Feb. 13, 1923. 1,445,375.

D. H. WERTZ.

EXPANSIBLE WINDOW SCREEN.

FILED JAN. 6, 1919.

Fig. 1.

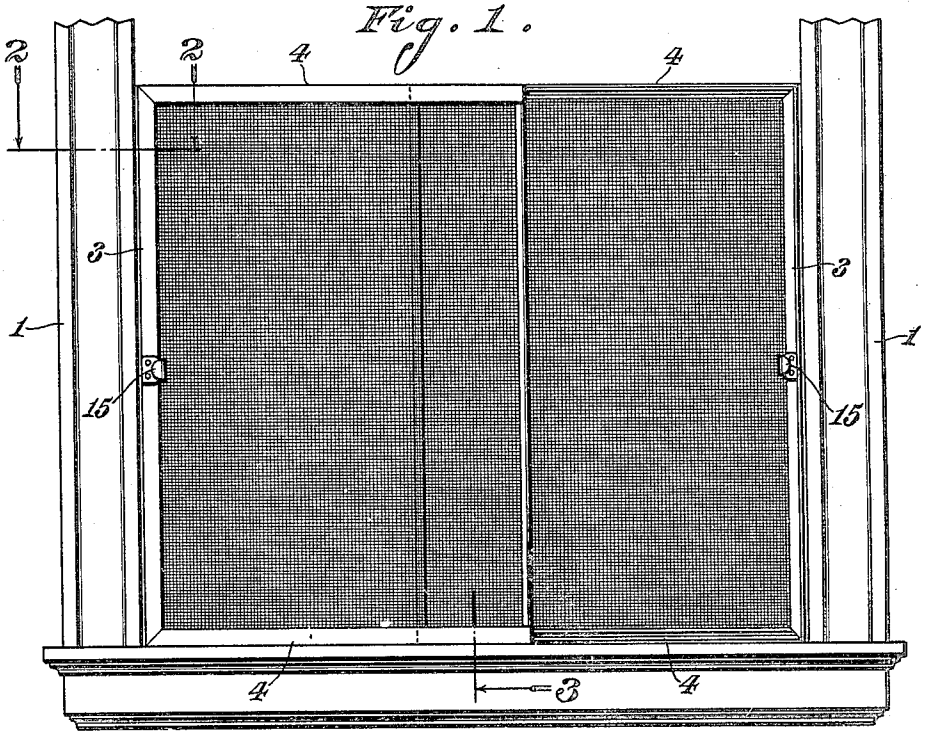


Fig. 2.

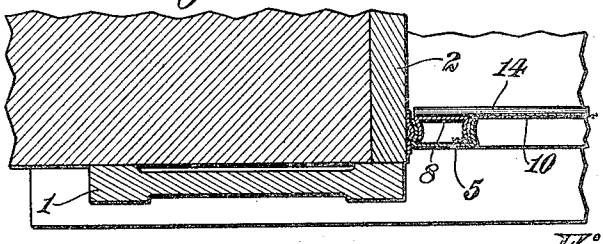


Fig. 5

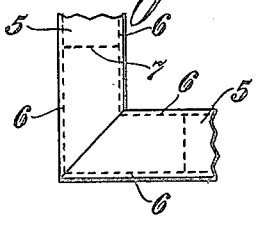


Fig. 3.

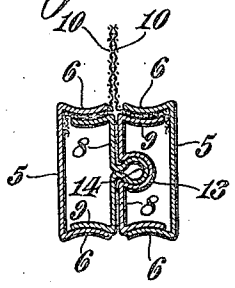


Fig. 4.

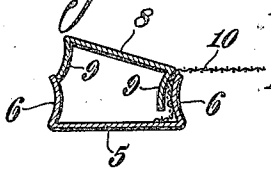


Fig. 7.

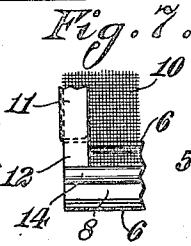
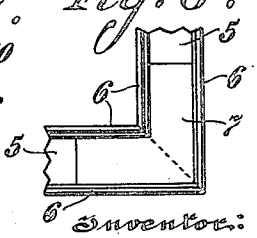


Fig. 6.



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UNITED STATES PATENT OFFICE.

DUFF H. WERTZ, OF ST. LOUIS, MISSOURI, ASSIGNOR TO VIOLA M. WERTZ, OF ST. LOUIS, MISSOURI.

EXPANSIBLE WINDOW SCREEN.

Application filed January 6, 1919. Serial No. 269,770.

To all whom it may concern:

Be it known that I, DUFF H. WERTZ, a citizen of the United States, and residing at St. Louis, Missouri, have invented the new and useful Improvement in Expansible Window Screens, of which the following is a specification.

This invention relates to window screens of the type contemplating the use of a metal frame having screen fabric secured therein, and more particularly to window screens of the expansible type.

In metal screens of the expansible type as heretofore constructed, difficulty has been experienced in securing a firm and close joint between the screen sections and more particularly the fabric of the cooperating sections. Difficulty has also been experienced in securing a firm and rigid structure unless the frames were made heavy and therefore costly.

Some of the objects of this invention, therefore, are to provide an expansible window screen in which the screen fabric is so secured in the metal frames, in which the metal frames are so constructed, and in which the sections are so joined as to secure close joints, so as to secure a rigid structure with minimum weight of material, so as to secure efficient sliding engagement between the frames and so as to produce a structure which is simple in construction, effective in its action and cheap to manufacture.

Further objects will appear from the detail description taken in connection with the accompanying drawing, in which:

Figure 1 is an elevation of a screen embodying this invention, showing the same applied for use;

Figure 2 is an enlarged section on the line 2—2, Figure 1;

Figure 3 is an enlarged section on the line 3, Figure 1;

Figure 4 is an enlarged detail, showing the means and method employed for securing the screen fabric in the frame;

Figures 5 and 6 are details of one of the screen frame corners, showing the joint connecting a stile and a rail, the views being from opposite sides and Figure 6 showing the screen clamping element removed; and

Figure 7 is a detail of another corner of the screen, showing the metal binding applied to the inside edge.

Referring to the accompanying drawing, 1 designates a window frame adapted to receive a screen embodying this invention. This frame may be provided with screen guides 2 of metal or any other suitable material.

The screen comprises a pair of frames in each of which is secured the screen fabric. Each frame comprises a stile 3 and a pair of rails 4. The stile and rails consist of a body 5 of sheet metal in channel form, having concave flanges 6 presenting inside convex surfaces as shown in Figure 4. The stile and rails are mitered to form joints and arranged inside of and connecting the stile and rails at the corner is an angular plate 7 which is secured to both pieces by riveting, soldering or welding so as to make a firm and rigid connection. Cooperating with the stile and rails are clamping elements 8 also of sheet metal, which have concave flanges 9 and which clamping element is arranged to be inserted in the channel formed by the body and flanges of the stile or rails. The screen fabric 10 is adapted to be secured in the frame thus formed by being clamped between the inner flanges 6 and 9 of the body and clamping elements 5 and 8, substantially as shown and described in Patent No. 1,279,625, granted September 24, 1918.

It will be noted that there is no stile at the inner end of the frame. There is, however, provided for the screen fabric a binding 11, which may be formed of sheet metal bent over the inner edge of the screen fabric as shown in Figure 7, and this binding may have a short lug 12 extending between the body and the clamping element, as the flange of the clamping element may be cut away at that point. This provides a firm binding and also to some extent a support connecting the inner ends of the rails.

In order to secure close cooperation between the screen frames and more particularly the fabric therein, the fabric should be secured in the screen frames at the adjoining faces of the frames. In order to secure sliding engagement between the screen frames, the rails have sliding connections. In order to provide such sliding connections, the clamping elements 8 for the rails are formed to provide a rib on the element of one rail cooperating with a groove in the element of the opposite rail. For this purpose, the clamping element 8 of one rail is formed to provide a depression 13 in which

slides a rib 14 formed on the clamping element of the other rail. In order to secure the rails together and against separation, the rib and grooves both extend over more one-half of a complete circle.

In view of the fact that the outer flanges 6 of the stiles are concave, they provide grooves for cooperating with the guides 2 and the window frame, and in order to permit manipulation of the screen, the stiles have secured thereto finger pieces 15.

It will, therefore, be seen that the invention accomplishes its objects. The frames are secured together for sliding movement by connections made through the clamping elements, thereby bringing the adjoining faces of the screen fabric secured by the clamping elements into close engagement. Furthermore, the construction of each frame is such as to present a rigid, but light structure.

It is obvious that various changes may be made in the details of construction without departing from the spirit of this invention. It is, therefore, to be understood that this invention is not to be limited to the specific details shown and described.

Having thus described the invention, what is claimed is:

1. An expansible window screen, comprising, a pair of metal frames of channel section having screen fabric secured therein at the inside flange edges thereof, in order to present the fabric at the adjoining faces of said frames, and sliding connections between said frames at and along said adjoining faces, adapted to permit expansion thereof and maintain the fabric in the frames in surface contact.

2. An expansible window screen, comprising, a pair of metal frames having clamping elements adapted to secure the screen fabric to the frames at their adjoining faces, and a rib on one of said elements engaging a groove in the other, adapted to permit expansion thereof and to maintain the fabric in the frames in surface contact.

3. An expansible window screen, comprising, a pair of metal frames, means for securing screen fabric in said frames adapted to present said fabric at the adjoining faces of said frames, and sliding connections between said securing means adapted to maintain the fabric in said frames in sliding surface contact as the screen is expanded and contracted.

4. An expansible window screen, comprising, a pair of metal frames, means for securing screen fabric in said frames adapted to present said fabric at the adjoining faces of said frames, and sliding connections between said securing means and arranged within said frames adapted to maintain the fabric in said frames in sliding surface contact as the screen is expanded and contracted.

5. An expansible window screen, comprising, a pair of metal frames, means for securing screen fabric in said frames adapted to present said fabric at the adjoining faces of said frames, and sliding connections between said securing means adapted to maintain the fabric in said frames in sliding surface contact as the screen is expanded and contracted, the outer faces of said frames being formed to provide guides.

In testimony whereof I affix my signature this 7th day of December, 1918.

DUFF H. WERTZ.