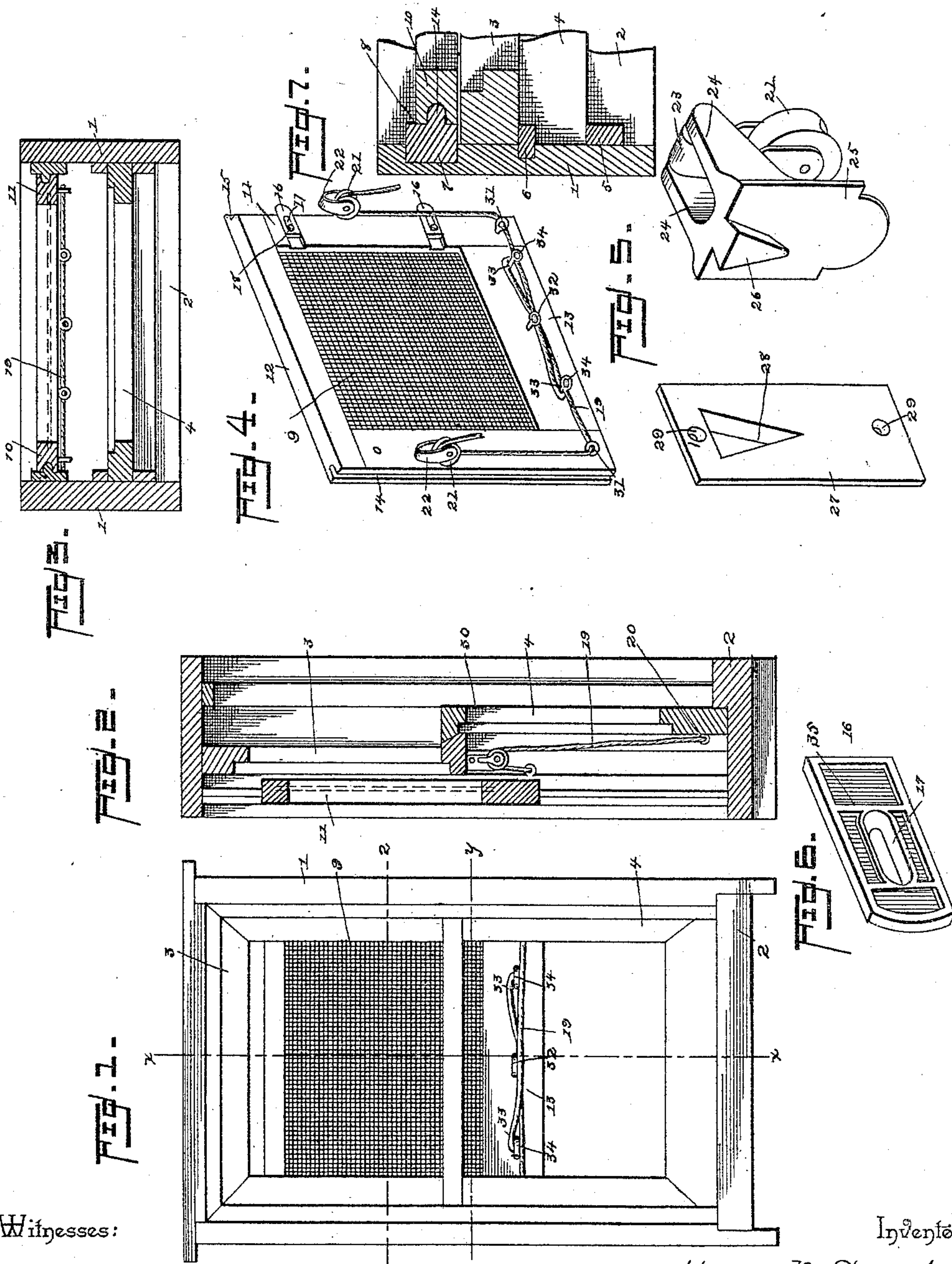


(No Model.)

H. N. SWARTZ.  
WINDOW SCREEN.

No. 444,734.

Patented Jan. 13, 1891.



Witnesses:

E. J. Duwall Jr. By his Attorneys,  
M. S. Duwall.

Inventor  
Henry N. Swartz

C. A. Snow & Co.



# UNITED STATES PATENT OFFICE.

HENRY N. SWARTZ, OF MILTON, PENNSYLVANIA.

## WINDOW-SCREEN.

SPECIFICATION forming part of Letters Patent No. 444,734, dated January 13, 1891.

Application filed July 31, 1889. Serial No. 319,357. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY N. SWARTZ, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented a new and useful Window-Screen, of which the following is a specification.

This invention has relation to window-screens, and is intended as an improvement upon a construction covered by a companion application pending herewith, the serial number being 288,590, application filed October 19, 1888.

Among the main objects of my present invention are to improve the manner of mounting the screen-frame in position and so arrange the same as to facilitate the removal of the frame when desired; also, to provide simple means of adjustment for the operating-cords and guiding devices for the same, and otherwise improve, simplify, and cheapen the details of construction as will hereinafter appear and be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a front elevation of a window provided with a screen-frame and other appurtenances constructed in accordance with my invention. Fig. 2 is a vertical central section of the same on line *xx* of Fig. 1. Fig. 3 is a transverse section on line *yy* of Fig. 1. Fig. 4 is a perspective of the screen detached; Fig. 5, details in perspective of the pulley-supporting bracket and the bracket-securing plate. Fig. 6 is a similar detail of one of the screen-retaining plates, and Fig. 7 is an enlarged detail in section on lines *zz* of Fig. 1.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 represents the vertical side rails of a window casing or frame; 2, the sill thereof; 3, the upper sash-frame, and 4 the lower sash-frame, said frames sliding within the window-frame between the molding 5, and the two beads 6 and 7 set into vertical recesses in the sides 1, in the usual manner. The outer pair of beads 7 are provided upon their inner or adjacent faces with a vertical rib 8, which may either be formed integral therewith at the time of manufacture or secured thereon subsequently.

9 represents the screen-frame, the same con-

sisting of opposite vertical side rails 10 and 11 and upper and lower connecting-rails 12 and 13. The side rail 10 and the adjacent flush ends of the upper and lower rails 12 and 13 are provided with a U-shaped bead receiving groove 14, and the opposite side rail and ends 11 are provided with a half or L-shaped groove 15, each of the grooves 14 and 15 being for the purpose of receiving the ribs 8.

16 represents vertically-opposite plates provided with longitudinal elongated slots 17, which receive screws 18, inserted in the inner faces of the side rails 11, said plates having their outer ends projecting beyond the edges of the rail 11 and completing the groove 15 therein. By this construction it is apparent that the screen through a proper manipulation of the plates 16 and their screws may be readily mounted into and withdrawn from position from between the ribs 8.

19 represents the screen-operating cords, of which there are two, the inner terminals of which are made fast to a screw-eye 20, inserted near the ends of the outer surface of the bottom rail of the lower sash-frame. The cords then extend upwardly and over pulleys 21, mounted in inverted-U-shaped clips 22, depending from cross pins or bars 23, located in the outer ends of pairs of arms 24, projecting from the front faces of pulley-castings 25, provided upon their rear surface with V-shaped dovetailed tenons 26, designed for removable connection with and support of a casting supporting plate 27, provided with a V-shaped dovetailed opening 28 for the reception of the stud 26, said plate being provided with screw-openings 29 for the reception of screws 30, by which the plates are secured to the side frames 1. Two of these plates and pulley-castings are employed, they being located opposite each other and between the beads 6 and 7 and directly under the upper window-sash. After being passed over their respective pulleys the cords are passed down and through guiding screw-eyes 31, inserted in the inner faces and near the lower ends of the side rails 10 and 11, and thence across and under a central screw-eye 32, and terminate in loops 33, designed to removably engage screw-eyes 34, intermediate the eyes 31 and 32. As thus described it will be readily apparent that by raising the lower sash



the cords will be slackened and the screen be permitted to fall and guard the opening, the cords being so proportioned as to accomplish this object. It is also apparent that by lowering the lower sash the screen will be raised, so that a clear view may be obtained. By changing the loops 33 so that they engage with the central eye 32 the cords will be proportionately lengthened and the lower sash may be lowered a short distance—say half-way—and yet the screen will not rise and uncover said opening, and in this manner the temperature of the room may be regulated without permitting the entrance of flies. It is also apparent that the loops may be connected with any of the eyes, and in this manner decrease or increase the opening in substantially the same manner as just described.

For the purpose of facilitating the reciprocating and adjustment of the plates 16 by hand small flanges 35 are formed at opposite sides of the opening 17. Of course it will be understood that the plates 27 are set in correspondingly-shaped recesses formed in the side rails 1, whereby the exterior surfaces of the plates are flush with the surfaces of the side rails 1, and therefore when the screen is not in use and the pulley-castings 25 are removed the upper sash-frame may be raised and lowered in the usual manner and without meeting any obstruction from the plates 27.

I do not herein broadly claim the combination, with the window-sash, of the screen-frame and means for so connecting them that a raising or lowering of the sash will cause a contrary movement of the other, as such is broadly claimed in the companion application hereinbefore referred to.

Having thus described my invention, what I claim is—

1. In a window-screen, the combination, with the upper sash and the lower sash, of a sliding screen-frame located adjacent to the sash, opposite cords having their terminals connected to the lower sash and passed upwardly and over pulleys located between the lower sash and the frame and thence through eyes at the opposite lower ends of the screen-frame, and terminating in loops, and a series of screw-eyes located intermediate the guiding-eyes of the frame and adapted to engage the loops, as and for the purpose specified.

2. The combination, with the cords and the sashes and screen-frames, of the pulleys 21 for receiving the same, the inverted-U-shaped clip for supporting the pulleys, the casting 25, having the arms 24 and cross-pin 23 for supporting the clip and having the stud 26, and the plate 27, having the stud-opening 28 and screw-eyes 29, substantially as specified.

3. In a window-screen, the combination, with the upper and lower sashes, of the screen-frame sliding in independent guides of the window-casing, the plate 27, located between the sides and the screen-frame, the pulley-block 25, removable from the plate, the clip carrying the pulley and loosely suspended from the pulley-block, and the cords connected to one of the sashes, passing through the pulley, and attached to the screen-frame, whereby the movement of the sash causes a corresponding but opposite movement of the screen-frame, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

HENRY N. SWARTZ.

Witnesses:

J. H. SIGGERS,

R. J. MARSHALL.