

C. C. BOYKIN.
 ROLLER WINDOW SCREEN.
 APPLICATION FILED SEPT. 9, 1909.

962,302.

Patented June 21, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

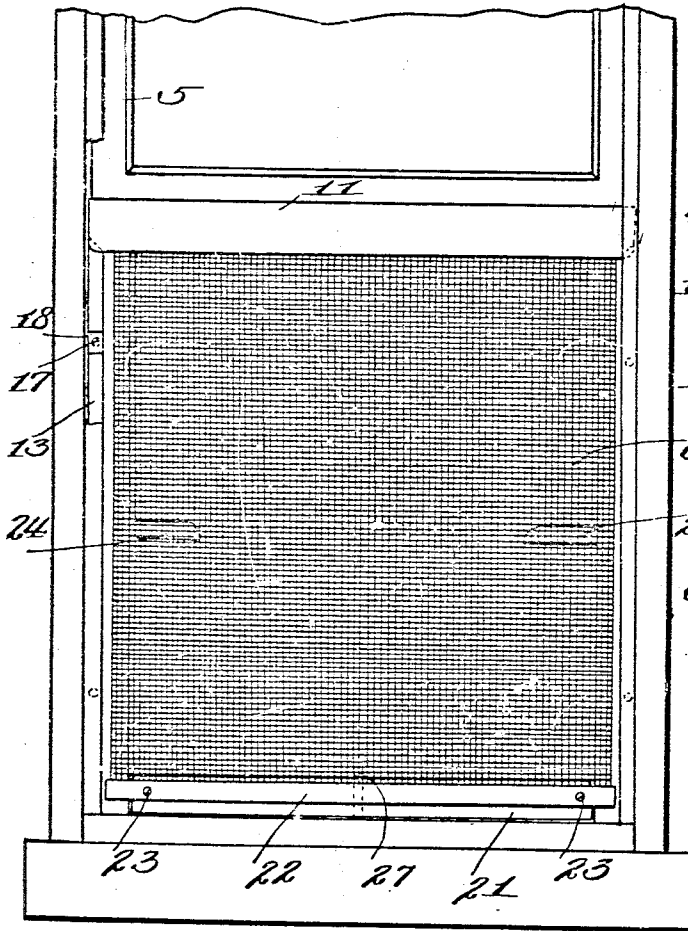


Fig. 2.

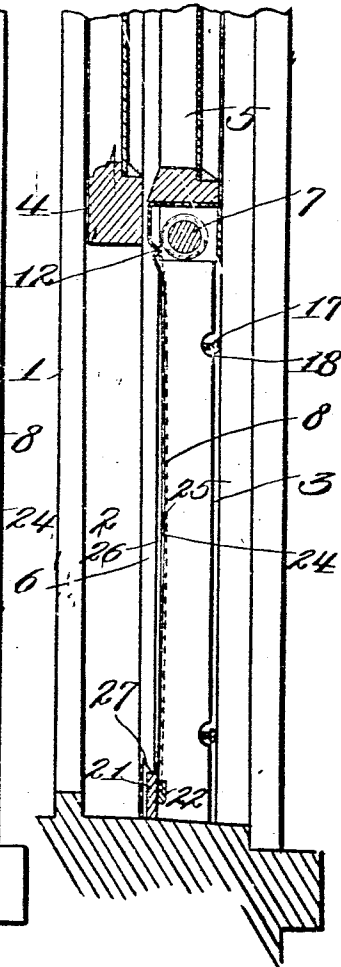
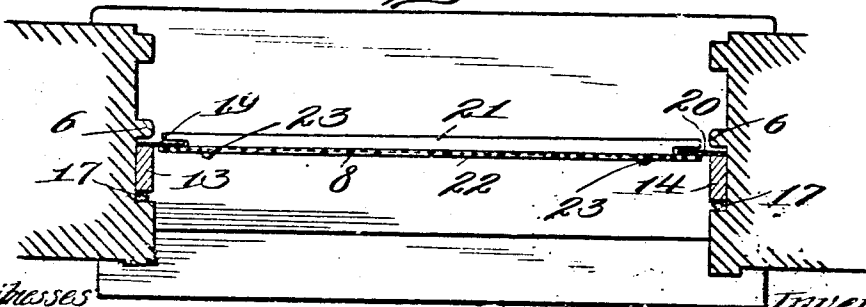


Fig. 3.



Witnesses
 E. Hester
 J. B. Kiefer

Inventor
 Christopher C. Boykin
 By James L. Norris

C. C. BOYKIN.
 ROLLER WINDOW SCREEN.
 APPLICATION FILED SEPT. 9, 1909.

962,302.

Patented June 21, 1910.

2 SHEETS—SHEET 2.

Fig. 4.

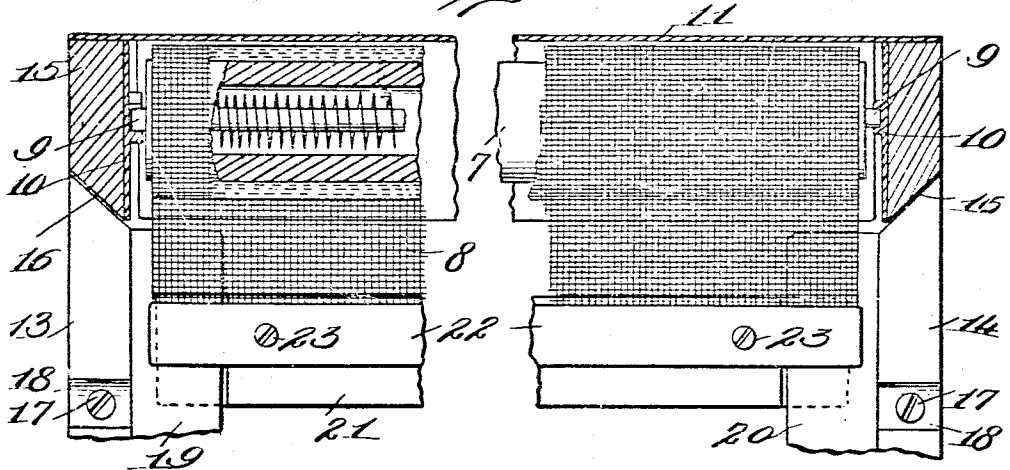


Fig. 5.

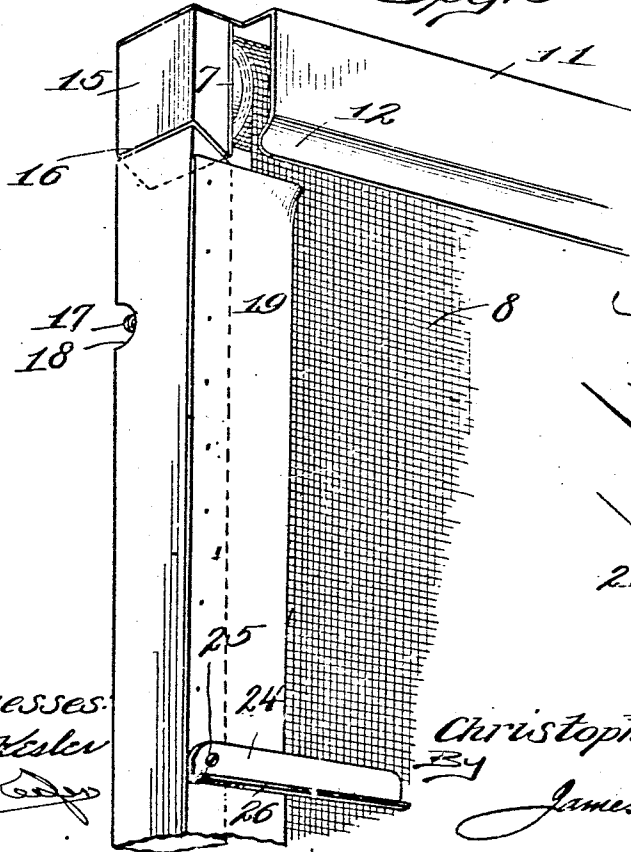
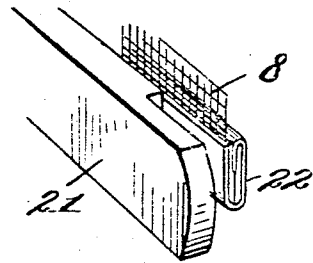


Fig. 6.



Witnesses:
 E. K. Kessler
 J. H. Kessler

Inventor
 Christopher C. Boykin
 By
 James L. Norris

UNITED STATES PATENT OFFICE.

CHRISTOPHER C. BOYKIN, OF NORFOLK, VIRGINIA, ASSIGNOR OF TWO-THIRDS TO
TIDEWATER SPECIALTY COMPANY, OF NORFOLK, VIRGINIA, A FIRM.

ROLLER WINDOW-SCREEN.

962,302.

Specification of Letters Patent

Patented June 21, 1910.

Application filed September 9, 1909. Serial No. 516,958.

To all whom it may concern:

Be it known that I, CHRISTOPHER C. BOYKIN, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented new and useful Improvements in Roller Window-Screens, of which the following is a specification.

The present invention relates to improvements in window screens and particularly of the type wherein the screen is adapted to be wound and unwound with respect to a roller, and it has for its object primarily to provide a screen of this class which is adapted to be located in such a position within the window frame as not to interfere with the raising and lowering of the inner or lower window sash, although it will screen at all times the opening between the upper and lower sashes as well as the window opening provided by the raising of the lower sash, the location of the screen being such that the blind fixtures do not interfere with the operation of the screen.

Another object of the invention is to provide a screen of this class which may be readily mounted in the window frame or casing, the parts of the device cooperating in such a manner as to lock or retain the device in position, thus avoiding the necessity of screwing, nailing or otherwise fastening the screen to the window frame and at the same time enabling unskilled persons to readily place the screen in position for use, it being also possible to readily remove the screen when desired.

Further objects of the invention are to provide guides for the marginal edges of the screen which are of such a construction as to prevent the entrance of flies or insects at such edges, to provide a slide to which the free edge of the screen is attached in such a manner as to insure the proper tension upon the marginal edges of the screen so as to retain it in close relation with the guides, said slide slidably engaging the guides at the side of the window opening, and to also provide devices which may be adjusted into a position to engage the screen and prevent its being drawn inwardly by wind, such devices being automatically returned to inoperative position by the rolling or lifting of the screen.

To these and other ends, the invention consists in certain improvements, and com-

binations and arrangements of parts, all as will be hereinafter more fully described, the novel features being pointed out particularly in the claims at the end of the specification.

In the accompanying drawing: Figure 1 represents a side elevation of a portion of a window equipped with a roller screen constructed in accordance with the present invention; Fig. 2 represents a vertical section through the screen and adjacent portions of the sashes and window casing; Fig. 3 represents a transverse section through the window casing and the screen; Fig. 4 is a detail enlarged view partly in section showing the construction of the roller upon which the screen is wound, the casing containing the screen, and the upper portions of the strips which lock the casing in position, the screen being shown in elevated position; Fig. 5 is a perspective view of a portion of the screen mounting showing the interlocking wedge connection between the casing and one of the side strips, one of the guides, and one of the devices for preventing blowing inwardly of the screen; and Fig. 6 is a detail perspective view of one end of the cross strip to which the lower edge of the screen is attached.

Similar parts are designated by the same reference characters in the several views.

In the accompanying drawing, I have shown one specific embodiment of the invention wherein the screen is of such a construction that it may fit into the channel below the upper sash and outside the lower sash, and the mounting for the screen is of such a construction that the parts of the mounting cooperate to retain the screen in position so that screws or other fastening devices are unnecessary.

The embodiment of the invention shown is generally preferable, but it will be understood that I have shown in the drawing one form of the invention as an example, as certain modifications and changes may be made in order to adapt the invention to the best advantage according to the circumstances of each particular case.

In the present embodiment of the invention, I have shown conventionally a common form of window casing 1 having grooves 2 and 3 within which the lower and upper sashes 4 and 5 slide vertically, these grooves being separated by a bead 6. The screen according to the present invention is

mounted beneath the upper sash and outside of the plane of movement of the lower sash and, in the present instance, the device comprises a roller 7 which is preferably of a type embodying a spring which normally tends to wind the screen cloth 8 which is wound thereon, this roller having pintles 9 which are journaled in suitable bearings 10 formed at the opposite ends of a casing 11, this casing being preferably composed of sheet metal and is of a form to fit snugly beneath the bottom rail of the upper sash and it incloses the roller at the top and the inner and outer sides, the bottom of the casing being left open to permit the winding and unwinding movements of the screen cloth. In order to seal the space between the casing and the screen cloth, the inner free edge of the casing is preferably provided with a curved edge 12 which is adapted to bear against or lie in close relation to the screen cloth at a point adjacent to the roller.

According to the present invention, the roller supporting casing is locked within the window frame by a pair of vertical strips 13 and 14 which preferably fit into the groove 3 for the upper sash. For this purpose, the casing is provided at its ends with blocks 15 which are shaped to fit into the groove 3 beneath the upper sash, and the lower edges of these blocks are beveled to form the inclined or wedge surfaces 16. The upper ends of the vertical strips 13 and 14 are also beveled at an angle to correspond and cooperate with the beveled or inclined surfaces of the blocks upon the ends of the roller casing. By first inserting the casing into the groove 3 beneath the top sash and then inserting the vertical strips into the grooves by a tilting movement, a wedge engagement is produced between the roller casing and the vertical strips and the roller casing will be forced upwardly into close relation with the bottom rail of the upper sash and will be supported in such position, the lower ends of the strips 13 and 14 resting upon the window sill.

The wedge engagement referred to is produced because of the downward and inward beveling of the ends of the roller casing and the upper ends of the guiding strips, the strips being tilted into the grooves of the window frame by a turning movement about the beveled surfaces as approximate centers, and as the lower ends of the strips rest upon the window sill while they are being so tilted into position, it is obvious that such strips would be forced upwardly, and owing to the complementary beveled surfaces, it is obvious that the forcing upwardly of the strips would cause the roller casing to be firmly bound between the upper ends of the strips, and the reaction will cause the upper ends of the strips to be

forced apart so as to obtain a firm seating in the bottoms of the sash-guiding grooves.

In order to insure a close fitting of the vertical strips 13 and 14 within the grooves 3 in which the upper sash is adapted to move, and furthermore to enable these strips to accommodate themselves to window frames wherein such grooves are of different widths, each of the strips is provided with one or more screws 17, a pair of these screws being shown in the present instance which extend into the outer edge of the strip. Obviously, by adjusting the depth of the screws in each strip, the strip together with the heads of the screws will form a close fit within the groove. The edge of each strip beneath each screw head is preferably recessed as at 18 in order to accommodate the screw heads when the strips are applied to window frames having grooves of a minimum width. These vertical strips 13 and 14 in the present instance serve also as supports for lateral guides for the screen cloth, these guides in the present instance consisting of plates 19 and 20 which are secured to the inner edges of the strips and, in order to insure a close fit between these guides and the lateral margins of the screen cloth, the plates forming these guides are bowed outwardly toward their centers as shown in Fig. 2.

The lower or free edge of the screen cloth according to the present invention is provided with a slide to which it is attached in a novel manner whereby tension upon the margins of the screen cloth will be maintained so as to keep these marginal edges in close relation to the lateral guides. This slide in the present instance consists of a cross-rail 21 which extends between and is arranged at the inner sides of the lateral guides 19 and 20 and, in the present instance, has its outer side recessed toward its ends to accommodate the lateral guides. The lower or free edge of the screen cloth is attached to a binding strip 22 which is preferably formed of sheet metal, and screws or other suitable fastening devices 23 connect the binding strip to the rail 21 at points in immediate proximity to its ends, the central or intermediate portion of the binding strip being unattached to the rail 21 whereby this middle portion of the binding strip may spring upwardly a sufficient extent to maintain the greatest tension upon the marginal edges of the screen cloth. The construction just described also facilitates a renewal of the screen cloth when desirable or necessary.

In order to prevent the screen from blowing inwardly, I also provide a pair of reinforcing devices 24 one of which is pivoted to the inner side of each guide, the pivot 25 of each reinforcing device being preferably located at a point outwardly beyond the ad-

jacent end of the rail 21 whereby these reinforcing devices will not interfere with the vertical movements of the slide and, moreover, when these devices have been turned into a position to reinforce the screen cloth and prevent its blowing inwardly, the upward movement of the slide will engage these devices and automatically return them to vertical or inoperative positions. To insure the proper engagement of the ends of the rail 21 with the reinforcing devices, the inner edges of these devices in the present instance are turned laterally to form relatively wide flanges 26. Any suitable means may be provided for retaining the screen in lowered position, a catch 27 being shown in the present instance which is driven into or otherwise fastened to the window sill and is sufficiently compact to avoid interfering with the closing of the lower sash.

I claim as my invention:

1. The combination of a window frame having grooves and upper and lower sashes slidable in said grooves, a casing containing a roller screen, the ends of such casing being arranged within the grooves beneath the upper sash and having their lower edges beveled in a direction downwardly and inwardly, a pair of strips having their upper ends beveled to correspond with the beveled portions of the casing and capable of being tilted into the grooves by a movement of their lower ends about their upper ends as approximate centers whereby the casing is supported firmly beneath the upper sash and the strips are firmly locked within the grooves, and guides carried by said strips and cooperative with the screen.

2. A roller window screen comprising a casing containing a roller having a screen wound thereon, and a pair of locking strips having a detachable wedge engagement with the opposite ends of said casing, said strips being adapted to lie within the grooves of the window frame and to be held tightly therein by such wedge engagement with the roller containing casing.

3. The combination of a window frame having grooves and upper and lower sashes slidable in said grooves, a casing containing a spring roller having a screen wound thereon, said casing fitting beneath the upper sash and within the grooves within which the upper sash operates, and a pair of strips fitting into the grooves for the upper sash and cooperative with said casing to support it in position.

4. The combination of a window frame having grooves and upper and lower sashes to operate in said grooves, a casing containing a roller having a screen wound thereon and having beveled edges formed at its ends, said casing fitting against the under side of the upper sash and having its ends engaged in the grooves for the upper sash, and a pair

of strips engaged in the grooves for the upper sash and having beveled edges cooperative with similar edges upon the ends of the casing for locking the latter in operative position within the window frame.

5. The combination of a window frame having grooves and a sash to operate in said grooves, and a roller window screen comprising a casing having its ends engaged in said grooves and containing a roller having screen cloth attached thereto, the free end of the screen cloth being provided with a slide, and a pair of locking strips arranged in said grooves of the window frame and cooperative with the ends of said casing to support the latter in operative position with respect to the window frame, said strips having guides attached thereto and cooperative with the slide of the screen cloth.

6. A roller window screen comprising a support carrying a roller having screen cloth attached thereto, said support having adjacent to its ends beveled surfaces which slope downwardly and inwardly, and a pair of locking strips adapted to engage the window sill at their lower ends and having their upper ends beveled to correspond to, and to obtain a wedge engagement with the beveled surfaces on the roller support for retaining the latter and also said strips in operative position within the window frame.

7. The combination of a window frame having grooves and upper and lower sashes slidable in said grooves, a casing carrying a roller with screen cloth attached thereto and having its opposite ends fitting into the grooves beneath the upper sash, a slide attached to the free end of the screen cloth, and locking strips fitting into the grooves for the upper sash and cooperative with said casing to retain the latter in operative position, the screen being mounted to operate in a plane between the grooves for the upper and lower sashes whereby the lower sash and the screen may operate independently and without interference.

8. A roller window screen comprising a casing containing a roller having screen cloth attached thereto, and a pair of locking strips adapted to retain said casing in operative position within the grooves of a window frame and provided with adjustable devices at certain of their edges which are capable of varying the effective width of said strips whereby said strips may accommodate themselves to window frames having sash-guiding grooves of different widths.

9. The combination of a window frame having sash-guiding grooves and a roller window screen comprising a casing, a pair of strips fitted into said sash-guiding grooves and cooperative with said casing to support the latter in operative position, a roller mounted in said casing and having screen cloth attached thereto, a slide at

tached to the free end of said screen cloth, and guides attached to the edges of said strips and cooperative with said slide for guiding the latter in its movements.

- 5 10. A roller window screen comprising a casing, a pair of strips capable of locking said casing in operative position within a window frame, a roller journaled in said casing and having screen cloth attached
10 thereto, a slide attached to the free end of said screen cloth, and guides attached to said strips, said guides being bowed outwardly at their intermediate portions to insure a close contact between them and the
15 lateral marginal edges of the screen cloth.

11. A roller window screen comprising a casing carrying a roller having screen cloth attached thereto, a slide attached to the free end of the screen cloth, a pair of strips
20 adapted to fit into the grooves for the upper sash of the window frame and having guides cooperative with said slide, and devices pivoted to said guides so as to turn in a plane parallel to the plane of the screen and
25 capable of engaging the screen cloth at points between the guides to prevent blowing inwardly thereof.

12. A roller window screen comprising a casing having a roller mounted therein and
30 provided with screen cloth, a pair of strips capable of retaining said casing in operative position within a window frame and provided with lateral guides, a slide attached to the free end of the screen cloth, and devices
35 pivoted to said guides and capable of being turned into a position to overlap the screen cloth, said devices when overlapping the

screen cloth being arranged in the path of and adapted to be engaged by said slide and thereby returned to inoperative position
40 during the movement of said slide.

13. A roller window screen comprising a roller having screen cloth attached thereto, and a slide attached to the free end of the screen cloth, said slide comprising a rail and
45 a relatively yieldable binding strip, the latter being secured to the free end of the screen cloth and attached to said rail at points adjacent to the marginal edges of the screen cloth, said rail and binding strip being
50 free to move relatively at an intermediate point whereby the binding strip may equalize the tension upon the screen cloth.

14. A roller window screen comprising a spring roller having screen cloth attached
55 thereto, strips capable of retaining the roller in operative position within a window frame and provided with lateral guides the intermediate portions of which are bowed outwardly, and a slide cooperative with said
60 lateral guides, said slide comprising a rail and a binding strip, the latter having the free end of the screen cloth attached thereto, the binding strip being connected to the rail at points adjacent to the marginal edges
65 of the screen cloth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHRISTOPHER C. BOYKIN.

Witnesses:

WM. SIMPSON,

L. C. THOMPSON.