(No Model.)

S. HARTSHORN.

SHADE ROLLER.

No. 425,787. Patented Apr. 15, 1890.

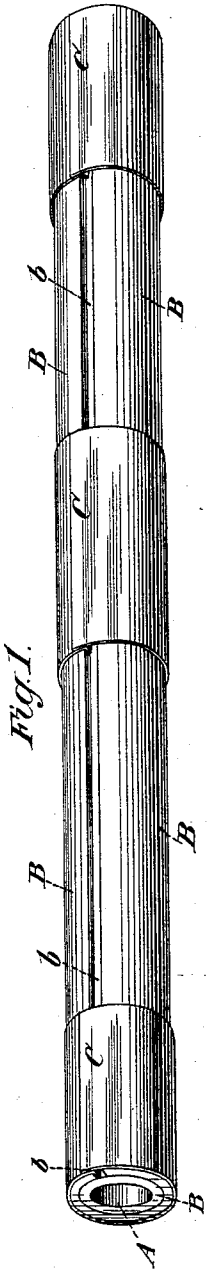


Fig. 1.

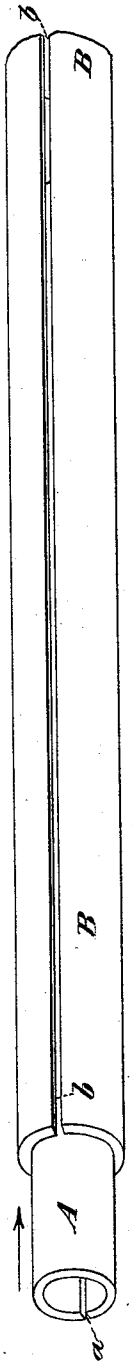


Fig. 2.

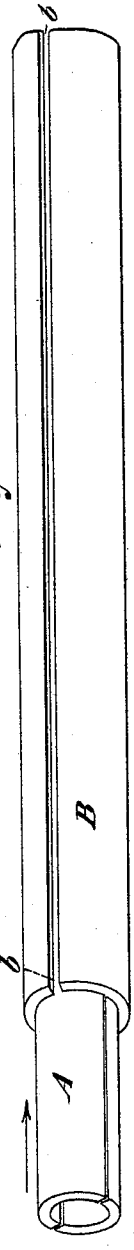


Fig. 3.

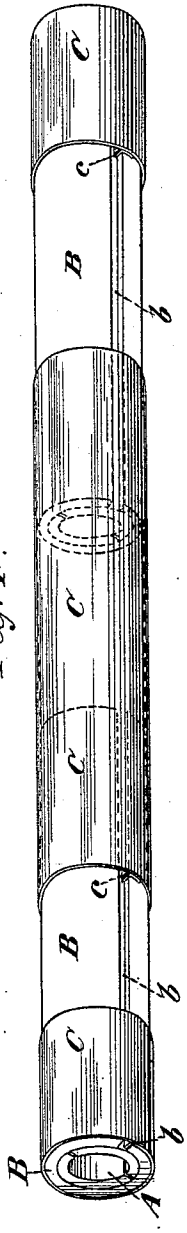


Fig. 4.

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STEWART HARTSHORN, OF SHORT HILLS, NEW JERSEY.

SHADE-ROLLER.

SPECIFICATION forming part of Letters Patent No. 425,787, dated April 15, 1890.

Application filed April 9, 1889. Serial No. 306,523. (No model.)

To all whom it may concern:

Be it known that I, STEWART HARTSHORN, a citizen of the United States, and a resident of Short Hills, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in 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 invention relates to rollers for window-shades formed of paper, straw-board, or other similar fibrous material; and it consists of a novel construction of the roller, by which it may be more easily and cheaply made, and will possess greater strength and be better adapted for the purpose for which it is intended.

Much difficulty has been experienced heretofore in making rollers of paper or similar fibrous substance on account of the nature of the material. It has been found impossible to make an ordinary tube of paper of the desired diameter and length for a shade-roller and have it strong and firm enough for the purpose; and, moreover, such a tube is apt to warp or twist, and thus interfere with the perfect action of the roller, and particularly with the operation of the spring in the case of a spring-roller. In my improved construction the roller is formed of two or more separate distinct tubes or sections placed one within the other, so as to form a roller of the desired thickness, and the paper tubes are longitudinally slotted or not closed along their length, by which they are more easily constructed than when the tube is a complete closed tube.

In the drawings illustrating my improvement, in which like letters indicate like parts, Figure 1 is a view of the complete roller constructed according to my improvement. Fig. 2 is a view of a portion of the roller, showing the construction of the same when the inner tube is made open. Fig. 3 is the same as Fig. 2, showing the inner tube formed in sections or halves. Fig. 4 shows my improved construction applied to a combination or extension roller, in which the roller is formed in two sections or lengths arranged to slide toward or away from each other.

The drawings illustrate the roller formed with two tubes; but it will be evident that the number of tubes may be increased, if desired. The outer tube or section B, which forms the outside of the roller, is always of paper, straw-board, or other similar fibrous material, and may be of any thickness desired. Instead of being a complete closed tube, the tube is slotted along its entire length, or with the opening or slot *b* between the edges. By this mode of construction the tube is more easily formed than when made in a closed tube, and may be readily rolled into shape or formed in any convenient manner. The opening or slot *b* may be of any width found desirable, and the two edges of the tube may be brought close together, if it should be desired. By this mode of construction with the open slot the tube can expand or contract, so as to fit tightly over the inner tube A. Within this outer tube B is placed the inner tube A, as shown more particularly in Figs. 2 and 3. This tube when made of paper is preferably longitudinally slotted or formed the same as the tube B, or with an opening or slot *a* between the edges, as shown in Fig. 2. This opening *a* in the inner tube should be very narrow or the edges of the tube brought close together, so that the slot or opening will not interfere with the action of the spring within, and, moreover, care should be taken not to have the opening *a* in line with the opening *b* in the outer tube, so that nothing can enter the cavity of the roller. If desired, this inner tube A may be of thin wood or similar material and constructed in the form of a complete closed tube, as in Fig. 1, of a size to fit within the tube B.

In place of being made closed or open, as above described, the tube A may be constructed in two or more separate longitudinal sections or parts, as will be seen from Fig. 3, where the tube is shown in two sections or halves. When constructed in this manner, the separate sections are first put together, so as to form the complete tube, and then inserted into the outer tube B, when the sections will be securely held together by the outer tube, and no other fastening will be necessary.

The tube A, whether of paper, wood, or other materials, constructed in any of the methods above described, is inserted into one end of the outer tube B, as shown in Figs. 2 and 3, and slid along until the one tube is

entirely within the other, as is seen in Figs. 1 and 4, the outer slotted paper tube B expanding sufficiently to allow the tube A to slide along easily and yet maintaining a firm enough hold on the latter to keep it in place. If it should be found desirable to fasten the two tubes together, a little glue may be placed on the outer surface of the tube A before the latter is inserted into the tube B. The two tubes thus constructed and put together, the one within the other, form the completed roller, ready for the spring and other attachments. A smooth enameled paper may be placed over the surface of the outer tube to give a finish to the roller, or the surface may be treated in any other suitable manner. The roller thus formed of the separate tubes will be found to have all the strength and stiffness required, and, being made of separate tubes, will not warp or twist, as is the case with the ordinary paper roller, while possessing all the advantages of the latter. If desired, to strengthen the roller thus formed, metallic bands C may be placed over the outer tube at the ends and along the length of the same, as shown in Figs. 1 and 4. These bands C, which are merely sections of a closed metallic tube, are slipped over the ends of the roller and placed along on the latter as often as may be found necessary. The bands C at the ends may be used to fasten the end plate or other attachments to the roller.

The shade is attached to the roller in any convenient manner, as by spring clasps or clips or any other suitable fastening device.

My improved roller is particularly adaptable to a combination or extension roller in which the roller is formed of two or more sections joined by metallic bands or tubes, as in Fig. 4, so that the sections can slide toward or away from each other to vary the length of the roller. In such construction the band or tube joining the sections should be long enough to allow the necessary movement in and out of the sections of the roller.

On the inner surface of the metallic tube or band C is a projecting lip *c*, which slides in the slot *b* and insures the slots in the different sections always being in line with one another and prevents the sections turning in the bands C, so as to interfere with the attachment of the shade to the roller.

By reason of the elastic flexible nature of the material composing the outer tube B and the mode of constructing the same and its smooth surface the sections of the roller will readily and freely slide within the metallic bands and yet completely fill the latter, so as to be held tightly by the same.

While my improvement relates more particularly to shade-rollers, it is applicable to all rollers upon which curtains, maps, &c., are hung.

I do not claim, broadly, a tube slotted longitudinally throughout its entire length when made of any material, as such construction is embraced in the application filed by me on the 28th day of February, 1889, and numbered Serial No. 301,579; but

What I claim is—

1. A paper shade-roller formed of separate detached tubes of paper or similar material, placed one within the other and having the outer tube of paper longitudinally slotted, whereby contraction and expansion may be evenly distributed, substantially as and for the purpose set forth.

2. In a shade-roller, the roller formed of the inner tube A and the outer tube B, of paper or similar material, longitudinally slotted, whereby contraction and expansion may be evenly distributed, substantially as and for the purpose set forth.

3. In a shade-roller, the roller formed of the inner tube A and the outer tube B, of paper or other similar material, longitudinally slotted, whereby contraction and expansion may be evenly distributed and provided with the metallic bands C, as and for the purpose set forth.

4. In a shade-roller, the combination of the outer tube B, of paper or other similar material, longitudinally slotted, whereby contraction and expansion may be evenly distributed, and the inner tube A, constructed in separate sections and arranged and adapted to be held together by the outer tube, as and for the purpose described.

Signed at New York, in the county of New York and State of New York, this 2d day of January, A. D. 1889.

STEWART HARTSHORN.

Witnesses:
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