imparted to the spring it will not raise the shade, if it receives too much it becomes impossible to lower the shade its entire length. When the spring has been contracted in this manner it is held by the pawls 11 and, if in any way the pawls 11 become disengaged from the spindle 8, the spring immediately expands to its full extent losing its initial torsion and the tension roller must be adjusted anew. In my improved construction the spring is given this initial torsion, *i. e.*, is contracted sufficiently to counterbalance the weight of the shade before it is inserted in the roller, and I preferably hold the spring thus contracted in a cylindrical metal case 12 with an interior diameter equal to the diameter of the contracted spring, and with the case 12 arranged to be inserted in the chamber 4. The outer end of the cylindrical case is attached to the roller through the block 9. If the curtain now be wound upon the roller and the roller placed in position, the spring will permanently possess sufficient tension to rewind the curtain without the use of retaining pawls, as the spring is held from complete expansion by the inclosing case 12, see Fig. 1. In addition, there is, of course, no

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necessity for adjustment of the spring which was accomplished when the partially contracted spring was placed in the inclosing case. As the weight of the curtain is balanced by the initial torsion imparted to the spring, any desired portion of the window may be left covered by unwinding a sufficient amount of the curtain when the shade roller is placed in position.

I preferably provide the case 12 with longitudinal ribs 13 arranged to contact with the wall of the chamber 4, thereby holding the case 12 and contracted spring 6 concentric with the roller, and at the same time allowing tacks to be driven into the roller without interfering with the operation of the spring. I also provide a longitudinal opening 14 in the case 12 to allow its diameter to be varied slightly, in order to accommodate slightly varied sizes of the chamber 4 in different rollers or in the same roller under different conditions.

I do not wish to confine myself, however, to the use of an inclosing cylindrical metal case, as I consider that any method of holding the spring 6 radially contracted by contact with its periphery, thereby imparting to it sufficient tension to support the weight of the curtain, would come within the scope of my invention.

Additional tension imparted to the spring by drawing down the shade is retained by the pawls 11, in the well known manner. When the pawls 11 are released this additional tension is sufficient to raise the shade to the position it occupied when the roller was placed in the brackets. In that position the spring 6 is expanded to fill the case 12, and further upward progress of the curtain is prevented.

I claim,—

1. A shade roller, comprising a hollow roller, a spindle mounted longitudinally therein, a spiral spring inclosed in said roller having one end connected with said roller and its opposite end connected with said spindle, said spring being radially contracted to provide sufficient tension to counterbalance the weight of the shade, and a restraining wall to maintain said spring in said contracted position.

2. A shade roller, comprising a hollow roller, a spindle mounted longitudinally therein, a spiral spring inclosed in said roller having one end connected with said roller and its opposite end connected with said spindle, said spring being radially contracted to provide the correct adjustment for the proper manipulation of the shade, and

means in contact with the periphery of the spring for maintaining it in its contracted position.

3. A shade roller, comprising a hollow roller, a shell or case of smaller diameter than said roller, a spindle mounted longitudinally in said case, a spiral spring radially contracted to provide sufficient tension to support the shade inserted in said case, having one end connected to said case and the opposite end connected to said spindle, said case arranged to contact with the periphery of the spring to maintain it in its contracted position, and means for attaching said case to said roller.

4. A shade roller comprising a hollow roller, a spindle mounted longitudinally therein, a spiral spring inclosed within said roller having one end connected with said roller and its opposite end connected with said spindle, said spring being radially contracted to provide the initial torsion necessary for the operation of the roller, and a corrugated shell or case having its inner surface in peripheral contact with said spring, whereby said spring is held from radial expansion, and with its corrugations in contact with the inner surface of said hollow roller.

5. A shade roller, comprising a hollow roller, a spindle mounted longitudinally therein, a spiral spring inclosed in said roller, having one end connected with said roller and its opposite end connected with said spindle, said spring being radially contracted to provide the initial torsion necessary for the operation of the roller, and a corrugated shell or case open on one side and in peripheral contact with said spring, whereby said spring is held from radial expansion, and having its corrugations in contact with the inner surface of said hollow roller.

6. A shade roller, comprising a hollow roller, a spindle mounted longitudinally therein, a spiral spring inclosed in said roller, having one end connected with said roller and its opposite end connected with said spindle, sufficient tension being imparted to the spring to support the shade, and means for exerting sufficient pressure on the periphery of the spring to retain said tension therein.

Dated this twenty-seventh day of February 1908.

EDSON H. ROSE.

Witnesses:

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