E. T. BURROWES.

METAL FLY SCREEN.

APPLICATION FILED SEPT. 25, 1913.

1,120,686. Patented Dec. 15, 1914.

Fig. 1.

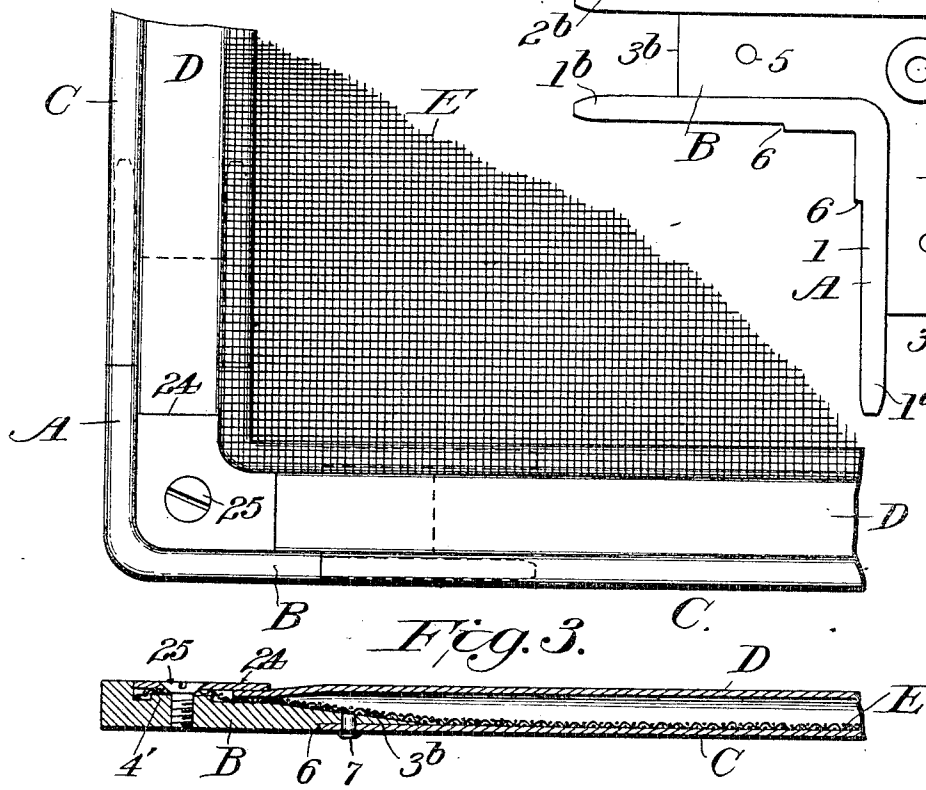

Fig. 2.

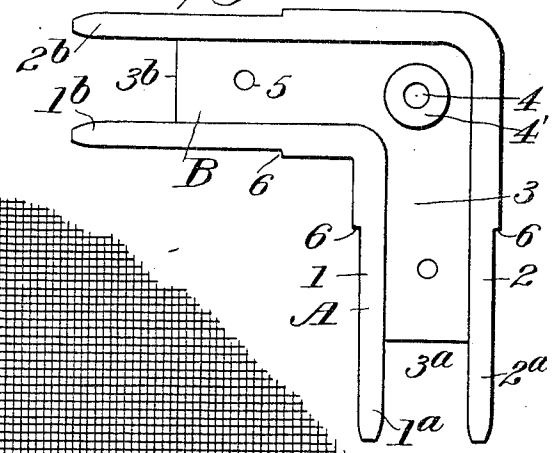

Fig. 3.

Fig. 4.

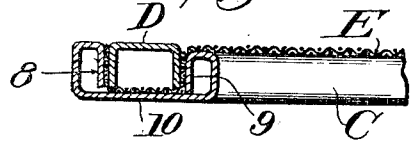

Fig. 5.

Fig. 6.

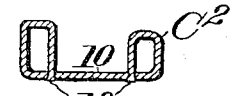

Fig. 7.

Fig. 8.

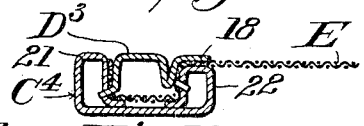

Fig. 9.

Fig. 10.

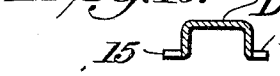

Fig. 11.

Fig. 12.

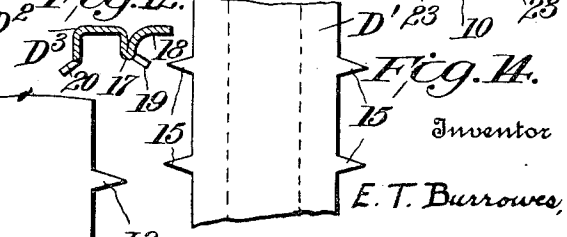

Fig. 13.

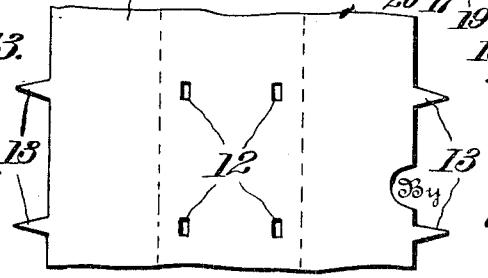

Fig. 14.

Witnesses

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METAL FLY-SCREEN.

1,120,686. Specification of Letters Patent. Patented Dec. 15, 1914.

Application filed September 25, 1913. Serial No. 791,780.

To all whom it may concern:

Be it known that I, EDWARD T. BURROWES, citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Metal Fly-Screens, of which the following is a specification.

My invention relates to fly screens, and the like, and more particularly to rigid screens the frames of which are constructed entirely of metal.

It has heretofore been proposed to construct screen frames wholly of sheet metal. It has also been proposed to form such frames entirely of solid metal bars and forged corner pieces.

The present invention contemplates a rigid screen frame in which sheet metal side members are combined with solid forged or cast corner pieces, and one object is to provide improved means for uniting the parts so as to insure the necessary strength. The solid corner pieces produce great rigidity, while the use of sheet metal for the side members has the advantage of cheapness and lightness.

Another object of the invention is to provide an improved wire holding molding, and means for retaining it in position.

With the above objects in view, the invention consists in the construction and arrangement of parts hereinafter described and claimed, and illustrated in the accompanying drawings, in which,

Figure 1 is a view of one corner of a fly screen constructed in accordance with my invention; Fig. 2 is a detached view showing the improved corner piece which I employ; Fig. 3 is a longitudinal section through the corner piece and one of the side members shown in Fig. 1; Fig. 4 is a transverse section through one form of side member showing the wire netting and the wire holding molding in position; Fig. 5 is a transverse section through a side member of slightly modified construction; Fig. 6 is a similar view showing still another modification; Fig. 7 is a similar view illustrating a slightly different arrangement; Fig. 8 is a section through one of the side members and illustrating a modified form of wire holding molding in position therein; Fig. 9 is a view similar to Fig. 8, showing a still further modified form of side member, and wire holding molding; Figs. 10 and 11 are transverse sections showing slightly modified forms of molding; Fig. 12 is a similar view showing the molding illustrated in Fig. 8; Fig. 13 is a fragmentary view showing the blank from which the side member shown in Fig. 6 is formed; and, Fig. 14 is a fragmentary view of the blank from which the molding shown in Fig. 10 is formed.

Referring to the drawings in detail, I propose to construct a rigid screen frame of solid forged or cast corner pieces A—B, sheet metal side members C, and sheet metal molding D. The corner pieces are of special and peculiar construction, and are illustrated in Fig. 2. These corner pieces each comprise portions A and B disposed at right angles to each other. Along the inner and outer edges of the corner pieces extend rounded beads 1 and 2, which beads are extended at each end beyond the body portion of the corner piece so as to form projecting arms 1^a—2^a, 1^b—2^b, preferably more or less tapered at their ends. A web or body portion 3 unites the beads 1 and 2. This web is thickest at the corner and gradually tapers toward each end, where it terminates in a feather edge 3^a and 3^b. At the corner there is provided a boss 4′, having a tapped hole 4 formed therein. The web 3 also has a rivet hole 5 formed adjacent each end thereof. A shoulder 6 extends around the sides and bottom of each member of the corner piece at a point between the rivet hole 5 and boss 4′.

The side members of my improved frame are formed from a sheet metal blank in the nature of a strip. The edges of this strip are turned up and then bent over, as clearly shown at 8—9, in Fig. 4, so as to form a channel-shaped element having a flat bottom 10, and tubular or beaded portions extending along each edge. The bead at the outer edge, formed by the portion 8, is made slightly higher than the bead on the inner edge, so as to be flush with the surface of the wire netting, as clearly shown in Fig. 4. The extreme edges of the portions 8—9 may be secured to the bottom 10 of the channel as by soldering, and to this end these edges may be turned inward as indicated at 11 in Fig. 5. In order to avoid soldering, the side members may be formed as indicated at C^2 in Fig. 6. According to this construc-

tion, the blank from which the member is formed is provided with two series of perforations 12, and the edges of the blank are furnished with teeth or prongs 13, which are adapted to pass through the perforations 12 and be riveted down, as clearly shown in Fig. 6.

With any of these constructions, it will be observed that the beaded or tubular portions of the side members are substatially rigid, while the bottom 10 is more or less resilient. The wire holding molding is preferably in the form of a channel D, and is pressed down into the side members, as shown in Fig. 4, confining the wire netting E between itself and the beaded or tubular portions 8 and 9. The resilience of the bottom 10 of the side members permits the beaded portions to spring slightly apart so as to allow the molding to be forced between them; such molding is then frictionally gripped and will be held in position. This frictional holding of the molding will be rendered more effective and certain if the side members are constructed as shown at C^5 in Fig. 9. By reference to this figure, it will be seen that the edges of the blank are so folded as to form a channel, which is wider at the bottom, as shown at 23, than at the top. It will be understood that this shape of channel may be readily employed with any of the forms of said members shown in Figs. 4, 5, 6, and 7. When a channel of this shape is used, the wire holding molding will, of course, be made flaring at the bottom, such molding being illustrated at D^5 in Fig. 9.

To construct a frame, four corner pieces, such as shown in Fig. 2, are selected, and four side members, such as C, are cut to the proper length. The arms, such as 1^a—2^a, of the corner pieces are then inserted in the open ends of the tubular portions of the side members, and pushed in until the ends of the side members abut against the shoulders 6. When so assembled, the web portion, such as 3^b, (see Fig. 3) will rest upon the bottom of the channel C and rivets 7, or other suitable fastening devices, may be passed through the holes 5 and similar holes in the side members and the parts thus secured together. In order to permit the corner pieces to be thus inserted in the ends of the side members, it is necessary to slightly cut away the extreme ends of the turned-over portions 8 and 9, to accommodate the web 3, as will be readily understood. To increase the rigidity of the frame, the arms 1^a, 2^a, etc. are preferably soldered or brazed into the tubular portions of the side members, and the web 3 may be similarly secured to the bottom of the channel. In some cases, the use of the fastening devices 7 may thus be rendered unnecessary. After the corner pieces and side members have been thus assembled, the wire netting, cut to approximately the proper size, is stretched over the frame and the molding members D pressed down into position. The ends of these molding members are also slightly trimmed or cut away so as to accommodate them to the beveled or tapered ends of the web 3, as clearly shown in Fig. 3. After the molding has been put in place, corner plates 24 are fitted over the ends of the molding between the beads 1 and 2 of the corner pieces, and are held in position as by means of screws 25, which engage the threaded openings 4 formed in the corner pieces. Thus, the raw edges are concealed and a neat and finished appearance produced. In order to still further insure the locking of the molding to the side members, I may, in some cases, form the side members as indicated at C^3, in Fig. 7. In this figure I have shown two series of openings 14, similar to the openings 12, formed in the turned-over edges of the side members, and in connection with this there is employed the molding D′, shown in Fig. 10, and having along its edges out-turned teeth or prongs 15, adapted to enter the openings 14, as will be apparent. In Fig. 11, I have shown still another form of molding D^2, which may be employed if desired in connection with any of the forms of side members, such molding having inturned edges 16.

In Figs. 8 and 12, I have illustrated a slightly different construction of side member and molding. The side member C^4 has the bead 21 on one side somewhat higher than the bead 22 on the other side and the wire is stretched over the lower bead. The inside walls of the beads are formed with perforations similar to 14 in Fig. 7, adapted to receive teeth 19 and 20, struck out from the special form of molding D^3, shown in Fig. 12. This molding is folded back upon itself at 17, and is provided with a lip 18, adapted to overlie the wire E and bead 22, as shown in Fig. 8. Also, as illustrated in this figure, the tops of the molding, bead 21 and lip 18 are preferably all in one plane so as to present a flat, smooth appearance. It will thus be seen that I have provided several slightly different methods of constructing the side members and molding, but all of them are characterized by the fact that the side members have rigid tubular portions adapted to be engaged by the arms of the corner pieces, and a resilient bottom which permits the molding to be forced into position and frictionally gripped or held in place.

What I claim is:

1. In a screen, a frame comprising solid metal corner pieces, channel shaped sheet metal side members secured thereto, said corner pieces having a portion adapted to fit within the channel of such members, wire

fabric stretched over said frame, and a wire holding molding also lying within said channel shaped side members.

2. In a screen, a frame comprising side members having a pair of spaced tubular portions, corner pieces having arms adapted to enter the ends of such tubular portions, and thus unite said side members and corner pieces, wire fabric stretched over said frame, and means for holding said fabric in position.

3. In a screen, a frame comprising channel shaped side members having the edges of their flanges turned over so as to form tubular portions, corner pieces having spaced parallel arms adapted to enter the ends of such tubular portions, and thus hold the parts in assembled relation, wire fabric stretched over said frame, and means for holding said wire in position.

4. In a screen, a frame comprising channel shaped side members having the edges of their flanges turned over so as to form tubular portions, corner pieces having arms adapted to enter the ends of such tubular portions, and having an intermediate portion adapted to lie in the channel between the tubular portions, wire fabric stretched over said frame, and a wire holding molding disposed in said channel shaped side members.

5. In a screen, a frame comprising solid metal corner pieces and channel shaped sheet metal side members secured thereto, said corner pieces having a portion adapted to fit within the channel of such members, said portion gradually varying in thickness, and terminating in a feather edge, wire fabric stretched over said frame, and means for holding such fabric in position.

6. In a screen frame, a side member made of a strip of sheet metal having both edges folded up and over upon themselves to form a channel-shaped element with marginal beads or tubes, said beads being substantially rigid, and the bottom of such channel being resilient, and a channel-shaped molding fitting between the beads, and held by the resilience of the bottom of said channel-shaped element.

7. In a screen frame, a side member made of a strip of sheet metal having its edges folded up and over upon themselves to form a channel-shaped element with marginal beads or tubes, said beads being substantially rigid, and the bottom of such channel being resilient, said channel being wider at the bottom than at the top, and a molding adapted to fit within said channel, and held in position by the resilience of the bottom of said channel-shaped element.

8. In a screen frame, the combination with a channel-shaped side member, of a molding adapted to fit therein, said channel-shaped member having perforations along its sides, and said molding having a series of prongs adapted to engage such perforations and thus lock the parts together.

In testimony whereof I have affixed my signature, in presence of two witnesses.

EDWARD T. BURROWES.

Witnesses:

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ALICE M. GURNEY.