Jan. 24, 1967 R. C. GOSSLING ETAL 3,299,944

WINDOW SHADE HAVING TELESCOPING ROLLER

Original Filed Feb. 12, 1963

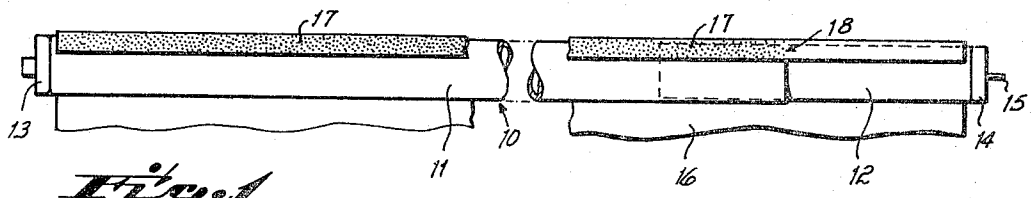


Fig. 1

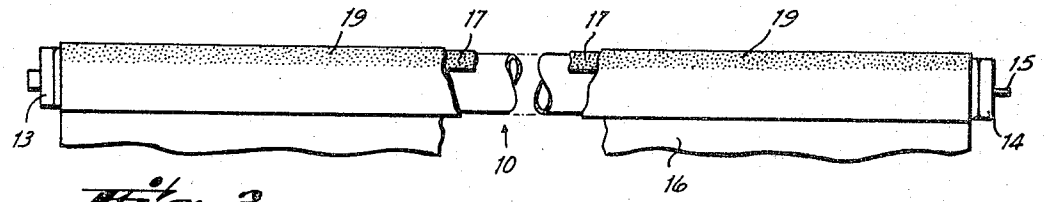


Fig. 2

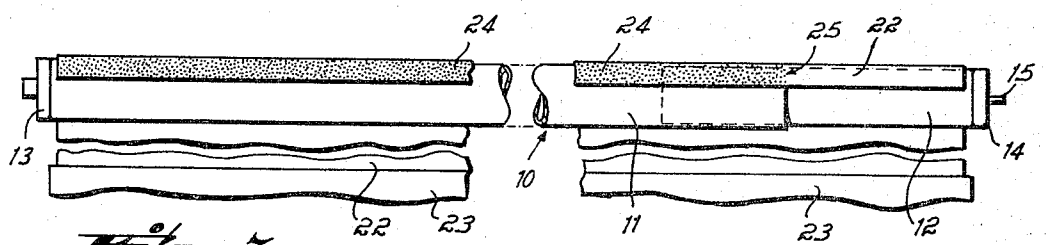


Fig. 3

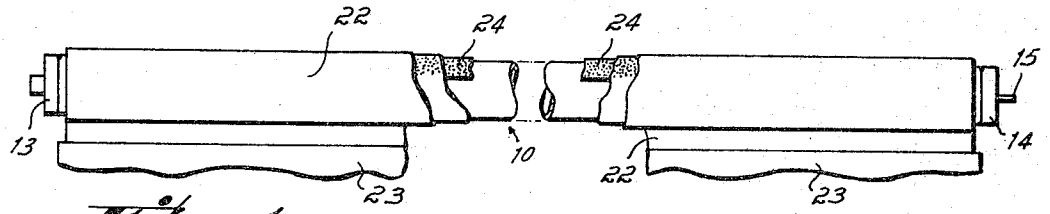


Fig. 4

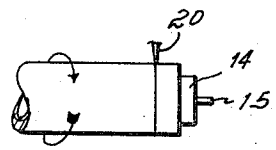


Fig. 5

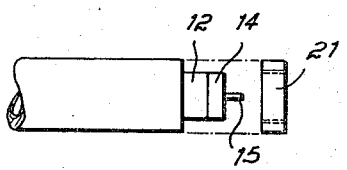


Fig. 6

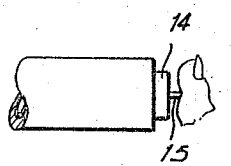


Fig. 7

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3,299,944

WINDOW SHADE HAVING TELESCOPING ROLLER

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Original application Feb. 12, 1963, Ser. No. 257,996, now Patent No. 3,203,468, dated Aug. 31, 1965. Divided and this application Aug. 16, 1965, Ser. No. 479,972

2 Claims. (Cl. 160—263)

This invention relates to a window shade and more particularly the invention is directed to a window shade having a roller which can be shortened by telescoping one section of the shade roller into another section. This application is a division of U.S. Serial No. 257,996, filed February 12, 1963 and now Patent No. 3,203,468.

The shade rollers now being manufactured are of two types, namely a solid wooden roller and a hollow metal roller. Each is characterized by having, at one end, a spring motor connected between the roller and spear which is fixed against rotation in a slotted bracket. The other end of the roller has a cap containing a gudgeon pin which is fixed to the cap and which is adapted to be rotatably mounted in a bracket.

The number of sizes of window openings into which such shade rollers must be fitted is limitless. Practically all shades will be within the range of twenty-five to fifty inches in roller length but there are window openings for every dimension within that range and, in older houses, the window openings are frequently less than twenty-five inches wide. In the application of shades to windows, the shades must conform to the window size rather than conforming the window size to the available shades manufactured. This is true not only for newly constructed buildings, but obviously this is true for those buildings which were erected many years ago. For these reasons, when a customer wants a shade it is common practice to select an oversize shade and cut its length to conform to the size of the window opening into which the shade is to be mounted.

A principal outlet for shades and the place in which much of the cutting to size is performed is the variety store. The cutting of the shade to size in such an establishment is at best an annoying undertaking. In the case of a wooden shade roller, the operation requires first pulling the pin and cap at the pin end of the roller, cutting through the shade material, unwinding the cut portion of the shade material, sawing the wooden roller with the consequent scattering of sawdust, chamfering the cut end of the wooden roller and thereafter replacing the cap and pin. To minimize the difficulty it is not unusual for a shade vendor to have a somewhat cumbersome machine in which all of the operations described above are performed but are performed with somewhat more dispatch than they could be in the absence of the machine. Even with the machine, however, the shortening of shade rollers for the customer is regarded as a disagreeable and time consuming task.

An objective of the present invention has been to eliminate much of the odium attending shade cutting by providing a shade roller comprising two sections, one being telescopable into the other for supporting the shade material so that the shortening of the shade can be effected merely by cutting the shade material and the slat running through the lower edge, sliding the cut material from the roller and telescoping the projecting portion of the roller into its adjoining section. There is, however, a major problem associated with telescoping shade roller sections. The upper or inner edge of the shade material must be secured to the shade roller along its entire length in order for the shade to hang properly. In other words, if the shade were attached only to one of the roller sections, the unattached side of the shade would tend to droop and be unattractive in appearance. The shade cannot be attached to both sections of the shade roller for then one of the sections cannot telescope freely into the other.

Another objective of the invention has been to provide a shade with telescoping roller, the combination having means for securing the upper edge of the shade material to the roller along its entire length while at the same time permitting one of the roller sections to telescope into the other. In its preferred form the invention contemplates the interposition of a tube of paper or other easily cuttable material between the smaller section of the roller and the shade material, the shade material being attached to the larger roller section and to the interposed tube. This interrelationship of roller sections and shade material provides the full support for the upper edge of the shade while permitting the smaller roller section to telescope into the larger one. The attachment of the shade to both the larger roller section and the tube fixes the tube against rotation with respect to the larger roller section. On the other hand, the fixed tube with the shade material attached prevents the shade material from drooping along the side depending from the smaller roller section. Preferably the cap at the end of the roller should have an outside diameter at least slightly less than the inside diameter of the tube so that when the shade material is cut, it can be slid from the roller without requiring the unwinding as is necessary with prior devices.

The improvement of which the present invention represents over the past structures can be perceived by noting the simplicity with which a shade of the present invention can be shortened. The only steps required are the slicing through the shade material and slat down to the shade roller. This slicing cuts the tube so that the excess can be removed by sliding it from the end of the roller. The operation is completed by pushing the smaller roller section into the larger roller section.

It has been another objective of the invention to provide a shade and telescoping roller combination which can be manufactured in three principal sizes so as to accommodate any size of shade to be cut between the minimum and maximum normally required in practice. In this regard it has been common practice to supply to the retailer approximately six sizes of rollers and in some cases it has been necessary to supply shade rollers of a great number of sizes, the lengths of the shades differing from each other by only one inch. The need to provide many different sizes of shades has been expensive from the manufacturing point of view in that the shades are manufactured from bolts of material of three standard sizes and when the "off" size shades are manufactured, excess shade material must be cut from the next largest standard size bolt and thrown away as waste material. Through the use of the present invention, it will be possible to sell window shades of three standard sizes

corresponding to the standard bolt sizes thus eliminating the waste in the manufacture of the shades.

These and other objectives of this invention will become more readily apparent from the following detailed description taken in conjunction with the accompanying drawings in which:

FIGURE 1 is a side elevational view, with parts broken away for illustration purposes, of a shade roller incorporating the principles of this invention. This figure illustrates the first step in the fastening the shade material to the roller.

FIGURE 2 is a view similar to FIGURE 1 illustrating the next step in the fastening of the shade material.

FIGURE 3 is a view similar to FIGURE 1 illustrating a modification of the shade roller.

FIGURE 4 is a view similar to FIGURE 2 illustrating the modification of FIGURE 3.

FIGURES 5, 6 and 7 are fragmentary side elevational views illustrating the operations required to shorten a shade manufactured in accordance with the present invention.

Referring to FIGURES 1 and 2, a shade roller designated generally **10** is comprised of two sections **11** and **12**. Section **11** preferably is made of sheet metal following known practices and it is provided with an end cap **13** that is part of a spring motor, not shown, for the roller. The other section designated **12** preferably is a wooden dowel that is of an outside diameter to be received in telescoping fashion inside the hollow metal tube constitutiing section **11**. Of importance is the fact that the end cap **13** for this section is of a diameter no larger than the wooden dowel section **12**. This end cap mounts a gudgeon pin **15**. Shade material for the roller is shown at **16**. This may be paper or plastic.

The stipled area designated generally **17** and terminating at **18** represents an area on the underside of the material to which adhesive is applied. This adhesive is of a type that is compatible to the plastic or paper material of the window shade and the hollow metal roller **11** so that initially, as a first step in mounting the shade material on the roller, the shade material is fastened only to the hollow section **11**.

Once the shade material is securely fastened to section **11**, the shade material is wound onto the roller slightly more than one full turn. When this has been accomplished a second application of adhesive is made, however, this time, and as indicated by the stipled area **19** of FIGURE 2 the adhesive is extended from one end of the roller to the other continuing past the point designated **18** to cover the thickness of shade material that exists between that layer of shade material upon which the adhesive is applied and the wooden dowel **12**. The shade material is then wound onto the roller to cover the adhesive that has been applied in the area designated **19**. This causes the shade material to adhere to itself so that that part of the shade material that surrounds the dowel **12** may be looked upon as a tube that is not adhered to the dowel **12** such that the dowel is free to be telescoped with respect to the hollow section **11** of the shade. In application Serial No. 257,996, a different sort of tube is provided in the area surrounding dowel **12**, the tube being made of paper and being an entity separate and apart from the shade material. In the invention disclosed here, a tube is formed from the shade material itself, thus obviating the need for an extra part. Obviously to complete the shade it is rolled onto the roller assembly and a slat inserted into the pocket that is at the bottom of the shade.

In shortening a shade to the proper size, only a few simple steps are required when the present invention is employed. First, the slat (not shown) in the lower edge of the shade is removed and cut to the proper size. Second, as illustrated in FIGURE 5, the shade in its rolled condition is rotated against a knife edge indicated

at **20**, or the knife rotated about the shade, until the knife passes through all of the shade material including that which forms the tube surrounding dowel **12** and comes into contact with the wooden dowel. Third, as illustrated in FIGURE 6, the cut portion of the shade material indicated at **21** is simply slid off the wooden dowel. Since the end cap **14** is of no greater diameter than dowel **12**, and since the inside diameter of that portion **21** that has been cut from the shade is greater than the diameter of the dowel, no obstruction is presented to block the easy removal of the cut shade portion **21**. The last step required is illustrated in FIGURE 7 and it consists in merely pushing the dowel **12** into the hollow metal roller section **11**. The force required to push the dowel into the metal roller section is slight enough to be done easily by hand. The final step of pushing the dowel into the metal shade roller can be performed just prior to the installation of the shade roller between the brackets upon which it is to be mounted. The roller can be held to the brackets and the adjustment made precisely to the distance between the brackets so that as perfect a fit of the roller to the bracket as possible can be made.

The first few convolutions of the shade material that is glued to itself surrounding dowel **12** forms an easily cuttable tube that has no attachment to the dowel. In the case above described the shade material itself forms this easily cuttable tube. This same type of tube can be made by utilizing a strip of paper such as the one shown at **22** in FIGURE 3 that is attached to the upper end of the shade material itself shown at **23**. This type of expediency utilizing a strip of paper is disclosed in Patent No. 2,559,410. However, unlike the strip of this patent, adhesive is applied to the underside of the strip only in the stipled area designated **24**, stopping at the point **25**. Thus, as in the embodiment previously described, the metal section **11** of the roller is the only part that is adhered to the paper strip **22**. Also as previously described a continuous strip of adhesive is then applied throughout the length of the roller after slightly more than one convolution have been wound onto the roller. In this way a tube of paper surrounds the dowel **12** but the dowel is free to telescope with respect to the tube since there is no attachment between the dowel and the tube.

The steps in shortening the shade are the same as has been described in relation to the embodiment of the invention disclosed in FIGURES 1 and 2.

Having described our invention, we claim:

1. A window shade and roller combination comprising,

a hollow metal roller section,

an inner roller section mounted in telescoping relation in metal roller section and having a portion projecting beyond said metal roller section,

a paper strip secured at one edge along the length of said metal roller section only and extending over the projecting portion of said inner roller section,

the width of said strip being greater than the circumference of said metal roller section,

and a sheet of shade material adhesively secured along one edge to the other edge of said paper strip,

said paper strip securing said shade material to said roller while permitting said inner section to slide axially with respect to said metal roller section, said paper strip further preventing droop of that portion of the shade material overlying the projecting portion of said inner roller section.

2. A window shade and roller combination comprising,

a hollow metal roller section,

an inner roller section mounted in telescoping relation in metal roller section and having a portion projecting beyond said metal roller section,

and a sheet of shade material adhesively secured along one edge to said metal roller section only,

said sheet being wrapped about said metal roller section and adhesively secured to itself across its width, thereby providing a tube of shade material secured only to said metal roller section,

said tube securing the remainder of said shade material to said roller while permitting said inner section to slide axially with respect to said metal section, said tube further preventing droop of that portion of the shade material overlying said projecting portion of said inner roller section.

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