No. 819,750. PATENTED MAY 8, 1906.

S. H. GARRETT.

WINDOW SCREEN.

APPLICATION FILED AUG. 17, 1905.

Fig. 1.

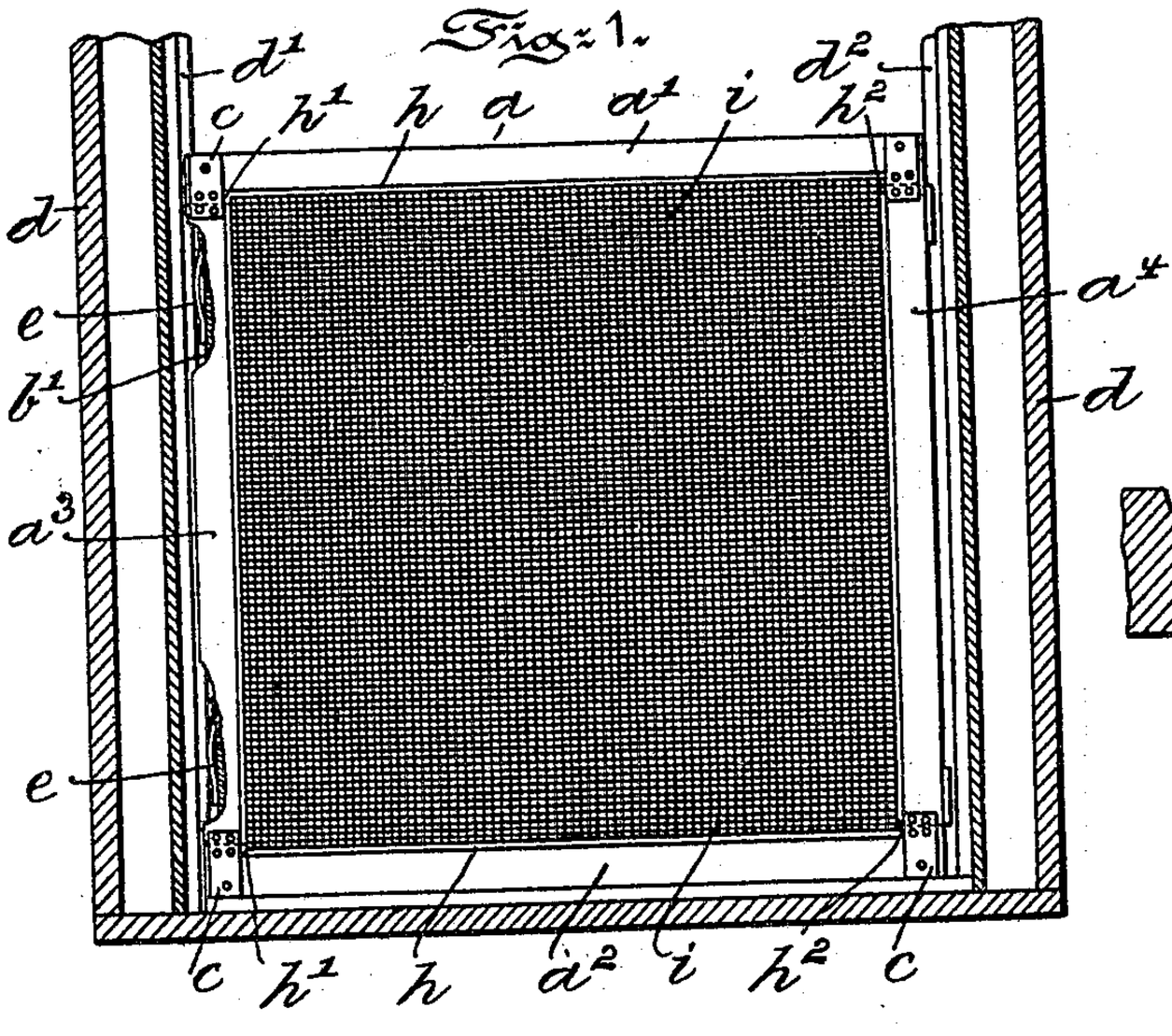


Fig. 4.

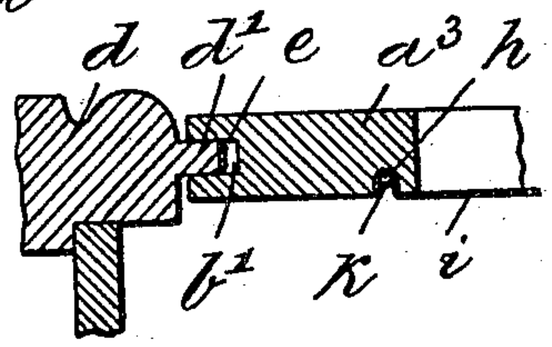


Fig. 2.

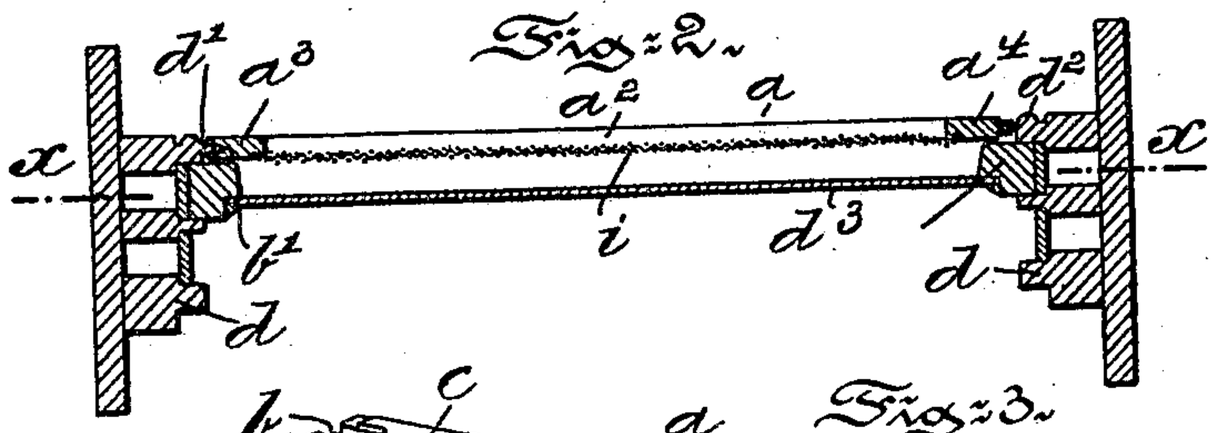


Fig. 5.

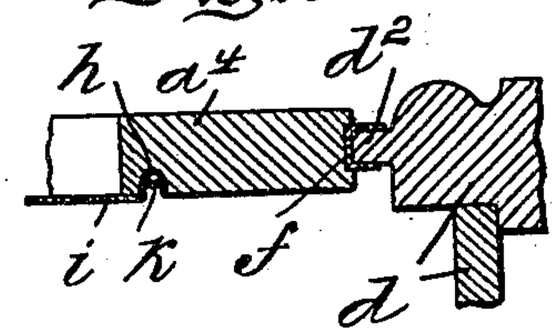
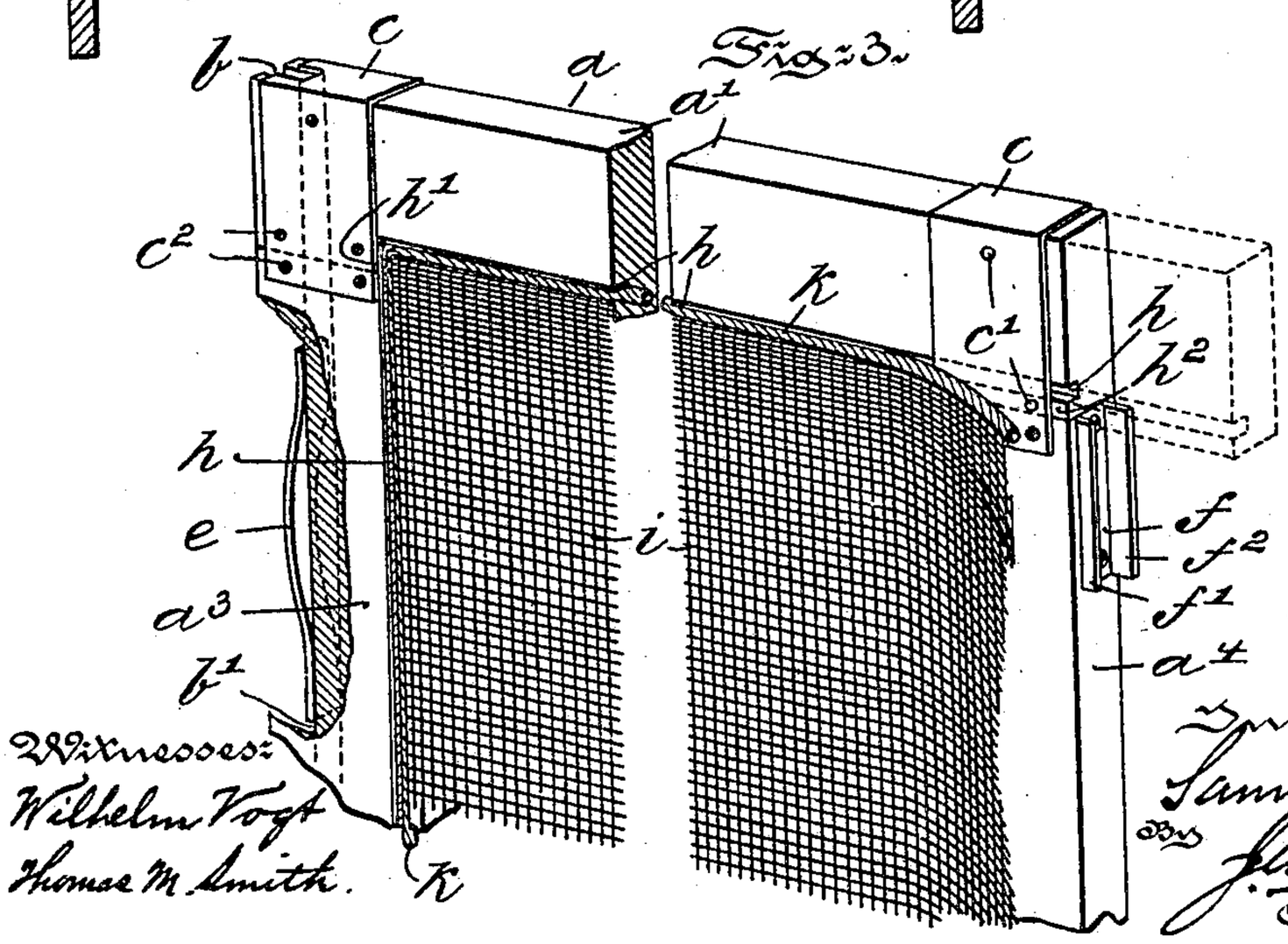


Fig. 3.



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WINDOW-SCREEN.

No. 819,750. Specification of Letters Patent. Patented May 8, 1906.

Application filed August 17, 1905. Serial No. 274,566.

To all whom it may concern:

Be it known that I, SAMUEL H. GARRETT, a citizen of the United States, residing at West Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Window-Screens, of which the following is a specification.

My invention has relation to a window-screen; and in such connection it relates more particularly to means for permitting of the quick insertion and removal of the screen to and from a window-frame and of rendering one or more of the members which constitute the screen-frame adjustable or slidable with respect to others thereof.

The principal objects of my invention are, first, to provide one of the sides of a screen-frame with a groove and the opposite side with a shoe or guide and with yielding means mounted in the groove, which hold the ungrooved portion of the screen-frame and its shoe against the window-frame and permit of a lateral movement of the screen-frame therein, so as to bring its shoe and then its grooved side out of engagement with the window-frame in detaching the screen-frame therefrom, and, second, to provide certain of the screen members with clamps, forming eyes to permit of the sliding of certain other members on the clamp members of the screen-frame and by such movement of these members to snugly fit the screen-frame into the window-frame and to form a rigid connection of the screen members with each other.

The nature, scope, and characteristic features of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a vertical sectional view of a window-frame on the line x x of Fig. 2 and illustrating, partly in side elevation and partly in section, a window-screen and the means of holding the same in operative position within the window-frame embodying main features of my said invention. Fig. 2 is a horizontal sectional view of the window-frame and the window-screen arranged therein. Fig. 3 is a perspective view, enlarged, of the window-screen and also illustrating the manner of disengaging the flexible fabric therefrom, the adjustment of one member of the screen-frame for fitting the same to a window-frame, and a spring arranged in the grooved portion of the frame to hold the ungrooved portion with shoes or guides in engagement with the window-frame. Fig. 4 is a detail view, enlarged, illustrating in cross-section the left-hand end of the screen-frame, the groove arranged therein, and the manner of engaging the window-frame with the screen-frame; and Fig. 5 is a detail view, enlarged, illustrating in cross-section the right-hand end or ungrooved portion of the screen-frame abutting against the window-frame and connected therewith by a shoe or guide engaging the same.

Referring to the drawings, a is the screen-frame, consisting of plain bars a' and a^2, one end of which is provided with a groove b and clamp-bars a^3 and a^4, provided at the respective ends with clamps c, forming projecting eyes for the reception of the bars a' and a^2. One of the clamp-bars a^3 is provided with a groove b', communicating with the grooves b, arranged in one of the ends of the plain bars a' and a^2 to form in conjunction therewith a continuous groove in this side of the screen-frame a, which is assembled by sliding the plain bars into the clamps c of the bar a^3.

As it is only necessary to adjust one of the clamp-bars on the plain bars to fit the screen-frame so formed in a window-frame, the grooved clamp-bar a^3, by means of the clamps c, is preferably immediately after the assembling of the screen-frame a secured to the plain bars a' and a^2 by screws c^2 or other fastening means passed through openings c', arranged therein and engaging the bars a' and a^2. The clamp-bar a^4, as well as the ends of the plain bars a' and a^2, adjusted thereto, are not grooved, since the clamp-bar a^4 is intended to be slid along the plain bars a' and a^2 toward the clamp-bar a^3 in order to fit the screen-frame to the window-frame d in case the same is too large to be inserted therein. In this instance the portion of the plain bars a' and a^2, projecting beyond the clamp-bar a^4, as shown by dotted lines in Fig. 4, is cut off and made flush with the adjusted clamp-bar a^4, as shown in full lines in this figure. After this the clamp-bar a^4 by means of the clamp c is rigidly connected with the plain bars a' and a^2, and a rigid screen-frame is thus provided. The grooved portion of the screen-frame a permits the same to engage a projecting portion d' of the window-frame d, which portion by entering the groove b' of the clamp-bar a^3 and the grooves b of the plain bars a' and a^2, forming one continuous

groove, securely holds the screen-frame in position in the window-frame. As shown in Figs. 1, 3, and 4, within the groove b' of the clamp-bar a^3 are arranged two leaf-springs e, which when the screen-frame is inserted into the window-frame d tend to hold the non-grooved side of the screen-frame in engagement with a projecting portion d^2 of the window-frame. However, to more securely connect the ungrooved side of the screen-frame a with the window-frame d the clamp-bar a^4 is provided with shoes or guides f, which by engaging the strip d^2 in the manner shown in Figs. 1 and 5 securely hold the ungrooved portion of the screen-frame in engagement with the window-frame.

In order to disengage the screen-frame from the window-frame, it is only necessary to move the screen-frame from right to left in Fig. 1, by which movement the springs e are depressed to an extent sufficient to permit the shoes or guides f to be brought out of engagement with the portion d^2 of the window-frame. In order to shorten this lateral movement of the screen-frame within the window-frame d, the member f' of the shoes or guides f, arranged opposite to the window-sash d^3, is preferably made shorter than the member f^2 thereof. When the screen-frame a is inserted into the window-frame d, the same will be held in any position given, as the springs e serve the double purpose of not alone holding the ungrooved side of the screen-frame in engagement with the portion d^2 of the window-frame, but also of holding the screen-frame in any elevated position in the window-frame, which position is easily maintained by the friction produced between the long ungrooved portion of the screen-frame a and the portion d^2 of the window-frame d by the long contacting surface. The use of guides or shoes f render the screen-frame adjustable by unskilled persons, as the clamp-bar a^4 when adjusted indicates that portion which has to be removed from the plain bars a' and a^2. These shoes f could, therefore, not be substituted by a groove arranged in the clamp-bar a^4, as well as by a groove arranged in the ungrooved ends of the plain bars a' and a^2, as these ends are generally cut off during the fitting of the screen-frame to the window-frame. There would be still left the groove in the clamp-bar a^4 to engage the portion d^2 of the window-frame; but in this instance it would be necessary to cut the ends of the plain bars a' and a^2 in such a manner that the same would be flush with the bottom of the groove, as otherwise there would be left a space between these ends through which insects could easily enter. Such an exact cutting, however, cannot be accomplished by the average person, as the clamp-bar a^4 when shifted toward the clamp-bar a^3 will cover the ends of a groove formed in the clamp-bar a^4, and thus remove the possibility of an exact cutting of the plain bars a' and a^2, which in the present instance is rendered easy by the ungrooved outside portion of the clamp-bar a^4.

In order to permit the ready connection of a flexible fabric i to the screen-frame a, each of the bars a', a^2, a^3, and a^4 is provided with a groove h, into which is inserted the ends of the fabric i, held in position therein by a cord k. This cord k by being forced simultaneously into the groove h with the flexible fabric i draws the same taut over the frame a and holds the fabric securely by means of glue or cement placed in the groove h prior to the introduction of the cord or fabric or by the intervention of nails or staples, which may be driven through the cord and fabric into the members of the frame. It is, however, necessary to leave the end of the flexible fabric i adjacent to the clamp-bar a^4 disconnected therefrom to permit of an adjustment of this bar.

In order to render the attachment of the fabric i easy after the fitting of the screen-frame a in the window-frame d, the portion of the cord k adjacent to the bar a^4 is left projecting from the groove h in the plain bars a' and a^2. After the clamp-bar a^4 has been adjusted the flexible fabric i is inserted into the groove h thereof and is held in such position therein by means of the cord k, which is fastened to the frame a in a manner such as hereinbefore described. The clamp-bar a^4 being adjustable within the plain bars a' and a^2, the groove h in these bars a' and a^2 does not meet the groove in the bar a^4, as is the case with the groove in the clamp-bar a^3, which is in alinement with a rectangular extension h' of the groove h in the plain bars a' and a^2, as shown in Fig. 3. Opposite the groove h of the clamp-bar a^4 and in the plain bars a' and a^2 will be left an ungrooved portion h^2, upon which the flexible fabric i and the cord k will rest before reaching the groove h of the clamp-bar a^4. These raised portions of the fabric and cord will by inserting a tool under the same permit of an easy removal of the fabric, if torn, or to be replaced by other fabric.

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

1. The combination of a window-frame with a window-screen consisting of a series of plain bars and a series of clamp-bars, the clamps of said series of clamp-bars adapted to surround the series of plain bars and to connect the same with said clamp-bars, a groove arranged in one of said clamp-bars and in one end of each of said plain bars, said grooves forming a continuous groove in one side of the frame so formed, yielding means arranged in said groove, means connected with and projecting from the ungrooved opposite side of said frame, said grooved and ungrooved sides of said screen and the means

connected therewith adapted to engage the window-frame, and said yielding means by forcing said ungrooved side against the window-frame adapted to prevent a disengagement of said screen-frame from the window-frame.

2. The combination of a window-frame, with a window-screen consisting of a series of plain bars and a series of clamp-bars, the clamps of said series of clamp-bars adapted to surround the series of plain bars and to connect the same with said clamp-bars, a groove arranged in one of said clamp-bars and in one end of each of said plain bars, said grooves forming a continuous groove in one side of the frame so formed, yielding means arranged in said groove, guides connected with and projecting from the ungrooved opposite side, said grooved and ungrooved sides of said screen and said guides connected therewith adapted to engage the window-frame, and said yielding means by forcing said ungrooved side against the window-frame adapted to prevent a disengagement of said screen-frame from the window-frame by holding said guides in engagement therewith and to permit of the holding of said screen in any elevated position by the frictional contact between the ungrooved side and said guides abutting against said window-frame.

3. The combination of a window-frame with a window-screen, consisting of a series of plain bars and a series of clamp-bars, the clamps of said series of clamp-bars adapted to form projecting eyes at both ends of the same, said eyes adapted to receive and surround the other series of plain bars and to loosely connect the same with said clamp-bars to permit of the sliding of one or both of said clamp-bars on said plain bars to required position, means adapted to lock the clamps to said plain bars to form in conjunction with said clamp-bars a substantially rigid frame, a groove arranged in one of said clamp-bars and in one end of each of said plain bars, said grooves forming a continuous groove in one side of the frame so formed, yielding means arranged in the groove of said grooved side, means connected with the ungrooved side parallel to said grooved side, said grooved and ungrooved sides of said screen-frame and the means connected with the ungrooved side adapted to engage said frame, and said yielding means adapted by forcing said ungrooved side against said frame to prevent disengagement of said screen-frame from said window-frame, a flexible fabric, and means engaging said screen-frame adapted to connect the same therewith.

4. The combination of a window-frame with a window-screen, consisting of a series of plain bars and a series of clamp-bars, the clamps of said series of clamp-bars adapted to form projecting eyes at both ends of the same, said eyes adapted to receive and surround the other series of plain bars and to loosely connect the same with said clamp-bars to permit of the sliding of one or both of said clamp-bars on said plain bars to required position, means adapted to lock the clamps to said plain bars to form in conjunction with said clamp-bars a substantially rigid frame, a groove arranged in one of said clamp-bars and in one end of each of said plain bars, said grooves forming a continuous groove in one side of the frame so formed, yielding means arranged in the groove of said grooved side, shoes or guides connected with the ungrooved side parallel to said grooved side, said grooved side and ungrooved sides of said screen-frame in conjunction with said shoes adapted to engage said window-frame, and said springs adapted by forcing said shoes or guides and ungrooved side against said window-frame to prevent disengagement of said screen-frame from said window-frame, a flexible fabric, and means engaging said screen and adapted to connect the same therewith.

5. The combination of a window-frame with a window-screen, consisting of a series of plain bars and a series of clamp-bars, the clamps of said series of clamp-bars adapted to form projecting eyes at both ends of the same, said eyes adapted to receive and surround the other series of plain bars and to loosely connect the same with said clamp-bars to permit of the sliding of one or both of said clamp-bars on said plain bars to required position, means adapted to lock the clamps to said plain bars to form in conjunction with said clamp-bars a substantially rigid frame, a groove arranged in one of said clamp-bars and in one end of each of said plain bars, said grooves forming a continuous groove in one side of the frame so formed, springs arranged in the groove of said grooved side, shoes or guides connected with the ungrooved side parallel to said grooved side, said grooved side and ungrooved sides of said screen-frame in conjunction with said shoes adapted to engage said window-frame, and said springs adapted by forcing said shoes or guides and ungrooved side against said window-frame to prevent disengagement of said screen-frame from said window-frame, a flexible fabric, a groove arranged in each member of said frame adapted to receive said flexible fabric and to hold the same taut thereon, and means engaging said grooves and fabric adapted to removably connect the same with said screen-frame.

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

SAMUEL H. GARRETT.

Witnesses:

J. WALTER DOUGLASS,

THOMAS M. SMITH.