

J. KNOWLES.
Window-Screen.

No. 162,391.

Patented April 20, 1875.

Fig 1

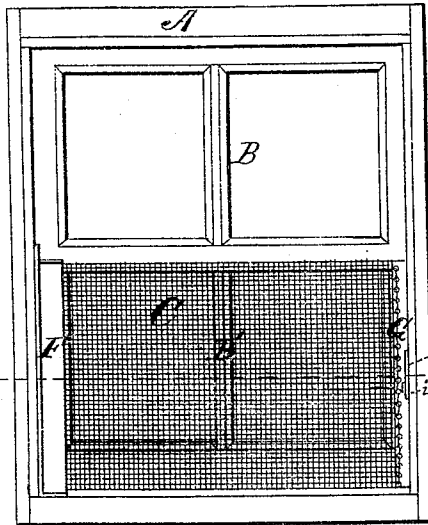
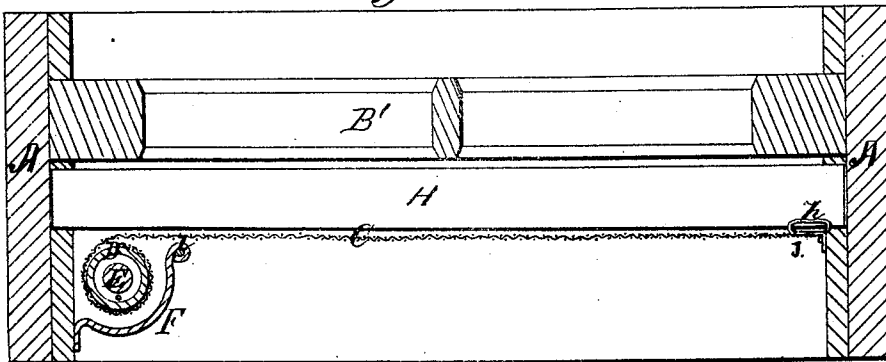


Fig 2.



WITNESSES
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JOHN KNOWLES, OF GRANITEVILLE, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO J. HENRY KNOWLES, OF SAME PLACE.

IMPROVEMENT IN WINDOW-SCREENS.

Specification forming part of Letters Patent No. **162,391**, dated April 20, 1875; application filed January 16, 1875.

To all whom it may concern :

Be it known that I, JOHN KNOWLES, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented a new and valuable improvement in Mosquito-Screens; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a front view of my screen applied in a window, and Fig. 2 is a sectional view of the same.

This invention has relation to retractable mosquito-screens which are designed to close the aperture left when the lower sash of a window is thrown up, said screens being arranged on the outside of the window.

The object of the invention is to cause the elastic net to fit with such accuracy over the opening left under the circumstances above described as to prevent the entrance into the apartment of even the smallest insects; also, to provide an improved and useful, as well as effective, means for holding the screen distended across the said opening.

To this end the nature of the invention consists in a detachable wooden bar fitting snugly into the channel of the upper sash at its lower part, whereby the lower edge of the screen is below the upper edge of the said bar, and is afforded a rest, whereby it is prevented from blowing inward, and thus forming an opening through which insects would have access to a room.

In the annexed drawings, A designates a window-frame containing an upper sash, B, and a lower sash, B', arranged in channels and guides, in the usual well-known manner. C designates a flexible netting, of any suitable material, which is designed to be stretched across the opening left when the lower sash B' is thrown up, and is intended to be arranged outside of and in close proximity to the channel in which the upper sash is applied. This netting is adapted to be automatically wound around a roller, D, by the reflex action of a coiled helical spring, S, arranged upon and secured, as to one of its ends, to a cylindrical rod,

E, arranged within the hollow interior of roller D, the other end of the said spring being rigidly secured to roller D, as shown in Fig. 2. One end of rod E has its bearings in a block, a, closing the end of roller D, its other end projecting through it and terminating in a rectangular block, b, and block a is provided with a cylindrical journal, c, for a purpose hereinafter more fully explained. Roller D is fitted into a metallic casing, F, in a position vertical to the sill, block b of rod E being stepped into a rectangular perforation in the upper end of the said casing, of corresponding dimensions therewith, and journal c of roller D in a corresponding bearing in the lower end of the said casing, so that when the net is drawn out from casing F into the position shown in Fig. 1 the roller D will be allowed to rotate, while rod E will be held stationary, thereby compressing the spring S, and holding it in this condition until the net is released, when the reaction of the said spring will cause roller D to revolve upon its axis and wind up the net.

The free vertical edge of this net is provided with a suitable metallic strip, G, to which the said net is rigidly secured, thereby subjecting all the parts thereof to an equal strain, and preventing it from stretching unevenly; and to this strip is rigidly attached, in any suitable manner, a metallic catch, I, in a position vertical thereto, the said catch having a notch, i, in its lower edge, which is adapted to be engaged over a hook, J, rigidly secured to the side of the frame, A, opposite to that to which the casing F is attached.

When the notch i of catch I is engaged with hook J upon the side of the frame, the edge of strip G will be held in close contact with the said frame, as shown in Fig. 1, leaving no interstice through which even the smallest insect could penetrate into the room; and the lower edge of the said net, being in contact with the sill of the window-frame, is held against displacement inwardly, under the influence of wind, by a detachable strip, H, of suitable thickness, which is applied upon the said sill in the channel or guides of the upper sash B, as shown in figure. When, during the prevalence of a rain-storm, it becomes necessary to lower

the lower sash, this strip will in no manner interfere with it. The free vertical edge of the net, as well as its lower horizontal edge, being held by the means above described in close contact with the window-frame, its remaining edges are similarly held against the same in the following manner, to wit: The outer free edge of casing F is extended inwardly toward the sash until it is very nearly in contact therewith, barely sufficient space being left between its rounding edge *l* for the passage of the said net between it and the said sash, so that when it is distended its upper edge is held in close contact with the lower rail of the upper sash, as shown in Figs. 1 and 3.

Screen C is manipulated by means of a handle, *h*, which may be a part of catch I, or of strip

G, which handle projects inwardly from the said strip, so that it may be conveniently seized by a person in the interior of the room.

What I claim as new, and desire to secure by Letters Patent, is:

The combination, with a distended net or screen C, of the detachable strip E, arranged upon the window-sill, and between the channels or guides of the upper sash, substantially as and for the purpose set forth.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

JOHN KNOWLES.

Witnesses:

ALLEN CAMERON,
JOHN W. ABBOT.