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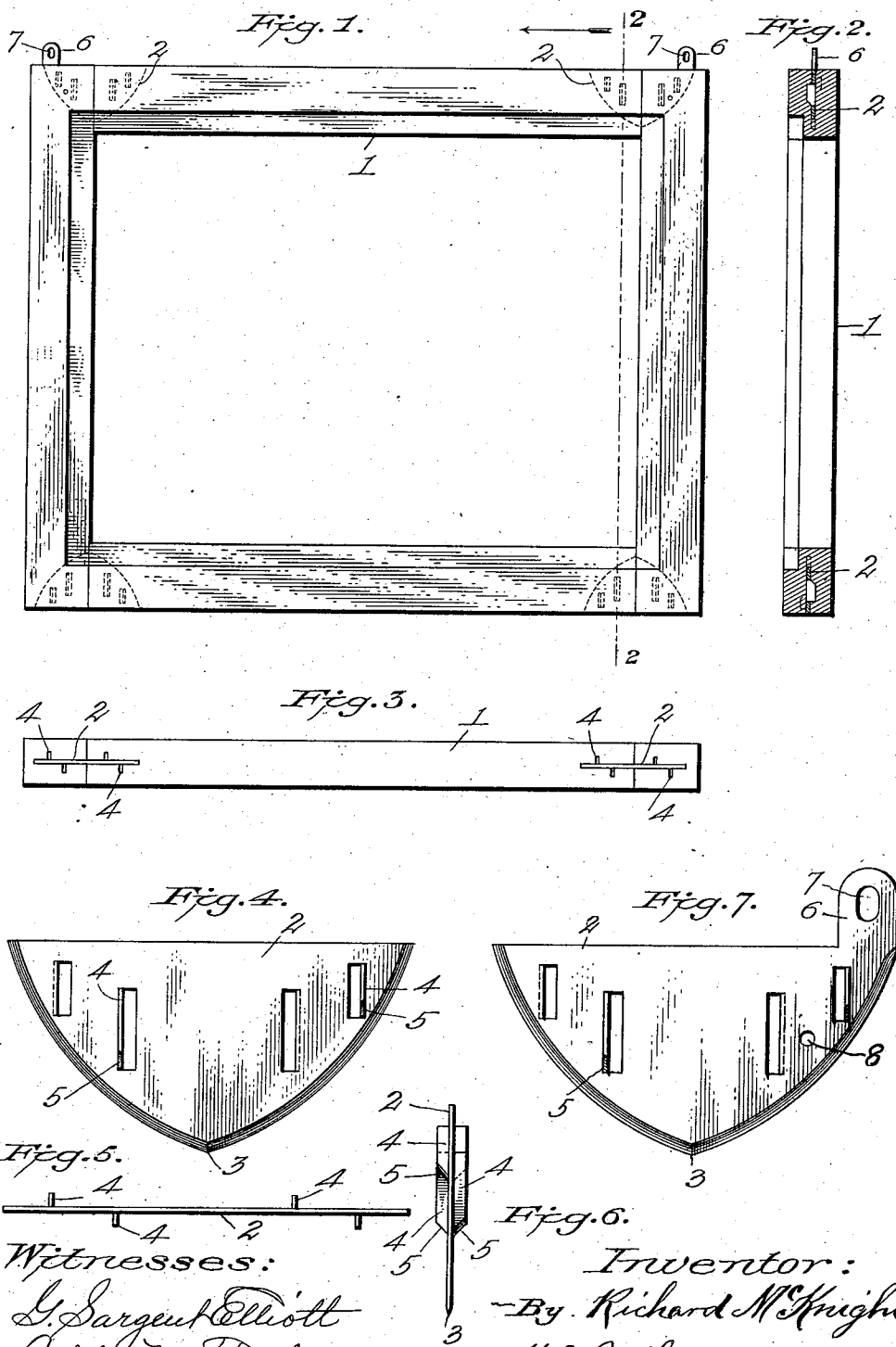
R. McKNIGHT.

METALLIC DOWEL PLATE FOR USE IN THE PRODUCTION OF SCREEN FRAMES, &c.

APPLICATION FILED OCT. 9, 1911.

1,028,761.

Patented June 4, 1912.



Witnesses:

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UNITED STATES PATENT OFFICE.

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METALLIC DOWEL-PLATE FOR USE IN THE PRODUCTION OF SCREEN-FRAMES, &c.

1,028,761.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed October 9, 1911. Serial No. 653,550.

To all whom it may concern:

Be it known that I, RICHARD McKNIGHT, a citizen of the United States of America, residing in the city and county of Denver and State of Colorado, have invented a new and useful Metallic Dowel-Plate for Use in the Production of Screen-Frames, &c., of which the following is a specification.

This invention relates to improvements in metallic dowel plates for connecting the parts of screen and window frames, doors, etc.

The objects of the invention are, to provide a dowel plate for use in the production of frames of various kinds, by which the parts of the frame are securely held together without the use of glue or other fastening means. Further, to provide a substantially V-shaped metal dowel plate adapted to be driven into the abutting ends of the frame pieces, so as to connect them, the plate being formed with right angled blades or tongues which enter the frame pieces and prevent them from becoming separated, and are so arranged that when driven into cross-grained wood they enter the wood with a shearing cut. These objects are accomplished by the device illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a frame, the parts of which are connected by the improved form of dowel shown in dotted lines, Fig. 2 is a vertical, sectional view thereof, on the line 2—2 of Fig. 1, Fig. 3 is an edge view of the frame showing an edge view of the dowel plate and the fingers thereon, which prevent the parts of the frame from becoming separated, Fig. 4 is a front view—full size—of the improved dowel plate, Figs. 5 and 6 are respectively, top edge and side edge views of the same, and Fig. 7 is a front view of a dowel similar to that shown in the previous views, but provided at one corner with an apertured extension or ear by which the dowel may also form a hanger when used in connection with the upper corners of screen frames.

Referring to the accompanying drawings, 1 indicates a frame, which in the present instance, is an ordinary screen frame, and 2 indicates the dowel plates which connect the abutting ends of the frame pieces. These dowels comprise substantially flat triangular plates of any suitable metal, preferably steel or galvanized iron, two edges of which

are slightly rounded or outwardly curved to an apex point, while the remaining, or top edge, is straight.

The apex point 3, formed by the convergence of the two curved edges of the dowel, is the entering point, and in practice the ends of the frame strips are slotted to receive the said dowels; the slot formed by two abutting ends conforms in outline to the curved outline of the dowel. The manner of forming these slots is in no way connected with the present invention and further reference thereto is unnecessary.

The dowels are formed with laterally projecting fingers 4 which project from their opposite faces in alternate order; two of said fingers being on one side of the vertical center of the plate, while the other two are positioned on the other side of the vertical center. The fingers are each formed by cutting from the plate, in any suitable manner, vertically disposed tongues which are still united to the plate along one of their sides, and the metal thus secured is bent out at right angles to the plate along the line of its connection with the plate.

Owing to the fact that the plates are narrowest at their upper corners, the two outer fingers are of less length than the two inner fingers and the inner fingers are approximately the same distance from the center of the plate as the fingers on one side of the center of the plate are distant from each other. This arrangement positions the inner fingers a sufficient distance from the abutting ends of the frame pieces to prevent splitting off of the material between the said fingers and the ends of the frame pieces when the dowels are driven in, as will be understood by reference to Fig. 3.

The lower edges of the fingers are cut off to stand at an upward and outward angle from the face of the plate to the outer edge of the plate, and the sides of these edges are beveled, as shown at 5, Fig. 6, and these edges are also sharpened. By forming these edges thus, they will cut their way into the wood, especially against the cross-grain of the wood, as the dowels are driven in with a shearing cut, without tearing the wood or mashing it down beneath the edges, as would be the case if the edges were both straight and blunt.

When these dowels are used in the production of screen frames, those at the two

upper corners of the frame are preferably formed with extended tongues or ears 6, having apertures 7, whereby the frame may be supported in a swinging position, and an aperture 8 is formed in the plate, as shown, to receive a retaining screw or nail which is passed through the frame.

In producing the frames, the ends of the strips or pieces of which they are formed, are first slotted, as above mentioned, and an end piece and two side pieces are placed in the relative positions shown in Fig. 1, and securely held together by a suitable clamp, the slots in the abutting ends registering and forming a slot having the curved outline of the dowel. The dowel is then driven into the slot and the fingers 4 enter the wood and securely hold the adjoining pieces from becoming disconnected.

The curved edges of the dowel may be sharpened, as illustrated, though this feature is immaterial.

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

1. A dowel, comprising a metal plate having one straight edge and two outwardly curved edges which meet at a point, and fingers projecting from opposite sides of the

plate in alternate order, which are formed by cutting vertically disposed tongues from said plate and bending the same at right angles to the plate, the lower edges of said fingers being inclined and sharpened, said plate being provided with a screw receiving aperture between two of said tongues.

2. A dowel, comprising a substantially triangular shaped metal plate having a straight upper edge and its opposite side curved downwardly from said straight upper edge and converging equally to an apex point at the center of the width of the plate, said plate being provided with a plurality of right angled tongue portions stamped out of and turned outwardly from the opposite sides of the plate, said tongues having their lower ends upwardly and outwardly inclined from the face of the plate to their outer edges, said inclined edge being also beveled along its side to form a wood shearing and cutting edge.

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

RICHARD McKNIGHT.

Witnesses:

GERTRUDE E. DOWNTON,
ELIZABETH V. DUNCAN.