

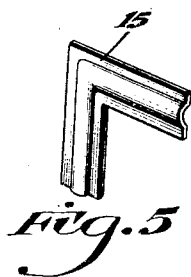
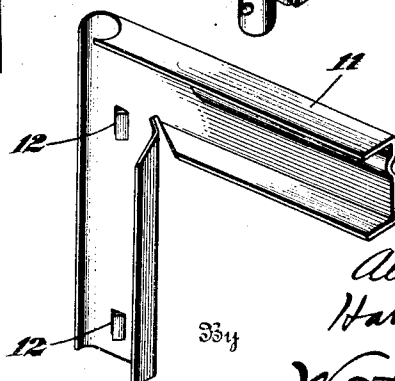
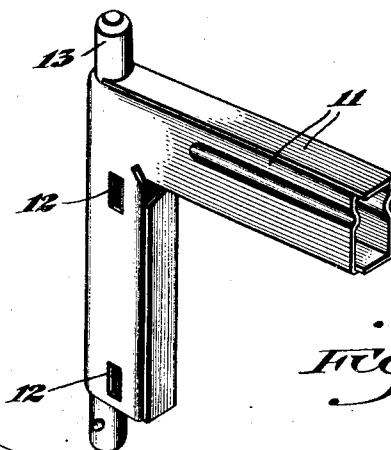
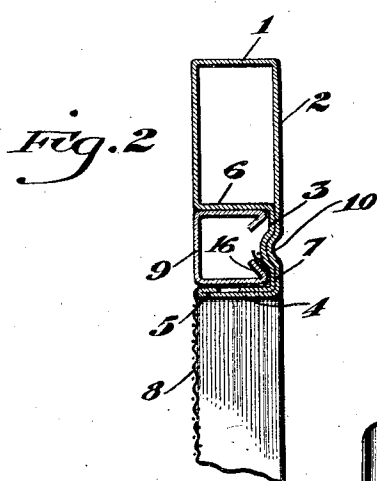
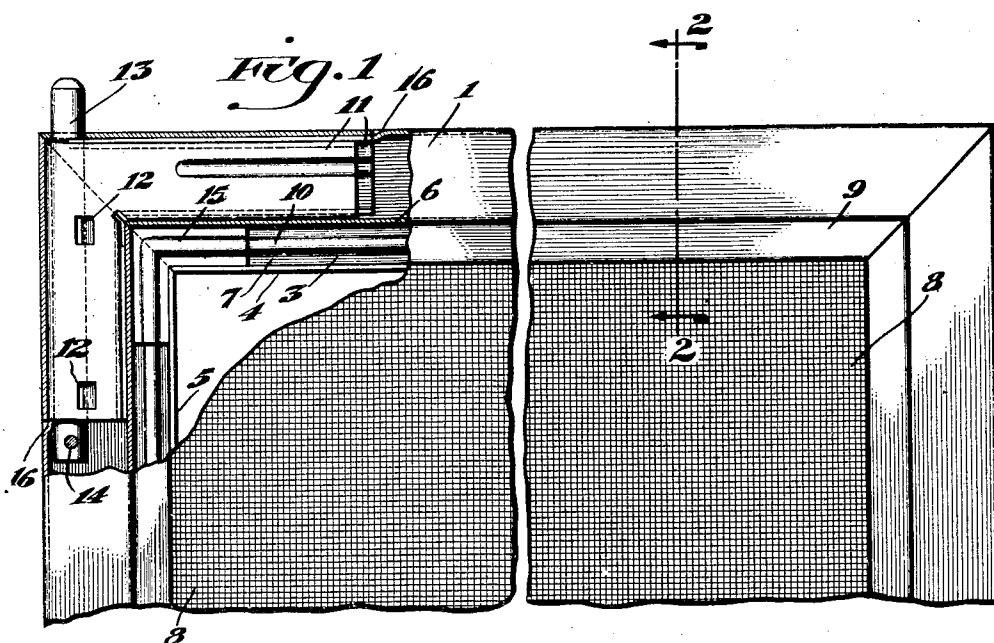
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FLY SCREEN

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UNITED STATES PATENT OFFICE.

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FLY SCREEN.

Application filed November 4, 1927. Serial No. 231,131.

This invention relates to improvements in rewirable metal fly screen frames and particularly to the fabrication and structure of a sheet metal molding from which the screen frame is built and to the corner reinforcement or angle braces for joining a pair of miter cut ends of the molding in making a rectangular frame.

An object of the invention relates to the construction of corner or angle plates for rigidly joining abutting miter cut ends of a metallic screen frame and for hingedly mounting the frame in position for use.

Other features and advantages of the invention are more fully set forth in the description of the accompanying drawings, in which:

Figure 1 is a plan view of a portion of a sheet metal window screen frame with the screen applied and with one of the corners of the frame shown in section for illustrating the corners of angular plates engaged within the metal framing for uniting and reinforcing the miter cut ends thereof.

Figure 2 is an enlarged section taken on line 2-2, of Figure 1.

Figure 3 is a perspective view of a pair of channel formed angle plates as combined for producing a corner brace or connector for the sheet metal frame molding building up the frame and illustrating a pin engaged therethrough providing a hinge pintle for swingingly mounting the frame.

Figure 4 is a perspective view of one of the angle plates.

Figure 5 is a perspective view of a supplemental angle plate as a corner reinforcement inserted within a groove, in which the metal screen or gauze is secured.

The screen frame is built up from sheet metal molding of particular formation to comprise a tubular body portion and a channel portion for receiving and clamping the metal screen fabric or gauze to the frame by a channel form of beading compressed into the channel or groove of the frame which in principle follows a well recognized commercial form of sheet metal framing or molding for window screen frames.

To maintain such channel characteristics of the molding or framing and to reinforce and strengthen the same at and along the screen fabric receiving and fastening groove or channel, the molding is preferably formed

by bending, crimping and corrugating the metal to give the same the following cross sectional structure.

Referring to Figure 2 which illustrates the cross section of the structure of the molding, formed of a single sheet of metal and bent to comprise a rectangular hollow or tubular body portion 1 with the opposite longitudinal ends of the sheet metal brought together and lapped upon one another in continuing beyond one edge of the body portion. One side wall designated as a base wall 2 extends from the body portion and in continuing plane for the base of the channel 3 along one edge of the body portion, and thence bends or extends at right angles for the width of the body, forming an outside wall 4 of the channel, with its end 5 crimped inwardly upon itself to provide a double thickness of edge for said channel wall. The crimp bend, if desired, may be different by soldering or welding the same to the channel wall. The opposite longitudinal end of the sheet is bent into U form to provide an intermediate wall 6 providing the inside end wall of the body portion and channel, and a channel base wall 7 is lapped upon the extended portion of the base wall 2, forming an additional base wall for the channel for providing a double ply thickness for the channel base, and a right angled edge or end lapping upon the outside channel wall 4.

With the opposite edges of the sheet metal lapped or crimped upon the outside channel wall 4, the wall is practically of two ply thickness, giving the same increased rigidity and stability to sustain the screen fabric 8 which is secured to the molding or screen frame by engaging an end thereof over the edge of the channel wall 4, and into the channel to be clamped in position by a channel or other form of beading 9 compressed into the channel.

To give increased rigidity to the molding, and to prevent the intermediate wall 6 from shifting laterally or thrown out of square when the beading is inserted, the lapped channeled base walls jointly are compressed into a corrugation 10 longitudinally of the channel, thus binding the parts securely together, as well as offering reinforcement. This is of material advantage in the structure of the molding, and also adds to the ornamental effect of the molding.

The beading 9 for clamping the screen fabric into the channel of the frame or molding, as illustrated, comprises a strip of sheet metal bent into channel or U form with its opposite ends crimped inwardly with the crimp 16 disposed at an angle so that the wall edge of the beading serves as a wedge for binding the screen fabric between the wall 4 and base corrugation 10 of the channel.

For building up the molding into a screen frame, the molding is cut into definite length with its opposite longitudinal ends mitered to make a corner joint for the frame, and interlocked with an angled dowel or corner brace engaging into the tubular body 1. The dowel or corner brace preferably comprises a pair of right angled channel plates 11—11 of duplicate construction, engaged together with their channel sides opposing, combining the same into tubular form, with their opposite ends or edges forming in the channel, overlapping one another. When thus combined the corner plates compare to the inside measurement of the body portion of the molding so as to make a friction fit therewith when engaged therein.

Each channel corner or angle plate 11 comprises a sheet metal stamping with the limbs thereof of U or channel form in cross section, and with one limb thereof having its base wall corrugated longitudinally, and the other limb provided with a pair of in-turned tangs 12—12, compressed inwardly from the body of the metal, for sustaining and confining a pin 13.

The pin as shown in Figure 1 is rigidly secured to the frame by a rivet 14 extending through the frame at the lower end of the pin, while the upper or opposite end projects or extends beyond the edge of the frame for engaging into a socket in the window frame to which the screen frame is applied. This provides a spindle for hingedly mounting the screen frame, and in practice is similarly provided with a pin engaged with the angle or corner base plates but usually slidable and operated by a lever having a finger engaging end accessibly extending from the frame. The use of fixed and slidable pins at relative opposite ends or corners of the screen frame for hinge mounting is a general practice, so that no novelty is herein claimed in the provision thereof, but only as to the method of mounting the pins, and in the structure of the angle plate, for guidingly or confiningly sustaining the pins.

To further reinforce the corner of the frame, a corrugated angle plate 15 is inserted within the channel under a friction or drive fit, with the corrugation nesting over the corrugation in the base wall of the molding. Thus by joining the mitered corners by a pair of angle plates engaged within the body portion of the molding, and a

single angle plate within the channel, the entire joint length is reinforced and sealed so that no light is visible through the joint, due to failure to completely abut the mitered surfaces, which otherwise detracts from the general appearance of the frame or impairs the workmanship, but in some cases it is desired not to bring the joint surfaces home. In fitting the frame, the corner plates usually are not permanently fixed so as to allow such slight shifting.

The outer wall of each tubular body is punched as at 16 to limit the sliding of the bodies over the right angled channel plates 11. The abutments created by the punching engage the outer ends of the respective channel plates 11 and provide that the bevelled edges of the tubular bodies fit snugly and do not extend beyond their true mating position.

Having described our invention, we claim:

1. A sheet metal screen frame, comprising, a sheet metal molding constituting a tubular body portion with a longitudinal channel along one side edge thereof, and corner braces for use in assembling definite molding lengths into a frame and engaged into the end of the tubular body portion, each brace constituting a pair of angle channel plates set together with their channels opposing and the flanges of the plates relatively overlapped, and having tangs depressed inwardly from one limb of the angle plates for sustaining a pin inside of said brace and beyond the corner, and extending beyond the corner of the frame for hingedly supporting the frame.

2. A sheet metal screen frame, comprising, a sheet metal molding constituting a tubular body portion with a longitudinal channel along one side edge thereof, corner braces for use in assembling definite molding lengths into a frame, and engaged into the end of the tubular body portion, each brace constituting a pair of angle channel plates set together with their channels opposing and the flanges of the plates relatively overlapped, and having tangs depressed inwardly from one limb of the angle plates for sustaining a pin inside of said braces and beyond the corner, and extending beyond the corners of the frame for hingedly supporting the frame, and a second angle brace plate compressively engaged into the channel portion of said molding and at the corners of the frame.

3. A metal screen frame, comprising, a sheet metal molding constituting a tubular body portion with a longitudinal channel on one side edge thereof, and corner braces for use in assembling lengths of molding into a frame, said braces each formed of a pair of angle channel plates set together with their channels opposing, and the sides of the plates overlapped, and providing a

contour dimension to frictionally engage into the ends of the tubular body portion of the molding.

4. A metal screen frame, comprising, a
5 sheet metal molding constituting a tubular
body portion with a longitudinal channel
on one side edge thereof, corner braces for
use in assembling lengths of molding into a
frame, said braces each formed of a pair of
10 angle channel plates set together with their
channels opposing, and the sides of the plates

overlapped, and providing a contour dimension to frictionally engage into the ends of the tubular body portion of the molding, and a second corner brace engaged into the channel of the molding at the corners of the frame, each brace formed of a corrugated angle plate. 15

In witness whereof, we hereunto subscribe our names.

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