

W. S. WARD.

DIES FOR FORGING CARRIAGE STAY-ENDS.

No. 176.718.

Patented April 25, 1876.

Fig. 1.

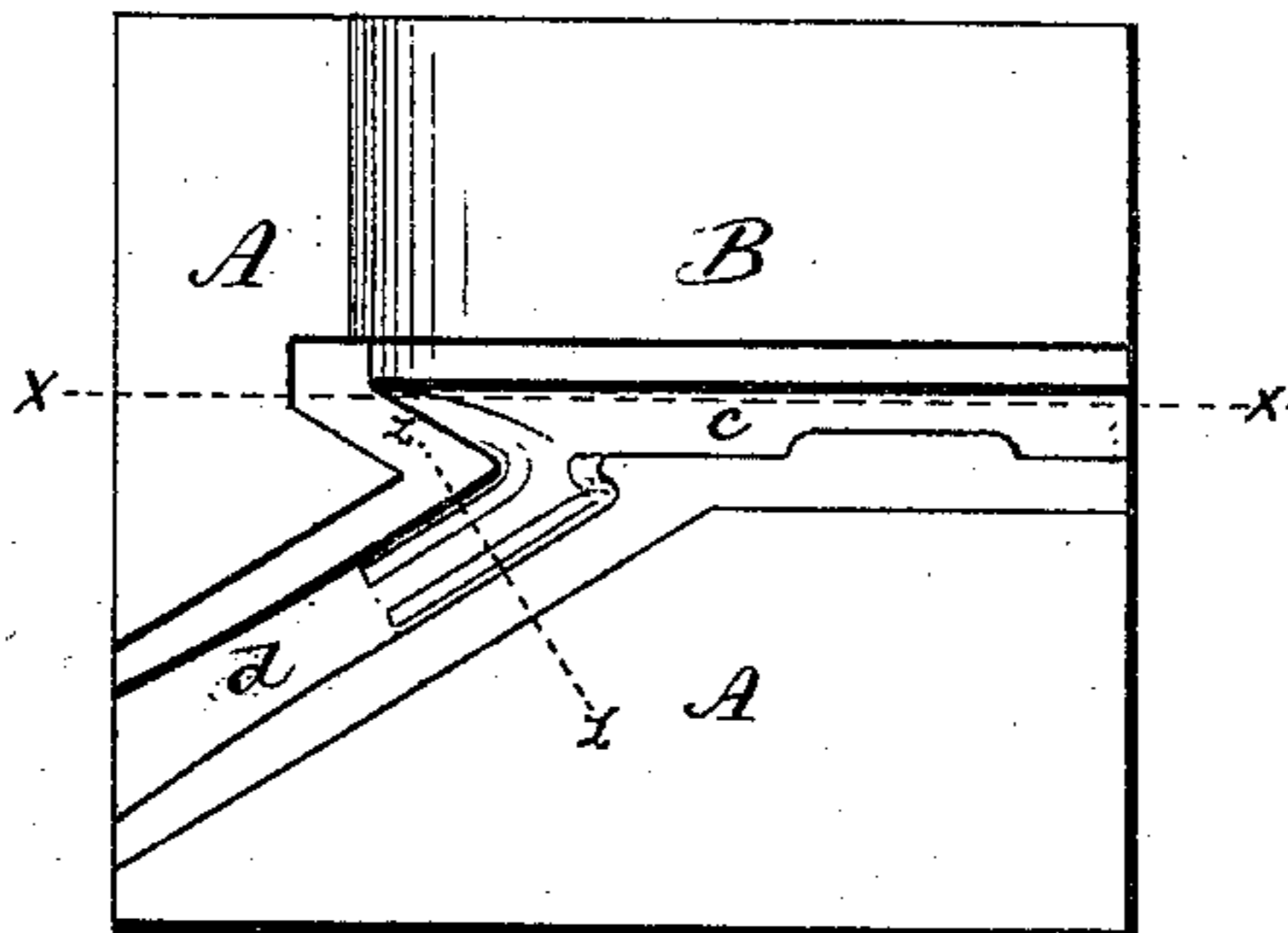


Fig. 2.

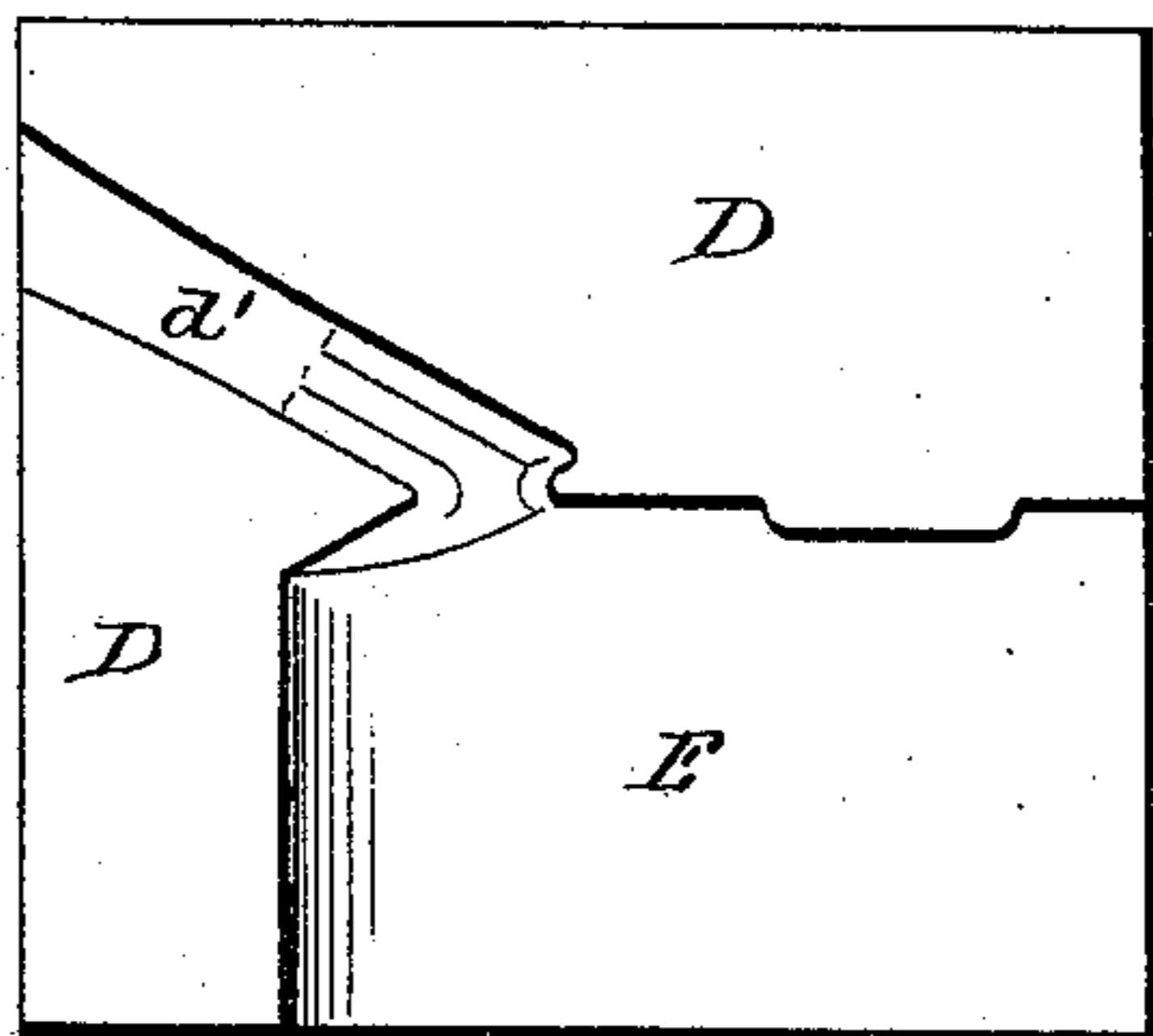


Fig. 3.

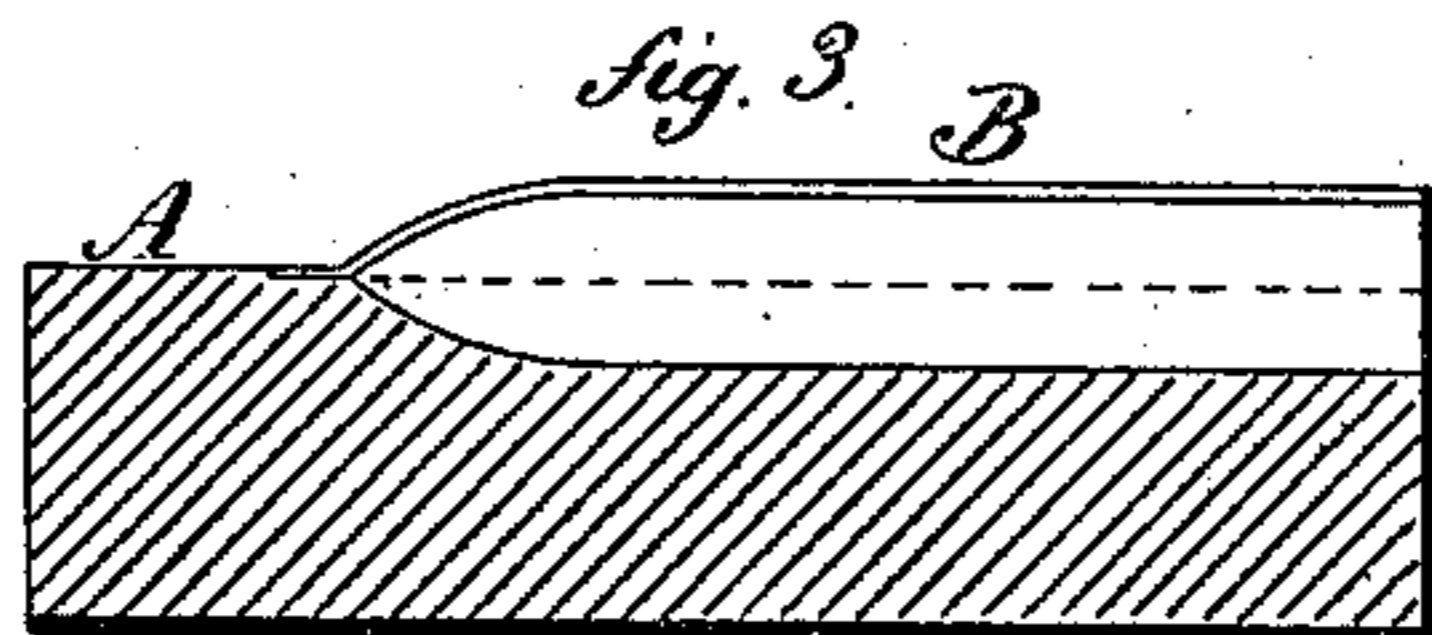


Fig. 4.

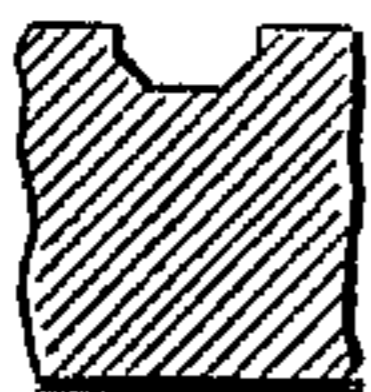
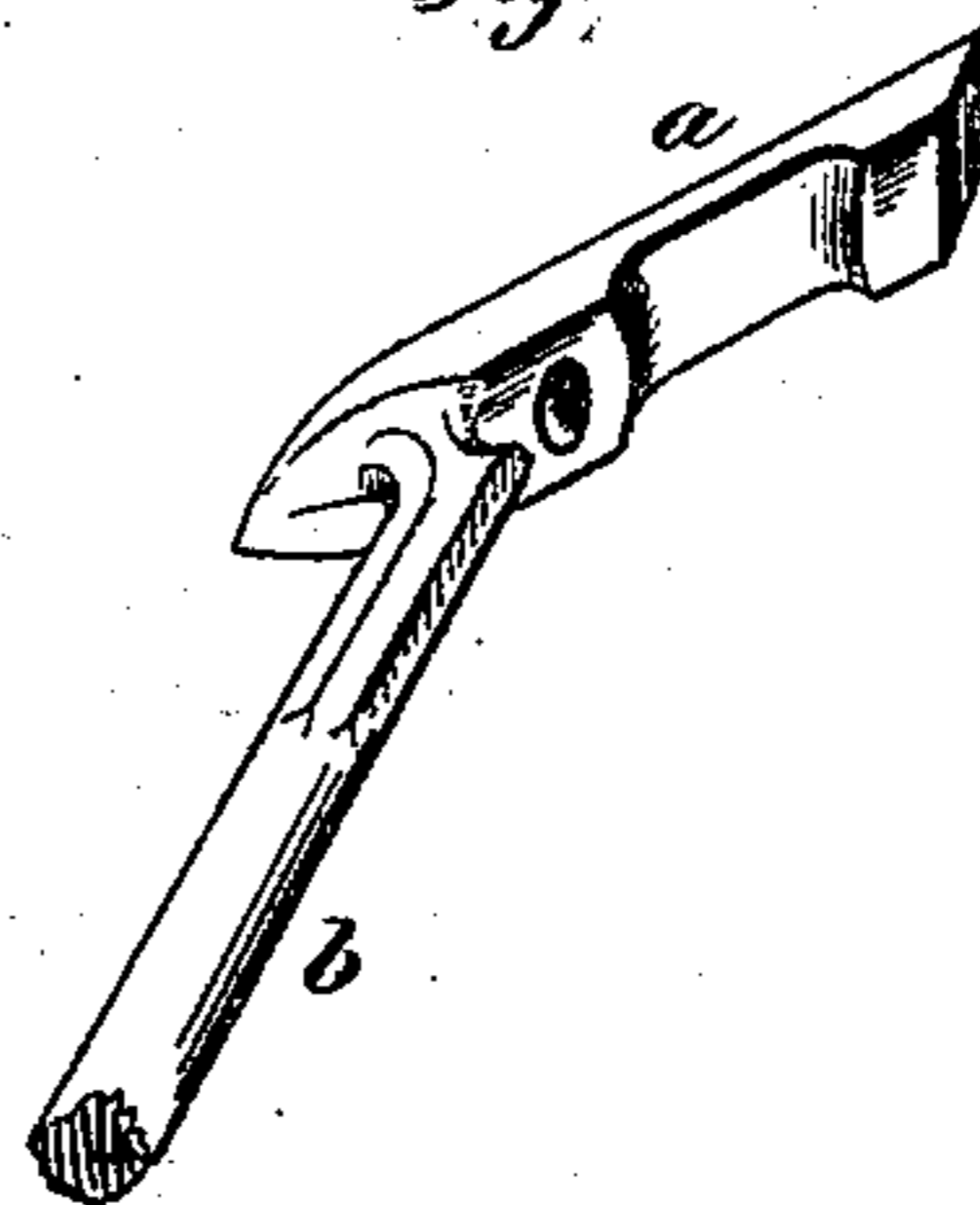
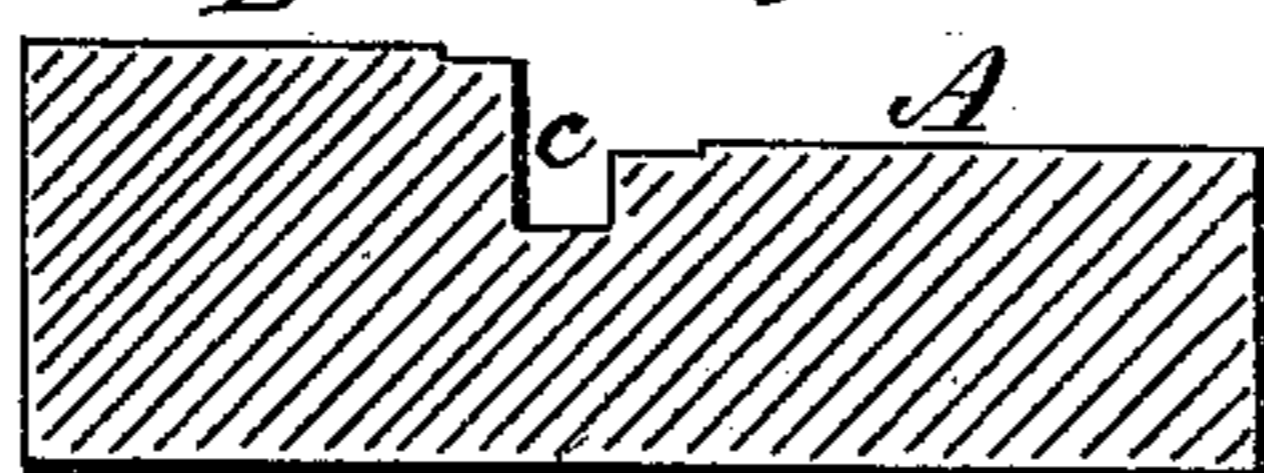


Fig. 5.



Witnesses.

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# UNITED STATES PATENT OFFICE.

WILLIAM S. WARD, OF PLANTSVILLE, CONNECTICUT, ASSIGNOR TO H. D. SMITH & CO., OF SAME PLACE.

## IMPROVEMENT IN DIES FOR FORGING CARRIAGE STAY-ENDS.

Specification forming part of Letters Patent No. 176,718, dated April 25, 1876; application filed April 6, 1876.

*To all whom it may concern:*

Be it known that I, WILLIAM S. WARD, of Plantsville, in the county of Hartford and State of Connecticut, have invented a new Improvement in Dies for Forging Carriage Stay-Ends; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description, and which said drawings constitute part of this specification, and represent in—

Figure 1, face view of one part; Fig. 2, face view of the other part of the die; Fig. 3, a section on line *xx* of Fig. 1; Fig. 4, a transverse section of the same; Fig. 4<sup>a</sup>, a transverse section on line *zz*; Fig. 5, perspective view of the stay-end; and in Fig. 6, a transverse section of the plate, as formed by the usual construction.

This invention relates to the construction of dies for forging what are termed carriage stay-ends, that is to say, the foot or plate which is attached to the side of the perch and a portion of the brace which forms the stay, such as seen in Fig. 5, *a* being the plate and *b* a portion of the brace.

In this condition the article is furnished to the trade, and the smith welds to the brace to give it the required length.

In the usual construction of the dies for making this article, the dies are divided in a central plane through the plate and brace. This necessarily makes the fin at the center of the plane side of the plate, as seen in Fig. 6, and in order that the dies may separate after striking the piece, it is necessary to make that plane surface slightly inclined from the center outward, as seen in Fig. 6, somewhat magnified, which requires that that surface of the plate shall be filed or dressed flat, or that the wood be cut so that the plate will fit.

The object of the invention is to overcome this difficulty; and it consists in the dies as hereinafter described and as shown in the accompanying illustration.

The lower part Fig. 1 has a plane surface, *A*, in this a cavity, *c*, is formed, corresponding to the plate *a*, and from this a branch cavity, *d*, corresponding to the shape of the brace. The brace, as here represented, is made octagonal at its junction with the plate, and this cavity *d*, in transverse section, corresponds to five of the eight sides, as seen in Fig. 4<sup>a</sup>, hence a little more than half of the brace and plate will lie below the plane *A*. In rear of the cavity *c* the die is raised, as at *B*, so as to make the back of the cavity *c* correspond to the entire surface of the plate *a*, as seen in Figs. 3 and 4.

In the second part of the die the surface *D D* corresponds to the plane *A A* of the first part, and a cavity, *E*, is formed corresponding to the raised portion *B*, and a branch cavity, *d'*, corresponds to the cavity *d*, and in form for the completion of the brace.

By this construction, the fin on the plate *a*, which is formed from the surplus metal, will be forced between the two parts of the die and at the upper edge of the plate, and from there may be easily removed by the usual clipping dies, and the surface of the plate will be perfectly flat, without the usually required finishing or fitting.

In case the brace be round in transverse section, instead of octagonal, that portion of the cavity *d d'* should be formed accordingly, that is, divided in the center.

I claim—

The dies for forging carriage stay-ends, constructed as shown and described.

WILLIAM S. WARD.

Witnesses:

SIMEON H. NORTON,  
LEVI P. NORTON.