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F. A. STICKLE

REWIRABLE METAL SCREEN

Filed July 25, 1921

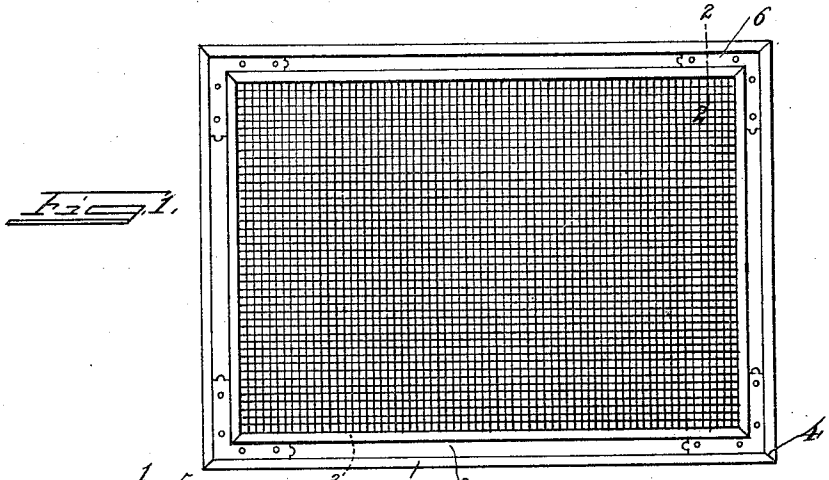

Fig. 1.

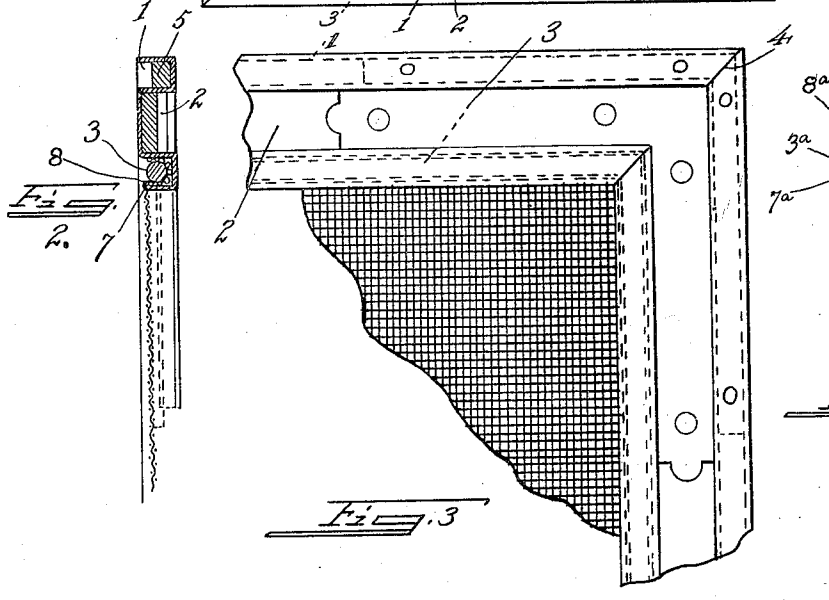

Fig. 2.

Fig. 3.

Fig. 4.

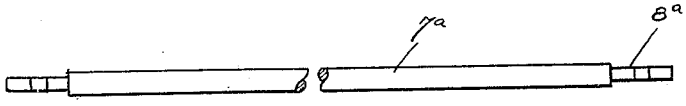

Fig. 5.

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UNITED STATES PATENT OFFICE.

FREDERICK A. STICKLE, OF CINCINNATI, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE LUNKENHEIMER COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

REWIRABLE METAL SCREEN.

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To all whom it may concern:

Be it known that I, FREDERICK A. STICKLE, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Rewirable Metal Screens, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to rewirable metal screens, wherein the frames are of metal and the screen wire is demountably held within a channel running longitudinally of the frame members.

In the metal screen art, where a wire retaining channel is preserved along the inside of the metal frames, it has been the problem to maintain a neat appearance, keep down the size of the frame and at the same time have a frame which will not be easily distorted.

The solution of this problem which has gained ascendency in the market of today is the use of frame pieces having a tubular body with one of the webs making up the tube or both of them extended to form a wire retaining channel.

The production of a closed tubular body portion has difficulties in connection with enameling and requires welding, riveting or soldering, all of which costs money. It is quite simple, however, to hold the frame pieces at the corners, and the appearance is good, so that at the present time this tubular form has been widely adopted.

The stiffness of the frame breaks down chiefly at the corners, and the problem with which my invention deals is the production of a frame of non-tubular nature and without seams, and yet which can be tightly secured at the corners, and which if desired can be shipped in lengths to be cut, and riveted or welded together on the job.

I accomplish the solution of said problem and other advantages to be noted, by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawings,

Figure 1 is an elevation of a completed screen construction according to my invention.

Figure 2 is a detail section taken through one of the frame pieces on the line 2—2 of Figure 1.

Figure 3 is a detail elevation on a larger scale of one of the corners.

Figure 4 is a section of a modification, being same view as Figure 1.

Figure 5 is a detail of the spline to be used with the modification.

The frame pieces making up my screen are formed of strips of metal passed through rolls, or otherwise bent to form outer channels 1, which will face inwardly of the completed article, median channels 2, which will face outwardly of the completed screen, and screen wire channels 3, which will face inwardly again.

In making up the frame, the pieces are arranged of the desired size for top, bottom, and sides, and mitred at the points where the corners are to be formed, as at 4. Corner irons of angle shapes are provided, the irons 6 adapted to fit the median channels, and the irons 5 to fit the outer channels.

When the frame pieces have been set together, one set of irons will be riveted or welded into the channels facing the operator around the frame, and then the frame turned over and the other set of irons mounted in the same way. I wish to note particularly that "inwardly" and "outwardly" are used by me for convenience in expressing relative position and not as limitations either in the specification or claims, since the terms are intended to express the position of the parts to an observer looking at the screen on the side that the wire is mounted.

The corners will then be braced on both sides by stiffening irons, which are solid at the corners, so that all distortion at the corners is entirely done away with. If the frame pieces were not engaged on both sides, then it would not be possible in ordinary practice to prevent distortion upon certain of the usual strains to which screen frames are subjected.

After the corners have been made secure, the entire frame will be dipped in enamel

and baked to any desired degree of temperature, with every assurance of the enamel covering all points of the frames. In tubular frames it is not possible to enamel the frames inside and outside after the corners have been secured. Furthermore in tubular frames, handles must be provided, whereas with my screens when the middle channel is faced inwardly it may be used as a lift and can be grasped at any convenient point.

When the frames are complete and ready for the wire a piece of wire cut to size is set over suitable elongated rods or splines 7, which are forced into the channels. These splines are preferably of lead or other semi-plastic non-corrodible metal. I have found that lead wire of larger size than the channel can be driven into it without cutting the screen wire. The wire will score the lead but unlike any other splines with which I am familiar there is no chance of cutting the screening when inserting the spline.

As shown in Figure 2, it is possible and where a non-plastic spline is used I find it desirable to leave a lip 8 on the inner wall of the wire channel 3 so that this can be pinched over the spline when it has been inserted together with the wire.

A pair of pincers can be inserted with one finger in the channels 2 with the other finger resting against the lip on the outside of the inner wall of the channel 3 and the lip turned over without bending out of shape any of the rest of the frame.

The spline will preferably be of solid character and not a spring strip, which is not reliable, and the extent of the pinching in of the lip 8 will depend upon the nature of the metal of the frame and the nature of the material of the spline.

As a modification of the above, where a very narrow screen frame is desired, the outer channel 1 of the frame may be omitted leaving a channel 2^a and a wire channel 3^a. In such a case the corners are faced on both sides of the frame by an angle plate 4^a inserted and secured in the channels 2^a of adjoining mitred corners and angle plates 5^a inserted and secured in the wire channels.

The spline 7^a in this case will have its ends reduced in size as at 8^a, so that the thickness of the corner iron will be allowed for in sinking the spline into the channel 3^a.

This modification will not be as strong as the preferred form first described, since the presence of a multiple of bends or corrugations in a metal strip adds greatly to its stiffness in resisting torsional strains in all directions and the triple bent frame piece of my invention is very stout and even when made of fairly thin gauge metal.

Spot welding is preferred as a means of mounting the corner irons in any instance, since the enameling covers the weld and gives to the final product a handsome and ornamental appearance which would be slightly marred by the presence of the nob formed by the enameling over of the head of a rivet.

The means adopted for mounting the wire in the screen frames is not one of the essentials of my invention, as any known method practiced at present will serve my purpose.

One advantage from the manufacturing point of view of my screen is that the frame pieces can be reversed in position when making up the frame. Thus if a piece, when it is about to be assembled into the frame has a distortion in it, the operator can reverse its edgewise position to avoid rejecting the piece. A piece coming from the forming rolls is likely to have a bend in it, and to assemble a piece with an outward bend in a frame tends to weaken the frame and make a difficult job of making up the article.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A rewirable screen frame, comprising frame pieces of nontubular construction formed into a plurality of channels facing in different directions, one of said channels located interiorly of the frame for use in mounting wire therein, and corner irons for securing ends of the frame pieces together, comprising angle plates set into at least two channels facing opposite sides of the frame pieces, and securely fastened in said channels.

2. A rewirable screen frame, comprising frame pieces of nontubular construction formed into a plurality of channels, one channel facing inwardly of the completed screen for use in mounting the wire, one channel facing outwardly, and another channel facing inwardly at the edge of the frame, corner irons adapted to fit the two channels other than that for the wire, said frame pieces being mitred at the corners and set together, and the irons securely mounted and fixed in the corners.

3. A rewirable screen frame, comprising frame pieces of nontubular construction formed into a plurality of channels, one channel facing inwardly of the completed screen for use in mounting the wire, one channel facing outwardly, and another channel facing inwardly at the edge of the frame, corner irons adapted to fit the two channels other than that for the wire, said frame pieces being mitred at the corners and set together, and the irons securely mounted and fixed in the corners, said frame as reinforced being protected by a baked enamel.

4. A rewirable screen frame, comprising nontubular metal strips bent to form narrow channels for mounting the screen wire, wide rectangular channels facing in the opposite

direction to form the main body of the frame, and narrow outer channels facing with the wire channels, corner irons adapted to fit the two channels other than that for the wire, said frame pieces being mitred at the corners and set together, and the irons securely mounted and fixed in the corners.

5. A rewirable screen frame, comprising frame pieces of nontubular construction formed into a plurality of channels, one channel facing inwardly of the completed screen for use in mounting the wire, one channel facing outwardly, and another channel facing inwardly at the edge of the frame.

FREDERICK A. STICKLE.