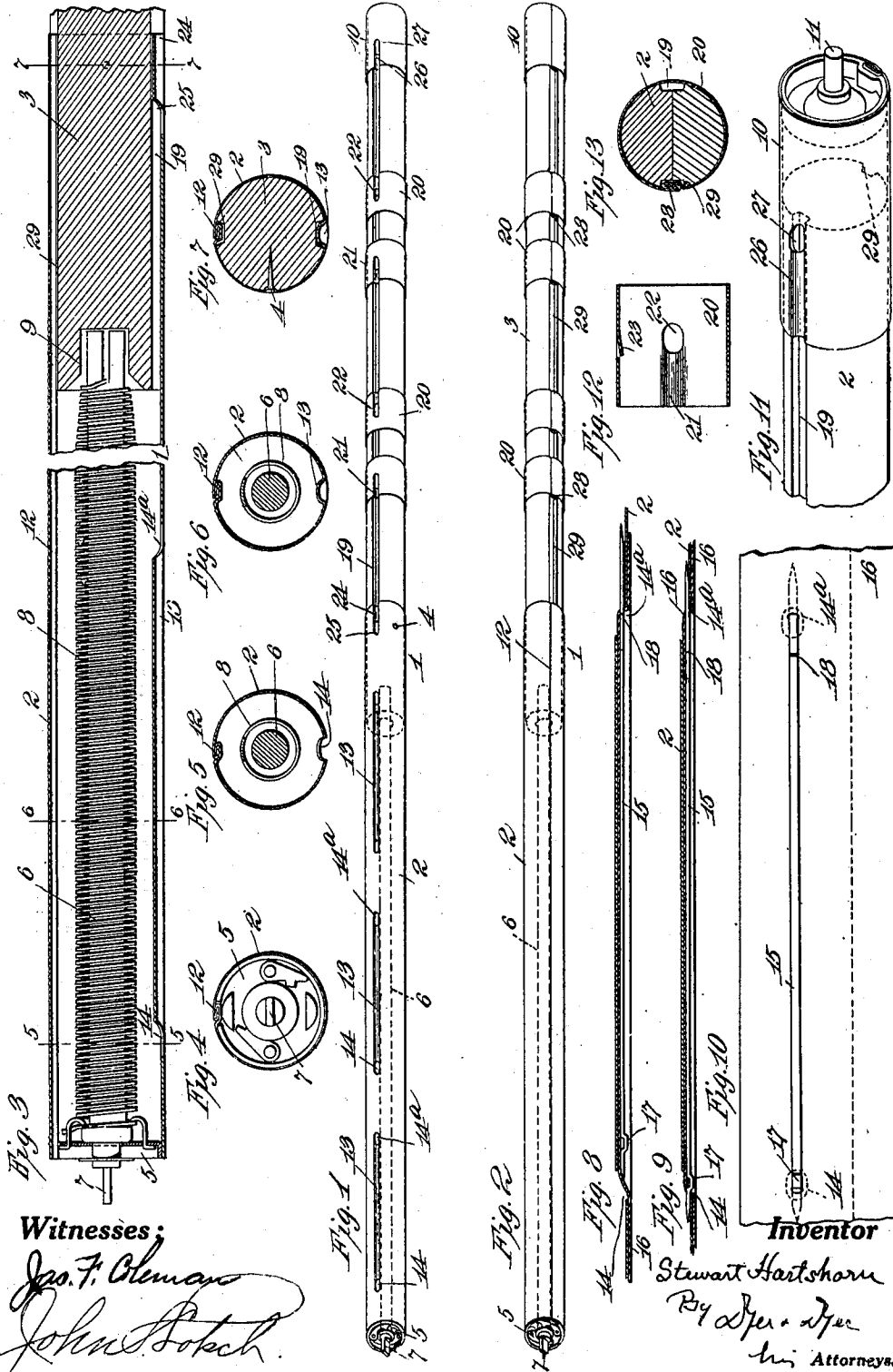


S. HARTSHORN.
SHADE ROLLER.

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Witnesses:

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UNITED STATES PATENT OFFICE.

STEWART HARTSHORN, OF SHORT HILLS, NEW JERSEY.

SHADE-ROLLER.

982,359.

Specification of Letters Patent.

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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, county of Essex, State of New Jersey, have invented a certain new and useful Shade-Roller, of which the following is a specification.

The object I have in view is to produce a shade roller, which will be cheaper and more durable than heretofore, which will permit the attachment of the shade to it with greater facility, and which may be adjusted for length. These and further objects will further appear from consideration of the embodiment of my invention set forth in the following specification and accompanying drawings, considered together or separately.

In the drawings: Figure 1 is a perspective view of a shade roller embodying my invention. Fig. 2 is a similar view taken from the opposite side. Fig. 3 is a longitudinal sectional view of a portion of a roller embodying my invention. Fig. 4 is an end view of the same. Figs. 5, 6 and 7 are sectional views on the lines 5—5, 6—6 and 7—7, respectively, of Fig. 3. Fig. 8 is a longitudinal section of a portion of a roller showing the fabric in position, and a retaining needle partially inserted. Fig. 9 is a similar view showing the needle in final position. Fig. 10 is a front view of the same. Fig. 11 is a detail perspective view of the adjustable cap. Fig. 12 is a detail sectional view of a modified form of needle retaining ring, and Fig. 13 is a cross sectional view of a modified form of roller.

In all of the views like parts are designated by the same reference characters.

The first portion of my invention relates to the roller, by means of which it is cheapened, lightened and made more durable than heretofore, and at the same time is readily made capable of being shortened to suit narrower windows.

The roller 1 comprises a sheet metal section 2 and a wooden section 3. The wooden section 3 is introduced into one end of the sheet metal section 2, as shown in Figs. 1 and 2, and is permanently secured therein by fitting tightly. If desired, a pin or nail 4 may be used to make the connection more permanent. At one end of the metal section is the usual form of end cap 5, which carries a bearing for the spindle 6 and

spear 7. The end cap is inserted within the metal section and secured therein in the usual manner. The customary spring 8 surrounds the spindle and is secured thereto. The free end of the spindle 6 rests within a bearing 9 (see Fig. 3) formed in the inner end of the wooden section 3. The wooden section must, therefore, be introduced within the metal section a proper distance, so that the spindle 6 will freely turn within the bearing 9. This bearing 9 centers the spindle, and holds it in the correct position within the roller. At the other end of the wooden section is an end cap 10, which carries the usual pin 11 (see Fig. 11). This end cap is adapted to closely and tightly fit over the end of the wooden section, and to be held in position by means of such close fit. The end cap can be removed when it is desired to shorten the roller and as much of the wooden section as desired may be sawed off or otherwise removed. The end cap may then be replaced. The end cap should be sufficiently long, so that if the amount cut off is too much, the cap can be adjusted in its proper position, in order that the total length of the roller will be correct. The roller thus described is rigid, may be readily shortened, and will be found cheap to manufacture.

The second portion of my invention relates to the means for attaching the fabric to the roller and to the configuration of the roller to accommodate such means.

Referring to the Figs. 5 and 6, it will be seen that the sheet metal section is formed of a single width of sheet metal, the edges being jointed at 12. This joint is the ordinary form of lap joint and may be made of the minimum thickness. If desired, the abutting edges may be further secured by means of solder. On the other side of the section—diametrically opposite the joint—is a plurality of longitudinally aligned grooves 13. These grooves, for reasons which I will state, need not be very deep. Fig. 1 shows three complete grooves in the metal section. It will be observed that the ungrooved portion of the section between the ends of contiguous grooves is of less length than the grooves themselves, but this proportion is shown for illustration and may be varied, if desired. At the ends of the grooves are openings 14, 14^a, Fig. 5, which is a section taken across the end of

the groove, shows how an opening is made. The general shape of a groove is best shown in Fig. 3.

In connection with the shade roller, I employ needles 15, such needles being adapted to be passed through the fabric 16 to secure the latter to the roller. Each needle is longer than a groove 13, and is adapted, when in position, to have its two extremities pass through the fabric and enter the openings 14 and 14^a, thus holding that portion of the fabric upon the roller. The needles are best made as shown in Figs. 8, 9 and 10, and each comprises a rod-like steel body with sharpened extremities. A finger piece 17 is formed near one end of the needle. This finger piece is shown as formed of the material of the needle bent to the proper shape. Adjacent to the other end of the needle is a mark 18, which may be made by means of a slight nick in the needle. To adjust the needle in position, the end opposite to the finger piece is pushed through the fabric and the latter is then laid upon the roller, and the end of the needle which projects on the other side of the fabric is introduced through one of the openings 14 or 14^a. In the drawings, it is shown as extended into the opening 14^a (see Fig. 8). The needle is now pushed in until the mark 18 is just about to enter the fabric, the latter being pressed close against the opening 14^a. The location of the mark 18, in relation to the other extremity of the needle and to the length of the groove, is such that with the parts in this position the other extremity of the needle will be adjacent to the opening 14 (see Fig. 8). The needle may then be moved in the opposite direction by means of the finger piece penetrating the fabric and passing through the opening 14. The finger piece will form a stop and will limit the movement of the needle in the other direction, preventing it from becoming disengaged from the opening 14^a. For the purpose of guiding the operator and forming the hole in the fabric, the latter may be creased or folded, as is customary. After the needles are in position and the fabric is thus secured to the roller, it may be folded over the needles and rolled up on the roller in the opposite direction. The connection of the needles with the wooden section of the roller is upon the same principle as that already described in connection with the metal section. In lieu of the grooves 13, a single long groove 19 is formed in the wooden section, such groove being of slightly larger size than the grooves 13 formed in the metal. This groove 19 may extend through the entire length of the wooden section, or not, as desired. For the purpose of securing the ends of the needles, I provide rings 20, 20,—such rings making a close fit around the wooden section of the roller.

These rings are adapted to be adjusted in position by sliding them along the roller, so that they may be arranged in correct position. Each ring has a groove 21 which lies within the groove 19. This groove 21 is preferably of the same size, the same depth and width as the groove 13 already described, but the groove 21 is adapted to extend through but a part of the width of the ring, as shown in Figs. 1 and 12. At the inner end of the groove is an opening 22, of the same size and shape as the openings 14 and 14^a, and for the same purpose. The rings 20, 20 are adapted to be placed in proper position upon the wooden section, so that the needles entering the openings 22, 22, will properly hold the fabric in place upon the roller. The purpose of making the rings slide upon the roller is to permit of their positions being changed when the latter is shortened. Fig. 12 shows a modification employing a spring tongue 23, adapted to form a friction brake to make an additional securing means to prevent the ring accidentally sliding upon the roller. At the end of the section 2, a groove 24 and an opening 25 are formed (see Fig. 1), and at the other end of the wooden section a groove 26 and an opening 27 are formed in the end cap 10,—these grooves and openings being for the same functions as the grooves and openings 13 and 14. I prefer to make the rings 20, 20 of sheet metal, the edges being lapped or jointed at 28 (see Fig. 2),—such lap or joint being diametrically opposite the grooves 21. To permit these lap joints to smoothly lie against the roller, I provide the latter with a groove 29, such groove being diametrically opposite the groove 19. Both grooves 19 and 29 are adapted to extend the full length of the wooden section of the roller. Fig. 7 shows the location of these grooves. By having them diametrically opposite, the sections of the roller are made symmetrical and the tendency to twist or warp is reduced. This applies more particularly to the wooden portion than to the metal portion, although it is important in connection with both.

Fig. 13 shows a modification in which the wooden portion is made of two sections, each one half round and each containing one half of the grooves 19 and 29.

Owing to the fact that the metal portion of the roller has but a shallow groove 13 and a relatively thin lap joint 12, the size of the spring 8 may be increased over former practice; or, if desired, by keeping the same size spring, the size of the roller may be reduced. This I regard as an advantage over previous structures in which the fabric is attached to the roller by a device which includes a deep groove combined with a lapped joint. I believe I am the first to suggest a roller,—the metal portion of which is joint-

ed and grooved, with the joints and grooves diametrically opposite each other.

I have described my invention in connection with a roller having a metal and a wooden portion, but it is to be understood that the attaching means and other features of the invention may be used for a roller of different type.

In accordance with the provisions of the patent statutes, I have described the principle of my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely illustrative and that the invention can be carried out in other ways.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a shade roller, a shade fastening which comprises a needle longitudinally alined and longitudinally movable with respect to the roller and piercing the shade, said needle lying within a groove in the roller.

2. In a shade roller, a shade fastening, which comprises a needle which pierces the shade with both its ends, which ends enter the roller.

3. In a shade roller, a shade fastening, which comprises a plurality of needles longitudinally alined and longitudinally movable with respect to the roller, said needle lying within a groove in the roller.

4. A shade roller, having a groove and a needle which pierces the shade with both its ends and lies and is slidable within the groove.

5. A shade roller having a plurality of longitudinally alined grooves, openings at the ends of the grooves and a plurality of needles, each needle lying within a groove piercing the shade the ends of each needle entering an opening.

6. A shade roller having a groove, with an opening at each end, in combination with a needle which pierces the shade and enters the openings.

7. A shade roller, having a groove, with

an opening at each end, in combination with a needle lying within the groove, the said needle having a finger piece adjacent to one end.

8. A shade roller, having a groove with an opening at each end, and a needle, said needle having sharpened extremities, a finger piece adjacent to one end, and a mark adjacent to the other, the mark being so located that it serves to indicate the proper position of the needle when the latter is passed through the shade and inserted in an opening for introduction into the opposite opening.

9. A shade roller, having a wooden section and a pair of rings, each with a groove for receiving a needle and an opening, and a needle, the extremities of which pierce the shade and enter the openings.

10. A shade roller having a wooden section, an end cap thereon and a ring,—said ring and end cap each having a groove for receiving a needle and an opening and a needle, the extremities of which pierce the shade and enter the openings.

11. A shade roller, having a metal section containing a groove and an opening at the end of the groove and a wooden section, the wooden section carrying a ring, said ring having a groove and an opening at the end of the groove, in combination with a needle which enters both openings.

12. A shade roller having a groove in its periphery, and a pair of movable rings, each ring having a groove for receiving a needle, and an opening, and a needle, the extremities of which enter the openings.

13. A shade roller having a groove in its periphery, a plurality of pairs of movable rings, each ring having a groove for receiving a needle, and an opening, and a needle, the extremities of which enter the openings.

This specification signed and witnessed this ninth day of March, 1909.

STEWART HARTSHORN.

Witnesses:

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