(No Model.)

C. K. HANN.

WINDOW SCREEN.

No. 418,126. Patented Dec. 24, 1889.

Fig. 1

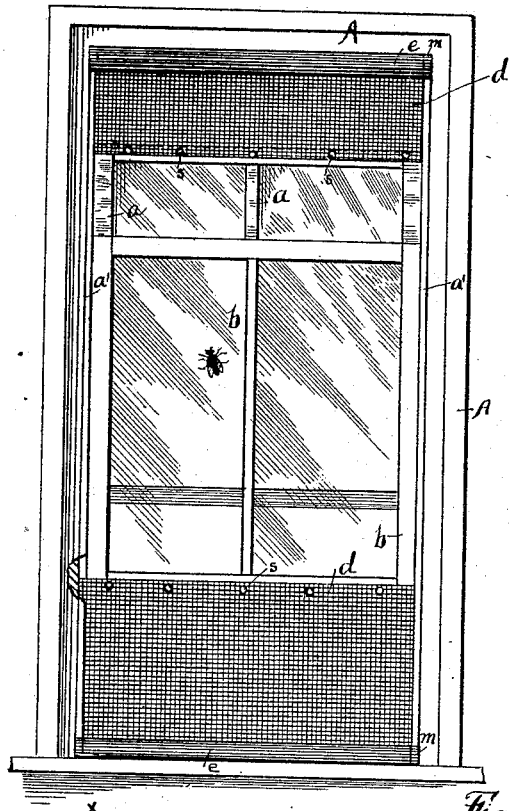


Fig. 2

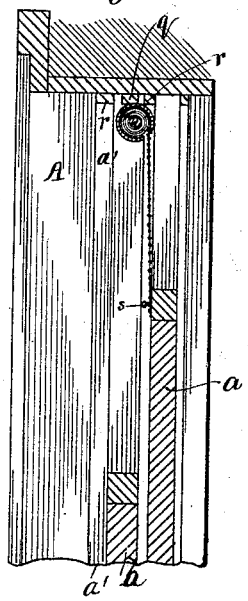


Fig. 3

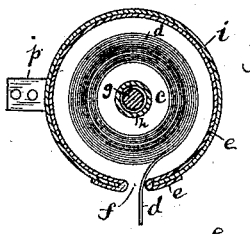


Fig. 4

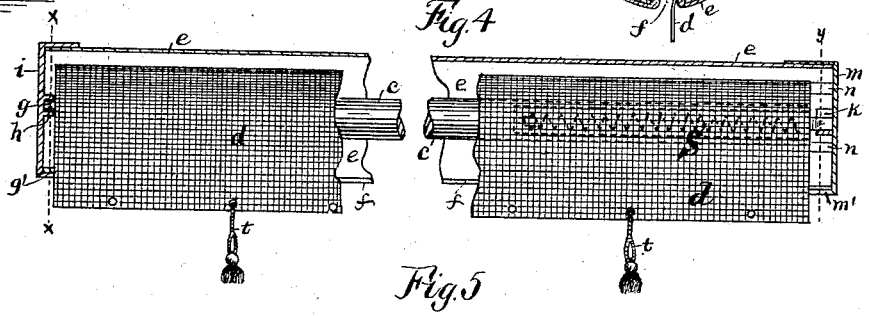


Fig. 5

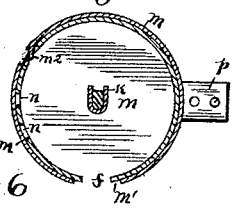
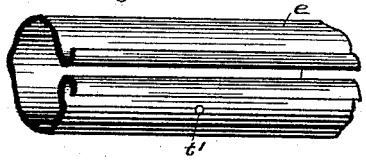


Fig 6



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WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 418,126, dated December 24, 1889.

Application filed July 12, 1889. Serial No. 317,358. (No model.)

To all whom it may concern:

Be it known that I, CHESTER K. HANN, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Window-Screens, of which the following is a specification.

My invention relates to the improvement of window-screens, and has particular relation to that class wherein spring-actuated screens are so connected with the window-sash as to follow the same.

The objects of my invention are to provide an upper and lower spring-actuated window-screen, said screens being detachably secured to the window-sash and adapted to move with the same; to combine with an ordinary spring-roller and a screen wound thereon a superior form of roller and screen-cover of such construction as to facilitate the connection of the screen and window-frame; to so construct said roller-cover as to facilitate the tightening of the spring; to so connect the screens, window-frame, and sashes as to cover at all times any opening formed by the raising or lowering of either sash, and to construct and arrange the same in a simple and inexpensive manner. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a view in elevation of the inner side of a window, showing the sashes raised and lowered, respectively, and showing my improved screens connected therewith. Fig. 2 is an enlarged central vertical section of the upper portion of Fig. 1. Fig. 3 is a transverse section of the rollers, taken on line $x\ x$ of Fig. 4. Fig. 4 is a vertical longitudinal section of the roller cover or case, with the screen and its roller thereto attached, showing for convenience its central portion broken away. Fig. 5 is a transverse section taken on line $y\ y$ of Fig. 4, and Fig. 6 is a view in detail of a portion of the roller-cover.

Similar letters refer to similar parts throughout the several views.

A represents a window-frame, *a* the upper sash, and *b* the lower sash.

c represents an ordinary spring-roller of that class wherein an internally-located spring S (shown dotted in Fig. 4) is placed under tension by rotating one of the end bearing-pins of the roller. The roller herein shown differs from said ordinary roller in having omitted therefrom the usual means for automatically holding the spring under tension.

d represents a screen, which preferably consists of fine wire-netting, but which may be formed of any suitable material. This screen *d* is wound upon the roller *c* and has one of its ends secured thereto in the manner prescribed for securing curtains to rollers. Made to surround the roller *c* is a cylindrical case or cover *e*, formed of tin or other suitable material, of greater circumference than said roller and of a length corresponding with the length of said roller measured from the extremities of the bearing-pins of the latter. This case or cover *e* is provided with a longitudinal slot *f*, extending throughout its length. The roller *c* is supported within said case at one end by having its short cylindrical bearing-pin *g* journaled within a socket *h*, formed on the central portion of the inner side of a cap *i*, made to fit over one end of said roller-cover. This cap *i* is, as shown, provided with an opening or slot *g'* in its flange, which is adapted to form a continuation of the case or cover slot *f*. The opposite end of the roller *c* is supported or seated within a U-shaped projection *k*, formed on the inner side and central portion of a cap *m*, made to fit, as shown, over the end of the case *e*, as prescribed for the cap *i*. This cap *m* is provided with an opening *m'* in its flange, which, when the screen is in position for use, forms a continuation of the case or cover slot *f*. Formed with the flange of the cap *m* is an inwardly-projecting tongue m^2, which, as shown, is adapted to enter an opening *n* in that portion of the case-cover which is within said flange. This connection of the cap and cover serves the double purpose of holding the cap, so that the slots *m'* and *f* will register, and to hold the roller-spring under tension.

The screen *d*, as shown in the drawings, is adapted to be drawn from the roller *c* through the cover and cap slots *f*, *g'*, and *m'*.

Projecting outwardly from the flat face of each of the caps *i* and *m* is one or more perforated ears or attachment lugs *p*.

The description of the roller, its cover, and screen above given is applicable to both the upper and lower rollers.

The upper-roller cover *e*, including its end caps, is of such length as to fit snugly between the sides of the window-frame adjoining the upper end thereof. This case is so located as to be in close proximity to the inner side of the upper sash, the upper portion of the side window-strips *a'* being cut away to receive the roller-cover caps, which are provided with projecting ears *p*, having screw or nail holes therein, through which screws or nails are driven into the window-frame to secure the cover-caps in their position against said window-frame. In order to close the space which may exist between the upper side of the roller-cover and the upper cross-piece of the window-frame, I preferably secure to the under side of said window-frame cross-piece a cleat *q*, corresponding in thickness with the usual cross cleats or strips *r*. The roller-cover is so placed that its slot *f* will be in close proximity to the upper sash or sash-way, and the screen being drawn through said cover-slot and the cap-slots, as shown in Figs. 1 and 2 of the drawings, is detachably secured to the button-heads *s*, projecting from the inner face of the upper cross-piece of the upper sash.

As shown in the drawings, the screen is of such width as to be made to pass, when the sash is being lowered, behind the side strips *a'* of the window-frame, thus insuring the complete closing of the frame.

The reference-letters herein used are, for convenience, made to apply to either the upper or lower screen. The lower-screen cover is connected with the window-frame in the manner prescribed for the upper cover, except that it is so located as to adjoin the base of the window-frame and the lower sash, the screen of said lower roller being detachably secured, as described, for the upper screen, to the inner face of the lower cross-piece of the lower sash.

By the herein construction it will be seen that when the upper sash is lowered the upper screen will be drawn downward and the lower screen will be drawn upward by the upward movement of the lower sash, said downward and upward movement of the screens operating to rotate the rollers, and thus increase the tension of the springs therein in the usual manner. When the sashes are closed, the screens will be taken up and again wound upon the rollers by the tension of the roller-spring. As usual in this class of rollers, it is necessary to give the springs a certain amount of tension before the rollers are placed in their position in the window. This I accomplish by rotating the cover-cap *m*, which, through the connection of its U-shaped bearing *k* and bearing-pin at that end of the roller, will operate to turn said bearing-pin, and thus place the roller-spring under tension, in the usual manner.

The above-described rotation of the cap *m* for the purpose of tightening the spring can only be accomplished by having the entire screen rolled within the cover *e*, thus preventing any interference of the screen with the turning of the cap, which might be occasioned at the point where the screen passes through the slot of the cap-flange. While the cap is being thus rotated, it will be seen that the tongue m^2 thereof will bear against the periphery of the roller-cover and that the cap will be prevented from returning by the engagement of said tongue with the cap-tongue opening *n*.

In order to prevent the screen from escaping the grasp of the hand while the spring is being tightened and yet allow the screen to be entirely covered by the case *e*, I attach one or more loops *t* to the free end of the screen, which, during said tightening process, may be looped over a button-head *t'*, made to project from the periphery of the case.

By the herein-described construction it will be seen that when the screens are not in use they may be detached from the window-sash and drawn into their covers. It will also be observed that the construction and operation of the herein-described screens will be inexpensive and simple.

I am aware that spring-actuated screens have been incased and attached to the sash of windows, but these inventions differ from mine in points of construction.

I claim—

The combination, with a window-frame and its sashes, of a spring-roller *c*, screen *d*, wound thereon, case or cover *e*, having slotted openings *f* and perforation *n*, surrounding said roller, and cover-caps *i* and *m*, having slots *g'* and *m'*, forming a continuation of cover-slot *f*, and having tongue m^2, adapted to engage with perforation *n*, said case or covering supporting, as described, the roller-bearing pins, said case, its roller, and screen being secured, as described, in the upper and a similar one in the lower part of a window-frame, on the inner side thereof, and said screens being detachably secured to said window-sashes, substantially as and for the purpose set forth.

CHESTER K. HANN.

In presence of—
CLYDE LEE,
C. C. SHEPHERD.