

No. 891,604.

PATENTED JUNE 23, 1908.

J. H. DIAMOND.

JOINT FOR WINDOW AND DOOR SCREENS, &c.

APPLICATION FILED JULY 13, 1907.

2 SHEETS—SHEET 1.

Fig. 2.

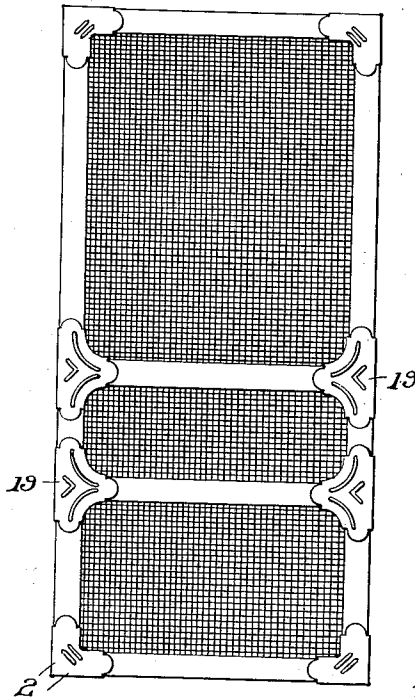


Fig. 1.

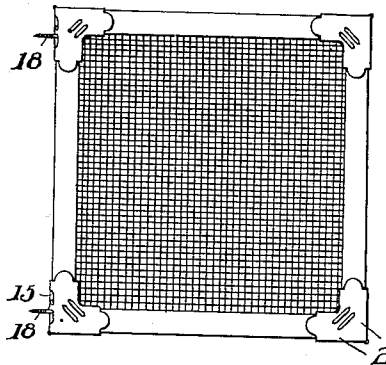


Fig. 3.

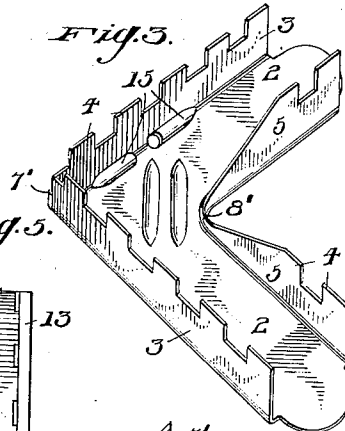


Fig. 4.

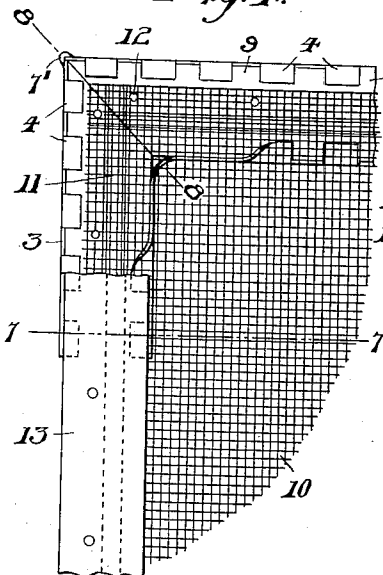


Fig. 5.

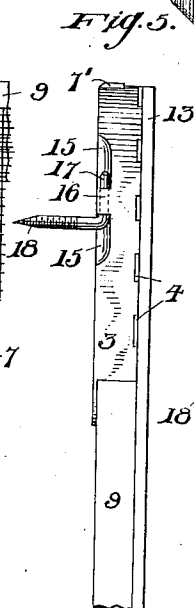
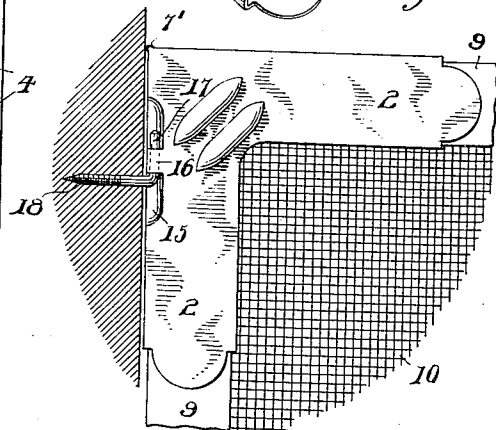


Fig. 6.



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2 SHEETS—SHEET 2.

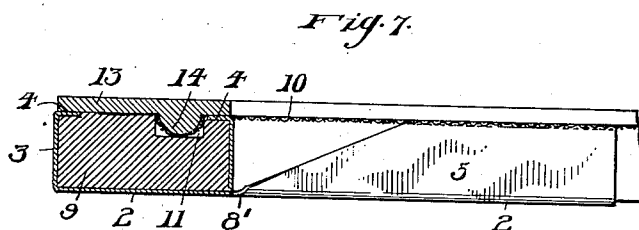
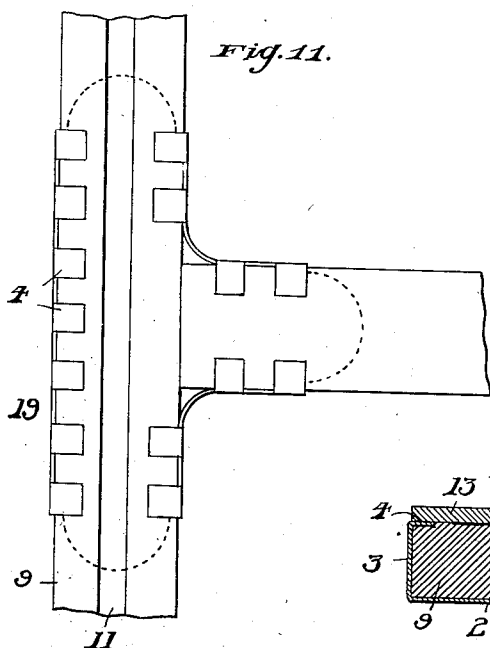


Fig. 9.

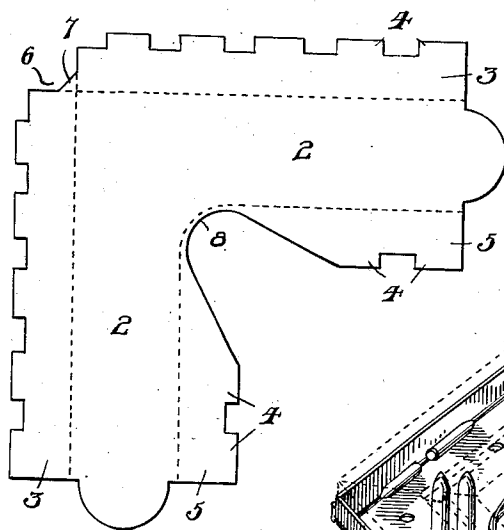
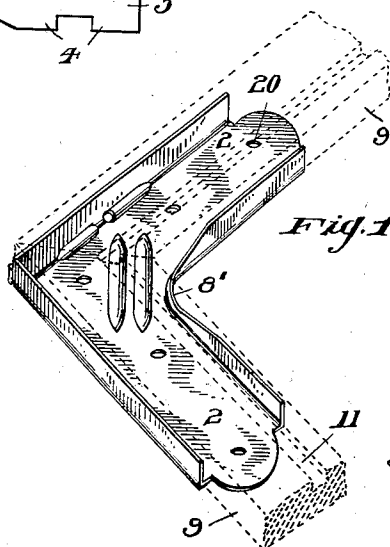
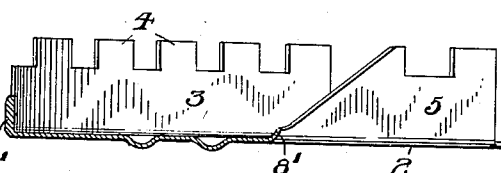


Fig. 8.



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UNITED STATES PATENT OFFICE.

JAMES H. DIAMOND, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO THE DIAMOND
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JOINT FOR WINDOW AND DOOR SCREENS,

No. 891,604.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed July 13, 1907. Serial No. 383,648.

To all whom it may concern:

Be it known that I, JAMES H. DIAMOND, a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Joints for Window and Door Screens, &c., of which the following is a specification.

This invention relates to metallic joints or corner members which, while designed primarily for window and door screens, are adapted for use in the construction of frames of various kinds, or wherever such devices may be utilized.

It is well known that screen and similar frames are weakest at their corners or at the joints of the frame-forming strips, and one purpose of this invention is to provide joints possessing maximum strength at the miter or joint line.

A further purpose is to so construct the joint members that the frame strips may be secured thereto without the use of screws or nails.

Still a further purpose is to provide the joint with an improved hinge formation, whereby frames constructed with the joint may be conveniently mounted.

In the accompanying drawings, Figure 1 is a front view of a window screen having the improvement applied thereto, and Fig. 2 is a similar view of a door screen. Fig. 3 is a perspective view of one of the corner joints before the frame-forming strips are applied thereto. Fig. 4 is the rear elevation of the same with the strips applied. Fig. 5 is an edge view illustrating the improved hinge, and Fig. 6 is a front view of the same. Fig. 7 is a cross sectional view, enlarged, taken on line 7—7 of Fig. 4, and Fig. 8 is a similar view taken on the miter line 8—8 of Fig. 4. Fig. 9 is an outline of the blank from which one of the corner joints is pressed. Fig. 10 is a perspective view of a joint of modified form. Fig. 11 is a view of one of the T-joints used for the intermediate rails of a door.

The joints are pressed from blanks of sheet metal of suitable gage, the blank for one of the corner joints being illustrated in Fig. 9. These corner joints consist each of the angularly arranged branches 2, having their outer edges flanged upward at 3, with the edges of the flanges indented to form tongues 4, while similar tongues are formed on the edges of the upturned flanges 5 at the inner

edges of branches 2. In order that flanges 3 may be turned in the die, part of the metal between the adjacent ends thereof is removed, as indicated at 6, Fig. 9, the metal at the inner angle at said joint (in line with the miter line 8—8) remaining as indicated at 7, so that when the blank is pressed into form the metal 7 forms the strengthening bulge 7' on the outer corner of the joint.

The inside flanges 5 are cut inward toward miter line 8—8, and instead of forming an angle at their juncture, a curved cut 8 is made which connects and makes continuous the flanges 5, and owing to this curved formation when the joint 5 is pressed into shape, the curved portion 8 is flanged or turned upward as indicated at 8', thus forming a flange which crosses the miter line, and which adds materially to the strength of the joint. This formation, at the inner corner of the joint, together with bulge 7' at the outer corner, makes the joint very rigid at the point where it is subjected to the greatest strength.

After the joint has been pressed into shape, it is only necessary to insert the frame-forming strips 9 into branches 2, and then bend tongues 4 thereover, thereby securely holding the strips without the use of either screws or nails. The wire netting 10 may be secured to the frame in any desired manner. The means here shown, and that which I prefer, is to groove strips 9 on their rear faces, as indicated at 11, and then stretch the wire thereover and secure it with occasional tacks 12. Then with a screw driver or other suitable tool the wire is pressed downward into the grooves 11, which operation serves also to stretch it, and then the top and finishing strips 13 are nailed to strips 9, strips 13 being formed with beads 14 complementary with grooves 11, thereby securely holding the wire.

The two joints on the same side of a frame are preferably constructed for hinging to a window frame or other structure. To this end, the outer face of the joint is pressed with two vertically separated indentations 15, with the metal 16 between the indentations open at the rear from one indentation to the other to receive pintle-forming branch 17 of an ordinary L-screw 18 projecting from the window frame, thus completing a simple and effective hinge upon which the screen may be swung for opening and closing the same as desired. The hinge-forming bulges

of the joint are preferably arranged in the angle or corner thereof so that the screen may swing as far as possible. It will be noted that in thus constructing the joint it has no parts which project beyond the outer lines of the joint. For window screen use it is only necessary to construct two of each set of four joints with the hinge feature.

The T-joints 19, illustrated in Figs. 2 and 11, are adapted for securing the intermediate cross rails of screen doors. They are fastened to the strips forming the door frame in the same way as the corner strips above described, and they also embody the strengthened inner-angle feature above set forth.

I claim:—

1. An angular pressed metal joint having a turned edge forming an integrally continuous flange along both branches of the joint which crosses the miter line thereof:

2. A pressed metal joint having angularly arranged branches, an edge of the joint being cut away at a point intersecting the miter line of the branches, said edge turned on a line inwardly from the cut-away portion to form an integrally continuous flange which crosses the miter line.

3. A pressed metal joint having angularly arranged branches, the metal of the blank from which the joint is formed being cut away at a point intersecting the miter line and the edges of the blank turned on an angular line located inwardly from the cut-away portion to provide the joint with an edge flange, the angle of the line of turning being coincident with the miter line of the joint, thereby forming a flange corner which is cut or severed for a portion of its depth with the metal beneath the cut forming an integral part of the flange.

4. A corner joint for screen frames, etc., consisting of a plate of sheet metal having integral right angle branches, the inner and outer edges of the branches bent in the same direction to form flanges for embracing the inner and outer edges of the screen frame, the flanges of the inner edges being integrally continuous across the miter line.

5. A corner joint for screen frames, etc., consisting of a plate of ductile sheet metal having integral right-angle branches, the inner edges of the branches being bent at right angles to the plane of the plate to form a continuous integral flange which crosses the miter line of the branches, the flange being narrowest and rounded at and adjacent the miter line of the branches and widened out from said point along each of the branches.

6. A corner joint for screen frames, etc., consisting of a plate of ductile metal having right angle branches, the inner and outer

edges of the branches being bent in the same direction at right angles to the plane of the plate to form flanges for embracing opposite faces of the screen frame, the outer flanges being interrupted at the miter line of the branches, and the inner flanges continued integrally from one branch to the other and extending across the miter line.

7. A joint having angularly arranged holding branches, the joint being flanged on its inner and outer edges, the inner edge flange being continued integrally from one branch to another and extending across the miter line of the joint.

8. A joint having angularly arranged holding branches, the outer edge of the branches being bent to form flanges, and the inner edges thereof bent on a continuous line to form an integrally continuous flange which crosses the miter line of said branches.

9. A joint having angularly arranged holding branches, the outer edge of the joint being cut away at a point intersecting the miter line of the joint and the outer edges of the branches bent to form flanges, the inner edges of the intersecting branches being turned to form an integrally continuous flange for both branches—said flange crossing the miter line of the joint.

10. A pressed metal joint having angularly arranged holding branches, the inner angle of the metal being curved at a point intersecting the miter line of the joint, whereby when the inner edges of the branches are turned to form flanges the curved edge intersecting the miter line is also turned to form a reinforcing flange at said joint.

11. A pressed metal joint having angularly arranged holding branches, part of the metal of the joint being cut away at the outer end of the miter line with the remainder of the metal at said point forming a reinforcement when the outer edges of the branches are bent to form flanges, the inner edge of the joint being curved at the miter line, whereby when the inner edges are bent said curved portion is also bent and forms a flange which traverses the inner end of the miter line.

12. A joint member formed of ductile metal and constructed with angularly arranged holding branches, the edges of the branches being flanged and indented to form separate tongue-like projections which are adapted to be bent over the strips placed in the branches and confine the same.

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

JAMES H. DIAMOND.

Witnesses:

J. M. NESBIT,

JNO. J. FITZGERALD.