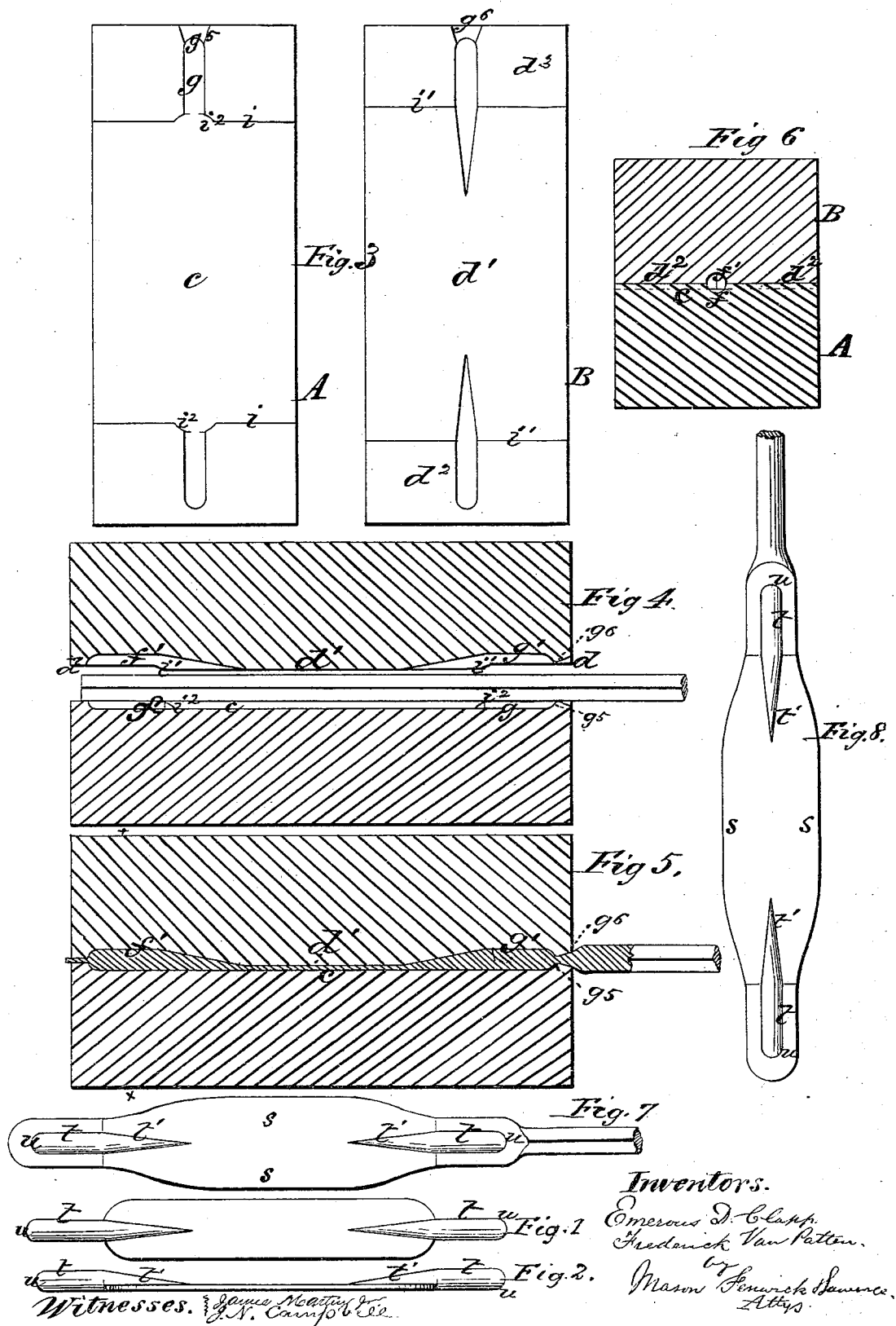


E. D. CLAPP & F. VAN PATTEN.
Dies for Forging Axle-Clips.

No. 148,872.

Patented March 24, 1874.



UNITED STATES PATENT OFFICE.

EMEROUS D. CLAPP AND FREDERICK VAN PATTEN, OF AUBURN, N. Y.

IMPROVEMENT IN DIES FOR FORGING AXLE-CLIPS.

Specification forming part of Letters Patent No. 148,872, dated March 24, 1874; application filed October 8, 1873.

CASE B.

To all whom it may concern:

Be it known that we, EMEROUS D. CLAPP and FREDERICK VAN PATTEN, of Auburn, in the county of Cayuga and State of New York, have invented a new and useful Improvement in Dies for Making Blanks for Carriage Axle-Clips; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification, in which—

Figures 1 and 2 show, by plan and edge views, the blank which our die makes; Fig. 3, the die sides of our die-blocks; Fig. 4, a vertical section of the die-blocks arranged one over the other, and with a rectangular bar of metal between them ready to be operated upon. Fig. 5 is a similar section to Fig. 4, showing the bar of metal operated upon by bringing the upper block down upon it. Fig. 6 is a transverse section of the die-blocks in the line *x x* of Fig. 5. Fig. 7 shows the result of the operation spoken of in referring to Fig. 5. Fig. 8 represents the same as Fig. 7, except that the rod operated upon by the dies is a round one instead of a square one.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of our invention consists in an improvement in dies for forming clip-blanks, our improvement being such that the necessity of cutting the bar of metal into pieces of proper length previously to placing the metal in the die is obviated. Further, the necessity of cutting off the blanks during the operation of forging is also avoided.

Where the pieces are first cut off and placed in the dies, it is found that the pressure of the dies causes the piece to lengthen, and this being resisted by the end walls of the cavities, the blank is upset and squared on its ends and wedged so tightly in the die that great difficulty is experienced in getting the hot blanks out of the die. The same difficulty of getting the blanks out of the die is experienced where the blanks are cut off during the forging process.

Our dies round or point the clip-blanks, and also enable us to form several blanks at one heat of the forge upon the bar; and we are further enabled to use the leverage of the bar

for lifting the blanks out of the die-cavity, and this we can do because we do not upset the ends of the blank against square walls, but form the rounded ends in curved or inclined seats at the termini of the clip-blank cavity.

From the drawings it will be seen that the die-block A is constructed with rounded-off shoulders *i i*, and a flat depressed surface, *c*, between these shoulders; and that the die-block B has similar shoulders, *i' i'*, and a projecting flat surface, *d'*, between these shoulders, and the flat surfaces *d² d³* outside of them, as shown. The faces of the die-blocks thus far described match each other when brought together. In the shouldered parts of the block A half-round depressions *f g* are constructed, the bases of these depressions being on a plane with the depressed flat surface *c*. These depressions are rounded at their outer termini, and made concave, as shown. At their inner termini they intersect small curved shoulders *i² i²*, which connect with the shoulders *i i*, and at the outer terminus of the depressions *g* a slight concave depression, *g^b*, is made, and the same continued on a gentle inclination to the end of the block, said depression being made flaring, as shown. In the die-block B, half depressions *f' g'* are formed in the flat surfaces *d² d³*, and these depressions are continued on a half-round, but with a taper both laterally and vertically, until they terminate in the horizontal plane *d'*. These depressions cut through the shoulders *i' i'* at the termini of the flat projecting surface *d'*, and extend into said surface a distance about equal to the length of the half-round depressions *f' g'*, as shown. The outer terminus of the half-round depression is concave and rounded off, and at the outer terminus of the depression *g'* there is a slight concave, *g^b*, made with a gentle inclination, and with a lateral flare, the same as in the die in block A at this point.

To operate the dies, place a square bar of heated metal on one of its corners, between them, as shown. Then bring down the upper die as many times as required to produce the form shown in Fig. 1. The first descent of the die will depress the bar enough to give it a hold upon the lower die. The successive operations will cause the bar to spread out thin and broad, as shown at *s s* in Fig. 7, between

the flat surfaces *c d* of the die-blocks, and the rounded portion *t t*, with the tapering stay-ribs *t t*, to be formed at the ends of the thin broad portion *s s*. These rounded portions will also be pointed ready for the screws to be cut upon them, as shown at *u u*, and, what is very important, one face of the thin broad portion *s s* will be on a plane with the base of the rounded portions of the blank, and thus one side of the clip-blank will be plane-faced and adapted for the use intended. This is effected by depressing the lower die-block between its shoulders, and shaping the die-recesses as shown.

The die-blocks may have two or more dies formed in their faces, so as to work off two blanks at one operation, and two blanks can be worked off at one heat from a single rod.

The invention we have made is valuable and useful to the trade and the public, as the blanks

for the clips can be made without requiring the rounded parts to be upset to form the shoulders, and the metal between these shoulders to be afterward flattened out, and the stems of all of the clip-blanks can be made of uniform length and size, and in a condition for rapid finishing.

What we claim as our invention, and desire to secure by Letters Patent, is—

The within-described dies, constructed and arranged as shown, for forging united solid carriage-clip blanks from a rod of metal, as set forth.

EMEROUS D. CLAPP.
FREDERICK VAN PATTEN.

Witnesses:

HORACE T. COOK,
GEORGE D. RUSSELL.