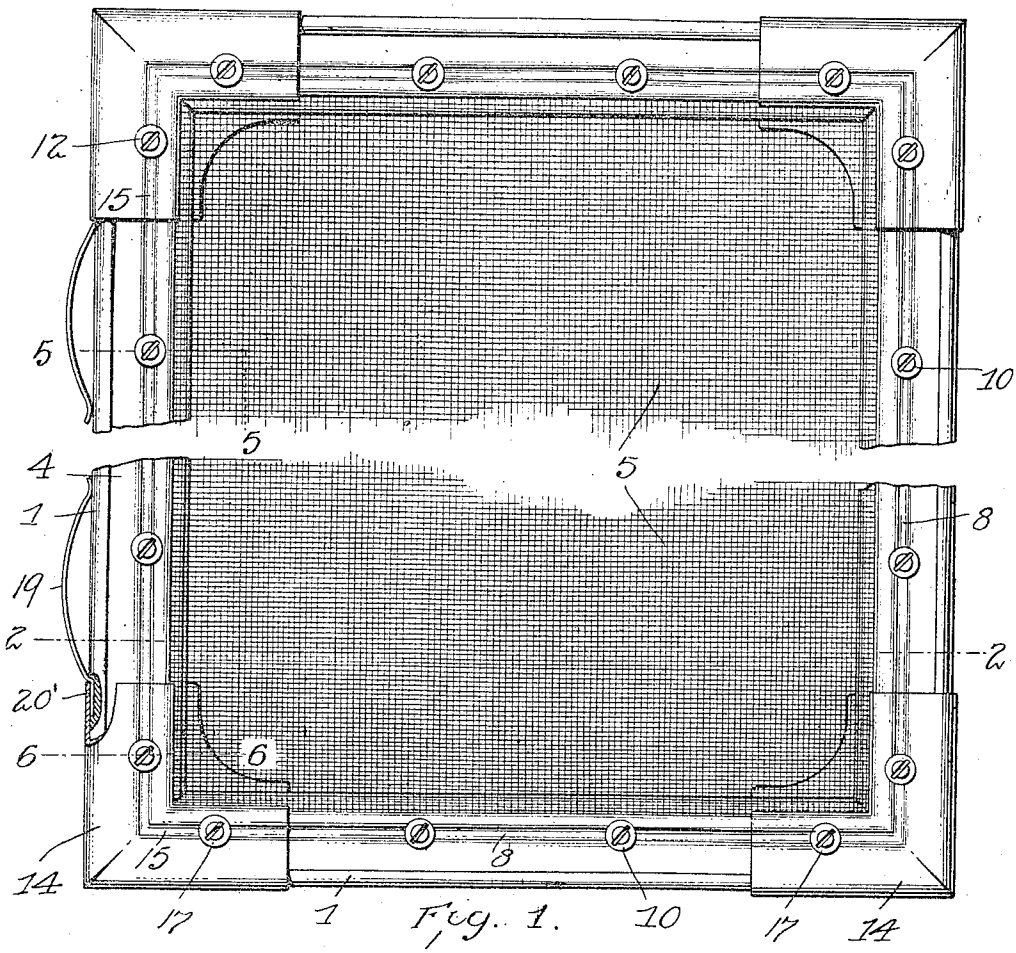
No. 825,952. PATENTED JULY 17, 1906.

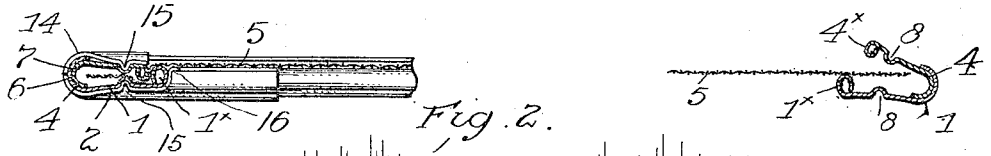
C. C. ARMSTRONG.

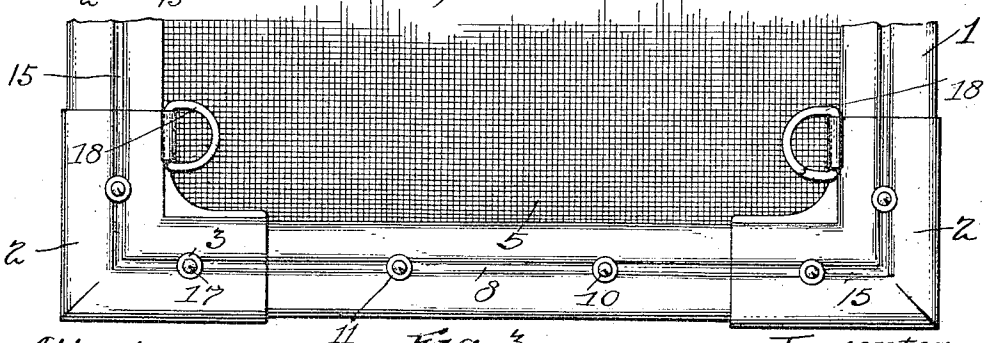
WINDOW OR LIKE SCREEN.

APPLICATION FILED JAN. 27, 1906.

2 SHEETS—SHEET 1.







Attest:
C. S. Masseron
Edward N. Sarton

Inventor:
Charles C. Armstrong.
By Spear, Middleton, Donaldson & Spear
Attys.

No. 825,952. PATENTED JULY 17, 1906.

C. C. ARMSTRONG.

WINDOW OR LIKE SCREEN.

APPLICATION FILED JAN. 27, 1906.

2 SHEETS—SHEET 2.

Fig. 4.

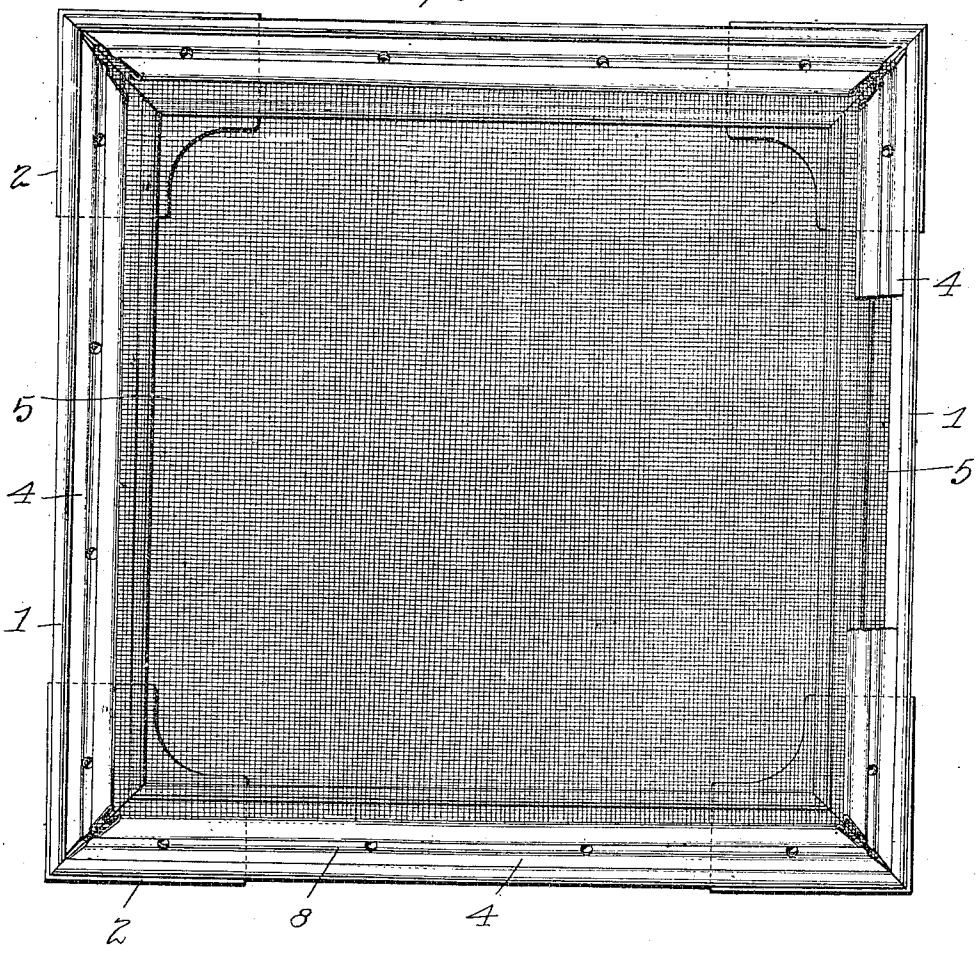


Fig. 5

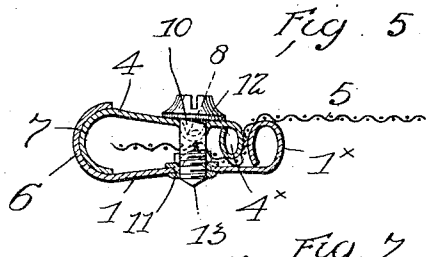


Fig. 6.

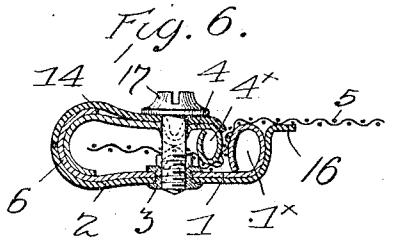
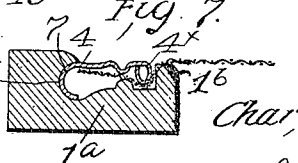


Fig. 7.



Attest:

C. S. Mason

Edward N. Lawton

Inventor:

Charles C. Armstrong.

By Spear, Middleton, Donaldson & Spear

Attys.

UNITED STATES PATENT OFFICE.

CHARLES C. ARMSTRONG, OF MARYSVILLE, OHIO.

WINDOW OR LIKE SCREEN.

No. 825,952. Specification of Letters Patent. Patented July 17, 1906.

Application filed January 27, 1906. Serial No. 298,199.

To all whom it may concern:

Be it known that I, CHARLES C. ARMSTRONG, a citizen of the United States, residing at Marysville, Ohio, have invented certain new and useful Improvements in Window or Like Screens, of which the following is a specification.

My invention relates to window-screens in which the frame is composed, preferably, of metal strips, though it will be understood that I do not limit myself to this material.

One object of my invention is to provide a window-screen in which the wire fabric will be stretched in the act of clamping it in place and without danger of rupturing the strands of which the fabric is composed.

A further object of my invention is to provide such a construction of window-screen as will permit the user or householder to readily renew the screen fabric or cloth himself, the frame being of such arrangement and construction that a person of ordinary intelligence and skill can release the clamping members, apply the screen cloth or fabric in proper position in relation thereto, and then by simply bringing the clamping members together effect the stretching of the cloth and the holding or clamping of the same in place.

In constructing the clamping or holding members I have sought to avoid subjecting the screen material to sharp edges or angular bends, which tend to break the strands of which the screen fabric is composed.

The invention consists in the features and combination and arrangement of parts hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front or outside face view of a window-screen embodying my improvements. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a front view of a part of the screen, showing the inside face thereof. Fig. 4 is a view similar to Fig. 1 with parts broken away and parts omitted and with the movable clamping members thrown up slightly from their clamping position for the insertion or removal of the screen fabric. Fig. 5 is a detail sectional view on line 5 5 of Fig. 1. Fig. 6 is a detail sectional view on line 6 6 of Fig. 1. Fig. 7 is a sectional view of a modification in which the frame member is made of wood or like material.

The screen-frame is composed of the frame members 1, rigidly attached to each other by corner-pieces 2 by means of eyelets or rivets 3, as will be hereinafter more particularly referred to. The members 1 are on the inside face of the frame, and they have associated therewith movable members 4, coextensive therewith and between which and the members or strips 1 the screen cloth or fabric 5 is held. There is one pair of these strips or members 1 4 for each side of the rectangle of the frame, and the companion strips, or those which operate in connection with each other, are connected pivotally together. I prefer to form this pivotal connection by providing a curved portion 6 on the member 1, struck on the arc of a circle, which receives within it a concentric curved portion 7 of the companion member 4. This allows the member 4 to be turned or tipped up, as shown on the right of Fig. 2, in relation to its companion member 1, so that the screen cloth or fabric can be introduced between the said companion members. This tipped up or open position of the clamping members is also illustrated in Fig. 4, where each of the four sides of the frame may be said to be open ready to receive the screen-cloth, because each of the movable clamping members 4 is swung upwardly in relation to its companion member 1. This rolling or curving of the edges of the clamping members not only provides a simple form of pivotal connection between them, but it forms a rolled edge for each one of the members, which serves to give all the strength and rigidity necessary in a frame of this character.

Each of the clamping members 1 and 4 is provided on its inner edge with a rolled portion, (marked, respectively, $1^{\times}$ and $4^{\times}$,) and each is provided intermediate of its width with an inwardly-projecting rib or bead 8, arranged to be positioned directly opposite to each other when the clamping members are in their closed or clamped position.

It will be seen from Fig. 2 that the clamping member 4 for the outer face of the frame is narrower in width than the clamping member 1, and this difference in width of the two members brings the rolled edge $4^{\times}$ of the movable member slightly within the inner face of the rolled edge $1^{\times}$ of the member 1 when the parts are in closed position, as shown on the left of Fig. 2 and also of Fig. 5.

It will be readily seen that when the screen fabric or cloth is placed in position within the frame with its edges passing between the upturned clamping members 4 and the fixed

members 1, as shown on the right of Fig. 2, the simple act of pressing down the members 4 into their closed position, as shown on the left of Fig. 2 and in Fig. 5, will cause the fabric to be stretched by drawing it over the rolled edge $1^{\times}$, and the final pressure in bringing the clamping members into closed position will grip or clamp the fabric between the ribs 8 on the opposing clamping members after the said fabric has been drawn and stretched by the action of the rolled edges $1^{\times}$ and $4^{\times}$.

It will be further noticed that the stretching or drawing of the screen fabric being done by the rounded or rolled edge $4^{\times}$ coöperating with the rounded edge $1^{\times}$ all liability of rupturing the fabric will be avoided. No sharp angles are turned by the fabric, nor is it subjected to pressure by sharp edges. The ribs 8 are rounded on their contact-faces, so as not to damage the screen or impair its strength. The holding effect, it will be understood, is not only derived from the grip of beads 8, but also from the contact of the rolled edge $4^{\times}$ with the screen-cloth operating in connection with the rolled edge $1^{\times}$, it being noted from Fig. 5 that the screen-cloth is depressed by the rolled edge $4^{\times}$ below the point of contact of the ribs 8 therewith.

In order to hold the clamping members securely in place, I employ screws 10, passing through the movable clamping member, as shown in Fig. 5 and also in Fig. 1, and through screw-threaded eyelets 11, inserted in the clamping member or strip 1. These screws are provided with enlarged heads 12, and their ends are pointed, as at 13, so as to enter the meshes of the fabric and spread the same without breaking the strands. I also employ corner pieces or clamps 14 for the outer face of the frame, and these clamps are of a width to make their inner edges flush with the inner edges of the movable clamping member, as shown in Fig. 1. The outer edges of the corner-pieces are curved to conform to the outer edges 6 of the members 1, and, as shown in Fig. 2, the corner-clamping members 14 have their outer edges meeting the outer edges of the fixed corner clamps or plates 2 above referred to, the meeting-point being midway of the thickness of the screen. Each of the corner clamps or members, as shown in Fig. 2, is ribbed at 15 to fit into the ribs of the clamping members 1 and 4, and the inner edge of the corner-clamp 2 is extended to a point within and in contact with the rolled edge $1^{\times}$, as at 16 in Fig. 2.

The corner clamps or plates 14 for the outer face of the frame are removably held in place by the screws 17, similar to those above described, which pass through the said corner-clamps, the clamping members 4, and into the threaded ferrules or eyelets 3 above referred to, which are rigidly secured to the clamping member 1 and its corner-plate 2.

In order to remove the screening material, it is simply necessary to remove the screws 17, whereupon the corner-clamps 14 may be removed, and then by removing the screws 12 the clamping members 4 may be tipped up or opened, so that the screen-cloth can be disengaged from all sides at once and a new cloth may be inserted, and this will be held by the reverse of the operation above mentioned.

The eyelets 3 are held in place by simply upsetting a portion of their inner edge into contact with the inner side of the clamping members 1.

I provide finger-pieces or lifting-rings 18, attached to the clamping members 2 on the inner side of the frame.

Springs 19 are arranged at the side edges of the frame, which are held by their ends being clamped in a recess of the clamping strip or member 1 by means of an overlapping portion 20 of the corner clamps or plates.

A material feature of advantage in my construction is that the rolled or curved edges of the clamping members in pivotal connection not only permit the movable member to be tipped up easily and freely in relation to the other, but the parts being in frictional contact at the said pivot the movable member will be held in its open position, so that the frame throughout its extent will be open for the ready insertion and adjustment of the screen-cloth thereto.

It will be understood that, except as specifically mentioned in the claims, I do not wish to limit myself to the details of construction. For instance, I may dispense with the eyelets and instead have the screws enter threaded openings in the frame member itself.

Instead of employing frame or clamping members made of metal, I may, as shown in Fig. 7, make the clamping members differently—that is, for instance, the member 1^{a} may be made of wood having a groove or socket 6^{a} to receiye the rounded or rolled edge 7 of the clamping member 4. The wooden member has the rounded inner edge 1^{b}, coöperating with the rolled edge $4^{\times}$ of the member 4 in a manner similar to that above described to stretch and hold the screen-cloth. This form of screen also has the opposing ribs for gripping the screen-cloth, and the members are held together by means of a screw.

In both forms of the invention the clamping members are pivotally connected or hinged together.

I claim as my invention—

1. In combination in a window-screen, a frame comprising clamping members extending along one side thereof, one of said members having a channel and the outer edge of the other member having its edge turning in said channel, the said members clamping the fabric between their inner edges and means for holding the members in clamping relation.

2. In combination in a window-screen, a

frame comprising clamping members extending along one side thereof, one of said members having a channel and the outer edge of the other member having its edge rolled and turning in said channel, the said members clamping the fabric between their inner edges and means for holding the members in clamping relation.

3. In combination in a window or like screen, a frame having clamping members with concentrically-rolled edges said members being in pivotal connection by their concentrically-rolled edges in contact with each other and means for holding the clamping members in closed position.

4. In combination in a window-screen, a frame comprising clamping members extending along one side thereof, one of said members having a channel and the outer edge of the other member being rolled and turning in frictional contact against the walls of the channel of the first member, the said members clamping the fabric between their inner edges and means for holding the members in clamping relation.

5. In combination in a window or like screen, a frame member having an inner edge over which the screen fabric is drawn, a clamping member having an edge coöperating with the edge of the frame member and a rib on one of the members to grip the screen-cloth in connection with the other member, substantially as described.

6. In combination, a frame member, a clamping member movable in relation thereto, said members having their inner edges adapted to engage the screen-cloth and draw it into shape, clamping means between the said members to contact with the screen-cloth and hold it in the position to which it was drawn by the inner edges of the members, substantially as described.

7. In combination, a frame member and a clamping member pivotally connected and having rounded inner edges to stretch the screen-cloth with ribs located on and between the members to contact with the screen-cloth, substantially as described.

8. In combination, a frame member, a clamping member, said members having their edges rolled and contacting pivotally and having their inner edges rolled to contact with the screen-cloth, and one inner rolled edge having movement across the outer side of the other rolled edge, and ribs formed on the said members to grip the screen-cloth. substantially as described.

9. In combination in a window or like screen, a frame member and a sheet-metal clamping member coöperating therewith, having its opposite edges rolled, one forming a pivot connection and the other a rounded contact for the screen-cloth, said frame member having a portion to coöperate with said rounded contact, substantially as described.

10. In combination, a clamping member and a frame member each having a rolled edge to grip the cloth between them, said members having a pivotal connection between them, one rolled edge moving across the face of the other rolled edge, substantially as described.

11. A window or like screen comprising clamping members pivotally connected at their outer parts and coöperating at their inner edges to engage and stretch the wire-cloth as the said members are moved pivotally toward each other to their clamping position, and means for holding the clamping members in clamping position or to release the same, substantially as described.

12. A window or like screen comprising clamping members pivotally connected at their outer edge and coöperating at their inner edges to engage and stretch the cloth as the said members are moved pivotally toward each other, said members clamping the cloth after being stretched and while their inner edges maintain the wire-cloth in stretched condition.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES C. ARMSTRONG.

Witnesses:
RICHARD L. CAMERON,
HUGH DUGAN.