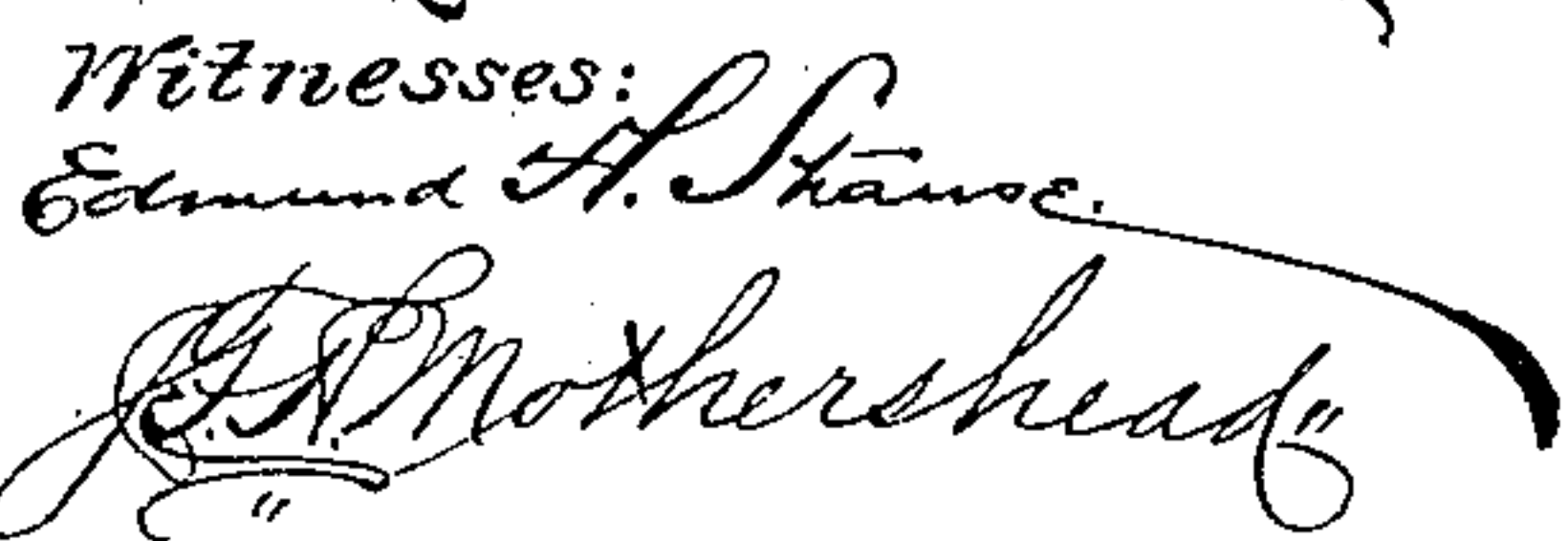


T. W. ALEXANDER.
ADJUSTABLE WINDOW SHADE.

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Inventor
Theophilus W. Alexander
by *Edson Bern.*
Attorneys.

UNITED STATES PATENT OFFICE.

THEOPHILUS W. ALEXANDER, OF BURLINGTON, IOWA.

ADJUSTABLE WINDOW-SHADE.

SPECIFICATION forming part of Letters Patent No. 583,352, dated May 25, 1897.

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To all whom it may concern:

Be it known that I, THEOPHILUS W. ALEXANDER, a citizen of the United States, residing at Burlington, in the county of Des Moines and State of Iowa, have invented certain new and useful Improvements in Adjustable Window-Shades; 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.

My invention relates to improvements in window-shades of that kind which are adjustable vertically on the window-casing for the purpose of lowering the shade part way for ventilating the room or for admitting an overhead light while screening the lower part of the window.

The objects of my invention are to provide a simple and cheap construction which may be easily and quickly applied to an ordinary window, the ordinary spring roller-shade being available for use in connection with the improvements; to join the two operating-cords together by a peculiar knot which effectually prevents slipping of the endless cord and maintains the same in taut operative condition at all times; to provide means for guiding the horizontal part of the endless running-cord and prevent it from becoming entangled with lace curtains or lambrequins with which the window may be draped, and to provide a novel form of attaching-hanger for the guide-pulleys, which hanger also serves as a means for preventing the running-cord from slipping off the guide-pulleys.

To the accomplishment of these ends my invention consists in the novel construction and combination of elements which will be hereinafter fully described and claimed.

I have illustrated the preferred embodiments of my invention in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is an elevation of a window-shade constructed in accordance with my invention. Fig. 2 is a vertical transverse section on the plane indicated by the dotted line 2 2 of Fig. 1. Fig. 3 is a plan view showing the means for protecting and guiding the running-cord, also showing the pulleys and hangers. Fig. 4 is a detail perspective view of one of the pulley-

hangers. Fig. 5 is a detail view of one of the slidable brackets. Fig. 6 is an elevation of a modified form of the window-curtain adjuster, and Fig. 7 is a horizontal sectional view on the plane indicated by the dotted line 7 7 of Fig. 6. Fig. 8 is a detail perspective view showing a part of the looped end of the endless running-cord joined by a peculiar knot to the operating-cord to prevent slipping. Fig. 9 is a diagrammatic view illustrating the arrangement of the two operating-cords.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A A' designate the vertically - slidable brackets, which are constructed to fit closely to the vertical guide-rods B B', fastened on the window-casing. Said guide-rods are shown as round in cross-section, although any other shape may be used, and they are arranged parallel to each other on opposite sides of the window-casing at a suitable distance back from the edges thereof. Through these guide-rods are formed openings, through which are passed the screws b' b'' b''' , the screws b' at points between the ends of the rods lying flush with the exposed faces of said rods, while the two screws b'' at the top and bottom of the rods project somewhat beyond the faces to serve as stops for the brackets A A' in their vertical adjustments. I may also provide screw-eyes b''' to assist in holding the ends of the guide-rods, as shown in Fig. 1. These screw-eyes are especially useful in connection with the guide-rods when they are arranged on the inner opposing faces of the window-casing, as shown by Fig. 6. These brackets A A' have elongated bearing-faces a , shaped to enable them to fit snugly upon the rods and slide easily thereon, the shape of the faces corresponding to the contour of the rods. From said bearing-faces project the plates a' , the plate of one bracket having an eye to receive the cylindrical trunnion on one end of the shade-roller, while the plate a' of the other bracket has a slot, in which may be fitted the polygonal end of the spindle contained within the shade-roller. The roller C may be of any of the usual styles of spring shade-rollers now in use, or a special shade-roller may be supplied with the appliance, as may be desired.

The brackets A A' have openings d formed

in the upper ends of the plates a' thereof, and through these openings are threaded the ends of the running-cords D, which ends of the cord may be fastened to the brackets by knot-

5 ting or tying them in any suitable way.

At the head or upper end of the window-casing are provided the guide-sheaves E E', each having a central hub or bearing and a grooved periphery. These sheaves are held in position by means of the combined attaching-hangers and cord-guides F F' of the simple construction shown by Fig. 4 of the drawings. Each hanger consists of a piece of wire which is bent to form the straight shank f , the arm f' , and the guide f'' . The arm f' is at a right angle to the shank f and the guide f'' , and this guide f'' lies at one side of and parallel to the shank f . The end of the shank f is screw-threaded to enable it to be readily fastened in a window-casing. The pulley and hanger are applied by slipping the shank f of the hanger through the bearing or hub in the pulley, placing a spacing-sleeve G on the shank, and then screwing the shank into the window-casing at a point above the upper end of the guide-rod and a little to one side of the same, so as to bring the periphery of the pulley into substantial vertical alinement with the guide-rod, whereby the running-cord D, which passes over said pulley, is arranged to lie close to and in front of the guide-rods B B' and to suspend the brackets A A' in a manner to insure their proper vertical adjustment on the guide-rods, the arrangement described tending to prevent any twisting of the brackets on the guide-rods. The arms f of the attaching-hangers extend up alongside of the pulleys, and the guides f'' project inwardly toward the casing, so as to lie or extend over the grooved peripheries of the pulleys, each of said guides f'' lying above its pulley and out of contact with the periphery thereof in order to allow the latter to rotate freely on the plain portion of the shank f and at the same time bring the guide f'' into such relation to the pulley as to prevent the cord from slipping out of the groove therein. The spacing-sleeves G are employed to hold the pulleys in proper operative relation to the guide-rods B B' and to prevent the pulleys from moving laterally on the hangers toward the window-casing.

The running-cord D is in a single continuous length, which passes over the two guide pulleys or sheaves E E' and has its respective ends fastened to the brackets A A', said endless cord having a loop formed therein at a point intermediate of its length, to which looped end of the endless cord D is connected an operating-cord D' by a knot of the character shown by Fig. 8 of the drawings. The cord D has one end fastened to the bracket A, thence it is carried upward over the sheave E, thence horizontally across the top of the window-casing to and over the sheave E', thence carried downward a suitable distance, and thence extended up and over sheave E'

again, thus forming a loop d in the cord D, and from the sheave E' the cord D is carried down and attached to the bracket A'. It will thus be seen that a single continuous cord D is attached to both brackets and runs over both sheaves, whereby it is made to operate the brackets in a manner to hold them suspended at the same distance from the sill or head of the window and maintain the shade in a horizontal level condition at all times, thus insuring its proper operation. To the looped end d of this running-cord D is fastened the operating-cord D', the end of which is passed through the loop d , then around the cord D to form the interlocking loop d' , and then carried back through the loop d , and finally drawn taut to make the loops d d' grip the looped parts of the cords or each other tightly, to constitute the peculiar knot shown by Fig. 8, which knot joins the two cords so permanently that the cords cannot slip and the endless cord D is held taut at all times. The operating-cord D' extends down from the looped end d of the cord D to within convenient reach of the operator, and the cord D' is designed to be fastened to a screw-eye d^3 , attached to the right-hand side of the window-casing.

To properly guide the horizontal length of the cord D, to protect the same from dust and dirt which floats in the room, particularly when it is swept and cleaned, and to prevent the cord D from becoming entangled with lace curtains or lambrequins with which the window may be draped, I provide the horizontal tubular guide H, through which the horizontal length of the cord D may freely play. This guide consists of a length of pipe or tubing of small diameter, arranged in a horizontal position at the head of the window-casing and between the two guide pulleys or sheaves, the length of the pipe or tube being such that its ends approach quite closely to but do not engage with the grooved peripheries of the sheaves. The tubular guide H is fastened on the window-casing by the screw-eyes h h , which have their shanks screwed into the casing and are arranged to bring their eyes into horizontal alinement to receive the guide tube or pipe. This tubular guide is thus held in a fixed position between the guide-sheaves by very simple devices and it is supported in a horizontal plane substantially coincident with the grooved edges of the sheaves, over which passes the running-cord D. On the right-hand side of the window-casing, above the screw-eye d^3 , to which the end of the cord D' is fastened, is a cleat or button I, around which may be wrapped the cord D' when the shade and brackets are raised or partly raised, thus holding the shade at the proper position on the window-casing.

Under some circumstances it may be advisable or desirable to apply the shade and adjusting devices to the opposing faces of the window-frame, and to provide for these con-

ditions I construct and arrange the improvements as shown by Figs. 6 and 7 of the drawings. The vertical guide-rods B B' are fastened to the opposing vertical faces of the window-casing by screws arranged as heretofore described. The bearing-faces of the brackets are applied to the guide-rods, but the plates *a' a'* of said brackets extend at an angle to the guide-rods in order to throw the slotted and eye-formed parts of the plates outwardly beyond the vertical plane of the window-casing, so that the shade-roller may be properly hung in said brackets to be adjusted therewith without hindrance from the casing. The guide-sheaves lie a little to one side of the guide-rods and are carried by angular hangers J, the shanks of which pass through openings in the upper ends of the guide-rods, while the arms *j* thereof pass through the hubs of the sheaves and are headed, as at *j'*, to form stops, which hold the pulleys or sheaves against displacement. The tubular guide H lies within the window-casing, and the screw-eyes which support it are fastened in the lower horizontal face of the top of said window-casing.

It is thought that the operation and advantages of my invention will be readily understood and appreciated by those skilled in the art from the foregoing description, taken in connection with the drawings.

Having thus fully described my invention,

what I claim as new, and desire to secure by Letters Patent, is—

1. In a window-shade, the roller-hangers each bent from a single piece to form the threaded attaching-shank and the overhanging guide *f''*, and the guide-sheaves loosely fitted on said shanks and within the guides of the hangers, combined with shade-carrying fixtures, and the running-cords passing over the sheaves, within the guides of the hangers, and attached to said fixtures, substantially as described.

2. The combination with spaced sheaves of the horizontal guide-tube H fixed to a window-casing between, and substantially in alinement with said sheaves and having its ends terminating adjacent thereto, the guide-rods fixed at right angles to the guide-tube, shade-brackets slidably fitted to the guide-rods, and the running-cord D attached at its respective ends to the brackets, passing over the guide-sheaves, with its horizontal length passing through the guide-tube, and having its looped end interlocked with an operating-cord D', substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THEOPHILUS W. ALEXANDER.

Witnesses:

JNO. J. SEERLEY,
CHAS. C. CLARK.