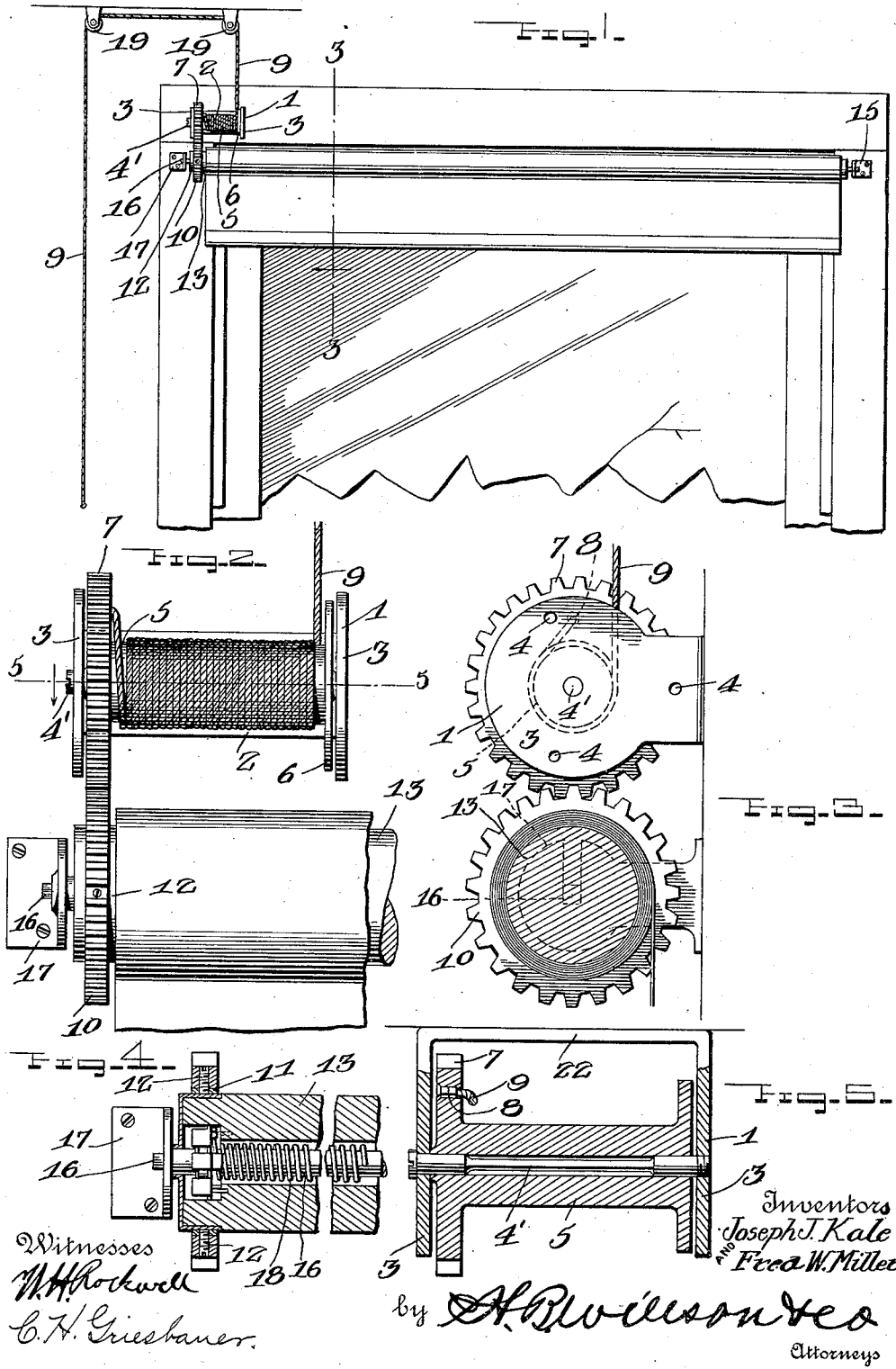


J. J. KALE & F. W. MILLER.
CURTAIN OPERATING DEVICE.
APPLICATION FILED SEPT. 19, 1910.

1,054,560.

Patented Feb. 25, 1913.



UNITED STATES PATENT OFFICE.

JOSEPH J. KALE AND FRED W. MILLER, OF SHELDON, IOWA.

CURTAIN-OPERATING DEVICE.

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Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed September 19, 1910. Serial No. 582,789.

To all whom it may concern:

Be it known that we, JOSEPH J. KALE and FRED W. MILLER, citizens of the United States, residing at Sheldon, in the county of O'Brien and State of Iowa, have invented certain new and useful Improvements in Curtain-Operating Devices; and we do 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.

This invention relates to improvements in curtain operating devices.

One object of the invention is to provide a simple and efficient means for operating a shade roller for the purpose of winding and unwinding the curtain or shade therefrom.

Another object of the invention is to provide means for winding and unwinding a curtain from the roller, said means being arranged in such manner as to be invisible from the outside of the window and which obviates the necessity of attaching an operating cord to the lower end of the curtain.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1 is a front view of the upper portion of a window frame provided with a shade roller and showing the application of the invention thereto; Fig. 2 is a front view on an enlarged scale of the improved operating mechanism showing the same applied to the end of a shade roller; Fig. 3 is a vertical cross sectional view on the line 3—3 of Fig. 1; Fig. 4 is a vertical longitudinal section of the shade roller and the portion of the operating mechanism connected directly thereto; Fig. 5 is a horizontal sectional view on the line 5—5 of Fig. 2.

In the embodiment of the invention, we provide a supporting bracket 1 comprising a base plate 2 adapted to be secured to a window frame by nails, screws, or similar fastening devices and which has formed at its opposite ends right angular outwardly projecting apertured lugs 3, one or both of which has formed therein nails or screw holes 4 whereby the bracket may be secured to the window frame by one or the other of said lugs instead of by means of the base

plate. The central aperture of one of the lugs 3 is threaded and adapted to be inserted through the aperture in the opposite lug and screwed into engagement with the threaded aperture in the other lug is a pivot shaft 4' having in its outer end a notch or similar means to receive a screw driver or other implement for screwing the threaded end of the same into the threaded aperture of the bracket. The shaft 4' is reduced at its central portion to form short bearing surfaces at its opposite ends.

Revolubly mounted upon the bearing surfaces of the shaft 4' is a cord winding drum 5 having on one end an annular guide flange 6 and on its opposite end a spur gear 7, whereby said drum is detachably mounted. In the gear 7 adjacent to the outer surface of the drum 5 is formed an aperture 8 in which is secured the end of the curtain operating cord 9 which is wound on and off the drum 5.

The gear 7 is in operative engagement with a gear ring 10 which is adapted to be secured to the shade roller adjacent to one end thereof as shown. The gear 10 is provided with a bushing 11 which may be removed if desired, thus providing means whereby the gear may be engaged with two sizes of roller. The gear 7 is preferably secured to the shade roller by set screws 12 or similar fastening devices which are screwed therethrough and through aligned screw threaded openings in the bushing as shown. By referring particularly to Fig. 4 it will be seen that the detachable bushing 11 of the gear 10 is of the same width as the latter and that the metallic binding band carried by the end of the roller 13 is somewhat wider than said bushing whereby the gear may be accurately adjusted on said band in a longitudinal direction upon the roller in respect to the gear 7, the binding screw 12 carried by the gear 10 being forced against the band of the roller when the gears are properly adjusted in respect to one another, thus forming indentations in the wide roller band for holding the gear thus adjusted in a fixed position. The shade roller 13 is provided in one end with a fixed pivot stud 14 which is revolubly engaged with a bearing aperture in a curtain supporting bracket 15, while in the opposite end of the shade roller is arranged a spring winding rod 16, one end of which is squared or flattened and is adapted to engage a similarly

shaped notch or slot in a curtain supporting bracket 17. Arranged on the rod 16 within the adjacent end of the shade roller is a coiled curtain winding spring 18 one end of which is secured to the shade roller and the opposite end to the rod 16, whereby when the shade roller is revolved in the proper direction to unwind the shade therefrom, the spring will be wound up and when released will rewind the curtain upon the roller in the usual manner.

The operating cord 9 which is wound upon the drum 5 passes over said drum through suitable guide pulleys 19 arranged on the window frame or other support and from said pulleys extend downwardly along one side of the window frame to within convenient reach of the operator. When the cord is drawn the drum 5 and gear 7 will be revolved and the motion thereof imparted to the shade roller through the gear ring 10 to turn said roller in the proper direction for unwinding or lowering the shade. In thus operating the roller for the purpose of unwinding or lowering the shade, the spring in said roller will be wound up in the manner described, so that when the cord 9 is released the action of the spring will rewind the curtain and at the same time will revolve the cord 5 in an opposite direction from which it was turned by the cord thus rewinding the cord upon the drum. When the cord is thus rewound upon the drum the same will be in readiness to again lower the shade roller when desired.

By arranging the operating cord in the manner described, the same will be in an out of the way position and invisible from

the outside of the window. This arrangement of the cord further obviates the necessity of connecting the operating cord to any part of the lower end of the curtain so that the danger of tearing said end is removed.

From the foregoing description taken in connection with the accompanying drawing, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Having thus described our invention, what we claim is:

A window shade operating device comprising an apertured bracket, a short shaft secured to the apertures of the bracket and having a reduced central portion to provide bearings on opposite ends, a cord winding drum rotatably mounted on the bearings of the shaft and having a gear wheel on one end, guide pulleys attached to the casing above the drum for receiving the cord and guiding it to one side of the casing, a shade roller rotatably mounted in brackets below the drum and having a gear wheel thereon which meshes with the gear wheel on the drum, and detachable means arranged within the gear wheel of the roller so as to permit of the gear being attached to rollers of different sizes.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOSEPH J. KALE.
FRED W. MILLER.

Witnesses:

F. L. MYERS,
S. D. ROBINSON.