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ENDLESS CORD FOR VENETIAN BLINDS

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Fig. 1

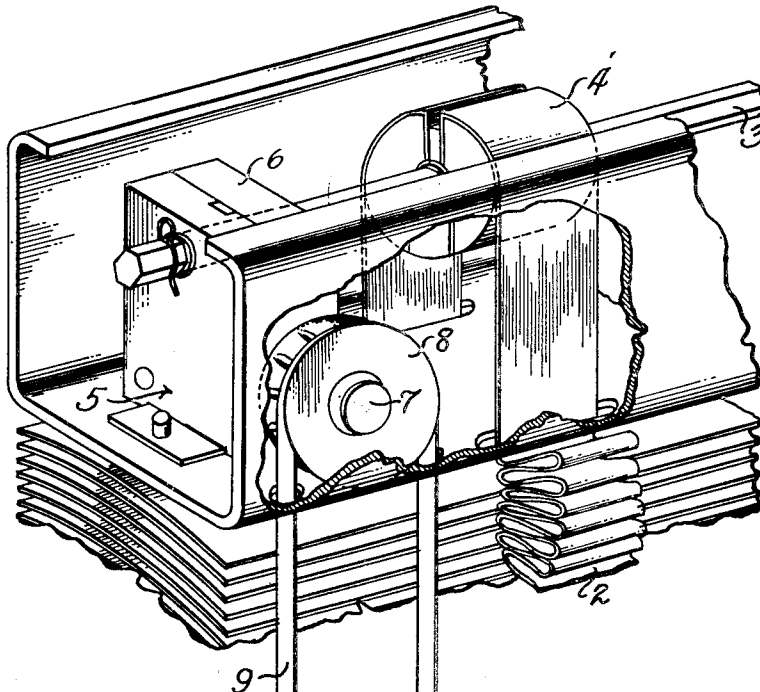
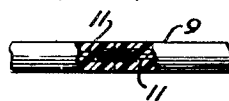


Fig. 2



Fig. 3



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ENDLESS CORD FOR VENETIAN BLINDS

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1 Claim. (Cl. 28-81)

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My invention relates to Venetian blinds, and has particular reference to a cord to be employed for operating the tilting and lifting mechanisms of such blinds.

The usual construction of Venetian blinds includes a plurality of blind slats disposed in parallel spaced relation to each other on vertical web ladders by which the slats are suspended from the head rail structure. The slats are raised and lowered by means of lifting cords which are either pulled directly or, in the case of relatively long blinds, the lifting cords are raised and lowered by means of winding mechanisms which are in turn operated by means of pulleys over which are trained traction cords to be clasped by the person operating the blind.

Heretofore it has been necessary to provide an excessive length of traction cord in order to insure that a sufficient amount of cord is available to rotate the lifting mechanism pulley through a sufficient number of revolutions to insure raising and lowering the blind between its extreme positions. It has been suggested that an endless cord be employed for this purpose, but the cords which have been used have been braided cotton or similar fibrous rope, the ends of the cord being clipped together by means of a metal clip or the ends of the cord being spliced together by interweaving the threads of the cord. In the case of the metal clip, it has been found that this is unsatisfactory since it is difficult if not impossible to provide a clip sufficiently small to pass over the pulley, and in the event of any slippage between the cord and the pulley the clip rapidly assumes a position at which it binds in the pulley and renders the cord substantially useless until a laborious maintenance operation is performed.

In the case of the spliced cord the splicing operation must be performed after the cord has been assembled about the pulley, and the splicing must either be done at the factory or an extremely skilled workman is required in the field installation of the blind.

Further, the webs are secured to a tilting bar which is adapted to be partially rotated by means of gear mechanisms so as to raise one and lower the other of the vertical members of the web ladders to tilt all of the slats between a closed position in one direction and a closed position in the other direction to thereby adjust the effective light opening between adjacent slats. The tilting mechanisms usually include a pulley connected to the tilting gearing mechanism and over which

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is trained a cord by which the pulley is rotated to effect the desired rotation of the tilting bar.

Again the cord for operating the tilting mechanism should be an endless cord and the same difficulties are encountered in attempting to use an endless cord construction with spliced or metal clipped cord ends.

It is therefore an object of my invention to provide an operating cord for Venetian blinds which may be readily spliced either at the factory or in the field to permit a ready construction of an endless operating cord.

Another object of my invention is to provide a cord for use in the operating mechanisms of Venetian blinds constructed either wholly or partially of a plastic material, the ends of which may be readily "welded" together to form an endless cord, in which the composition of the cord across the joint is homogeneous with the composition of the remainder of the cord.

Another object of my invention is to provide a construction for cords for the operating mechanisms of Venetian blinds in which the welding operation required to splice the ends of the cord to form an endless cord may be readily performed in the field by the mere application of heat to the cord ends.

Other objects of my invention will be apparent from a study of the following specifications, read in connection with the accompanying drawing, wherein

Fig. 1 is a perspective view of a portion of a Venetian blind assembly and illustrating the manner in which my new cord may be applied thereto;

Fig. 2 is a fragmentary sectional view through the meeting ends of said cord and illustrating the reinforcing fibers employed therein; and

Fig. 3 is a fragmentary sectional view illustrating the joint formed at the ends of such cord.

Referring to the drawing, I have illustrated in Fig. 1 a typical Venetian blind assembly comprising a plurality of slats which are assembled together by means of web ladders 2 the vertical members of which are secured to a tilting bar 3 as by means of a spool 4 mounted upon the tilting bar or shaft 3 and which is in turn adapted to be partially rotated by means of a tilting mechanism gear assembly 5.

The gear assembly 5 includes a worm and worm wheel not shown contained within the housing 6, the worm being mounted upon or otherwise secured to a pulley shaft 7 upon which is mounted a V-grooved pulley 8 over which the operating cord 9 is trained.

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The cord 8 is preferably formed from one of the thermoplastics such as nylon, or one of the vinyl or polystyrene plastics, preferably one which has the characteristic of being self-welding when heat is applied to the ends of the cord and the cord ends pressed together as is indicated at 10, though any of the plastic materials having the characteristic of being flexible at room temperature may be used and the ends of the cord may be cemented together by using suitable softening solvents for the particular plastic composition used.

While some of the plastic threads have sufficient tensile strength without reenforcement, it may be desirable to use a reenforcing thread or threads of cotton 11, linen or other vegetable or animal fibers, or fine wires may be embedded within the plastic material.

Such cord may be cut to suitable length, trained over the pulley which it is to operate, and the ends spliced together to form an endless cord, an operation which is readily performed at the point of installation of the blind, thus avoiding the necessity of a pre-assembly of cord and pulley prior to the installation.

Where the cord is provided with reenforcing fibers, it may be desirable to expose a few of the fibers at the ends of the cord prior to welding the ends together as illustrated in Fig. 2 so that upon the softening of the plastic material the reenforcing fibers may be extended across the junction between the cord ends and pressed into the plastic material on the far side of the joint as illustrated in Fig. 3. Thus the reenforcement extending across the joint will render the composition of the joint substantially homogeneous with the composition of the remainder of the cord.

From the foregoing it will be apparent that

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I have provided an operating cord which is adapted for use either for operating the tilting mechanisms of the blinds or for operating the lifting and lowering mechanisms of the blind in which the endless cord remains completely effective to perform its work irrespective of any slippage which may occur between the cord and the pulley.

While I have shown and described the preferred embodiment of my invention, I do not desire to be limited to any of the details of construction shown and described herein, except as defined in the appended claim.

I claim:

15 An operating cord for Venetian blinds comprising a length of cord formed from a plastic material flexible at atmospheric temperatures and having reenforcing threads extending longitudinally therethrough, the ends of the cord being joined together to form an endless cord in which reenforcing threads extend through the joint to render the composition of the cord at the joint substantially homogeneous with the remainder of the cord.

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