

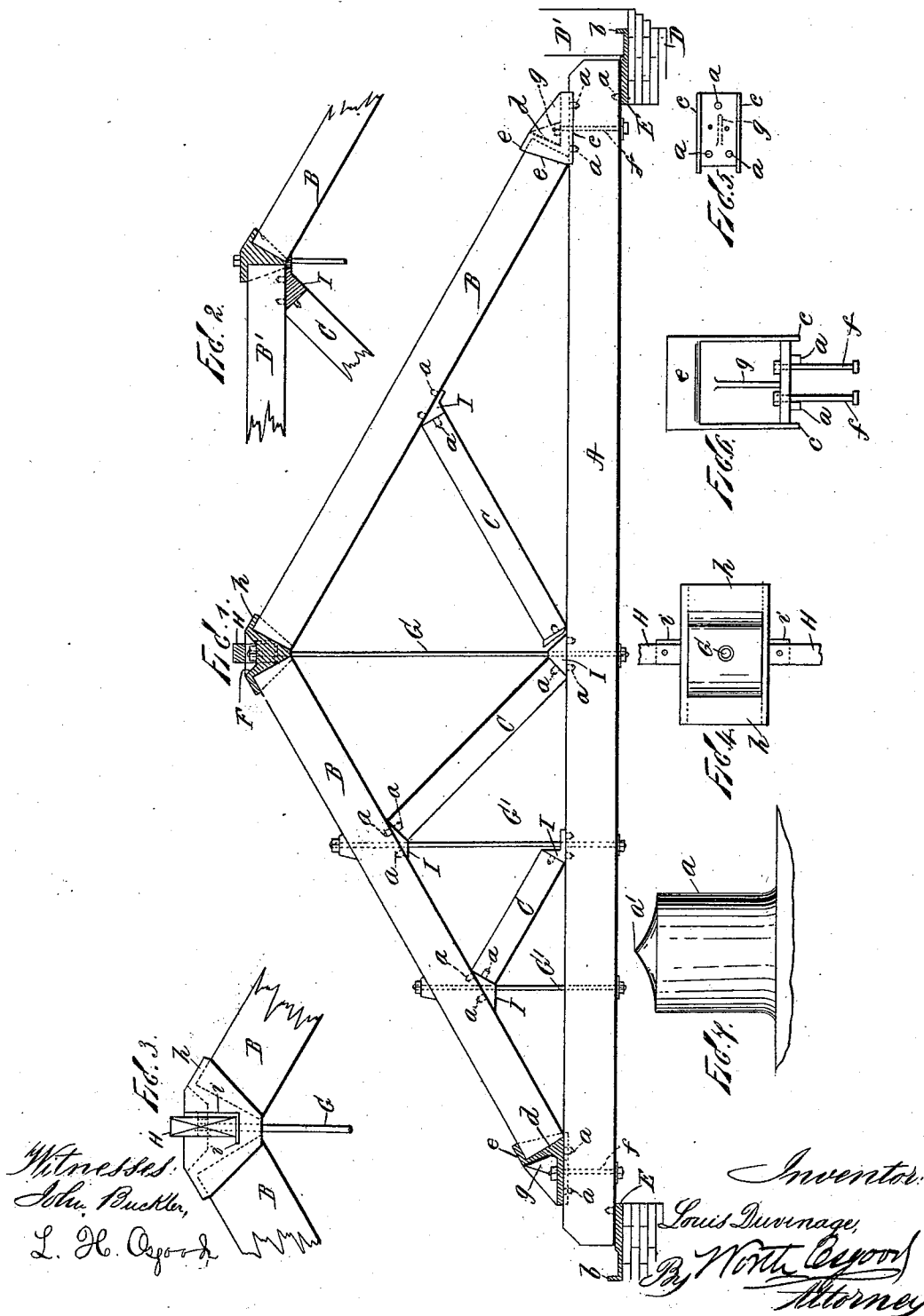
(No Model.)

L. DUVINAGE.

METALLIC BLOCK FOR ROOF OR OTHER TRUSSES.

No. 553,903.

Patented Feb. 4, 1896.



UNITED STATES PATENT OFFICE.

LOUIS DUVINAGE, OF BROOKLYN, NEW YORK.

METALLIC BLOCK FOR ROOF OR OTHER TRUSSES.

SPECIFICATION forming part of Letters Patent No. 553,903, dated February 4, 1896.

Application filed March 19, 1894. Serial No. 504,318. (No model.)

To all whom it may concern:

Be it known that I, LOUIS DUVINAGE, of Brooklyn, Kings county, in the State of New York, have invented certain new and useful Improvements in Truss-Plates for Roofs or Analogous Structures, of which the following is a specification.

My invention relates to means for mounting and securing the ends of timbers and the adjacent parts of trusses for roofs, bridges, &c. I provide simple and easily-applicable castings adapted to receive and hold the ends of the timbers at the required inclinations and at the proper points, the timbers to be cut square across the ends.

The following is a description of what I consider the best means of carrying out the invention.

In the drawings, Figure 1 is a view representing a roof-truss of which the pattern on the right includes but one strut and that on the left two struts, all the parts being mounted after the manner of my invention, some of the blocks being shown in section and some in elevation. Fig. 2 is a view of a portion of a different form of truss, the blocks being shown in section and applied after the same manner as in Fig. 1. Fig. 3 is a side elevation of the king-head shown in Fig. 1, but on a larger scale. Fig. 4 is a plan view of the king-head. Fig. 5 is a plan of the bottom of the rafter-shoe, and Fig. 6 an end elevation of the same on a larger scale. Fig. 7 is an elevation of one of the dowels on a still larger scale, showing its pointed tops.

In all the figures like letters of reference, wherever they occur, indicate corresponding parts.

A represents the tie-beam of a truss, B B the rafters, and C C struts at an ordinary inclination.

Instead of resting the tie-beam directly on a wall, as D, I supply a metallic wall-plate E a little wider than the beam, on the upper face of which are cylindrical dowels *a*, let into auger-holes in the lower face of the tie-beam, and in the outer edge of which is an upwardly-projecting flange *b* over which the cornice D' is fitted. If the tie-beam breaks and falls (as when burned) the flange *b* holds the plate

fast, or, if the plate should move, the cornice alone would be affected, and not the main wall of the structure.

The rafters B, as will be observed, are cut square across at the ends. At the bottom they are sustained on the tie-beam by rafter-shoes of cast metal, each having cylindrical dowels *a a* on its under face. Lips *c c* extend down at each side below the upper margins of the tie-beams, so as to insure the maintaining of the correct position, and the deep inclined face *d* receives the end of the rafter. The inclination of this face should vary with the inclination of the rafters in differently-inclined roofs, so that it will properly receive it when sawed off square. A web *g* is formed at the back of the ledge carrying the face *d* when the structure is so heavy as to require this additional element of security. A small portion of the top and sides of the rafter are embraced by lips *e e*, cast on the shoe. Bolts *f*, inserted through the flat portion at the bottom of the shoe, secure the shoe to the beam.

F is the king-head which receives the upper end of the rafters. These are held in place in the head by the top and side margins *h h*, which are supplied for the purpose, and the head is connected with the tie-beam by the king-bolt G which passes through both parts. The head is also formed with ledges *i i*, cast on the sides, which sustain ridge-timbers, as H H, extending between the trusses.

The faces of the king-head should be also varied in inclination for differently-pitched roofs. For the inclination shown these faces should be inclined as shown, so as to receive the ends of the rafters and afford fair bearings for them when cut square across.

The queen-head shown in Fig. 2 has its bearing-face for the ends of the inclined timbers B like that of the king-head, but it has the other face differently inclined.

The blocks I for receiving the end of the struts C are cast with dowels *a a*, to enter the timbers on which they are placed. I also cast one such dowel *a'* on the face which receives the square-cut end of the strut. Through these blocks are perforations to admit the king-rod G, or subordinate tie-rods or queen-rods G', and the perforations are so located as

to obviate cutting into the ends of the struts to admit the bolts or rods.

The dowels *a* are pointed on their extremities, as at *a'*, and these points serve to mark the centers for the auger-holes which are to be bored in the timbers. The blocks or castings being placed on the timbers at the points where they are to be finally located, a slight tap on them causes the points of the dowels to indent the wood. This marks the centers, as required, to indicate the location where the holes for the dowels must be subsequently bored.

By cutting the pieces square across economy in the length of timber required, as well as in labor, is effected. By avoiding the joints usually required, as in scarfing, weakening of the timbers, by cutting away portions of them, is obviated. Under this system the truss can be built correctly by any ordinary workman. The struts bear against the other timbers along one edge of each end, so that twisting is resisted by the bearing edge, and a single dowel to enter the end of the strut is sufficient.

The angles of the faces of the several castings should correspond to the angle of the timber which abuts against them. In Fig. 1 the right side of the base of the king-post is shown in duplicate, one face being at the proper angle for a strut, having the inclination shown on the left side, and another face shown just outside of the first has the different angle to

receive squarely the end of the strut having a different angle shown on the right side.

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

1. In combination with the tie-beam of a truss and with a cornice *D'*, the wall-plate *E* underlying a portion of the cornice and of the tie, having dowels *a* engaging the tie, and an upwardly-extending ledge *b* engaging the cornice, all cast integral and arranged to serve substantially as shown and described.

2. In combination with the tie-beam and rafter of a truss, a rafter-shoe having side plates embracing the sides of the rafter and having edge lips taking hold of the sides of the tie-beam, the lower face of the shoe being provided with dowel-pins, substantially as shown and described.

3. In a truss, the head for the rafters having side extensions *h, h*, embracing the sides of the rafters and having supports *i* for ridge-timbers and an aperture to receive the king-bolt, in combination with such king-bolt and with the timbers, and arranged to serve therewith, substantially as shown and described.

Signed at New York city, in the county and State of New York, this 16th day of March, A. D. 1894.

LOUIS DUVINAGE.

Witnesses:

JOHN BUCKLER,
WORTH OSGOOD.