

S. T. ASHBAUGH.

SCREEN FRAME.

APPLICATION FILED JULY 3, 1909.

970,162.

Patented Sept. 13, 1910.

2 SHEETS—SHEET 1.

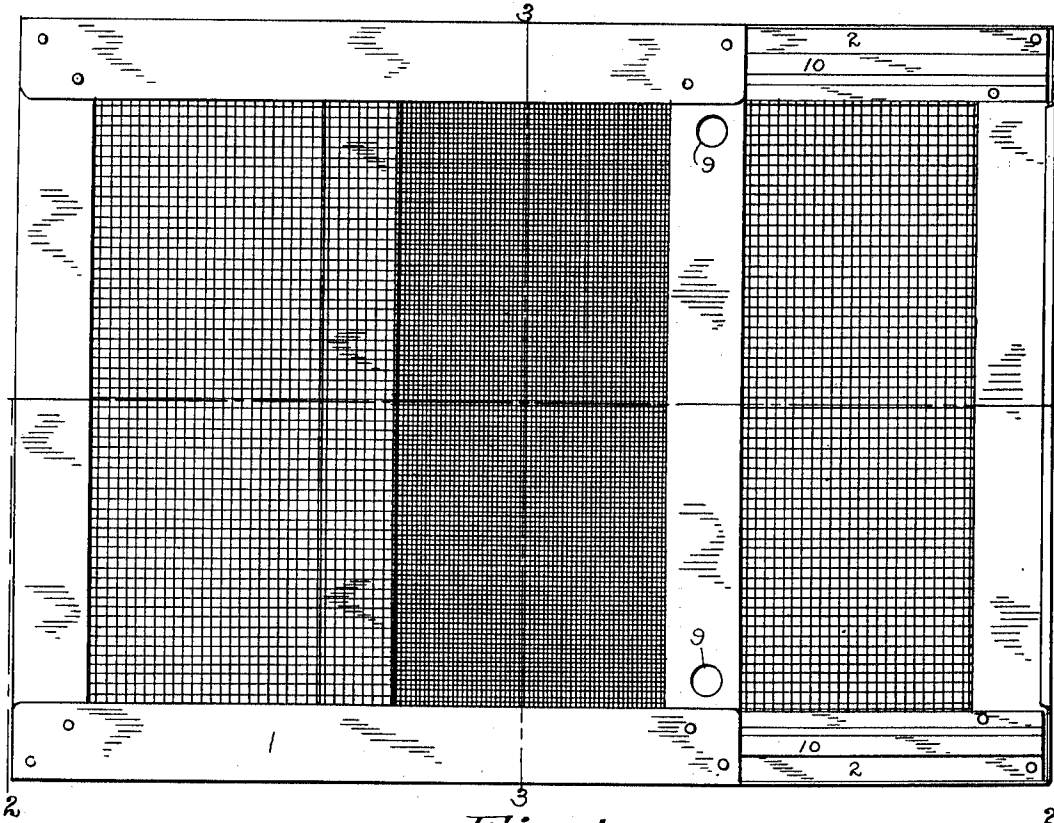


Fig. 1.

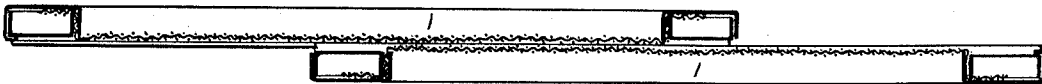


Fig. 2.

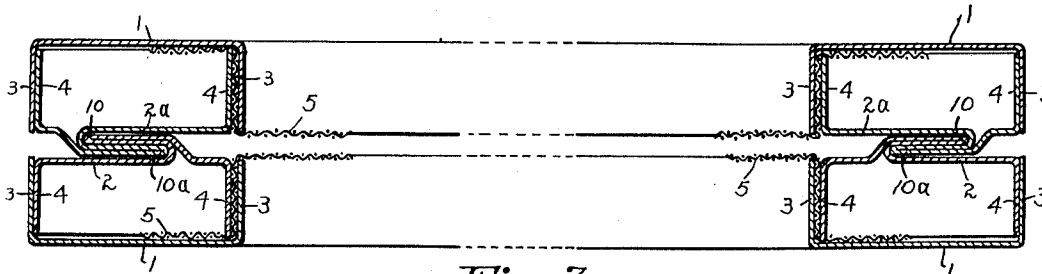


Fig. 3.

Witnesses;  
Wm. R. Rhoads.  
Ruth C. Miller

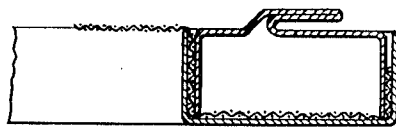


Fig. 4.

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2 SHEETS—SHEET 2.

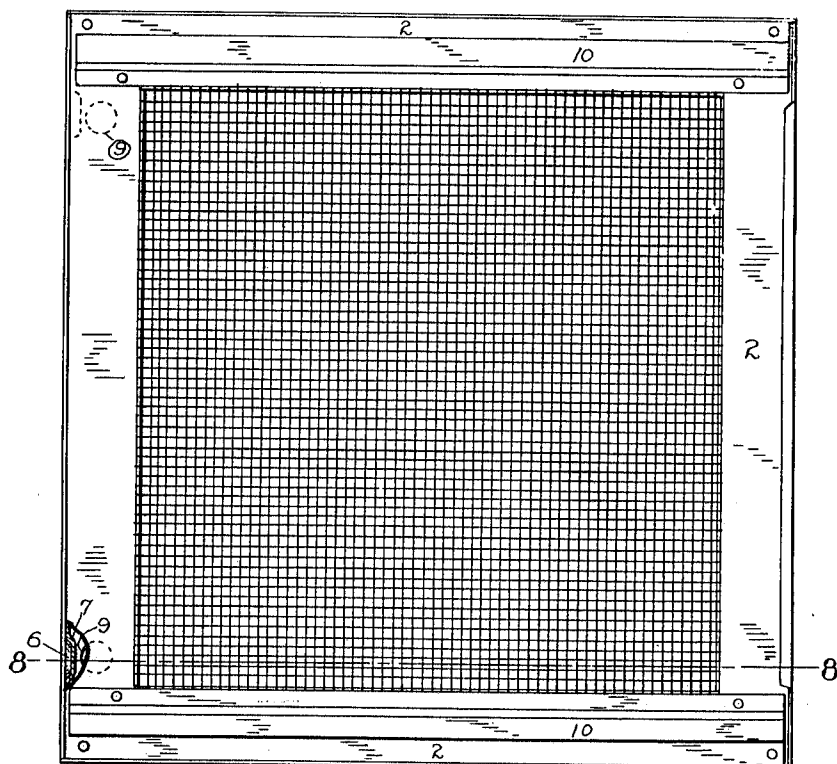


Fig. 5.

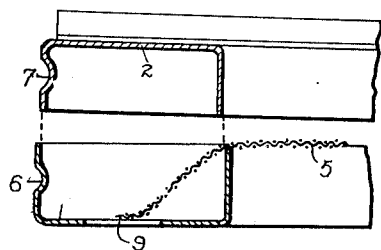


Fig. 7.

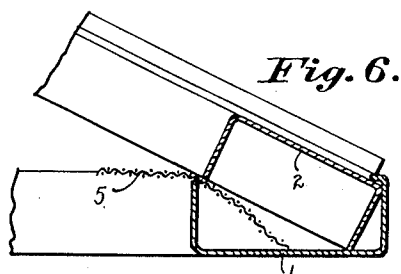


Fig. 6.

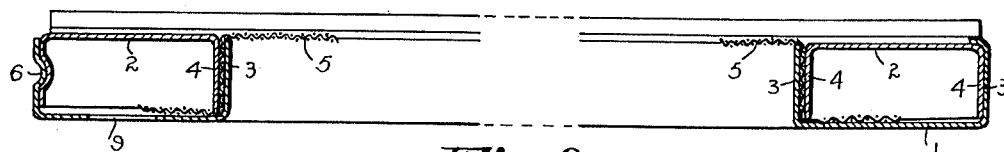


Fig. 8.

Witnesses;  
Wm. R. Rhoads.  
Ruth A. Miller

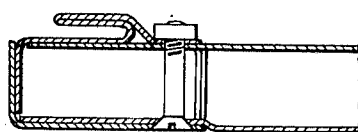


Fig. 9.

Inventor;  
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# UNITED STATES PATENT OFFICE.

SAMUEL T. ASHBAUGH, OF CANTON, OHIO, ASSIGNOR OF ONE-HALF TO HOMER H. HILL,  
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## SCREEN-FRAME.

970,162.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed July 3, 1909. Serial No. 505,910.

*To all whom it may concern:*

Be it known that I, SAMUEL T. ASHBAUGH, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Screen-Frames, of which the following is a specification.

The invention relates to a sheet metal frame for window screens and the like, and the general object of the improvement is to make a simple and inexpensive frame in which the screen fabric can be readily inserted and replaced, and to provide integral slides on the frame when the same includes two members. The use of sheet metal for such a frame is obviously desirable, because of its great durability and strength, but the greater cost of the metal, as compared with wood, estops its use for such purpose unless the frame can be simply made with a minimum quantity of metal and an inconsiderable amount of work in cutting, shaping, assembling and securing the parts of the frame. Furthermore, as sheet metal is practically impervious to tacks, staples and other ordinary fastening means, the frame itself must be adapted to stretch and securely hold the screen fabric in proper position, and for fully utilizing the greater durability of the frame it must likewise permit a ready renewal of the fabric. These general objects are attained and the desired purposes of the invention accomplished by making each frame of two companion sub-frames of sheet metal bent in the form of channels joined at the corners, and inserting the flanges of one channel between the flanges of the other, with the edge portions of the screen fabric clamped between corresponding flanges; and when the frame is made of two members, by forming interengaging slides on the adjacent sides by folding the sheet metal upon itself. Furthermore, the companion sub-frames of each member are preferably held together by providing an interturned hinge tongue on the outer flange of one end under which the end of the companion sub-frame is adapted to be engaged, and by providing means on the other ends of the sub-frames for securing or locking them when the sub-frames are clamped together.

The accompanying drawings, forming part hereof, illustrate a preferred embodiment of the invention, in which drawings—

Figure 1 is a face elevation of the im-

proved frame, showing two sliding members; Fig. 2, a longitudinal section on line 2—2, Fig. 1; Fig. 3, an enlarged transverse section on line 3—3, Fig. 1, with the middle portion broken away; Fig. 4, a fragmentary section showing the screen fabric clamped between the outer and inner flanges of the sub-frames; Fig. 5, a face elevation of one of the frame members; Fig. 6, an enlarged fragmentary section as on line 8—8, Fig. 5, showing the engagement of the inner sub-frame under the hinge tongue of the outer sub-frame; Fig. 7, a similar sub-frame showing the free end of the inner sub-frame about to be entered into the channel of the outer sub-frame; Fig. 8, a longitudinal section on line 8—8, Fig. 5, showing the companion sub-frames clamped and locked together; and Fig. 9, a fragmentary section showing the use of bolts for securing the sub-frames together.

Similar numerals refer to similar parts throughout the drawings.

Each single frame is composed of two sub-frames, 1, 2 or 2<sup>a</sup>, made of sheet metal shaped as rectangular channels joined at the corners and having the flanges 3 and 4 of the respective sub-frames preferably extended in reverse directions and provided with plain sheared edges. The sub-frame, 2 or 2<sup>a</sup>, herein referred to as the inner sub-frame, is adapted to be inserted in the channel between the flanges of the other sub-frame, herein referred to as the outer sub-frame, and in so doing the edge portions of the screen fabric 5 are stretched and clamped between the corresponding inner flanges of the respective sub-frames. In a large frame, it is sometimes desirable to clamp the edge portions of the fabric between the corresponding outer flanges as well as between the inner flanges of the two sub-frames, as illustrated in Fig. 4, but for ordinary uses it is sufficient to depend upon the inner flanges alone to hold the fabric. It is evident that the fabric is not only held by being clamped between the sides of the corresponding flanges, but also by being bent at right angles over the sharp edges thereof, and that these edges will bite into the fabric and hold it securely when the sub-frames are clamped together.

To clamp the fabric between the sub-frames, the fabric is laid over the edges of the inner flanges of the outer sub-frame and one end of the inner sub-frame is engaged

under the intumed tongue which is provided on the outer flange of one end of the outer sub-frame, as shown in Fig. 6. The free end of the inner sub-frame is then rotated on the tongue as a hinge into the channel of the outer sub-frame, thus clamping the edge portions on all sides of the fabric between the sub-frames. One or more projections as 6 are provided in the outer flange of the free end of one of the sub-frames, and the corresponding indentations as 7 are provided on the similar flange of the other sub-frame, and the parts are so arranged that when the sub-frames are closed together the protrusions will spring and catch into the projection, thus locking the sub-frames in their closed position, as shown in Fig. 8. It will be understood, however, that the scope of the invention is not limited to the use of such clamping and locking means, for it is evident that the free ends or both ends of the sub-frames can be secured together by means of bolts as 8, one of which is preferably located at each corner of either or both ends of the frame and it has been found in practice that by properly proportioning the respective sub-frames to firmly clamp the edge portions of the fabric, the parts will be held together with sufficient friction to withstand all the shocks and strains of ordinary use, without employing any other clamping or locking means whatever; but the hinge tongue and spring form of lock are preferred in ordinary cases because they are automatic in action and require no separate parts. When the sub-frames are locked by means of indentations and protrusions, the apertures 9 are preferably provided in the adjacent web of the outer sub-frame through which a small tool or suitable bar can be inserted to impinge the inner sub-frame and force it away from the outer sub-frame, when it is desired to separate the parts of a frame for inserting a new screen fabric, and it is evident that any number of screen fabrics can be clamped one after the other in the frame without destroying or affecting the frame section.

When it is desired to make a frame of two members adapted to slide upon each other, the interengaging tongues 10 and 10<sup>a</sup> are provided on the contiguous sides of the inner sub-frames, which tongues are preferably formed by folding the sheet metal upon itself, as shown in section in Fig. 3, the tongue 10 being turned outward on the sub-frame 2 and the tongue 10<sup>a</sup> being turned inward on the sub-frame 2<sup>a</sup>, thus making the slides integral with the sub-frames and rendering unnecessary any additional parts or fastenings to become loosened or lost by use.

It is evident that the frame sections thus illustrated and described can be economically cut and shaped, and that the overlapping corners of the ends and sides of the respective frames can be secured together by solder or by rivets, as may be preferred.

The frame thus described presents flat and smooth surfaces on all sides and edges and is therefore neat in appearance, is easy to clean and is convenient to handle in use and to store when not in use.

I claim:

1. A screen frame including two channel sub-frames each made of sheet metal joined at the corners and having rectangular flanges provided with plain sheared edges, the flanges of one sub-frame being inserted between the flanges of the other sub-frame and adapted to clamp the screen fabric between corresponding flanges.

2. A screen frame including two channel sub-frames each made of sheet metal joined at the corners and having rectangular flanges provided with plain sheared edges, the flanges of one sub-frame being inserted between the flanges of the other sub-frame and adapted to clamp the screen fabric between corresponding flanges, with means for securing the sub-frames together.

3. A screen frame composed of two members each including sheet metal channel sub-frames, there being interengaging tongues formed by folding the sheet metal upon itself on the contiguous sides of the respective sub-frames, upon which tongues the members are adapted to slide.

4. A screen frame including an outer channel sub-frame having rectangular flanges, and an inner rectangular sub-frame inserted between the flanges of the outer sub-frame and adapted to clamp the screen fabric against the flanges, there being an intumed tongue on one outer end flange of the outer sub-frame adapted to engage the corresponding end of the inner sub-frame, and means for securing the other ends of the sub-frames together.

5. A screen frame including an outer channel sub-frame having rectangular flanges, and an inner rectangular sub-frame inserted between the flanges of the outer sub-frame and adapted to clamp the screen fabric against the flanges, there being an intumed tongue on one outer end flange of the outer sub-frame adapted to engage the corresponding end of the inner sub-frame, and a spring catch for securing the other ends of the sub-frames together.

SAMUEL T. ASHBAUGH.

Witnesses:

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HARRY FREASE.