

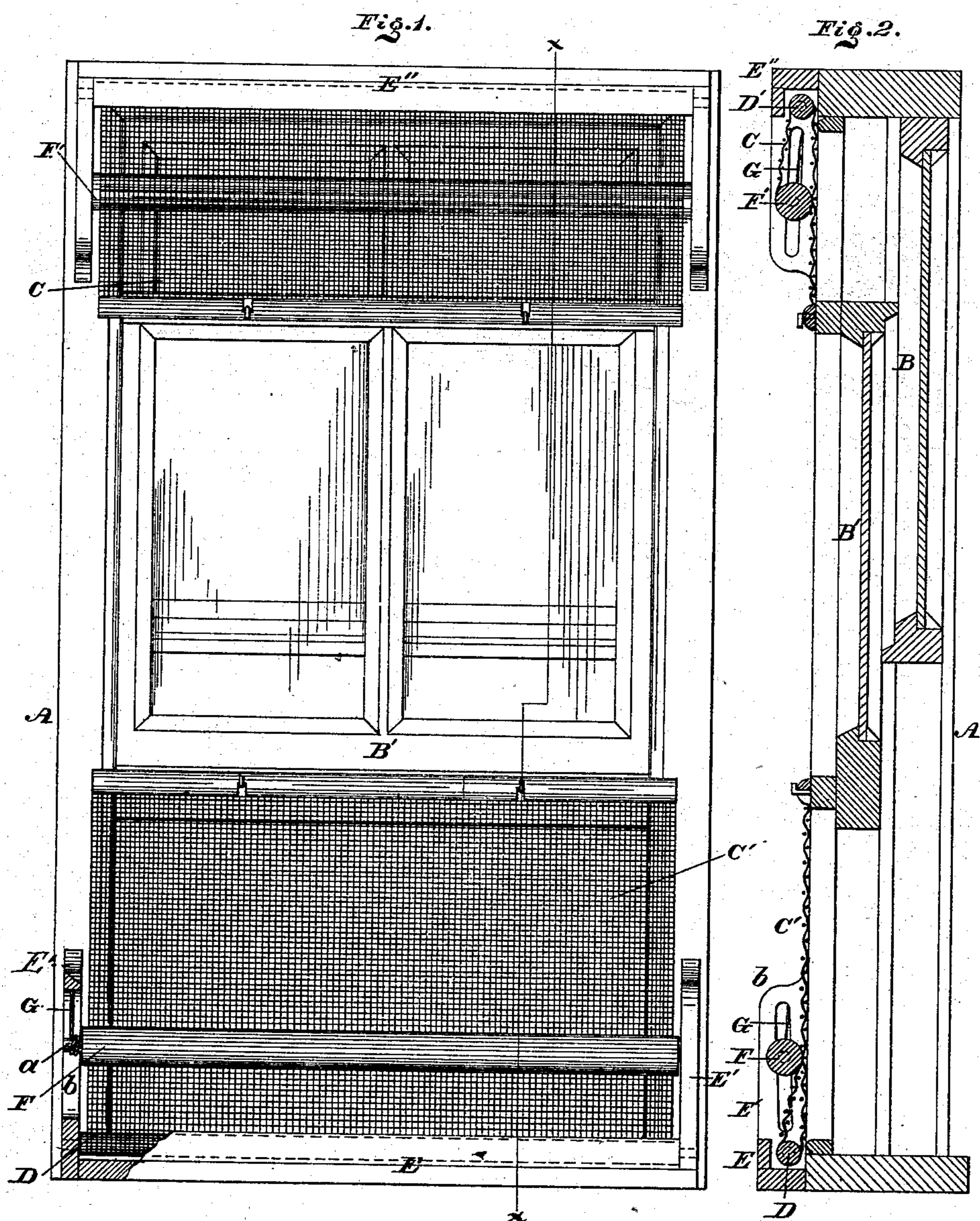
(No Model.)

G. B. PULLINGER.

Insect Screen.

No. 235,812.

Patented Dec. 21, 1880.



Witnesses:

Rev. P. Grant;
 W. F. Kircher

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UNITED STATES PATENT OFFICE.

GEORGE B. PULLINGER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
OF ONE-HALF TO M. MILLER OWENS, OF SAME PLACE.

INSECT-SCREEN.

SPECIFICATION forming part of Letters Patent No. 235,812, dated December 21, 1880.

Application filed June 12, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. PULLINGER, a citizen of the United States, residing in the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Mosquito or other Insect Screens, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a front view of the mosquito-screen embodying my invention. Fig. 2 is a vertical section thereof in line *x x*, Fig. 1. Fig. 3 is an enlarged view of a detached portion.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of netting attached to sash-frames and wound on and unwound from gravitating rollers which are fitted to boxes secured to the cap and sill of a window-casing, said boxes also having guide-rollers for directing the main length of the netting to and from the rollers, as will be hereinafter set forth.

Referring to the drawings, A represents a window-casing, and B B' the upper and lower sashes, respectively, thereof. C represents the screen for the upper sash, and C' the screen for the lower sash.

The screen C' consists of a piece of netting secured to the bottom rail of the sash, extended to the sill and directed under a horizontal roller, D, which is journaled to a box, E, connected to the sill, and then secured to a horizontal roller, F, whose journals or gudgeons *a* are guided in slots *b* in the upright side pieces, E', of the box E. Attached to said side pieces, E', are cords or straps G, which are also secured to the journals or ends of the roller F, so as to wind on and unwind therefrom.

The upper screen, C, is connected to the top rail of the lower sash, the box E'' is secured to the cap of the window-casing, and the guide-roller D' is journaled to the top of the box, the parts being, in fact, the reverse of those of the lower screen.

When the lower sash is raised the screen C' is extended and unwound from the roller

F, and the screen C is wound on the roller F'. When the sash is lowered the screen C is extended and the screen C' wound on the roller F, so that at all times the top and bottom spaces of an open window, whether occasioned by lowering the upper or raising the lower sash, are guarded or screened by netting, it being noticed that the upper sash may always remain lowered without affecting the utility of the screen.

When the lower sash is lowered the screen C' is permitted to descend, thus no longer controlling the roller F, which, in its tendency to fall, is caused to rotate by the restraining action of the cords or straps G, and thus the netting is drawn taut and wound on the roller. The upper screen, C, being drawn down and over the roller D', rotates the roller F', and as this roller rotates, the restraining action of the cords or straps G' causes said roller to rise and unwind the netting.

When the lower sash is raised it draws with it the netting C', and as the latter is directed around the roller D and draws on the roller F, the strap or cord G, being caused to wind around said roller F, and thus rotate it, elevates the roller and properly unwinds the netting as it is required for the ascending sash. The upper netting, C, being raised with the ascending sash, permits the roller F' to fall, and the straps G', unwinding from said roller, cause it to rotate in the proper direction for winding up the netting carried up by the ascending sash.

In every operation the netting lies close to the window-casing and prevents entrance of mosquitos and other insects thereat, and a single piece of netting is employed for each screen.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a window-sash, a pair of screens attached, respectively, to the top and bottom thereof, a pair of gravitating rollers for the other ends of said screens, and friction-cords which support said rollers and wind upon them, causing them to revolve as the sash is raised or lowered, whereby said

screens are always drawn taut and cover the spaces above and below said sash, substantially as set forth.

2. In combination with the screen and its
5 roller, the vertically-slotted boxes E and the straps or cords C, which are attached at one end to said rollers and fixed at the other end.

3. In combination with a window-sash, B',

a screen, C, a stationary roller, D, a vertically-movable roller, F, and a friction-cord, G, 10 supporting said roller and winding on the journal thereof, as set forth.

GEORGE B. PULLINGER.

Witnesses:

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