

(No Model.)

2 Sheets—Sheet 1.

W. M. BOYLES.
DIE FOR MAKING LINKS.

No. 476,514.

Patented June 7, 1892.

FIG. 1.

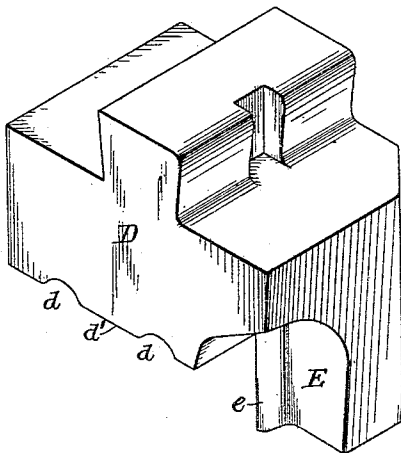
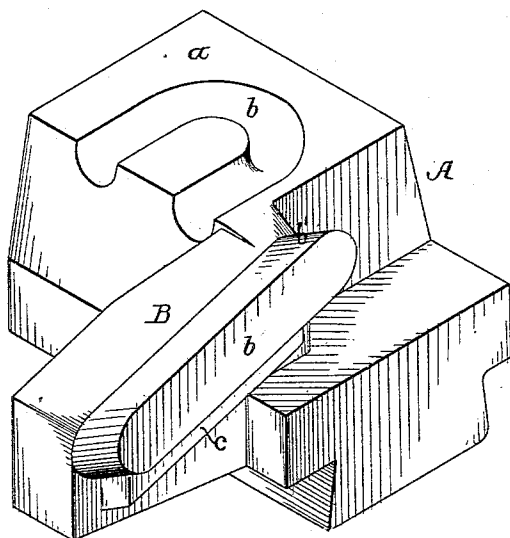


FIG. 2.



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Hamilton D. Turner
Alex. Barkoff

Inventor:
William M. Boyles
by his Attorneys
Houson & Houson

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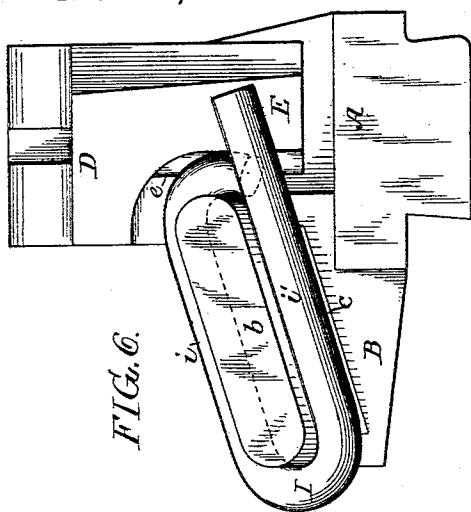


FIG. 6.

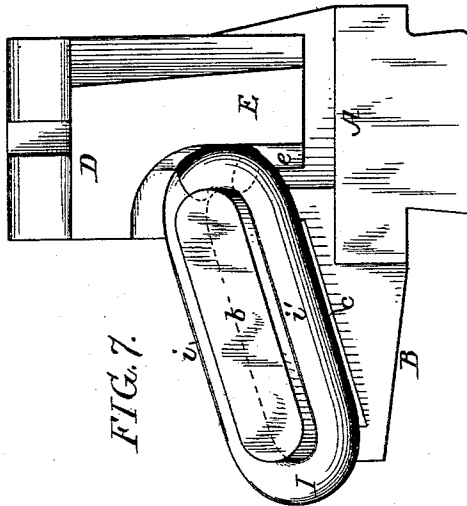


FIG. 7.

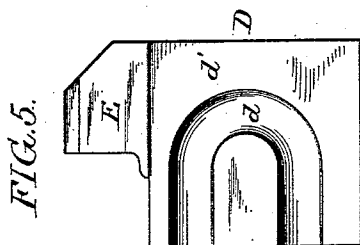


FIG. 5.

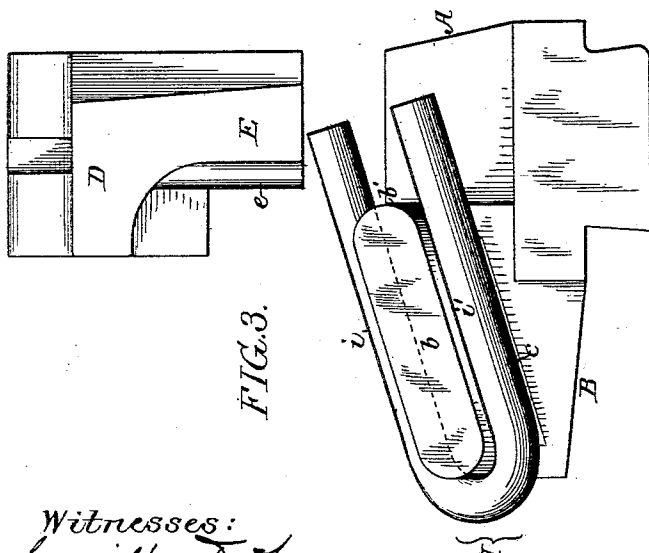


FIG. 3.

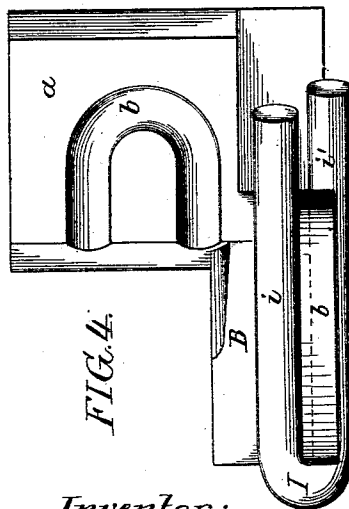


FIG. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM M. BOYLES, OF BERWICK, PENNSYLVANIA, ASSIGNOR TO THE JACKSON & WOODIN MANUFACTURING COMPANY, OF SAME PLACE.

DIE FOR MAKING LINKS.

SPECIFICATION forming part of Letters Patent No. 476,514, dated June 7, 1892.

Application filed February 15, 1892. Serial No. 421,562. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. BOYLES, a citizen of the United States, and a resident of Berwick, Columbia county, Pennsylvania, have invented certain Improvements in Dies for Making Links, of which the following is a specification.

The object of my invention is to so construct dies for bending and welding links that the U-shaped blank can be properly bent and welded under one hammer and during a single heat.

In the accompanying drawings, Figure 1 is a perspective view of the upper die. Fig. 2 is a perspective view of the lower die. Fig. 3 is a side view of the upper and lower dies with the U-shaped blank on the horn. Fig. 4 is a plan view of the lower die, also showing the U-shaped blank on the horn. Fig. 5 is an inverted plan view of the top die. Fig. 6 is a side view showing one side of the U-shaped blank turned over upon the horn by the upper die, and Fig. 7 is a view showing the other arm of the blank turned over.

A is the bottom die, which is mounted in any suitable base, and in the face portion *a* of this die is a semicircular groove *b*, which is of such depth and width as to receive and properly weld the open end of the link.

At one side of the die proper is a projection B, on which is a horn *b*, inclined, as shown, and under this horn is a filling-piece *c*, preferably forming part of the projection. By shaping this projection and horn in the peculiar manner shown I am enabled to throw the upper portion *i* of the U-shaped blank I out of line with the portion *i'*, as clearly shown in Fig. 4. Thus when the portion *i* is turned down, as shown in Fig. 6, it will pass clear of the portion *i'*. Each end of the horn *b* is rounded to properly fit the link, the end *b'* being so rounded as to give the proper curve to the bent-down portion of the blank. The upper die D has a groove *d* on its face *d'*, which corresponds to the groove *b* in the die A, and at the side of the upper die D is a depending leg E, which passes down at one side of the die A, back of the horn *b*. This

leg has a projection *e* at the inner side, which passes between the arm *i* of the blank and the die proper, guiding the bent portion when the two dies are brought together.

The blank is made as shown in Fig. 3, being first bent on a separate machine. The operator places the blank upon the horn, as shown in Figs. 3 and 4, then allows the upper die to descend, the leg E turning down the end of the arm *i* of the blank, which has been previously heated to a welding heat. The upper die is then raised, and the blank turned so that the arm *i'* is uppermost. The upper die is then again allowed to descend, bending the end of this arm, as shown clearly in Fig. 7. Thus the two bent portions of the blank are situated side by side, ready to be welded together. The blank is then removed from the horn, the upper die being previously raised, and the bent portions of the blank are placed in the groove *b* of the lower die, and the upper die is again allowed to descend, completely welding and shaping the end of the link.

My invention is especially applicable to the manufacture of heavy links used as coupling-links; but it will be understood that the dies can be of any size to form different-sized links, and can be arranged in any manner, as circumstances require.

I claim as my invention—

1. The combination, in dies for bending and welding links, of the lower die having a semicircular groove in its face and at one side an extension, a horn on said extension, said horn being so arranged as to throw the upper arm of the link-blank out of line with the lower arm, an upper die having a semicircular groove in its face corresponding to the groove in the lower die, and a leg at one side which acts upon and turns down the upper arm of the link-blank, substantially as described.

2. The combination, in dies for bending links, of the lower die consisting of a body, a horn on which the blank to be bent is mounted, and a filling-piece under the horn to throw the two arms of the blank out of

line with each other, with an upper die consisting of a body and a depending leg so situated in respect to the horn of the lower die as to bend one arm of the blank over the end
5 of the horn when the dies come together, substantially as specified.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

WILLIAM M. BOYLES.

Witnesses:

SAMUEL H. WATTS,

T. W. SHERWOOD.