

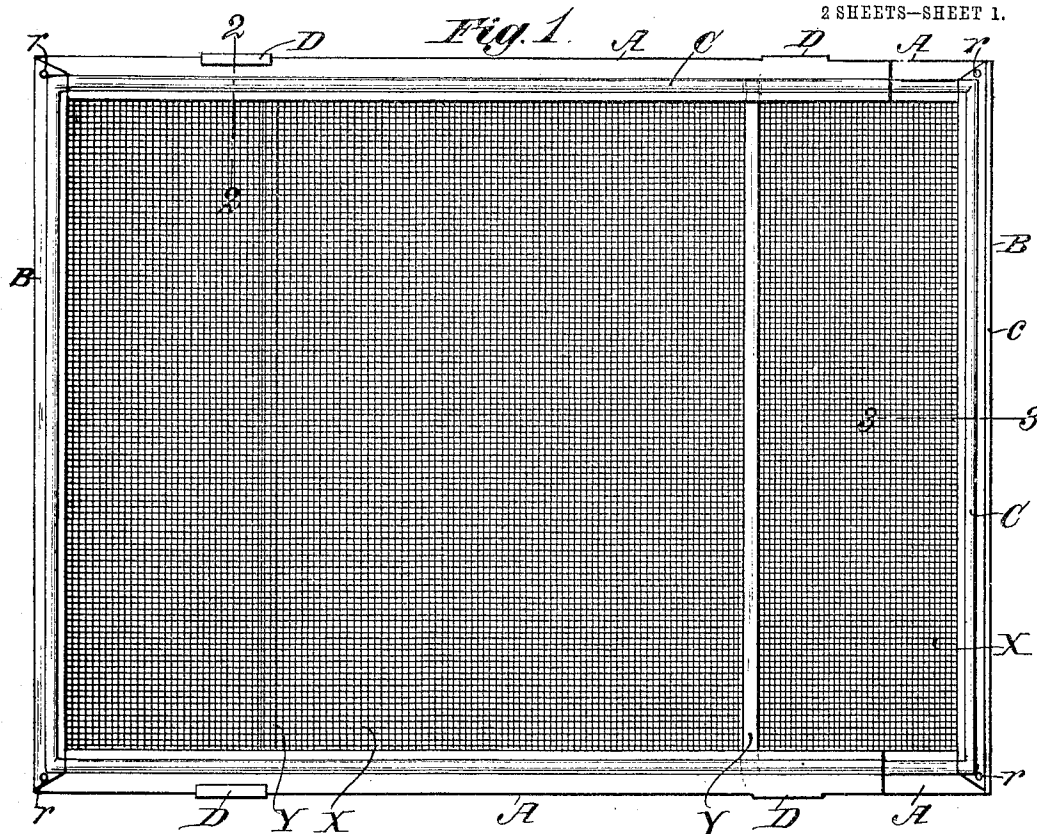
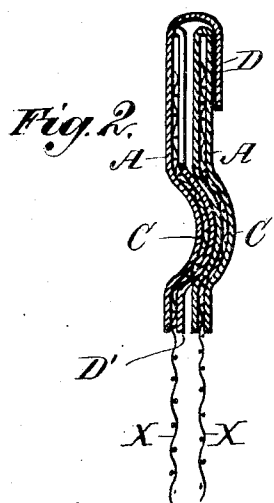
No. 882,397.

PATENTED MAR. 17, 1908.

T. LIMOGÉ.
METALLIC EXTENSION SCREEN.

APPLICATION FILED DEC. 19, 1906.

2 SHEETS—SHEET 1.



Witnesses.
Robert Lovett.
H. Lee Helms

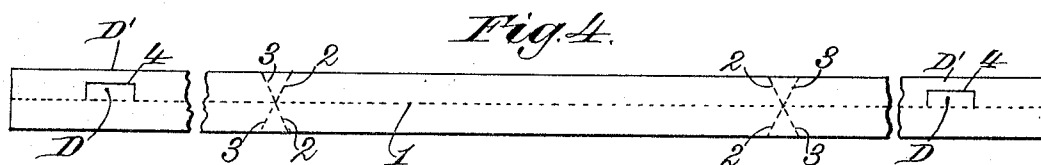
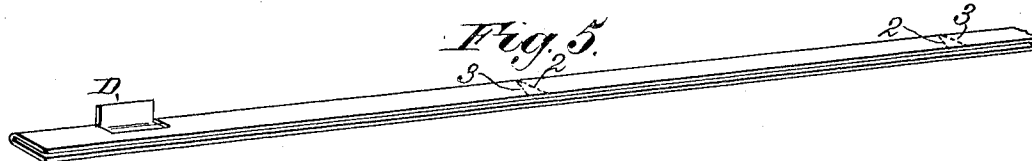
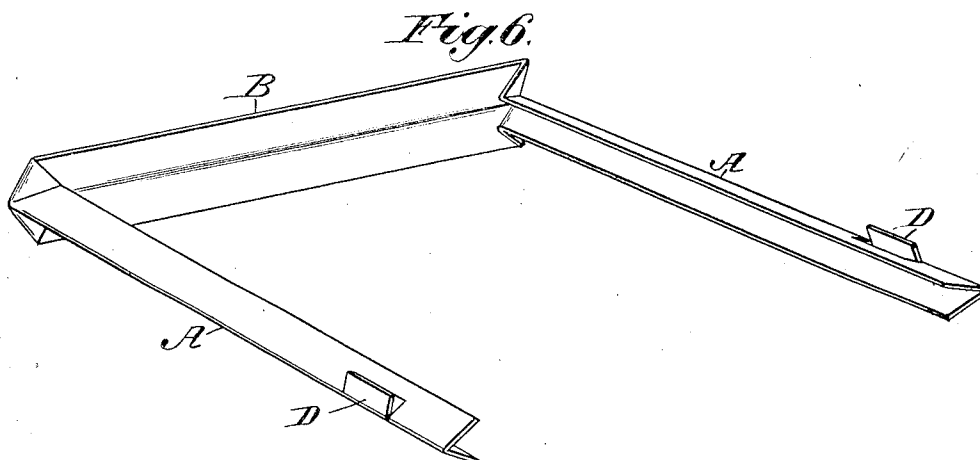
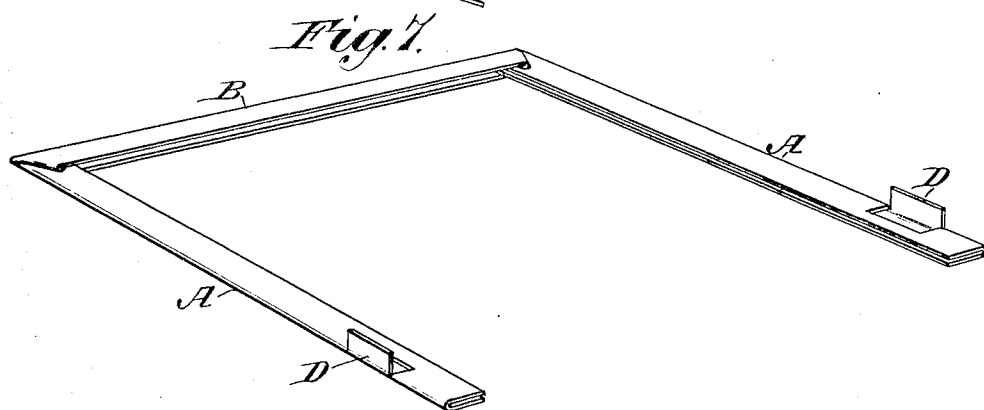
Inventor.
Tellesphore Limoge.
By Maxwell Dale
Per. Atty.

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2 SHEETS—SHEET 2.



Witnesses.
Robert Corbett.
H. Lee Helms

Inventor:
Tellesphore Limogé.
By *Marshall Bailey*
his Atty.

UNITED STATES PATENT OFFICE.

TELESPHORE LIMOGÉ, OF BURLINGTON, VERMONT. ASSIGNOR TO PORTER SCREEN MANUFACTURING COMPANY, OF BURLINGTON, VERMONT.

METALLIC EXTENSION-SCREEN.

No. 882,897.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed December 19, 1906. Serial No. 344,571.

To all whom it may concern:

Be it known that I, TELESPHORE LIMOGÉ, of the city of Burlington, in the county of Chittenden and State of Vermont, have invented certain new and useful improvements in Metallic Extension-Screens, of which the following is a specification.

These improvements relate to extension screens in which the frames are made of sheet metal; and they have to do more particularly with the means for holding the screen sections together and permitting their sliding movement upon one another, and with the construction of the screen frames themselves.

The improvement will first be described in connection with the drawings accompanying and forming part of the specification and will then be more particularly pointed out in the claims.

In the drawings—Figure 1 is a view of an extension screen embodying my improvements in their preferred form. Fig. 2 is a cross section of the same, on line 2—2 Fig. 1, through the retaining clips on the inner ends of the top and bottom bars of one frame section which are folded over and embrace the top and bottom bars of the other frame section. Fig. 3 is a horizontal section through one of the end frame bars on line 3—3, Fig. 1. The remaining figures represent the preferred construction of the frame—the top, bottom and outer end bars of each frame section being made in one piece from a solid piece of sheet metal. Fig. 4 is a plan of the blank with the lines of fold dotted thereon. Fig. 5 is a plan of the blank folded longitudinally along its central line, with the tongues which afterwards constitute the clips projecting from its folded edge. Fig. 6 is a view of the blank partly folded and opened, so as to disclose the lines of fold and more particularly the manner in which the folds at the two corners are laid. Fig. 7 is a view of the blank completely folded down flat.

Each screen section has a frame consisting, as usual, of top and bottom bars A A and an end bar B. These bars are made of sheet metal folded upon itself. The wire screen cloth X and inner "center iron" Y, are inserted between the folds of these bars and are there held in place by suitable instrumentalities. I prefer to thus hold the screen cloth and center iron by longitudinally corrugating the bars A A and B between the folds of which

the wire cloth and "center iron" are inserted. In assembling the parts of each section, the frame bars A A, B, of folded sheet metal are put together to form a three sided frame, the wire screen cloth X with its inner center iron Y, are inserted between the folds of the bars from the open end of the frame, and are then pushed back into place, the three unbound edges of the wire screen cloth being seated in and between the folds of the frame bars, while the ends of the "center iron" which binds its fourth edge are received between the folds of the top and bottom bars. The frame thus assembled is then put into a press, by which the three bars of the frame have formed in them a practically continuous lateral corrugation C, parallel with and located between the inner and outer edges of the bars, and protruding laterally from one face of the same.

Each frame section is the counterpart of the other in size and structural characteristics.

The corrugation shown at C protrudes laterally from the face, and extends lengthwise of the bars and parallel with the edges thereof, and, on the top and bottom bars, it serves not only to hold the wire cloth etc., but also to guide the screen sections in their sliding movement, and to render that movement easy and uniform. To this end on the meeting faces of the top and bottom bars of the two sections, the corrugations C register, and are so arranged that the convex face of the corrugation on the one bar will fit into the concave face of the corrugation on the other bar, as indicated in Fig. 1 and in the sectional view, Fig. 2. I thus obtain what is virtually a lateral tongue and groove connection between the meeting side faces of the top and bottom bars of the two screen sections, the sections being thus held in engagement by clips D which may be formed and applied to their screen sections in any suitable way. I prefer however to form them integral with the frame, as indicated in Figs. 1 and 2, and as more fully explained hereafter, by punching out from the inner fold of the top and bottom bars, tongues or strips, which are afterwards bent over and down upon the top and bottom bars of the opposite screen section. These clip tongues are punched out, not for the entire width of the folded strip, but only for a portion of that width, leaving the outer edge of the fold from which it is punched in-

tact, as indicated at D' Fig. 2. In this construction the principal function of the clips is to hold together the side faces of the top and bottom frame bars of the screen sections against lateral separation. So long as they are thus held together, the tongue and groove connection between them due to the engagement of the laterally protruding corrugations C on the otherwise flat-folded top and bottom bars, will insure the even and easy sliding movement of the screen sections on one another.

The form and arrangement of the corrugations C permit them to be formed at one operation by pressure in a die press after the parts of the frame have been completely assembled, this being due to the fact that they laterally protrude from one face of the otherwise flat-folded frame bars between and parallel with the inner and outer edges of the same. In this construction when the frame sections are fitted together they are put together face-wise, their top and bottom bars lying side by side, and consequently some retaining devices, such as the clips above referred to, are indispensable to hold them together and prevent their lateral separation. This construction of frame sections permits of the expeditious, economical and efficient manufacture and assembling of the parts of the screen. The unbound edges of the wire cloth and the ends of the center iron which binds its inner vertical edge are, without other fastening, securely locked in place by and during the action of the press which at one operation closes the folds of the bars tightly upon them, flattens and consolidates the three frame bars, and forms therein the corrugations C which serve as the lock to hold the wire cloth as well as the center iron Y which forms the fourth side of the frame. All that remains after this is to fit together the two frame sections and properly bend over their clips D.

I prefer to form the end and top and bottom bars of each frame section integral of one continuous strip of sheet metal, the folds of which are so laid as to permit the subsequent ready insertion of the cloth and "center iron" which binds its exposed edge. To secure this result I proceed as follows: I take a short strip of sheet metal—preferably sheet steel—of a width to provide, when folded on itself longitudinally, a strip of the width desired for the frame bars, and long enough to provide, when folded or bent transversely, an end bar and top and bottom bars of the length desired for the frame bars. Such a sheet metal strip is shown in Fig. 4.

The central longitudinal line of fold is indicated by the dotted line 1. The two sets of diagonal lines 2, 2, 3, 3, indicate the lines of fold at the two corners. At each corner, the longitudinal lines 2, 2, are on opposite sides of the central line 1 and meet at a point on that line, forming with one another an obtuse

angle. Similarly the diagonal lines are on opposite sides of the central line 1 and form with one another an obtuse angle the apex of which meets in line 1 the apex of the angle formed by the two lines 2, 2—the four lines 2, 2, 3, 3, thus meeting at a common point in the line 1, which point defines the outer end of the corner in the folded frame. The bend along the angular line of fold 2, 2, is inward in a direction opposite to that along the angular line of fold 3, 3, which is outward.

In Fig. 5 the strip is shown longitudinally folded along the center line 1—this being to show the tongues D (forming the clips hereinbefore referred to) which tongues are punched out from the sheet metal on one side of the central line 1, at or near each end of the strip along line 4 (Fig. 4), and are then bent up, as shown. The cuts 4, 4 do not extend to the outer edge of the strip, thus leaving intact the outer portion D' hereinbefore referred to.

In Fig. 6, the blank is represented as partly folded and bent, in order to show more clearly how the folds are made and laid. The ends of the top and bottom bars A lie between the folds of the end bar B; and the triangular pieces at each corner included on each side of the center line 1, between the lines 2, 3, are laid between the outer faces of the top and bottom bars A and the interior opposite faces of the folds of the end bar B, as clearly indicated in the figure. The thus-folded strip, pressed down and flattened, is shown in Fig. 6.

To complete the screen section, the wire cloth (with its "center iron" binding) is inserted between the folds of the screen bars from the open end of the frame and is pushed back into place. It will be noted that the folds have been so laid in the frame, that there is no interior opposed edge to meet and obstruct the passage of the edges of the screen cloth and ends of the "center iron" to their proper position between the folds of the screen.

After the wire cloth and "center iron" have been inserted into their place, the screen frame is placed in a press by which its top and bottom bars and end bar are corrugated as already described, these corrugations serving the several purposes hereinbefore mentioned. The screen sections are then put together and the clip tongues D are bent over to hold the two together.

If desired, rivets may be employed at the corners, as indicated at r to hold the folds together more closely at these points. So also the end bars B of the screen sections, may be bent along their outer edges at right angles to the body of the bar, as indicated at c, Fig. 1, to give the screen wider end bearings, as well as to stiffen the bars. These flange-like edges c are folded back in such direction that each will stand in the

path of movement of the top and bottom frame bars of the other section, and will thus form a stop against further inward movement after the screen has been closed to a predetermined extent. Without some such stop, the screen sections might continue their movement in this direction until finally they would draw apart. The clips D constitute stops for limiting the outward or extension movement of the screen sections. Both of these parts, C and D, are integral with the sheet metal frame bars with which they are associated.

I am aware that it has before been proposed to form a window screen or screen section of a piece of wire cloth surrounded by a frame composed of a single continuous folded sheet metal strip which extends around all four sides of the wire cloth and receives the edges or margins of the latter between its folds, and this I do not claim.

What I do claim and desire to secure by Letters Patent is as follows:

1. In a metallic extension screen, three sided frame sections each made from one continuous strip of metal longitudinally folded upon itself and then bent and folded transversely of its length to form the end bar B and top and bottom bars A A, wire

cloth X and its inner center iron Y inserted and held between the folds of the frame bars of each section, longitudinal corrugations C in the frame bars which secure the wire cloth and its center iron in place between the compressed folds of the frame bars and serve also as a lateral tongue and groove connection between the overlapping side faces of the top and bottom bars of the frame sections, and clips D for holding together the frame sections against lateral separation.

2. In a metallic extension screen composed of sections sliding on one another, top and bottom section frame bars of folded sheet metal, and retaining clips integral with the bars on which they are located, the clip being formed from a tongue or strip of metal cut from the inner fold of the bar, and extending from the folded edge of the bar part way only to the other edge, so as to leave the last named edge intact, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

TELESOPHORE LIMOGES.

Witnesses:

JAMES O. WALKER,

FRANK E. ROBINSON.