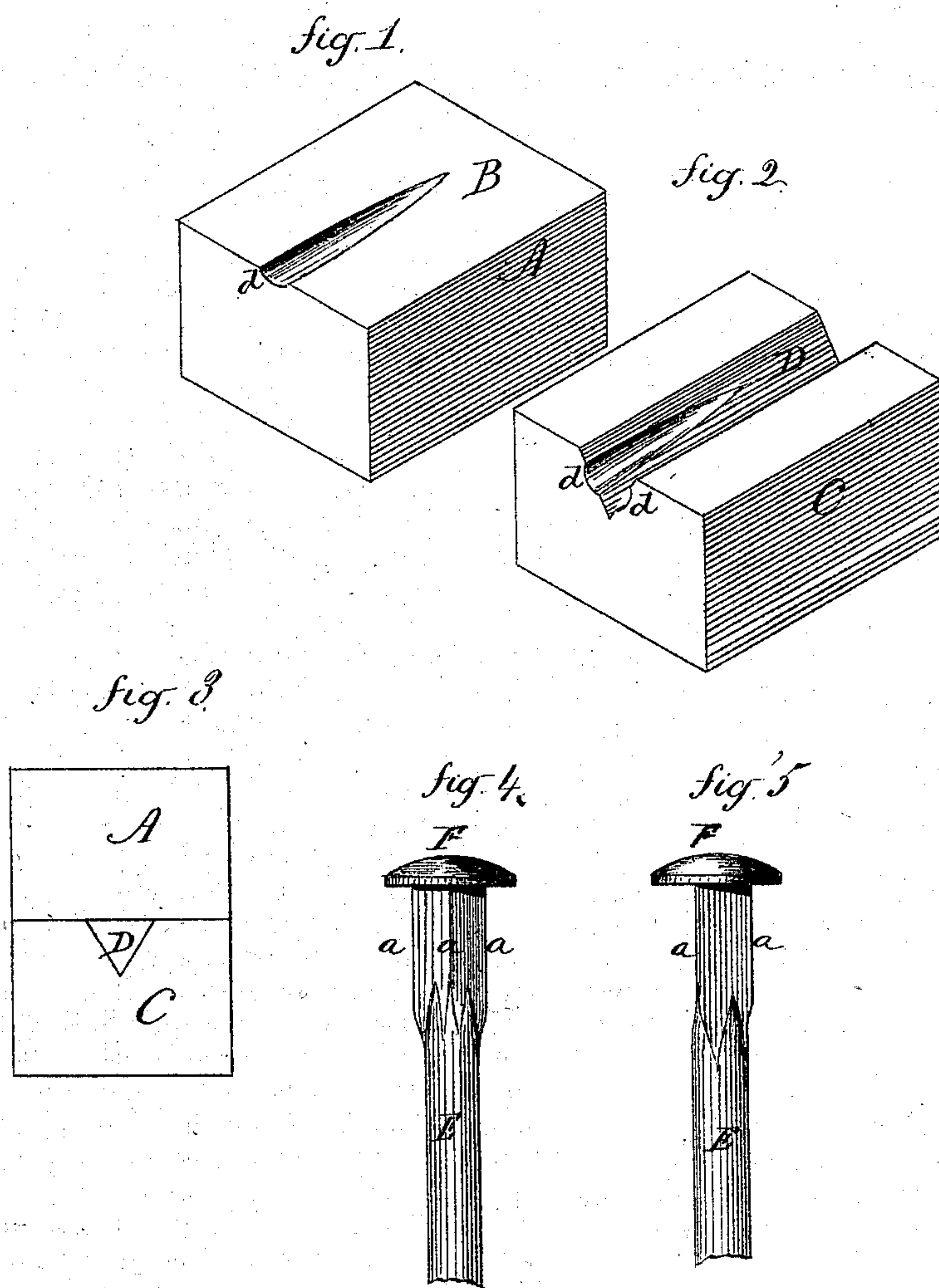


E. H. PLANT.

Dies for Making Carriage Bolts.

No. 137,023.

Patented March 18, 1873.



Witnesses.
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UNITED STATES PATENT OFFICE.

EBENEZER H. PLANT, OF PLANTSVILLE, CONNECTICUT.

IMPROVEMENT IN DIES FOR MAKING CARRIAGE-BOLTS.

Specification forming part of Letters Patent No. 137,023, dated March 18, 1873.

To all whom it may concern:

Be it known that I, EBENEZER H. PLANT, of Plantsville, in the county of Hartford and State of Connecticut, have invented a new Improvement in Dies for Making Carriage-Bolts; and I do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents, in—

Figure 1, a perspective view of one part of the die; Fig. 2, a perspective view of the other part of the die; Fig. 3, a top view, and in Figs. 4 and 5 side views, of the bolt.

This invention relates to an improvement in dies for making that class of bolts known to the trade as "carriage-bolts"—that is, bolts which are used in the manufacture of carriages or other wood-work, and which are constructed so as to prevent their turning in the wood. Various devices have been employed to produce this result without weakening the bolt or using more metal than the same length at any other part of the bolt.

This invention consists in a pair of dies, one of which has a plain face, the other a V-shape, so that when the two sides set together this V-shape forms an equilateral triangular recess.

A is one part of the die, the surface B of which is flat, except as hereinafter described. C is the other part, having a recess, D, formed therein of V-shape, the sides of which are equal, or nearly so, to the width of the said V, forming, in transverse section when the two parts are set together, as in Fig. 3, an equilateral triangle.

Between these dies the blank from which the bolt is to be formed is placed, and compressed so that the metal assumes the form of the recess D, giving three sharp angles, *a*, to the bolt, as in Fig. 4, the area and transverse section of this triangle being equal, or nearly so, to the area of a transverse section of the cylindrical part E of the bolt, each side being considerably larger than the diameter of the bolt, as denoted by the two extremes in Fig. 4, thus forming a sharp projecting edge directly beneath the head F, which is formed in the usual manner. This edge is easily driven into the wood, and projects sufficiently far into the wood beyond the surface of the bolt to positively prevent the turning of the bolt.

In order to make the intersection of the triangular part of the bolt and the cylindrical part graceful I form a slight recess, *d*, in each of the sides and in the blank B, as denoted in Figs. 1 and 2, the result of which is the forming of the bolt, as seen in Figs. 3, 4, and 5.

The cost of constructing these dies is little, compared with the cost of other dies for making this class of bolts, inasmuch as the part B has a flat surface, and the V-shape in the other is the simplest form possible to produce.

I claim as my invention—

The dies A C, one having a flat surface, and the other a triangular recess, D, substantially as and for the purpose specified.

EBENEZER H. PLANT.

Witnesses:

E. P. HOTCHKISS,
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