No. 806,427. PATENTED DEC. 5, 1905.

G. J. RECORD.

CURTAIN ROLLER.

APPLICATION FILED MAR. 25, 1905.

Fig. 1.

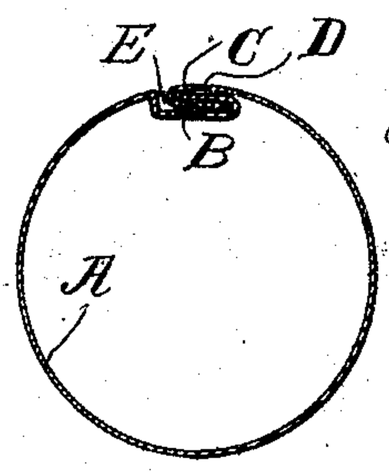


Fig. 2.

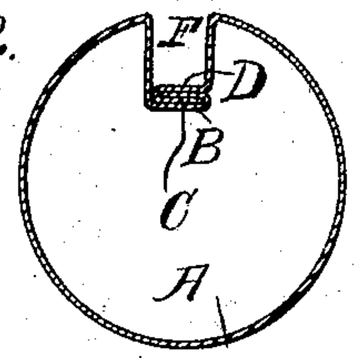


Fig. 3.

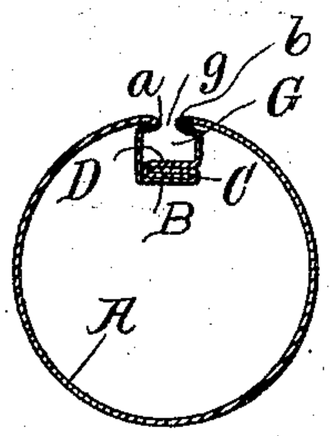


Fig. 4.

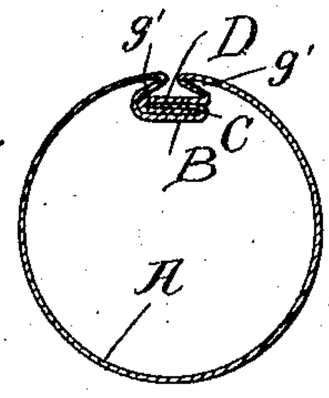


Fig. 5.

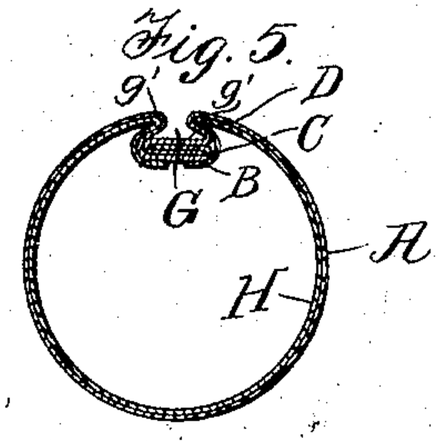


Fig. 6.

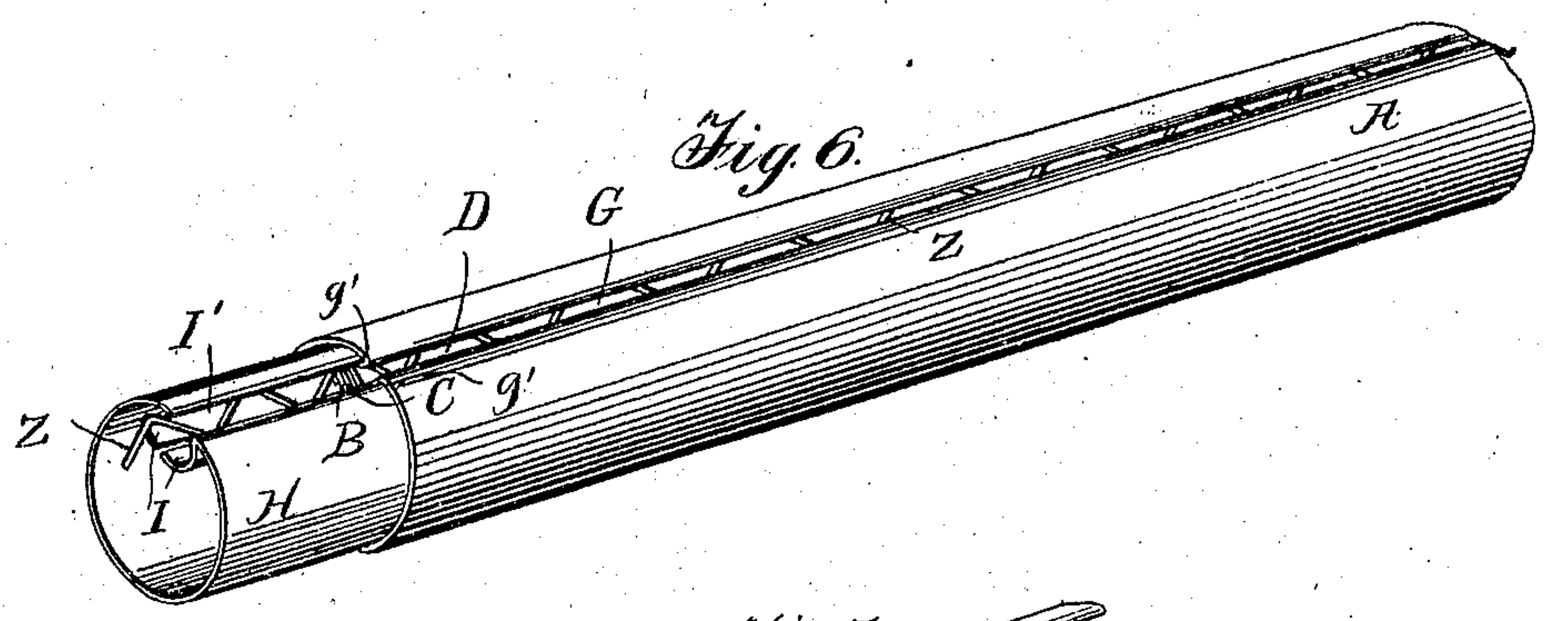
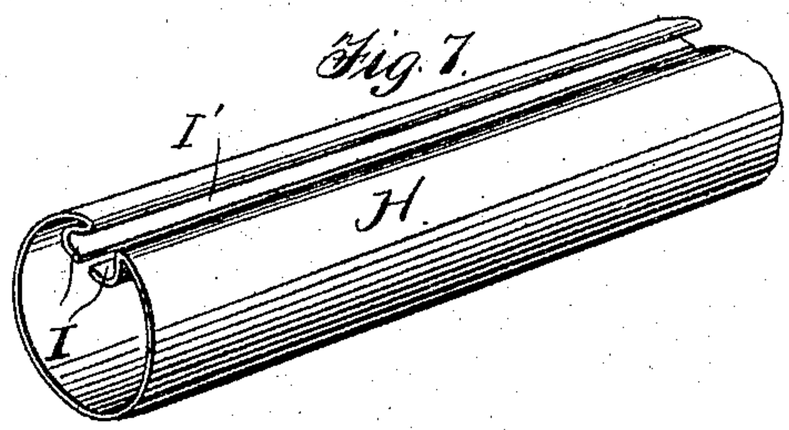


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE J. RECORD, OF CONNEAUT, OHIO.

CURTAIN-ROLLER.

No. 806,427. Specification of Letters Patent. Patented Dec. 5, 1905.

Application filed March 25, 1905. Serial No. 252,007.

To all whom it may concern:

Be it known that I, GEORGE J. RECORD, a citizen of the United States, residing at Conneaut, in the county of Ashtabula and State of Ohio, have invented certain new and useful Improvements in Curtain-Rollers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to curtain-rollers of the kind illustrated and described in my Letters Patent No. 783,759, the same being provided with a dovetailed longitudinal groove adapted to receive a fold of the curtain and a zigzag or undulating fastening-rod within the same.

The chief object of the present invention is to form said groove by depressing, folding, and interlocking the overlapping edges and proximate parts of the roller, thereby making a solid and secure seam without solder or other fastening. This enables me to work altogether by machinery and to use iron, steel, or any other sheet metal as readily as tin, now generally employed to permit soldering, hitherto thought necessary in making such grooves.

To this end my said invention consists in the construction of the said grooved tube and its interlocking parts and in certain means for adjusting the length of the roll and its groove, all substantially as and for the purpose hereinafter set forth.

In the accompanying drawings, Figure 1 represents a cross-section through a curtain-roll in the first stage of its manufacture according to my invention. Fig. 2 represents a similar view after the second operation of its manufacture. Fig. 3 represents a similar view after the third operation. Fig. 4 represents a similar view after the fourth and final operation. Fig 5 represents a similar view including the internal reinforcing and adjusting piece. Fig. 6 represents a perspective view of the entire roller with said piece extended, and Fig. 7 represents a detail view of the reinforcing and adjusting piece.

A designates the roller, having overlapping longitudinal parts B and C. In the first operation the broader part B is bent around the narrower part C, so that the latter is sandwiched in between two layers of the former, as shown in Fig. 1, and the upper portion of part B is similarly sandwiched between part C and the body of the roll above it. The said form and arrangement are given by ordinary methods of forming and folding to produce a locking-fold of nearly the full width of the broad and shallow preliminary groove E, which has a narrow neck and extends below them. The said folded part B on the inside of the groove serves as a guide in passing over the longitudinally-grooved mandrel used in the second operation, as said part B will enter said groove. Said groove E and the said folded parts are of the full width of the dovetailed groove, as shown in said patent. The roller A being drawn on the grooved mandrel, a suitable plunger die or dies will then be applied to the part D of the body of said roller which overlies the upper portion of the previously-folded part B, and the part D is thereby forced down within the roller and the deep groove of the mandrel, forming a fold at the bottom of the main part of the incomplete roller-groove F. The previously-folded parts B and C are of course carried down with it, the sides of groove F being parallel and vertical when said groove is on the upper side of the roller. The said groove has no neck, being of equal width at every point. The folded parts B C D do not extend out any longer on one side, as in Fig. 1, but are directly under the whole width of the groove and not to be loosened by any strain. To insure the tightness of their interlocking, the bottom of the groove of the mandrel is provided with a suitable die or dies to coöperate with the plunger die or dies aforesaid, or it may be formed so as to fulfil the same function.

By the third operation the roller is rolled or otherwise formed or pressed over a mandrel, so as to draw or force the material at its periphery at the sides of the groove toward each other at *a* and *b*, forming a dovetailed groove G, having neck *g* and completed for the purpose first stated. The groove G is of less depth than the incomplete groove, owing to the drawing of material in thus narrowing the neck, but the folded parts B C D remain unchanged, and the lock-seam thus formed will without soldering resist any strain to which the pull of the curtain may subject it. The groove G also will permanently retain its form. It may, however, be readily compressed into the neater and shallower form shown in Fig. 4, which is that generally used by me, making a complete and strong double seal; but to make further assurance of this I employ internal adjusting and reinforcing piece

H, which fits the interior of the said roller and is longitudinally slotted in order that its edges may clasp the walls of the neck of groove G, fitting into the narrow grooves g' g', left between the broader part of the wall of the groove and the wall of the roller. The roller and its groove, the reinforcing-piece, and its slot are of such relative form and size that when they are fitted together the wall of the groove forces slightly back the material of the reinforcing-piece on each side of the slot, and said material by reason of its resiliency closes on the neck of the groove, gripping the wall of said neck on both sides by opposed resilient pressure. This reinforce may be made of any length desired, but will preferably line the greater part of the length of the roller, so as to effectually brace all parts of the same. It is readily inserted, and its own resiliency will hold it securely in place. By extending it endwise beyond the end of roller, as in Fig. 8, it adjusts the roller to a wider window. As shown in Figs. 5, 6, and 7, the said reinforcing-piece may be provided with integral trough-like parts I, curving inward and backward from the edge of the slot, leaving a groove I′ between them and adapted to fit the broader part of the wall of the groove G, clasping it on both sides by resilient pressure, as before explained with reference to the grip on the neck of the groove G, and extending under it. This is the preferred form, as it adds another element of security to those before mentioned and braces all parts of the wall of the groove. The fastening-rod Z fits against the sides of groove I′ when the piece H is extended, and so gets secure bearing beyond the roller.

I do not show the roller-spring nor the curtain, as they have no bearing on the present invention. Of course a roller without a spring and with a different form of fastening device engaging the walls of its dovetailed groove may still embody my improvement and be made as above described, even though used with other articles than a curtain. My prior patent hereinbefore mentioned sufficiently explains the preferred use of such a roller and its groove and the parts coöperating therewith. Also I have not illustrated the grooved mandrel, dies, and other parts employed in manufacture as above described, as such illustration is not necessary to explain the construction of my improved roller.

Of course any suitable material may be substituted for the sheet metal in the roller, though usually with some disadvantage.

The incomplete forms of roller shown in Figs. 1 and 2 may be considered tubular blanks or tubes from which a roller is to be made. Of course the operation which produces Fig. 2 may be applied to a groove of the form shown in Fig. 1 at any part of the roller irrespective of the location of the seam.

The dovetailed groove in the roller remains open and continuous for the reception of the fabric and fastening device. The folds of metal which make up its bottom strengthen and stiffen the whole roll and enable it to be made of greater length and less diameter than would otherwise be possible with the same thickness of material. It is of course not absolutely necessary to provide the reinforcing-piece with trough-shaped parts I; but they are generally desirable.

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

1. A hollow roller, having a longitudinal dovetailed groove, in combination with a concentric inner reinforcing-piece, which braces all points of the circumference of the said roller, the said reinforcing-piece being longitudinally slotted and provided with parts which fit into the spaces on each side of the neck of said groove, the said parts being located on opposite sides of the said slot and gripping both sides of the neck of the said groove with opposed resilient pressure substantially as set forth.

2. A hollow roller having a longitudinal dovetailed groove G, in combination with a concentric inner reinforcing-piece which braces all points of the circumference of the said roller, the said reinforcing-piece being longitudinally slotted and depressed to form a groove I′ receiving the wall of said groove G, the parts of the reinforcing-piece which form groove I′ fitting the sides of said wall of groove G and gripping said wall from both sides with opposed resilient pressure substantially as set forth.

3. A hollow roller having a longitudinal dovetailed groove, in combination with a concentric inner reinforcing-piece which braces all points of the circumference of the said roller, the said reinforcing-piece being longitudinally slotted and provided on each side of its slot with depressed parts forming a groove I′ to receive and fit the wall of groove G, the said parts of said reinforcing-piece gripping the said wall of groove G between them by opposed resilient pressure, the said reinforcing-piece being also telescopically extensible for extending the roll and the groove I′ in this position an extension of the groove G substantially as set forth.

4. A hollow roller provided with a longitudinal dovetailed groove and seam, which are formed by folded interlocking depressed parts of said roller, in combination with a concentric longitudinally-slotted reinforcing-piece which grips the sides of the walls of the neck of said groove and thereby strengthens said groove and seam, beside bracing said roller internally substantially as set forth.

5. A hollow roller provided with a longitudinal groove and seam, which are formed by interlocking depressed folded parts of said

roller, in combination with an internal device which grips the sides of the wall of said groove and thereby strengthens it and the seam substantially as set forth.

6. A hollow roller provided with a longitudinal groove, which is formed by folded interlocking parts of the said roller, in combination with a resilient, longitudinally-slotted internal reinforcing-piece which grips the sides of said groove with the edges of its slot substantially as set forth.

7. A hollow sheet-metal roller provided with a longitudinal open dovetailed groove and a seam, said groove being formed by the parts which make the said seam, the said parts being folded on each other and interlocked in order to dispense with soldering or other means of attachment, said groove being adapted to be used in holding the edge of a curtain substantially as set forth.

8. A hollow sheet-metal roller provided with a longitudinal open continuous dovetailed groove the bottom of which consists of four folds of material interlocked and depressed, making a secure seam substantially as set forth.

9. A hollow sheet-metal roller, having a longitudinal continuous open dovetailed groove formed by parts integral with said roller, which are folded on each other, depressed and interlocked substantially as set forth.

10. A hollow sheet-metal roller having a longitudinal seam and continuous open dovetailed groove, the bottom of which is formed by the folded, depressed and interlocking parts B, C, D, the edge of each part B or C being between two thicknesses of the said metal and the bottom of the groove constituting a double seam substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE J. RECORD.

Witnesses:

E. M. COMSTOCK,

W. A. MIDDLETON.