

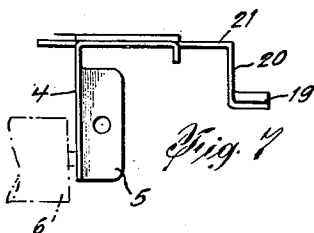
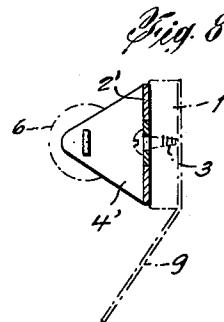
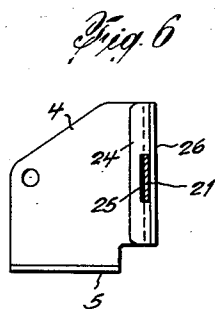
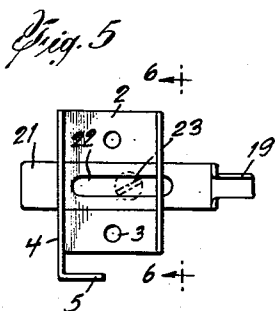
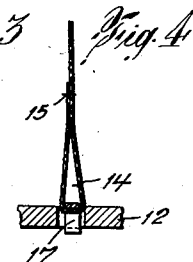
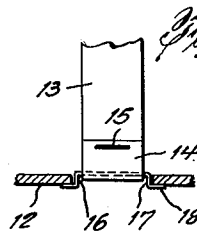
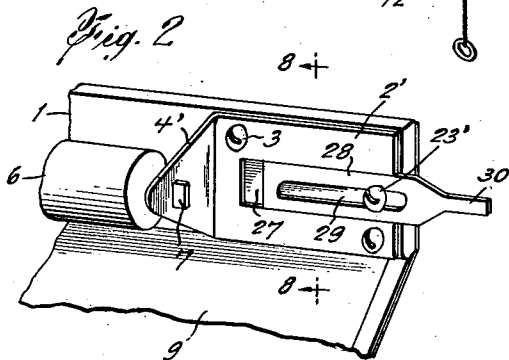
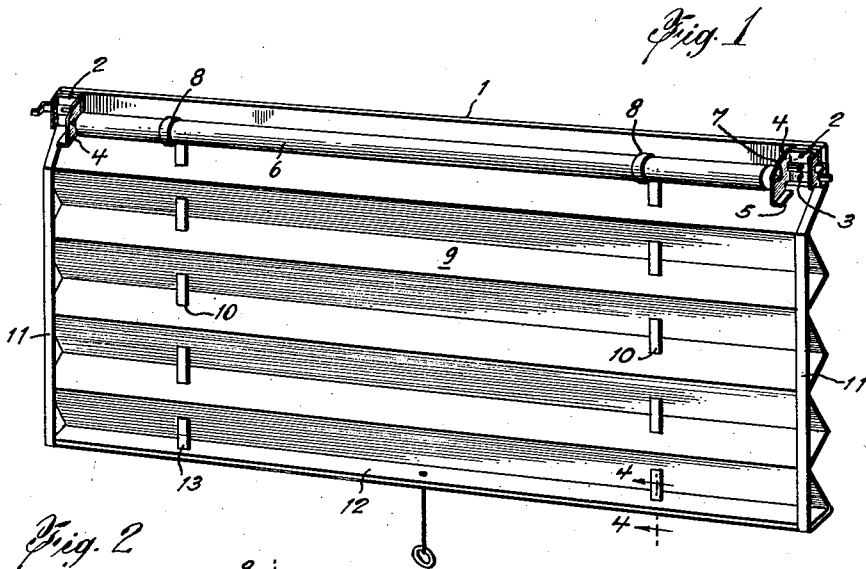
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2,509,033

STRUCTURE OF WINDOW SHADES

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UNITED STATES PATENT OFFICE

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STRUCTURE OF WINDOW SHADES

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9 Claims. (Cl. 160—84)

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The present invention is directed to window shades, more particularly to the type wherein the shade portion is a horizontal pleated sheet of material suitably mounted within a frame or member adapted to be held on a window frame.

In my co-pending application Serial No. 618,156, filed September 24, 1945, and entitled "Window shade structure," I have described a window shade of this type wherein a shade roller is mounted in a frame and has a plurality of tapes secured thereto and adapted to be rolled upon and unrolled from the shade roller. The shade itself consists of a sheet of material horizontally plated and having slits therein through which the tapes pass. A lower bar holds the free ends of the tapes and the lower end of the shade is also secured thereto.

Such a structure has fittings on the opposite sides of the frame member, which fittings are intended to be mounted to complementary fittings secured on the window frame. Shades made in accordance with said co-pending application have been found quite satisfactory in use and have numerous advantages over prior structures of this type. The present invention is directed to a similar structure but to a modified form thereof which will allow greater flexibility in use of such shades.

In the manufacture of such shades, they are made in various sizes for the purpose of fitting into windows of generally similar size. In practice, the shades are made in widths one inch apart and are intended to fit into windows of corresponding sizes owing to various irregularities which often occur in that the windows are not exactly the size they are supposed to be, or because of the manner in which the hardware or mounting for the shades are constructed or are secured to the window frame, considerable variation in the effective width often results. This causes some difficulty in properly adjusting the shade into the window and at times alterations in the shade or the window structure or in the hardware has been necessary.

The present invention is intended to overcome difficulties and disadvantages as set forth above and to provide a structure of a window shade wherein the same may be easily and quickly adjusted to minor variations in a window frame or mounting devices thereof so as to accommodate a window shade to such varying dimensions.

It is also among the objects of the present invention to provide a fitting secured to the opposite ends of the shade frame or elongated member, which embodies a tongue or the like, which is

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readily slidable endwise and which may be quickly and effectively secured in adjusted position.

It is still further among the objects of the present invention to provide a means for securing the free ends of the tapes to the lower bar of the shade in such a manner that it may be readily secured and held in position so as to resist strains introduced by the upper and downward movements of the shade.

In practicing the present invention there is provided an elongated member on which a spring operated shade roller is mounted. The mounting includes a plate at each end of the member and fixed thereto, having an angularly extending portion with openings therein adapted to accommodate the ends of the roller. Each of said plates has a laterally extending tongue adapted to fit into the hardware or brackets secured to the window frame. The tongue normally operates in a groove or recess in the plate and a screw and slot arrangement are usually provided to hold the tongue in adjusted positions.

A plurality of tapes have one end secured to the roller and they pass through a series of slits formed in the pleats of the shade itself. The bottom bar has a pair of slots formed therein and the free ends of the tapes pass through said slots. A holder or retainer member consists of spring metal having a horizontal portion around which the end of a tape is folded and stapled or otherwise locked in place. Each holder is of a width approximately equal to the width of the slot and depending legs therefrom are of spring metal so that when the holder is pushed into the slot, spring pressure will retain it in position. A pair of outwardly extending flanges on the legs act as such members to properly locate the holder in its adjusted position.

In the accompanying drawings constituting a part hereof and in which like reference characters indicate like parts.

Fig. 1 is a perspective view of a window shade made in accordance with the present invention;

Fig. 2 is a fragmentary perspective view showing a modified form of mounting member;

Figs. 3 and 4 are respectively front elevational and vertical sectional views of the lower end of the tapes;

Fig. 5 is a front elevational view of the holder shown in Fig. 1.

Fig. 6 is a side elevational view thereof taken on the line 6—6 of Fig. 5;

Fig. 7 is a top plan view thereof, and

Fig. 8 is a side elevational view of the modification shown in Fig. 2.

The shade comprises an upper vertical bar 1 having brackets 2 on opposite ends thereof secured to the rear of elongated bar 1 by screws 3. An angular flange 4 extends forwardly from base 2 and a lower flange 5 extends horizontally therefrom. A shade roller 6 has ends 7 inserted in openings in extensions 4 to hold the same in position. A pair of spaced tapes 8 have one end secured to roller 6 and extending downwardly, passing through slits 10 in each of the pleats of shade 9. One or more additional tapes 11 are secured to the alternate folds of shade 9 to limit the amount of opening of the shade.

A lower bar 12 is attached to the lower end of shade 9. The lower ends 13 of tapes 10 are formed into loops 14 and secured by staples 15. A metal member 16 is threaded through loop 14, the width of said member being approximately equal to that of a slot in bar 12 as shown in Fig. 3. Depending legs 17 contact the edges of said slot and by reason of the spring material of the member frictionally engage the same. Horizontal outwardly extending flanges 18 act as stop members to properly position member 16 in bar 12.

Each of plates 2 has associated therewith a tongue 19 adapted to extend into the hardware of a window frame. Legs 20 extend rearwardly from tongues 19, and are attached to the bases 21 of tongues 19. Said bases operate in slots in plate 2 and are provided with longitudinal slots 22 and screws 23 passing through the slots to hold tongues 19 in adjusted positions.

A guide 24 having a recess 25 therein accommodates base 21 to allow it to slide. Retainer plate 26 is placed under plate 2 in order to allow ready shifting of the tongue 19.

In the modification shown in Fig. 2, plate 2 is provided with a longitudinal slot 27, in which the base 28 is adapted to fit. Slot 29 in said base provides means for passage of screw 23' to hold base 28 in adjusted position. The outer end of said base terminates in a tongue 30 adapted to fit in the hardware of a window frame.

Plate 5 may be bent in a direction opposite to that shown in the drawing. Flat tongue 19 which enters the slotted bracket in the window frame is tilted so that a plane passing through the same is at an acute angle to the horizontal and its upper edge is forward, so as to provide proper balance of the shade when mounted.

From the above, it will be noted that if a window shade does not quite fit into the window frame, a slightly smaller size of shade is provided. It is merely necessary to loosen the screws passing through the slots in the bases of the tongues, then move end 1 or both of the tongues endwise a sufficient distance so as to perfectly fit into the window brackets and then tighten the screws. The mounting of the shade is then a simple matter. When the shade is removed for repair or cleaning purposes, the entire unit is removed and parts thereof may be replaced without accidentally displacing the several elements. Thereby, for instance, the shade may be removed for cleaning or scrubbing, dried and then immediately replaced in the window frame. It is not necessary to have any adjustment thereof in order to allow it to again function properly. The means used for securing the free ends of the tapes has been found to be particularly effective in that by mountings previously used, if undue strain is applied to the shades and the tapes, tearing of the tapes at the point of attachment often took place.

By the new structure, such strains are distributed over a considerable area and tearing of the tapes has been practically eliminated. The reason for this is partly due to the yield of the spring means used for holding the ends of the tape, and partly by reason of the loop formed at the end of the tape which gives some freedom of movement relative to the structure when strain is applied.

Although the invention has been described setting forth two specific embodiments thereof, the invention is not limited thereto but the embodiments are intended to merely illustrate the invention. Various changes in the details of construction may be made, as for example, the lateral flanges on the plates may have bars secured thereto to strengthen the structure or to improve its appearance or such flanges may be omitted. The material of the plates may be made of metals such as steel, bronze, or the like, or may be made of light metals such as magnesium or aluminum or their alloys, or in some instances non-metallic materials such as molded plastics may be employed. The shade, tapes and other elements may be made of woven textile materials or of plastics or of chemically treated fibrous sheet materials. The form of the plates and of the tape holders may be varied to a considerable extent, depending upon the design required for specific purposes.

These and other changes may be made in the details of the construction of the invention, which is to be broadly construed and not to be limited except by the character of the claims appended hereto.

I claim:

1. In a window shade structure comprising an elongated member adapted to be placed horizontally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, and a laterally extending tongue.

2. In a window shade structure comprising an elongated member adapted to be placed horizontally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, and a laterally extending tongue, a recess in said plate, said tongue fitting into said recess and adjustably secured therein.

3. In a window shade structure comprising an elongated member adapted to be placed horizontally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end

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of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, a laterally extending tongue having a shot therein, a recess in said plate, said tongue fitting into said recess and adjustably secured therein by means of a said slot in said tongue and a screw passing through said slot and into said member.

4. In a window shade structure comprising an elongated member adapted to be placed horizontally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, a laterally extending tongue, a recess in said plate, said tongue fitting into said recess and adjustably secured therein, and guides on said plate for said tongue.

5. In a window shade structure comprising an elongated member adapted to be placed horizontally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, a laterally extending tongue, and a horizontal flange on the lower part of said angular portion.

6. In a window shade structure comprising an elongated member adapted to be placed horizontally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, and a laterally extending tongue, a recess in said plate, said tongue fitting into said recess and adjustably secured therein, the extending portion of said tongue being offset.

7. In a window shade structure comprising an elongated member adapted to be placed horizon-

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tally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, a slot in said bar through which each tape passes, a spring holder onto which said tape is mounted, said holder being retained in said slot by spring pressure, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, and a laterally extending tongue.

8. In a window shade structure comprising an elongated member adapted to be placed horizontally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, a slot in said bar through which each tape passes, a spring holder having a horizontal bar onto which said tape is mounted, said holder being retained in said slot by spring pressure, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, and a laterally extending tongue.

9. In a window shade structure comprising an elongated member adapted to be placed horizontally across a window frame, a spring shade-roller mounted on said member intermediate the ends thereof, spaced tapes adapted to be wound on said roller, a horizontally pleated shade having slits in each pleat, the upper end of said shade being attached to said member, said tapes passing through said slits, a bottom bar attached to the lower end of said shade, said tapes being anchored in said bar, a slot in said bar through which each tape passes, a spring holder onto which said tape is mounted, said holder having a horizontal bar of about the width of said slot, depending legs adapted to be spring-pressed against said slots, and flanges extending outwardly from said legs, the improvement which includes means on the opposite ends of said member for mounting the same in said frame, each including a plate secured to said member and having an angularly extending portion to retain said roller, and a laterally extending tongue.

CLAUDE D. CARVER.

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