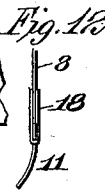
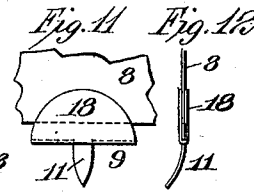
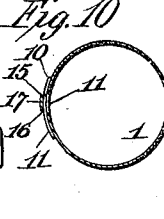
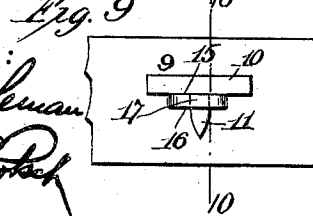
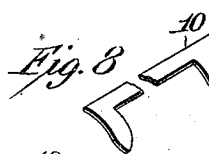
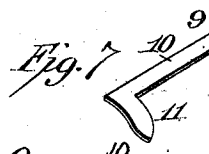
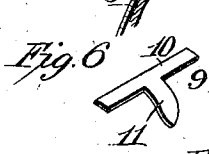
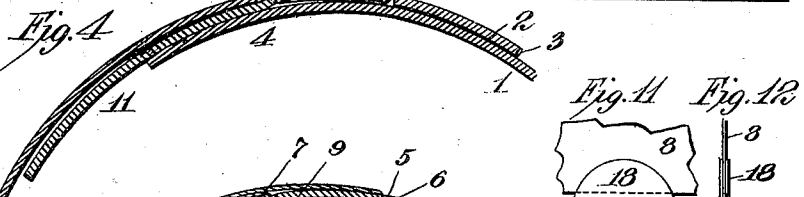
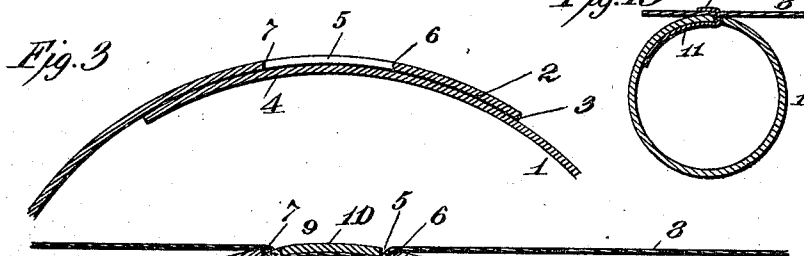
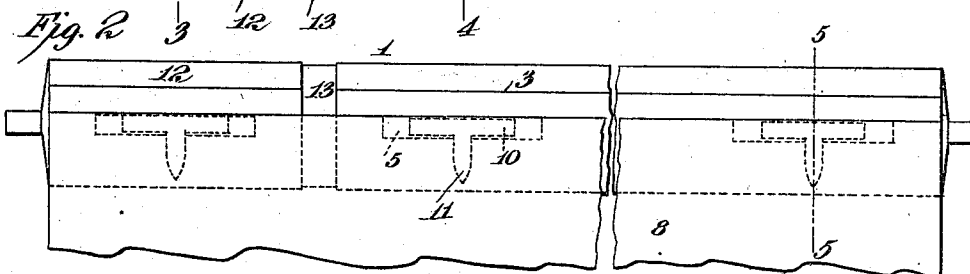
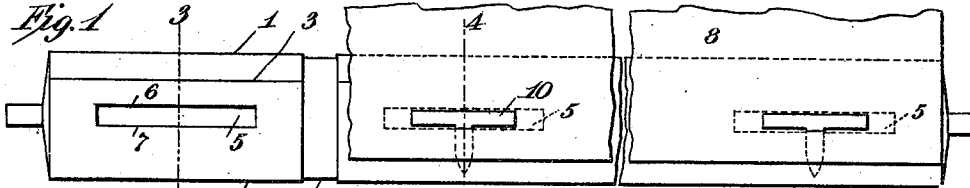


S. HARTSHORN.  
 MEANS FOR ATTACHING FABRICS TO ROLLERS.  
 APPLICATION FILED JAN. 17, 1908.

996,333.

Patented June 27, 1911.



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# UNITED STATES PATENT OFFICE

STEWART HARTSHORN, OF SHORT HILLS, NEW JERSEY, ASSIGNOR TO STEWART HARTSHORN COMPANY, OF EAST NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## MEANS FOR ATTACHING FABRICS TO ROLLERS.

996,333.

Specification of Letters Patent. Patented June 27, 1911.

Application filed January 17, 1908. Serial No. 411,211.

*To all whom it may concern:*

Be it known that I, STEWART HARTSHORN, a citizen of the United States of America, and a resident of Short Hills, county of Essex, and State of New Jersey, have invented a new and useful Means for Attaching Fabrics to Rollers, of which the following is a specification.

My invention relates to improved means in attaching fabrics, such as shades, curtains, awnings, etc., to spring or other rollers.

The general object of the invention is to produce a device by means of which the fabric may be attached to the roller without the need of tools.

Further objects are to produce an arrangement wherein the roller will not be weakened, whereby the roller may be made of standard and certain sizes, and which will be cheap to manufacture.

Another object is to produce an attaching device by means of which the fabric may be adjusted longitudinally upon the roller.

These and further objects will be apparent 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 side elevation of a roller, and a portion of a fabric showing one embodiment of my invention with the fabric in the first position. Fig. 2 is a similar view with the fabric in the second position. Fig. 3 is a section on the line 3—3 of Fig. 1, on a greatly enlarged scale. Fig. 4 is a section on the line 4—4 of Fig. 1. Fig. 5 is a section on the line 5—5 of Fig. 2. Fig. 6 is a perspective view of one form of fastener. Fig. 7 is a perspective view of a modification. Fig. 8 is a perspective view of another modification. Fig. 9 is a side elevation of a portion of a shade roller showing another modification. Fig. 10 is a section on the line 10—10 of Fig. 9. Figs. 11 and 12 are views of a detail of another modification. Fig. 13 is a detail view of still another modification.

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

In carrying out my invention I provide means for attachment of a shade, awning, curtain or other fabric, or similar device, to a roller. This roller is illustrated in the

accompanying drawings as formed of sheet metal, but the invention is not limited to a roller of this kind as it may be made of any material.

In the drawings, the roller 1 is shown as made of sheet metal, and is provided with the usual pin and spear at the extremities, and with the spring and pawls (not shown), according to the well known "Hartshorn spring shade roller". Any other form of roller, with or without a spring, may be employed.

The roller shown in Figs. 1 to 5 inclusive, is made of a tube of sheet metal, shaped to a cylindrical form with the edges overlapping. The parts are secured together as by solder 2 (see Fig. 3), producing a straight edge 3, which extends the entire length of the metallic portion of the roller. The part of the sheet metal which lies within the outer surface of the roller is unsoldered and forms a flap 4. A portion of the outer surface of the roller above this flap is made in the form of an opening or slot 5. As shown in Fig. 1, this slot is rectangular in shape. A plurality of these slots are formed upon the roller and extend throughout its length. The number and shape of the slots may be varied as desired. The edge 6 of the slot which lies on the side toward the straight edge 3 is at the extreme limit of the solder 2 which connects the edges of the metal plate together. It is not necessary, however, that the solder extend entirely from the straight edge 3 to the edge 6. The flap 4 is forced by its own elasticity and the elasticity of the rest of the material of which the roller is made with elastic pressure against the other side of the opening 5, and against the edge 7. The material of which the roller or the flap is made need not be elastic; in this case the flap may be separated a suitable distance from the inner wall of the roller. The flap is not necessarily integral with the rest of the roller. The fabric 8, which may be a curtain, shade, awning or other device, is attached to the roller by means of fasteners 9, one form being shown in Fig. 6. The fastener is of a general T shape shown, having a head or cross member 10 and a tyne 11 at right angles thereto. The tyne is curved in relation to the cross member, as shown, and its end is pointed. This pointed end is

adapted to be pushed through the fabric for the purpose of securing the latter to the roller.

As shown in Fig. 1, the fastener, of which a plurality may be used, is inserted in the fabric a sufficient distance from the free edge to give a body of material of enough width to prevent ripping or tearing. After forcing the tyne through the fabric until the cross member is in engagement therewith, the point of the tyne is introduced through the opening 5, and pushed between the edge 7 and flap 4. This flap 4 will guide the tyne and will hold it in place against the inner surface of the roller. The cross member of the fastener is preferably of less width than the opening or slot 5, as shown, so that the fabric may be actually forced into such slot, as shown in Fig. 4, and engage with the edges 6 and 7. The fabric will now be held in position and may be used in this manner, the upper edge of the cross member of the fastener engaging with the edge 6 of the opening 5, such edge serving as an anchorage to prevent the fastener from pulling out of the opening. The fastener will be held in position to engage the fabric with the edge 6 by the elastic engagement of the flap 4 with the tyne of the fastener. I prefer, however, to bend the fabric over to the position shown in Fig. 2 so that the bight of the fabric will engage with the upper edge of the cross member 10 and will exert stress upon the fastener in the direction to force it toward the edge 7, and will keep the fastener seated. The fabric will thereby be pinched between the lower edge of the cross member and the edge 7 and will be effectively held in such position. This arrangement I prefer to that illustrated in Fig. 1, for should the fabric be entirely unrolled from the roller there will be less danger of the fasteners coming out of the openings. It will be apparent that the fastener will be secured even if the flap does not engage with elastic pressure upon the tyne, or if it engages with but slight pressure the tyne will be retained in position by the stress exerted upon it by the engagement of the fabric with the upper edge of the cross member.

In Fig. 1 the roller is illustrated with the extension portion 12, which is secured to the rest of the roller by the wooden rod 13 in the usual manner, so that the length of the roller may be adjusted. The roller is held in its extended position in the usual manner.

The shape of the fasteners may be varied as desired. Fig. 7 shows a modification in which two tynes are employed. The length of the cross member may be such that both tynes will lie within one opening 5, or it may be made longer so that a tyne will lie in each contiguous opening. In the modifi-

cation shown in Fig. 8, more than two tynes are employed. In this modification a single fastener may be employed with each roller, there being a tyne for each opening 5.

A large number of advantages are apparent by my invention. The openings or slots 5 being removed from the edge 3 produces a continuous edge for soldering, which makes the roller cheap to manufacture and does not reduce its strength. The flaps 4 serve not only the purpose of holding the fastenings in position, but they serve as a means for guiding the tyne into place and prevent any possibility of the tyne coming into contact with the spring in the roller. Another important feature of my invention lies in the ability to adjust the fabric along the length of the roller. This is important as the fasteners may not be adjusted exactly in the proper place upon the fabric. When this happens, it is unimportant, as the fasteners may be adjusted in any position within the openings 5 after the fabric is in the position shown in Fig. 1. It is to be understood that to permit this to be done the openings 5 should be longer than the cross members 10.

An advantage of my invention over the ordinary grooved roller is that the roller is much stronger, as it is practically solid. A greater advantage, however, resides in the fact that the fabric does not have to be drawn through a groove from end to end. The absence of the groove permits a roller of much rounder shape to be made and makes it much more easy to form it of definite and standard size. The shape of the roller cannot be changed, and it cannot be otherwise strained or injured during the insertion of the fasteners and in the subsequent handling. The spring tongue 4 permits fabrics of any thickness to be used. The invention is particularly applicable to attachment of canvas awnings to rollers, the thick fabric being practically secured in place by the fasteners.

By my invention the fabrics may be attached to the rollers without the need of tools. A particular advantage lies in that all of the fasteners may be attached in place without turning the fabric over. The fasteners may be properly spaced and placed by first ruling a pencil line at the proper distance from the edge of the fabric. All of the fasteners may be inserted in the fabric before they are inserted into the openings, or the fasteners may be inserted through the fabric and openings successively, whichever is most convenient. The fabric may be creased before the fasteners are inserted in place; the line of crease serving to guide the operator in introducing the fasteners in proper position.

The modification illustrated in Figs. 9 and 10 employs the same form of fastener. An

opening analogous to the opening 5, is produced, such opening being formed by parallel slots or slits 15 and 16, the material between the slits being struck outward to form a band 17; the distance that the band 17 is struck outward is substantially the same thickness as the tyne 11 of the fastener. The fastener is inserted through the fabric as described in connection with the embodiment already described, the tyne going into the opening through the slits 14 and 15 and underneath the band 17. The fabric in engagement with the lower edge of the cross member 10 is forced into contact with the edge of the band, at the slit 15. The free end of the tyne may be left in position without changing it or it may be bent down against the roller, or upward over the band, as desired. This modification of my invention is illustrated for the purpose of showing an arrangement which may be adjusted longitudinally upon the roller.

Figs. 11 and 12 show a modification of the manner of attaching the fastener to the fabric. The flap 18 of fabric or other material is attached to both the sides of the edge of the fabric by gum or by other means, the tyne of the fastener passing through the opening of the flap. The fastener is then attached to the roller in the manner described.

Fig. 13 shows another modification in which the tyne of the fastener is bent back under the cross member. The opening in the roller is a simple slot, the fabric being clamped or pinched between the tyne and cross member, and against the roller. The tyne may be elastic or not as desired. It will be apparent that the tyne in this construction has the same function as the flap 4 already described. The roller in this modification has walls that are somewhat thicker than those already described. The thickness of the walls is immaterial to the proper functioning of the fastener. The tyne of the fastener is curved so that it will engage with the inner wall of the roller, so that the fastener will be guided when inserted and the tyne will not come into engagement with the spring of the roller.

It will be apparent that the fasteners and roller described embrace a structure in which there are two elements, one with at least two walls, and the other with at least one wall, one member being grasped between such two walls. The member with the two walls may be the roller, as illustrated in Figs. 1 to 12, or it may be the fastener as illustrated in Fig. 13. If the parts be so modified that both have two or more walls, the same function would result.

In placing the fastening shown in Fig. 13 in position, the tyne is pushed through the fabric until the cross member rests upon it. The tyne is then inserted in the slot and

brought to bear against the inside of the roller and the cross member is pressed down, thus pinching and clamping the fabric against the roller.

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 combination, a hollow sheet metal curtain roller having an opening therein; a fabric to be secured to said roller; and a removable fastener having a tyne adapted to pierce the fabric and pass through said opening and lie against and concentric with the inside of said roller, and having a head adapted to lie concentric with the outside of said roller and engage the fabric.

2. In combination, a hollow curtain roller formed of sheet metal with the edges thereof overlapping, and with an opening in the outer overlapping portion; a fabric to be secured to said roller; and a removable fastener having a tyne adapted to pierce said fabric and pass through said opening and between the overlapped portions of said roller, and having a head adapted to lie in said opening and engage said fabric.

3. In combination, a hollow curtain roller formed of sheet metal with the edges thereof overlapping and in yielding engagement with one another, and with openings in the outer overlapping portion; a fabric to be secured to said roller; and a removable fastener having a tyne adapted to pierce said fabric and pass through said opening and between the overlapping portions of said roller, and having a head adapted to lie in said opening and engage said fabric.

4. In combination, a hollow curtain roller formed of sheet metal with the edges thereof overlapping and in yielding engagement with one another; a fabric to be secured to said roller; and a removable fastener having a tyne adapted to pierce said fabric and pass between the overlapping portions of the sheet metal, and having a head adapted to lie concentric with the outside of said roller and hold the fabric in engagement therewith.

5. In combination, a hollow curtain roller formed of sheet metal with the edges thereof overlapping and in yielding engagement with one another, and a removable fastener of sheet metal having substantially the same curvature as the sheet metal of the roller, and having a tyne which is adapted to pass between the overlapping portions of said roller, and having a head adapted to lie against the outside of said roller.

6. A roller having an opening for a fastener, with a flap for normally closing the same, in combination with a fabric and a fastener, the fastener having a cross member  
5 and a tyne, the tyne entering the opening and engaging the flap, and the cross member lying within the opening.

This specification signed and witnessed this 16th day of January, 1908.

STEWART HARTSHORN.

Witnesses:

JAS. F. COLEMAN,  
LEONARD H. DYER.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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