

Nov. 20, 1928.

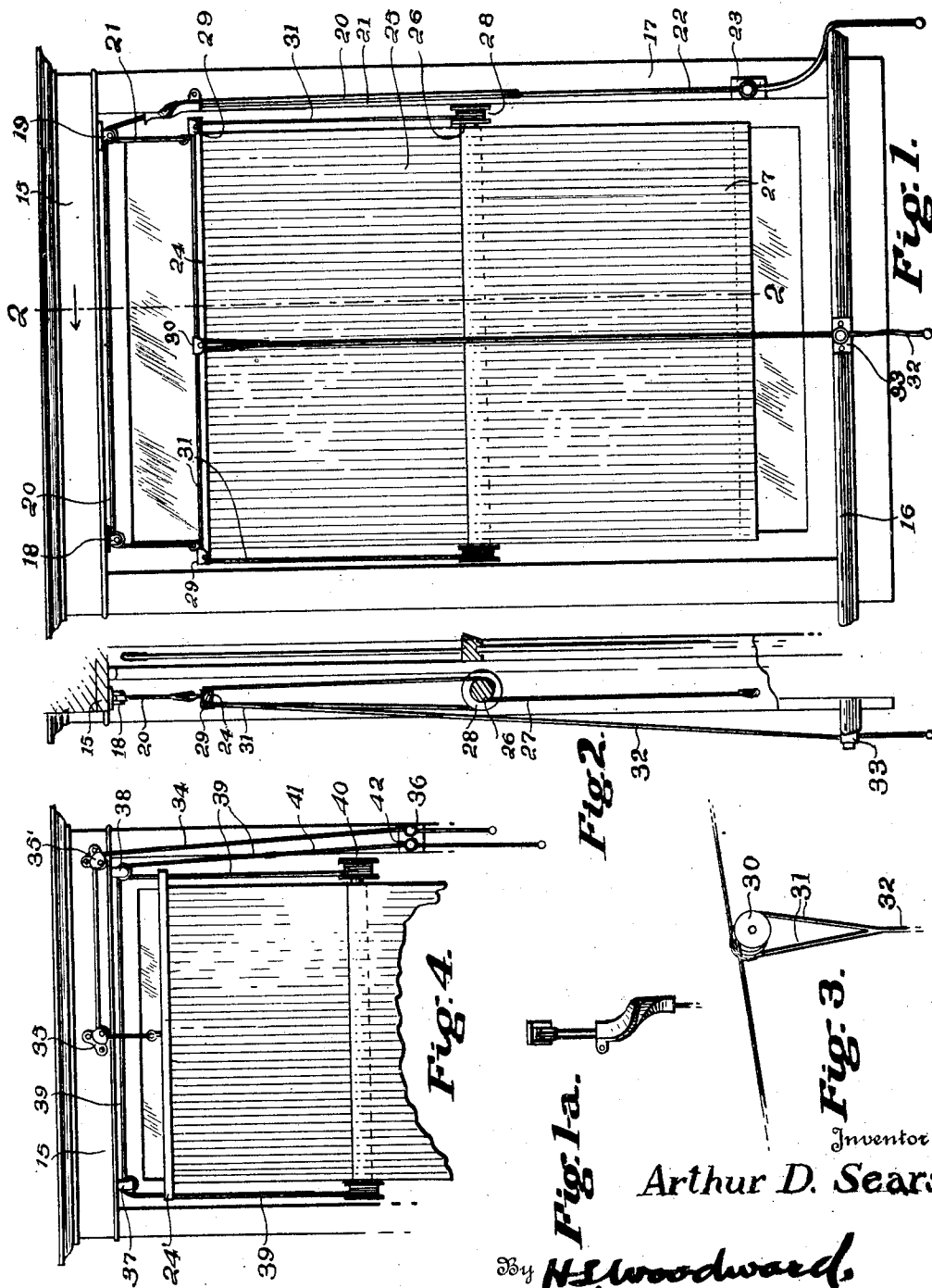
1,692,707

A. D. SEARS

WINDOW SHADE

Filed June 28, 1924

3 Sheets-Sheet 1



Inventor:
Arthur D. Sears

By *H. Woodward*

Attorney

Nov. 20, 1928.

1,692,707

A. D. SEARS

WINDOW SHADE

Filed June 28, 1924

3 Sheets-Sheet 2

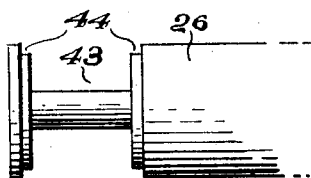


Fig. 5.

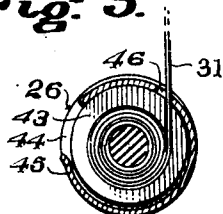


Fig. 6.

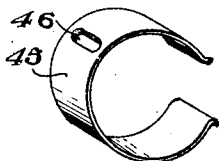


Fig. 7.

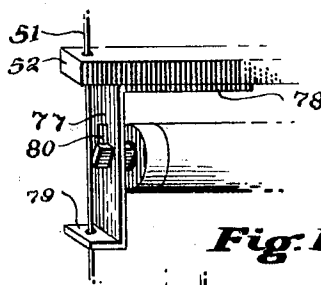


Fig. 14.

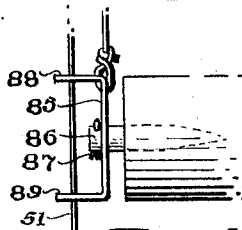


Fig. 15.

Inventor:
Arthur D. Sears,

By *H. J. Woodward,*

Attorney

Nov. 20, 1928.

1,692,707

A. D. SEARS

WINDOW SHADE

Filed June 28, 1924

3 Sheets-Sheet 3

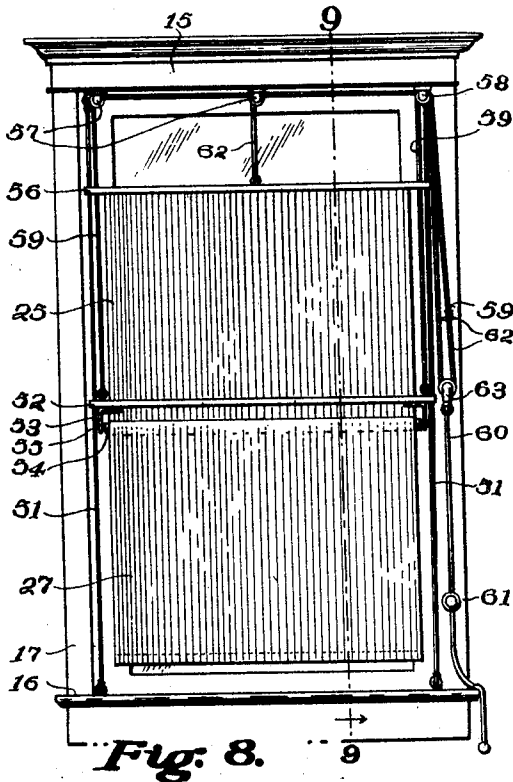
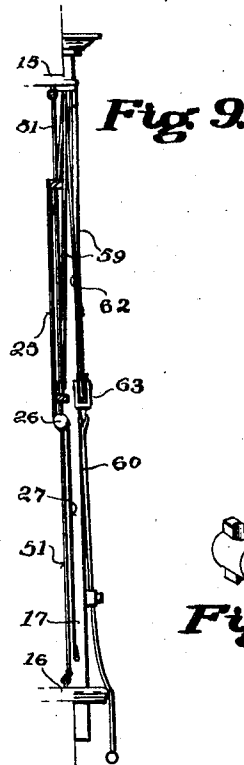
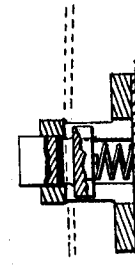
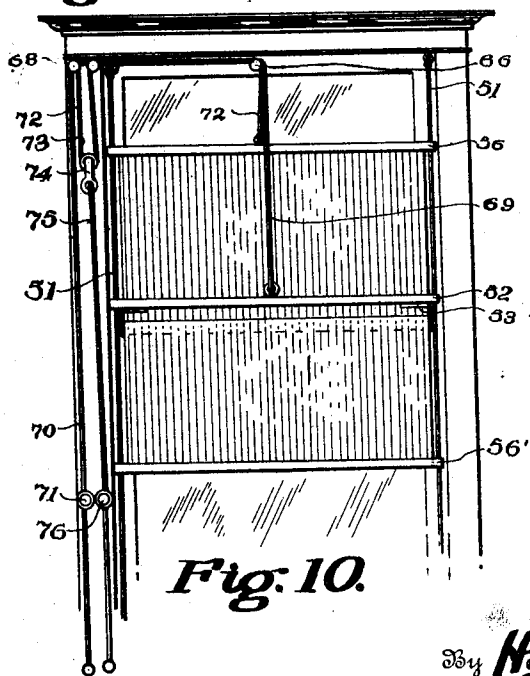
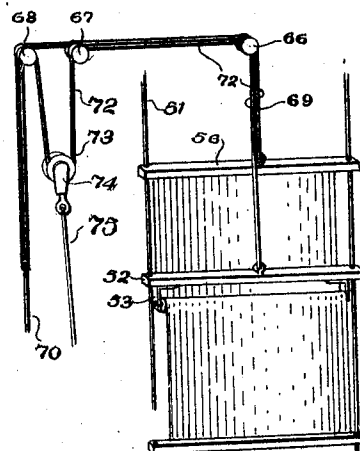


Fig. 11. Inventor:
Arthur D. Sears,

By *H.S. Woodward,*

Attorney

UNITED STATES PATENT OFFICE.

ARTHUR D. SEARS, OF NASHVILLE, TENNESSEE.

WINDOW SHADE.

Application filed June 28, 1924. Serial No. 722,927.

The invention has for an object to effect improvements in shade construction, to the end that a desirable arrangement and apparatus permitting the satisfactory use of roller shades adjustable bodily without rolling or unrolling, as well as permitting the winding and unwinding of the roller, may be accomplished.

I am aware that many constructions for the vertical bodily adjustment of shade rollers have been evolved, and I am also familiar with the fact that devices in which a shade may be unwound in two directions from the same roller have been developed. My experience as a specialist in the manufacture and installation of roller shades for a long period of years has shown, however, that all of the devices and patents with which I am familiar are deficient in one or more important respects, and not satisfactory for general use. It is therefore an object of this invention to present a construction, and combination of elements making for practicability in manufacture of such devices, as well as having a strong appeal to the public because of the simplicity of the installation and manipulation thereof, durability and freedom from liability of impairment or derangement.

Additional objects, advantages and features of invention other than those specifically stated or illustrated and residing in the construction, arrangement and combination of parts may be understood from the following description and accompanying drawings, in which

Figure 1 is an elevational view of a window equipped with shades and mounting therefor, embodying my invention in one form.

Figure 2 is a side elevation thereof.

Figure 3 is a detail of the center pulley of the adjuster bar.

Figure 4 is a view similar to Figure 1 of a modification on a reduced scale.

Figure 5 is a detail of a modified form of roller suitable for use with the foregoing embodiment of the invention.

Figure 6 is an end view of a removable case element adaptable to use with the rollers of the preceding figures.

Figure 7 is a top view of the case in Figure 6.

Figure 8 is an elevational view of a window

equipped with a further modification of the invention utilizing a spring roller.

Figure 9 is an elevation of a window with a still further modification of the invention.

Figure 10 is a fragmentary view of an adjuster bar and bracket slide for adjusting the same on guide-wires.

Figure 11 is a similar view of a further means for mounting an adjustable roller upon the guide-wires, obviating the need for an adjusting bar, in addition.

Figure 12 is a detail cross section of a springless roller guide.

Figure 13 is an elevation of such a guide with roller and shade parts co-engaged therewith.

Figure 14 is a detail fragmentary elevation of a modified roller mounting.

Figure 15 is a fragmentary elevation of another roller guide.

There is illustrated in Figures 1 to 3 inclusive, a window frame including the usual lintel 15 and sill 16, with the usual jamb facing 17 extending therebetween at the sides. A single pulley 18 is secured upon the under side of the lintel at the extreme left hand side of the window opening, while a double pulley 19 is secured in a similar situation at the right hand side. Suitable cords or cables 20 and 21 drop from the left hand side of the pulley 18, and one wheel of the pulley 19 respectively, the other wheel of the last named pulley having the first mentioned cable extended thereover and downwardly beside the outer side of the cable 21, the two being secured to a common adjusting cord 22 which may be engaged with a releasable clamp or other equivalent device 23 on the facing of the frame at one side. The extremities of the cables 20—21 are attached to an adjuster bar 24 attached to the upper portion of a window shade 25, to the lower part of which a roller 26 is suitably secured so that this shade portion may be wound thereon. A continuation of the shade, or a separate lower shade portion 27 of equal area extends downwardly from the roller, the shade portions being so attached to the roller that both may be wound upon the roller simultaneously by rotation of the roller.

The roller is extended suitably at each side of the shade and provided with a winding drum portion 28, having suitable flanges, the inner flanges being located suitably to accom-

moderate the shade freely. Single pulleys 29 are mounted at each end of the adjuster bar 24, vertically over the drums 28, and a double pulley 30 is mounted upon the bar 24 in line with the pulleys 29. Respective cables 31 are connected to the drum, extended upwardly therefrom at the outer sides of the pulleys 29, inwardly over these pulleys, and then horizontally inward and over respective wheels of the pulley 30, then downwardly, and connected to a single operating cord 32, which is adjustably engaged with a fastening device 33 located medially on the sill. With the opposite shade portions 25 and 27 so extended from the roller as to fully cover the window opening, the cable 31 is of sufficient length to extend as described, with the cord 32 secured as at 33, and the cord 22 secured at 23 with the bar 24 held at the upper limit of its movement.

With this form of the device, the shade may be operated so as to open the lower portion of the window only by drawing upon the cord 32 as desired, and the shade may in this manner be entirely withdrawn to the upper part of the window opening. Should it be desired to admit light at the upper part of the window only, the cord 32 is drawn until the opening at the top and bottom equal about that which it is desired to leave at the top, the cord 32 is then fastened at 33, and the cord 22 loosened and paid out until the lower shade portion 27 reaches the sill. In the first described operation, drawing upon the cord 32 will cause unwinding of the cables 31 from the drum, and consequent winding of both shade portions on the drum, and the roller will reach the top of the window as both shade parts become completely wound thereon. If both the cord 22 and cord 32 are moved simultaneously the same distances, the shade may be readily shifted without change on the roller. At any position of the adjuster bar 24, the shade portions may similarly be completely wound thereon, the roller reaching the adjuster bar coincidentally with the winding of the shade element.

In the second operation above mentioned for admission of light, when the cord 22 is paid out, lowering of the adjuster bar admits the feeding of the cord 32 and cables 31 upwardly, and outwardly over the double pulley 30, and as the weight of the roller and wound shade portion thereby become sustained more upon the upper shade portion than upon the cables 31, unwinding of the shade portion will ensue with consequent winding of the cable portions 31 as they are fed through the pulleys. By drawing upon the cords 22 at any time, upward movement of the adjuster bar 24 will cause a pull upon the cords 32 by reason of its attachment at 33 and consequent pull on the cables 31 will cause rotation of the drum 26 to wind up the

cable portion at the same time that the drum is moved upwardly, as will be readily understood.

In Figure 4 the adjuster bar 24' is supported by a single pulley cable 34, extended upwardly from the bar over a single pulley 35 centrally of the lintel, and then downwardly to a suitably located fastening 36, which may be located centrally of or at one side of the window as desired. A single pulley 37 is mounted at the left hand side of the window casing and a double pulley 38 at the right hand side. The shade and roller construction may be the same as before described, and the cables 39 extended from the respective drum portions, the one 39 from the left being extended upwardly and over the pulley 37, then to the right over the pulley 38 downwardly, while the other cable extends upwardly at the inner side of the pulley 38, then outwardly thereover and downwardly beside the first cable 39, the two being connected at a suitable point to an adjusting cord 41 for which a fastening 42 of a suitable nature may be provided at a convenient point. The operation of this form of the device is similar to that previously described, the cable 34 being operated for the function of the cord 22 before mentioned, while the cord 41 is operated for the function of cord 32, previously described.

In Figures 5 to 7 inclusive, refinements of the device as now disclosed are presented, adapted to improve or assure efficient functioning, and to improve its appearance. Here, the drum portion upon the roller is formed by turning a groove 43 of substantial width and depth to accommodate the cords such as 31, and 39, previously described, and a rabbet 44 is formed on the roller at each side of this groove, into which a cylindrical case 45, open at one side, is adapted to be snapped, an opening 46 being formed therein, at a point through which the cord wound on the roller may be extended, this case 45 being adapted to set very loosely in the rabbet so as to rotate thereon when the cable is wound or unwound, the side of the opening 46 being well rounded to prevent abrasion of the cable.

In Figure 8 there is illustrated a construction in which a spring roller 26' is utilized, with a means for adjusting the roller vertically, and also taking advantage of the extension of the shade in opposite directions from the roller. In this instance, stationary guide wires 51 are tautly secured between the sill and the lintel of the window at respective sides of the window opening, and vertically slidable upon these wires there is an adjuster bar 52, upon which, by means of suitable brackets 53 such as are ordinarily used, there is a mounted spring roller shade. This roller may comprise any familiar form of spring-actuated roller in which the spring

is connected with a trunnion 55 of angular form engaged in a corresponding opening in the bracket 53, whereby the trunnion is held against rotation. The usual dog construction found in such rollers may also be employed to the end that while the shade may be withdrawn from the roller and re-wound thereon by action of the spring when the shade is quickly released at times, it may be held in extended position when allowed to slowly rewind until held by the automatic dog device, as is familiar in such shades. This kind of roller being quite generally familiar and largely used in the art is not illustrated, as the details of the spring and dog control comprise no novel part of this invention. The shade parts 25 and 27 are extended above and below the roller respectively as previously described. A shade rod 56 is engaged in the upper edge of the portion 25, and projected laterally therefrom, receiving the wire 51 slidably through its ends. Single pulleys 57 are located respectively at the middle of the lintel and at the extreme left side of the window opening, while a double pulley 58 is located at the right hand side of the window opening in corresponding position. The adjuster bar 52 is supported by cables 59 which are extended upwardly from respective ends thereof, the left being carried over the pulley 57, and then horizontally to the right, both being then extended over one roller of the pulley 58 and downwardly to a cord 60 which may be secured adjustably by a fastening 61. A cable 62 is connected centrally to the rod 56, being extended upwardly over the pulley 57 to the right, then over the remaining wheel of the pulley 58 and downwardly, and either connected directly to the cord 60, as shown, or separately fastened if desired. In the operation of this form of the device, in case it is desired to adjust the shade with the upper or lower part extended without change, the cord 60 is manipulated to raise or lower the bar 52, and the cable 62 being connected thereto, the shade will be held in the same extended position without rotating the roller 54 during such adjustment.

It may be found preferable to connect the cord 60 to an idler or floating pulley 63 suspended in a loop formed by a continuation of the cable 62 from its junction with the cables 59. In case it is desired to shorten the shade, the lower adjusting cord 64 attached to the lower shade portion is grasped and manipulated, and extension of the shade may be accomplished in the same manner. In extending the shade, in case the pulley 63 is incorporated, the cable 62 will be fed upwardly and cables 59 thereby caused to lower the adjuster bar 52, and if this bar thus becomes lowered too far, it may be raised again by subsequent adjustment of cords 60.

In Figure 9 a modified arrangement utiliz-

ing the spring roller is shown, the guide-wires, adjuster bar and mounting of the shade on the adjuster bar and engaged with the guide wires being the same as last described, except that a bottom shade rod 56' is in the lower edge of the shade portion 27 and in engagement with the wires 51. A double pulley 66 is mounted centrally of the lintel, another double pulley 67 is located at the side of the window opening, while a similar double pulley 68 is mounted a short distance still further outward of the one last mentioned, all three on a level. A single cable 69 is extended from the middle of the adjuster bar, upwardly and outwardly over all of the pulleys, and then downwardly to an adjusting cord 70 which is provided with a fastener 71 at a convenient point. From the middle of the top shade rod there is extended a second cable 72, which is also passed similarly over all of the pulleys and then downwardly, being attached to the cord 70. Pulling upon the cord will operate both cables to raise the adjuster bar and upper shade together, thus leaving the shades in the same position relatively to the roller while the entire shade is adjusted vertically. Between the pulleys 67 and 68 the cable 72 is formed with a loop 73 in which there is a floating pulley 74 having an adjuster cord 75 secured thereto, a separate fastening 76 being provided for this cord. The cord 70 being secured at 71, the shade may be wound or unwound by manipulation of the cord 75 in the familiar way, a steady pull serving to draw the shade element from the roller, while a slight jerk and quick release will permit the roller to rewind the cable. It is of course understood that the spring roller in both this form and that described previously should have the proper tension for the functions involved.

In Figure 10 there is shown a roller bracket mounting 77 which is adapted to serve in guiding the adjuster bar securely upon the vertical guide wire. In this mounting the adjuster bar has the guide wire extended slidably therethrough, and upon the lower side of the adjuster bar there are mounted brackets 77, each of which has a vertical intermediate portion and horizontal inwardly and outwardly extending arms 78 and 79 at top and bottom respectively. The lower arm is suitably apertured to receive the guide wire slidably, and the upper arm is adapted to receive the usual fastenings therethrough. The vertical intermediate portion of one is slotted to receive snugly the flat roller trunnion as commonly formed, while the other bracket has its corresponding part apertured to receive the cylindrical trunnion revolubly.

In Figure 15 there is shown a further modification of the mounting for the roller, which is adapted to eliminate the adjuster bar. In this instance, a bracket alone is provided. The bracket includes a vertical intermediate

portion 85, suitably slotted or apertured to receive the usual trunnion 86 of a spring roller, which is inserted through this portion 85, and the trunnion 86 is preferably apertured to receive a retaining pin 87 or other retaining means provided thereon. The bracket is provided at its upper and lower parts with outwardly extended arms 88 and 89 respectively, the former being the longer, and having attached to its outer part such cables as might have been attached to the ends of the adjuster bar in the previously described forms of the invention. The two arms are suitably apertured to receive the guide wires therethrough slidably. The manipulation of the device utilizing this bracket is the same as the corresponding arrangements where the adjuster bar is employed, as, for instance, illustrated in Figure 8.

It will be seen that a very simple apparatus is provided for the mounting of roller shades in a novel way, adapted to be produced at low cost and without involving radical departures from ordinary shop practices. The device may be variously modified within the scope of the invention and various combinations of the features in the several modifications adapted for transposition may also be made, as will be readily understood.

It is an advantage in several of the arrangements shown that the shades can be better manipulated without grasping the lower edge of the lower section and thereby the shades will be largely protected from becoming soiled in manipulation when my invention is employed. The device is quite durable and adapted to work smoothly with a minimum liability to derangement.

I claim:

1. In a shade structure, a roller having a shade extended in opposite directions therefrom, a vertically movable mounting for the roller, means to shift the mounting and separate means to extend and retract the shade, the means to extend the shade including a cord attached to the shade extremity, and the means to shift the mounting including also a cord, the two said cords connected to form a continuous element extending from the shade mounting to the shade end, means forming a common adjustment for the cords, and means to take up one of the cords only, at will, being included in the structure.

2. The structure of claim 1 in which the said take up means is constructed for movement of said cord slidably therethrough freely under operation of said adjusting means.

In testimony whereof I affix my signature.

ARTHUR D. SEARS.