(No Model.)

W. DAVIS & W. CASEY.

DIE FOR FORMING STUMP JOINTS FOR CARRIAGE BOWS.

No. 369,778. Patented Sept. 13, 1887.

Fig. 1.

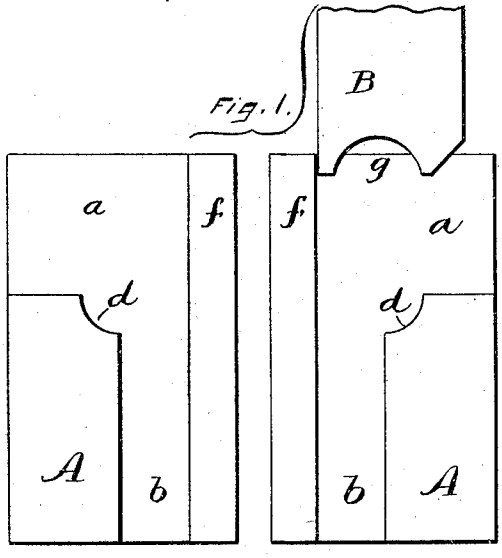


Fig. 2.

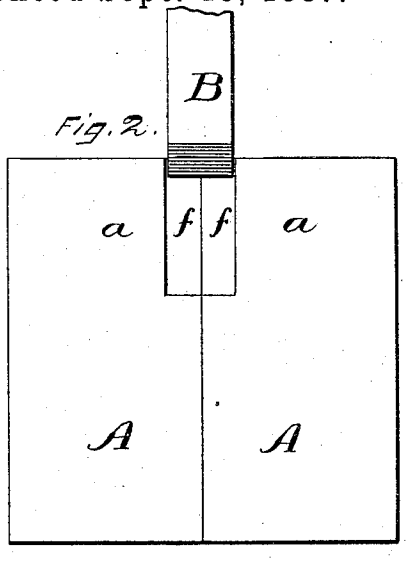


Fig. 3.

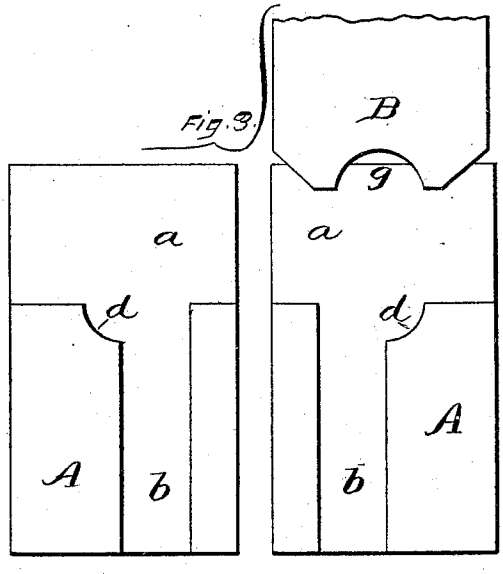


Fig. 4.

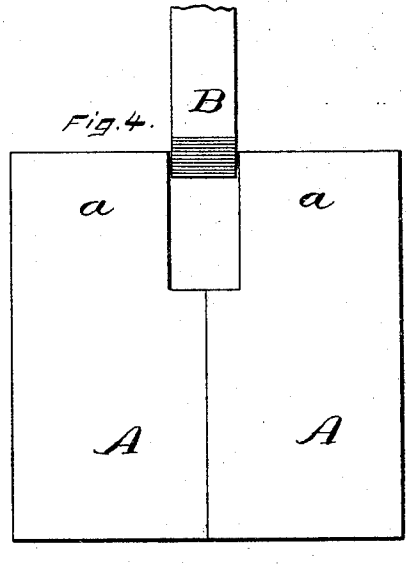


Fig. 5.

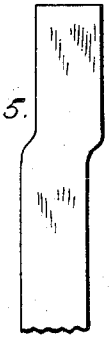


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILSON DAVIS AND WILLIAM CASEY, OF SOUTHINGTON, CONNECTICUT.

DIE FOR FORMING STUMP-JOINTS FOR CARRIAGE-BOWS.

SPECIFICATION forming part of Letters Patent No. 369,778, dated September 13, 1887.

Application filed April 25, 1887. Serial No. 235,979. (No model.)

To all whom it may concern:

Be it known that we, WILSON DAVIS and WILLIAM CASEY, both citizens of the United States, residing at Southington, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Dies for Forming Stump-Joints for Carriage-Bows, of which the following is a specification.

Our invention relates to improvements in dies for forging stump-joints for carriage-bows; and the objects of our invention are to provide dies which can be used practically in an ordinary heading-machine, and in general to facilitate the process of forging said joints and finishing them when forged.

In the accompanying drawings, Figure 1 is an elevation of the face side of our dies, together with the operative end of the punch or header. Fig. 2 is a side elevation of the same with the dies placed together. Figs. 3 and 4 are elevations corresponding with Figs. 1 and 2, showing a modification of our dies and punch. Fig. 5 is an elevation of an offset blank, the same being one form which is adapted to be forged in our dies; and Fig. 6 is an elevation of a stump-joint as forged by the dies, Figs. 1 and 2.

A A designate two die-blocks, each having an extension, *a a*, between which the punch or header B reciprocates in forging the joint. We prefer to form half of the die-depressions in the confronting face of each block. The straight groove *b* is of a size in cross-section equal to the size of the body *c*, Fig. 6, of the stump-joint. At the junction of said groove and the extension *a* the side wall of the depression on one side is curved substantially in a quarter-circle, as shown at *d*. From this point to one edge of the block the face of the extensions *a* is continuous, leaving an opening on that side, as shown in Figs. 2 and 4. In Figs. 1 and 2 a side rib, *f*, extends upward to the end of the die-blocks and serves as a guide for one edge of the punch. In both forms the punch is of a thickness to substantially fill the space between the extensions *a a*, and contains a semicircular depression, *g*, in its end. This depression is located a little to one side of the middle of the groove *b*, so that a shoulder will be formed (when the punch is advanced) at a point opposite the curved wall *d*, while said wall and semicircular depression in the punch will be practically continuous.

Our dies are designed to be used in any ordinary heading-machines substantially like those employed for heading bolts and screws. We use stock of the same size in cross-section as the body *c* of the joint to be forged, and we can place the heated bar in the machine either when it is straight or offset a little, as shown in Fig. 5.

The heated bar is placed in the machine and the dies brought together upon the bar, with one end projecting the proper distance beyond the curved wall *d*. The extensions *a a* will then bear slightly against two opposite sides of the bar to support it for its whole length. The punch or header B is then forced upon the stock, upsetting its end into the form shown in Fig. 6, and with the form of dies shown in Figs. 1 and 2 throwing out substantially all of the surplus metal at a single point, as at *h*, Fig. 6. The form of dies in Figs. 3 and 4 operate the same, except that, not being confined by the ribs *f*, a fin will also be thrown out at that side in case there is any surplus metal.

It will thus be seen that the whole length of the blank is supported upon two sides when it is being headed, and, further, that the two extensions which thus support the blank will also prevent a fin from being thrown out at the sides thus supported, so that the product requires but little finishing.

We are aware that a prior patent shows and describes dies for forming stump-joints from an offset blank like Fig. 5, the punch having a recess sunk in its face, the dividing-line between the die and punch being in one plane, and we hereby disclaim the same.

We claim as our invention—

1. The herein-described dies and header for forming stump-joints, the same consisting of the dies having the groove for receiving the bar, with the curved wall at one side and the extensions *a a* projecting therefrom, and the punch recessed on the end and fitted between said extensions, substantially as described, and for the purpose specified.

2. The herein-described dies and header for forming stump-joints, the same consisting of the dies having the groove for receiving the bar, with the curved wall at one side and the extensions *a a* projecting therefrom, the ribs *f f* at one side, and the punch recessed on the end and fitted to said extensions and ribs, substantially as described, and for the purpose specified.

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