

H. F. BITTLINGER & J. J. ENNIS.

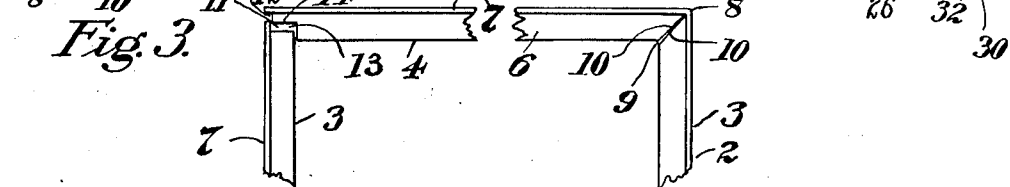
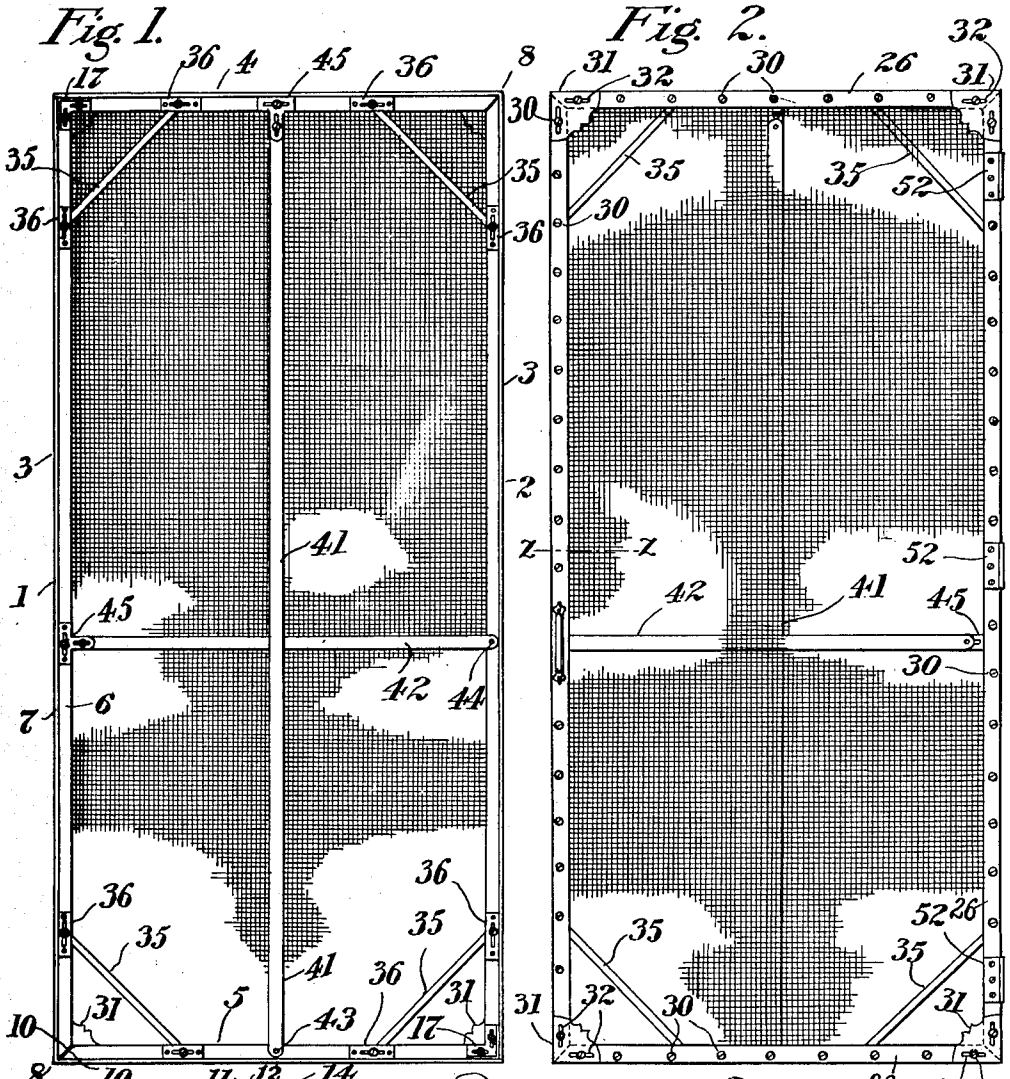
WIRE SCREEN.

APPLICATION FILED JUNE 12, 1908.

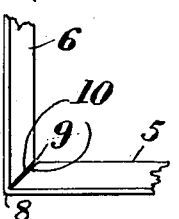
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Patented Mar. 30, 1909.

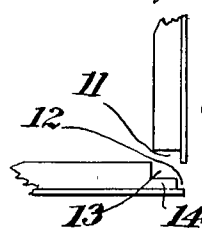
2 SHEETS—SHEET 1.



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*Walter Weinger*



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*By A. P. Verksleb,*  
*their Attorney.*



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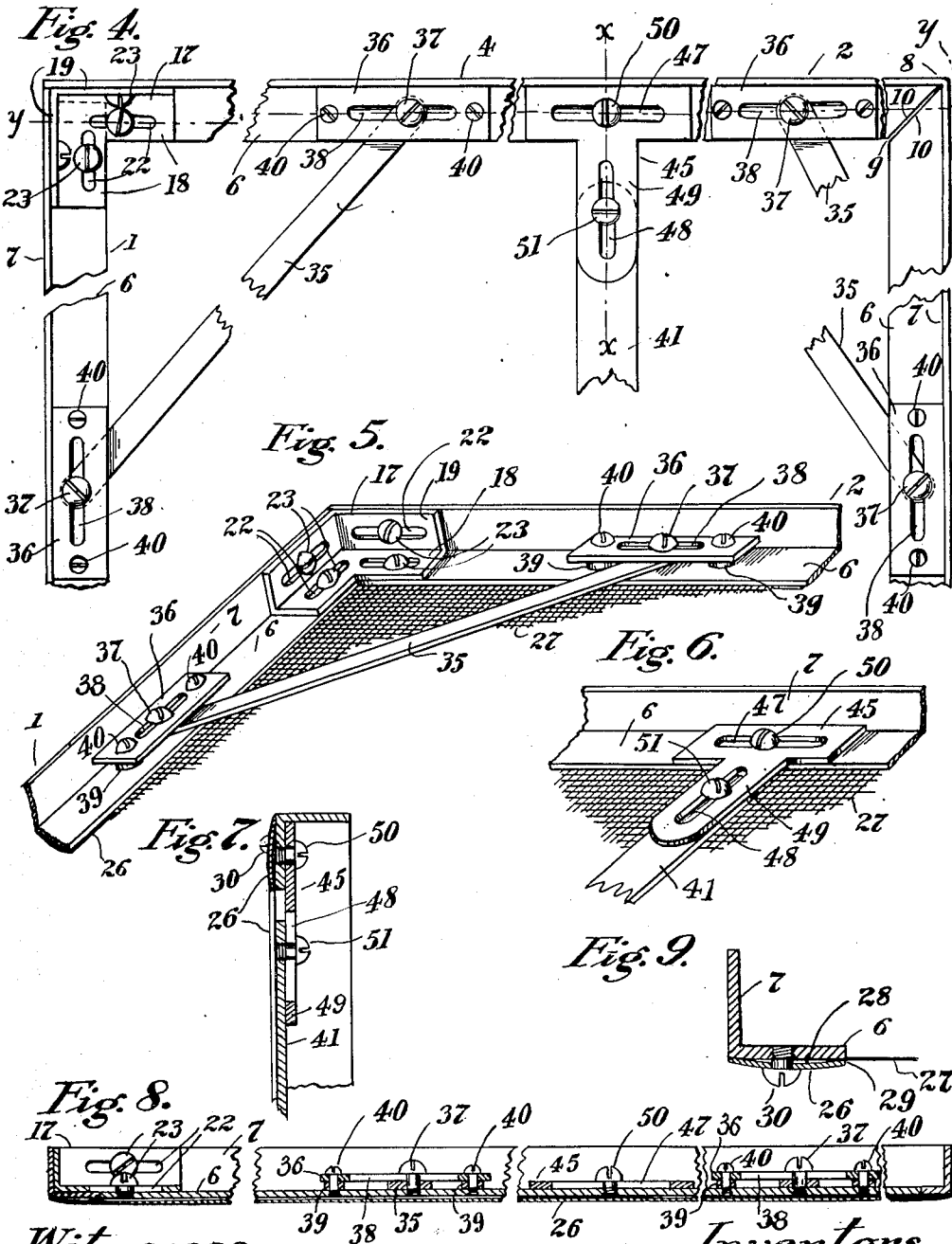
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Witnesses  
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John J. Ennis,  
By P. A. Habel, their Attorney.

# UNITED STATES PATENT OFFICE.

HARRY F. BITTLINGER AND JOHN J. ENNIS, OF COVINGTON, KENTUCKY.

## WIRE SCREEN.

No. 916,832.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed June 12, 1908. Serial No. 438,150.

*To all whom it may concern:*

Be it known that we, HARRY F. BITTLINGER and JOHN J. ENNIS, citizens of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have jointly invented certain new and useful Improvements in Wire Screens, of which the following is a specification.

Our invention relates to wire screens and is especially applicable to screen doors, although the same may also be applied to window screens. We have, however, illustrated the invention as applied to a screen door.

The invention will be readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 is a rear elevation of our improved device with the screen-cloth partly broken away for better illustration of parts. Fig. 2 is a front elevation of the same. Fig. 3 is an enlarged view in rear elevation of the corners of the main frame-sections of our improved device, the intermediate portions of the frame-sections being broken away. Fig. 4 is an enlarged view in rear elevation of the top of the screen, partly broken away, showing the connections of our improved device. Fig. 5 is a rear perspective elevation of one of the extensible corners of our improved device. Fig. 6 is a rear perspective elevation of one of the adjustable brace-rod connections of our improved device. Fig. 7 is a detail of the same in section on the line  $x-x$  of Fig. 4. Fig. 8 is a detail in section on the line  $y-y$  of Fig. 4 showing the manner of connecting the securing means to the frame-section; and, Fig. 9 is a cross-section on the line  $z-z$  of Fig. 2 showing the manner of securing the screen-cloth in place.

The main frame of the screen comprises frame-sections 1 2 which embrace stiles 3, a top rail 4, and a bottom rail 5. These frame-sections are composed of angle iron or other metal comprising the inwardly extending flanges 6 and the rearwardly extending flanges 7. Each frame-section preferably has an integral corner 8 at which the inwardly extending flanges are cut away, as shown at 9. This permits the rearwardly extending flanges to be bent for forming the corner. The adjacent diagonal end-faces 10 of the inwardly extending flanges are preferably spaced apart slightly for permitting this corner to be sprung as hereinafter described. One of the outer ends of each

frame-section is preferably provided with a recess 11 and the other outer end of each frame-section is provided with recesses 12 13, there being a tongue 14 at the recesses 12 13 for being received by the recess 11. The frame-sections are shiftable with relation to each other for permitting the length or width of the screen to be varied within limits for fitting the opening to be filled by the screen, and the manner of forming the integral corners 8 also permits the frame-sections to be bent or sprung at said corners for permitting the relative angle between the stiles and rails of the frame-sections to be changed for fitting the opening into which the screen is to be received. We provide suitable bracing and securing means connecting with the frame-sections for holding the same rigidly in adjusted positions and for hiding any gaps there may be either in the frame-sections themselves or between said sections, which we will now describe.

17 are inner corner-pieces adapted to form connections between the respective outer ends of the frame-sections. They are shown as angle pieces having inwardly extending flanges 18 and rearwardly extending flanges 19 and are provided with slots 22 through which screws 23 pass into threaded apertures in the respective frame-sections for securely holding these frame-sections together in adjusted positions. The inwardly extending flanges 18 are arranged to span and hide the spaces, if any, between the outer adjacent ends of said frame-sections.

26 are holding strips for the screen-cloth. These strips extend longitudinally of the stiles and rails of the frame-sections and are preferably slightly channeled lengthwise as shown at 28 for forming an inner contacting edge 29 on each strip between which and the frame-section the screen-cloth is adapted to be clamped, as by means of screws 30 passing through apertures in the strips and into threaded apertures in the frame-sections.

In order to hide and strengthen the joints at the corners of the screen at the front we provide outer corner-pieces 31 having slots 32 through which some of the screws 30 may pass for holding the outer corner-pieces in place. For bracing the corners and stiffening the frame we provide diagonal bars 35 secured to plates 36 fastened to the rear faces of the frame-sections, screws 37 passing through slots 38 in said plates and into

internally threaded apertures in said diagonal bars for securing the bars to said plates, the plates being distanced from the inwardly extending flanges 6 of the frame-sections by spacing-blocks 39, and the plates 36 being secured to said inwardly extending flanges by means of screws 40 passing through said plates 36 and spacing-blocks 39 and into internally threaded apertures in said inwardly extending flanges 6.

41 42 are brace-rods pivotally secured to the frame-sections at one end as shown by the screws 43 44 which pass through said brace-rods and into internally threaded apertures in said inwardly extending flanges 6. At their other ends these brace-rods are adjustably secured to the opposing frame-sections by means of adjustable securing clips 45 provided with slots 47 48 arranged at right angles to each other, the slot 48 being in an extension 49 of the clip. A screw 50 passes through slot 47 into an internally threaded aperture in the inwardly extending flange 6, and a screw 51 passes through slot 48 into an internally threaded aperture in the end of the brace-rod. If the opening which the screen is intended to fit is out of square, the main frame of the screen may be adjusted to suit the opening and the securing clips shifted upon the frame-sections by means of the slot and screw connection therewith. The brace-rod may also be adjusted to position, and, in connection with the extension 49, the effective length of the cross-brace may be adjusted. The screen-door may be hung on hinges 52.

In fitting our improved screen to an opening the securing means between the frame-sections, which, as shown and described, are preferably L-shaped in cross-section, are loosened so as to be able to shift the frame-sections to fit the opening, when said securing means are fastened. The screen-cloth is then inserted under the holding-strips 26, which latter are then screwed down upon the frame-sections, the screen-cloth being meanwhile stretched, the inner contact edges 29 of the holding strips making intimate contact with the screen-cloth for clamping the same in position. We prefer that these holding strips shall be of metal and our improved device forms a screen which is very substantial and extremely simple. It is also very durable and the screen-cloth is easily removed, repaired or replaced, and the screen is cheap in construction. The horizontally extending brace-rod is preferably placed at such height as to receive the pressure of the hand. The outer corner-pieces span the joints, shown in dotted lines in Fig. 2, between the holding strips at the corners of the screen.

Having thus fully described our invention what we claim as new and desire to secure by Letters Patent is:

1. A metallic screen comprising a pair of main frame-sections of L-form in cross-section, each of said frame-sections having an inwardly extending flange and a rearwardly extending flange, each of said frame-sections having its inwardly extending flange cut away at a point intermediate of its length and its rearwardly extending flange bent at said point for forming a corner integral therewith, the outer ends of said frame-sections being provided with mating ends, inner corner-pieces spanning said ends, and adjustable means for securing said corner-pieces to the respective ends of said frame-pieces for forming extensible corners, substantially as described.

2. A metallic screen comprising a pair of main frame-sections of L-form in cross-section, each of said frame-sections having an inwardly extending flange and a rearwardly extending flange, each of said frame-sections having its inwardly extending flange cut away at a point intermediate of its length and its rearwardly extending flange bent at said point for forming a corner integral therewith, the outer ends of said frame-sections being provided with mating ends, inner corner-pieces spanning said ends, and adjustable means for securing said corner-pieces to the respective ends of said frame-pieces for forming extensible corners, said inner corner-pieces having inwardly extending flanges spanning and hiding the joints between said frame-sections at said extensible corners, substantially as described.

3. A metallic screen of the character described comprising a pair of main frame-sections respectively provided with yieldable corners and respectively having mating outer ends, corner-pieces, means for adjustably securing said corner-pieces to said outer ends for adjusting said screen to length or width, diagonal bars at said corners, securing plates for said diagonal bars spaced from said main frame-sections, means for securing said plates to said main frame-sections, said plates provided with slots, and screws passing through said slots and threaded into said diagonal bars for adjustably bracing said screen at the corners thereof, substantially as described.

4. A metallic screen of the character described comprising a pair of main frame-sections respectively provided with yieldable corners and respectively having mating outer ends, corner-pieces, means for adjustably securing said corner-pieces to said outer ends for adjusting said screen to length or width, diagonal bars at said corners, securing plates for said diagonal bars spaced from said main frame-sections, means for securing said plates to said main frame-sections, said plates provided with slots, and screws passing through said slots and threaded into said diagonal bars for adjust-

ably bracing said screen at the corners thereof, the ends of said diagonal strips being received between said plates and said frame-sections, substantially as described.

5 5. A metallic screen comprising a frame which comprises stiles and rails which are L-shaped in cross-section, corner-pieces, means for adjustably securing said corner-pieces to said stiles and rails for adjusting  
10 the size of said frame, a brace-rod, a securing-clip therefor having slots at substantially right angles to each other, means passing through one of said slots for secur-

ing said clip to said frame, and means passing through the other of said slots for 15 securing said brace-rod to said clip, substantially as described.

In testimony whereof, we have subscribed our names hereto in the presence of two subscribing witnesses.

HARRY F. BITTLINGER.  
JOHN J. ENNIS.

Witnesses:

O. S. BRYANT,  
ADELE MEININGER.