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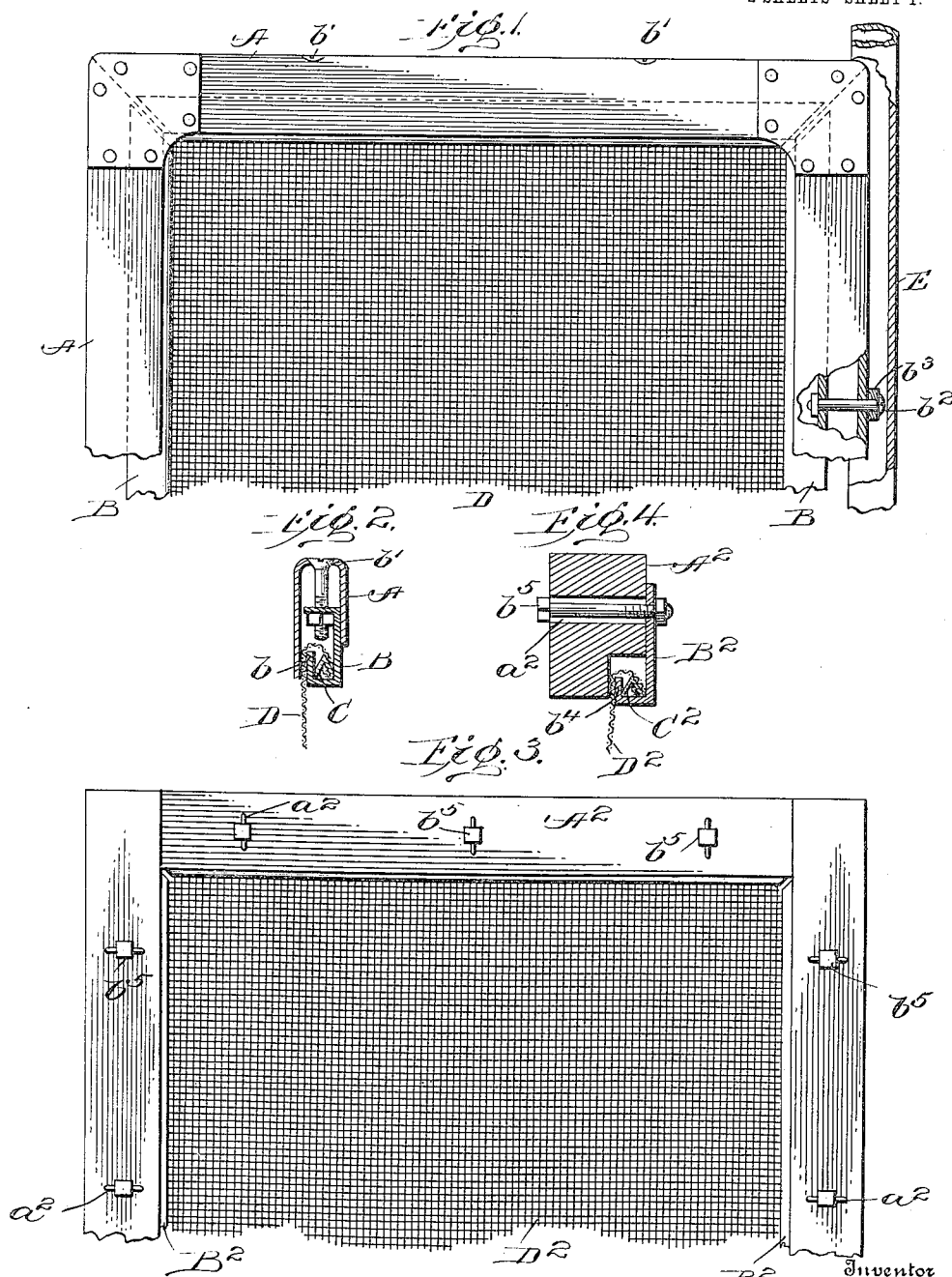
PATENTED APR. 10, 1906.

J. M. STEWART.

WIRE SCREEN.

APPLICATION FILED NOV. 1, 1905.

2 SHEETS—SHEET 1.



Witnesses
J. M. Fowler Jr.
E. C. Nildetraud

Inventor
James M. Stewart
By Georgii & Massie
his Attorneys

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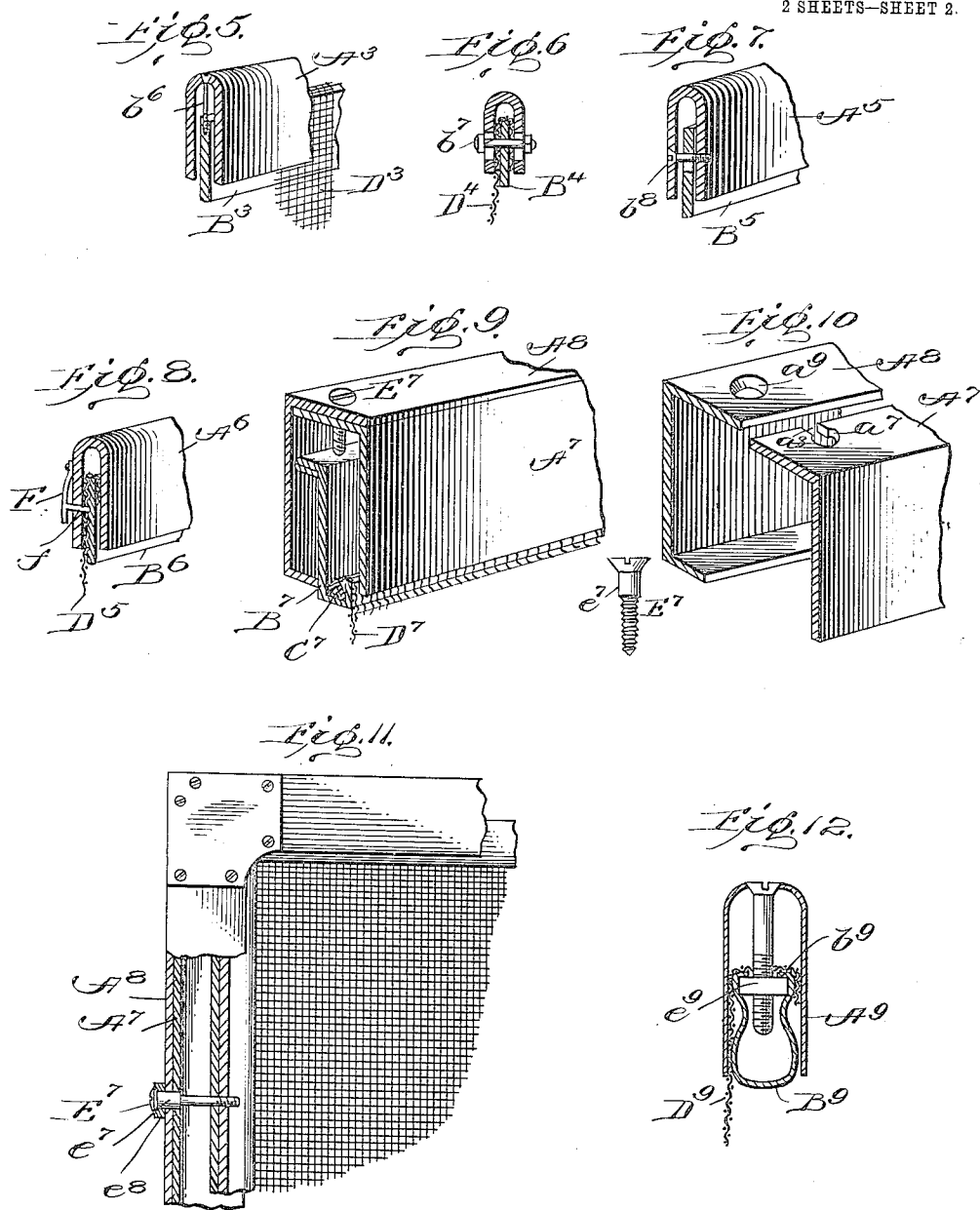
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E. O. Nildebrand

Inventor
James M. Stewart
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his Attorneys

UNITED STATES PATENT OFFICE.

JAMES M. STEWART, OF WASHINGTON, DISTRICT OF COLUMBIA,
ASSIGNOR OF ONE-FOURTH TO MITFORD C. MASSIE, OF WASH-
INGTON, DISTRICT OF COLUMBIA.

WIRE SCREEN.

No. 817,680.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed November 1, 1905. Serial No. 285,478.

To all whom it may concern:

Be it known that I, JAMES M. STEWART, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Wire Screens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in wire screens.

The object of my invention is to provide a construction whereby the screen-cloth may be quickly and readily replaced and may be readily tightened when slack without requiring special tools or the services of an experienced mechanic for such purpose.

With these general objects in view and some others which will be obvious to those skilled in the art from the description herein-after my invention consists in the features, details of construction, and combination of parts, which will first be described in connection with the accompanying drawings and then particularly pointed out in the claims.

In the drawings, Figure 1 is an elevation, partly in section, of a part of a window-screen embodying my invention. Fig. 2 is a transverse section of the top rail of the same; Fig. 3, a view similar to Fig. 1, showing my invention embodied in a wooden-frame screen; Fig. 4, a cross-section of the top rail; Figs. 5, 6, 7, and 8, detail views of further modifications of my invention hereinafter more fully explained; Figs. 9, 10, and 11, detail views of a still further embodiment of my invention; and Fig. 12, a detail cross-section illustrating still another modification of the invention.

Referring to Figs. 1 and 2 of the drawings, A is a screen-frame composed, as usual, of four pieces, each having a substantially U-shaped cross-section, one leg of the U being larger than the other. These four pieces may be connected in any suitable way—as, for example, by corner-irons A'.

B represents holding members, each of which in cross-section resembles a channel-iron with the addition of an inturned flange *b* parallel to the web of the channel. Each holding member is arranged to enter its corresponding U-shaped piece of the frame and

is capable of movement laterally with relation to said U-shaped piece and, moreover, is capable of being locked at any desired point with relation to such U-shaped piece by any suitable means—as, for example, by screws *b' b'*, whose heads bear against the outer face of the screen and whose ends are threaded through an opening in the holding member. The space between the flange *b* and the web of each holding member serves as a pocket into which may be inserted a binder C, which is attached to the corresponding edge of the screen-cloth. In the present instances these binders are substantially V-shaped in cross-section. The screen-cloth D, usually of wire, is wrapped around the respective binder C by inserting one edge of said screen-cloth in the opening of the binder and turning the binder over, so as to wrap the screen-cloth around one leg of the V, as will be clear from Fig. 2. The binder is then put in place in the pocket of the respective holding member, the screen-cloth passing outward from said pocket over the edge of the inturned flange *b*. The sides of the cloth being thus attached to the holding member in a readily-detachable manner, the screen-cloth may be strained up rightly by means of the respective screws *b' b'*, which when screwed up draw the holding members farther into the frame. The ends of the holding members B are preferably mitered, as shown in dotted lines in Fig. 1, and a space is left between their adjacent ends in order to allow a sufficient amount of movement of the respective holding members independent of each other. If at any time the screen-cloth becomes slackened, it may be tightened to a certain extent by tightening up the screws *b' b'*; but if this does not suffice to take up all the slack the screws may be unscrewed to allow the holding members B to be moved inward, whereupon the desired binder C may be removed from the respective pocket and given a turn to wind up a portion of the screen-cloth, whereupon some of the slack of the screen-cloth is thus taken up. Thereupon the binder is returned to place in the pocket and the respective screws tightened up to strain the screen-cloth to the desired extent.

In order that the above operation may be satisfactorily carried out, the maximum lateral movement of a holding member relative

to its respective U-shaped piece of the frame A is greater than the width of the binder C.

To replace the screen-cloth, it is only necessary to loosen the screws and draw the holding members B inward, remove the binders, and unroll them from the screen-cloth, whereupon the above operations are reversed, using the new screen-cloth.

The top and bottom screws b' of the frame are preferably countersunk; but the side screws b^2 may be provided with round heads and may also have collars b^3 under their heads. By this means slight variations in size between the screen-frame and the window-frame in which it is used may be compensated for by using different sizes of collars b^3 or by omitting them. The window-frame is provided with U-shaped strips E on the sides, in which the screen slides.

In Figs. 3 and 4 I have shown my invention embodied in a wood-frame screen. In this construction the frame is composed of pieces A^2 , united at the corners in any suitable way, each piece being rabbeted along one of its inner edges, as shown in Fig. 4. The holding members B^2 are each formed of flat metal strips, having one side turned over, as indicated at b^4 , so as to form a pocket, into which the binder C^2 may be inserted. The holding members are connected to the frame by bolts b^5 , which pass through transverse slots a^2 , formed in the pieces A^2 and through bolt-holes in the respective holding members. The screen-cloth D^2 is held to the binder C^2 in the same manner as in the screen-frame hereinbefore described. To tighten the screen-cloth D^2 , the holding members are drawn outward in any suitable manner, the bolts b^5 being loose. By then tightening the bolts the holding members will be held in the positions to which they have been adjusted.

In Fig. 5 I have shown another modification of my invention wherein the four pieces A^3 , which form the screen-frame, are made of sheet metal bent U-shaped in cross-section, while the holding members B^3 are merely flat strips of metal, around which the screen-cloth D^3 is wrapped. The holding members are adjusted as necessary to tighten the screen-cloth and are held in the adjusted positions by means of screws b^6 , the ends of the screws passing between the wire strands of the screen-cloth, which may be spread apart for this purpose.

In Fig. 6 I have illustrated a still further modification of my invention, in which the holding members B^4 are retained in place by bolts b^7 , passing through slots in the U-shaped frame-pieces A^4 and through holes in the respective holding members.

In Fig. 7 I have shown a similar construction, in which the slots are formed in the holding members B^7 and the bolts are replaced by screws b^8 .

In Fig. 8 is shown another modification,

wherein the U-shaped frame-pieces A^6 are provided with openings through one side, and into those openings project the ends of pins f , carried by leaf-springs F, secured to the ends of the frame, the pins f being arranged to engage grooves or notches in the side of the respective holding members B^6 , to which the screen-cloth D^5 is attached by wrapping it around said holding members, the said pins f either passing between the wire strands into the grooves or bending the wire down into the groove.

In Figs. 9, 10, and 11 I have illustrated a further modification of my invention, wherein the frame is composed of two sections A^7 A^8 , one of which is an angle-section, as shown at A^7 , and the other a channel-section A^8 , one flange of the channel-section being shorter than the other, as will be clear from Fig. 10. The angle-section is provided with keyhole-slots, composed, as usual, of a hole a^7 and a slot a^8 , which extends to the edge of the angle-section. The channel-section is provided with a screw-hole a^9 , preferably countersunk. At B^7 is shown a holding member which is similar to that described in connection with Figs. 1 and 2 and which is provided with a pocket to receive a binder C^7 , to which the screen-cloth D^7 is attached. A screw E^7 passes through the screw-hole a^9 in the channel-section and through the hole a^7 of the keyhole-slot in the angle-section and is threaded into the flange of the holding member B^7 , the latter being double, as shown in Fig. 9, in order to receive a number of screw-threads, and thus give a better hold on the screw. The screw E^7 has an enlarged collar or neck e^7 , which when the screw is in place fills the hole a^7 of the keyhole-slot. In this construction by loosening the screws E^7 until their collars e^7 can be drawn outward beyond the angle-section the latter can be removed to permit access to the holding members for the purpose of removing the binder from the pocket of the holding member in order to replace the screen-cloth when necessary or to wind up more of the screen-cloth on the binder, if it is desired to tighten the screen-cloth. Those of the screws E^7 which are on the sides of the frame may be provided with collars e^8 under their heads, as will be understood from Fig. 11, for the same purpose as the collars b^3 , referred to in the description of Fig. 1.

In Fig. 12 I have illustrated a further modification of the invention, in which the frame-pieces A^9 are U-shaped in cross-section, while the holding member B^9 is made of sheet metal, bent into a substantially U-shaped form, as shown, with inturned flanges b^9 and contractions a short distance below the said flanges b^9 , the contractions being indicated at b^{10} . In this way a channel is made for the reception of nuts e^9 , through which passes the screws E^9 , which secure the

holding members B⁹ to the frame portions A⁹. The screen-cloth is attached to the holding members B⁹ by wrapping it around the same, the screws passing through the meshes of the cloth into the respective nuts e⁹.

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

1. In a screen for windows and the like, the combination, with a frame, of a plurality of holding members adjustable relative to the frame, a screen-cloth attached to said holding members, and means for holding the holding members in any desired position to which they may be adjusted.

2. In a screen for windows and the like, the combination, with a frame, of a plurality of holding members, a screen-cloth attached to said holding members, and means intermediate the frame and said holding members for adjusting the latter to tighten the screen-cloth.

3. In a screen for windows and the like, the combination, with a channel-section and an angle-section, of a holding member, a screen-cloth attached to said holding member, and a screw passing through a flange of the angle-section, through a flange of the channel-section and engaging the holding member.

4. In a screen for windows and the like, the combination, with a hollow frame composed of two sections, of a screen-cloth, a plurality of holding members attached to the screen-cloth and arranged to enter the hollow frame, and means for securing together the two sections of the frame and the holding members.

5. In a screen for windows and the like, the combination, with a hollow frame composed of two sections, one of which has a keyhole-slot and the other a screw-hole arranged to register with the hole of the keyhole-slot in the other, a screen-cloth and a holding member, of a screw having an enlarged collar passing through the screw-hole of one section, and through the hole of the keyhole-slot, said screw having its inner end connected to the holding member.

6. In a screen for windows and the like,

the combination, with a frame and a holding member having a pocket, of a screen-cloth, a binder to which said screen-cloth is attached, said binder being inserted in the pocket in the holding device, and means for connecting the holding device to the frame.

7. In a screen for windows and the like, the combination, with a frame, and a holding member having one edge flanged and provided with screw-holes and the other edge bent to form a longitudinal pocket, of a screen-cloth, a binder having a V-shaped cross-section, and located in the pocket of the holding device, the screen-cloth being wrapped about the said binder, and means for securing the holding member to the frame.

8. A screen for windows or the like comprising a frame, a plurality of holding members, and a screen-cloth, the cloth being assembled with the members prior to being combined with the frame, and means for adjusting and retaining the members relatively to the frame.

9. In a screen for windows, a frame, a plurality of holding members, a screen-cloth assembled therewith and disposed within the plane of the frame, and means for adjusting and retaining the members relatively to the frame.

10. In a screen for windows, a frame, a plurality of holding members marginally nested therein, a screen-cloth assembled with the members, and means for adjusting and retaining the members relatively to the frame.

11. A window-screen frame having its members provided with channels, a plurality of holding members having parts engaging the channels, a screen-cloth assembled with the holding members, and means for adjusting the members relatively to a wall of the channels whereby to place and retain the screen-cloth under requisite tension.

In testimony whereof I affix my signature to this specification in the presence of two witnesses.

JAMES M. STEWART

Witnesses:

M. C. MASSIE,

A. S. T. JOHNSON.