(No Model.)

J. H. SIMPSON & W. G. GLADHILL.

DIE FOR MAKING EYE BARS.

No. 305,345. Patented Sept. 16, 1884.

Fig. 1.

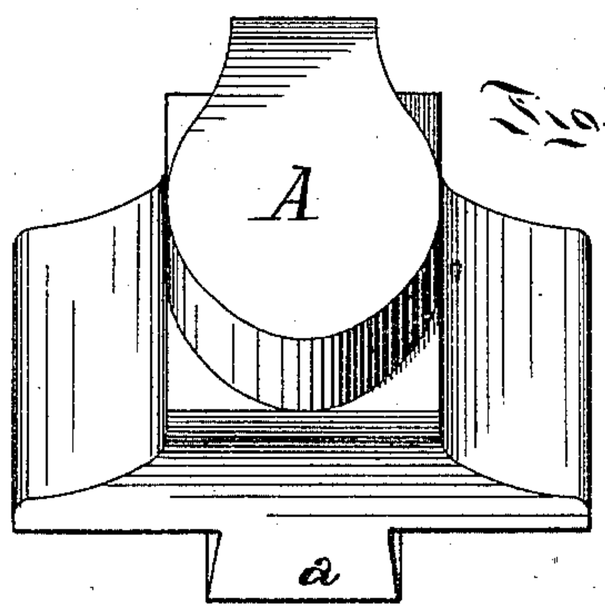


Fig. 2.

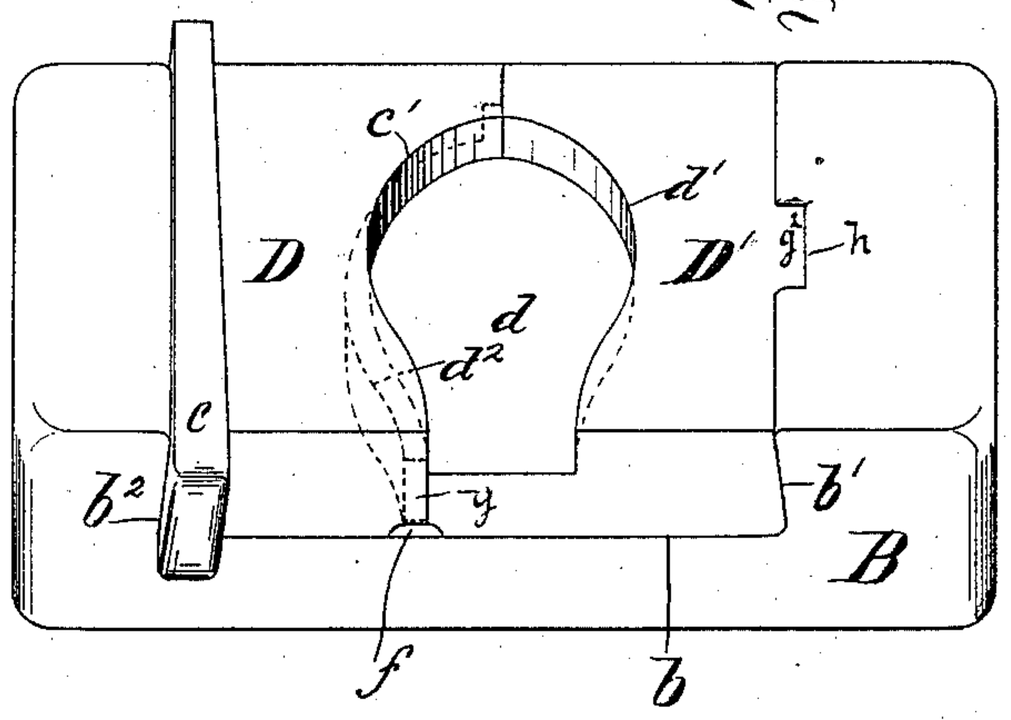
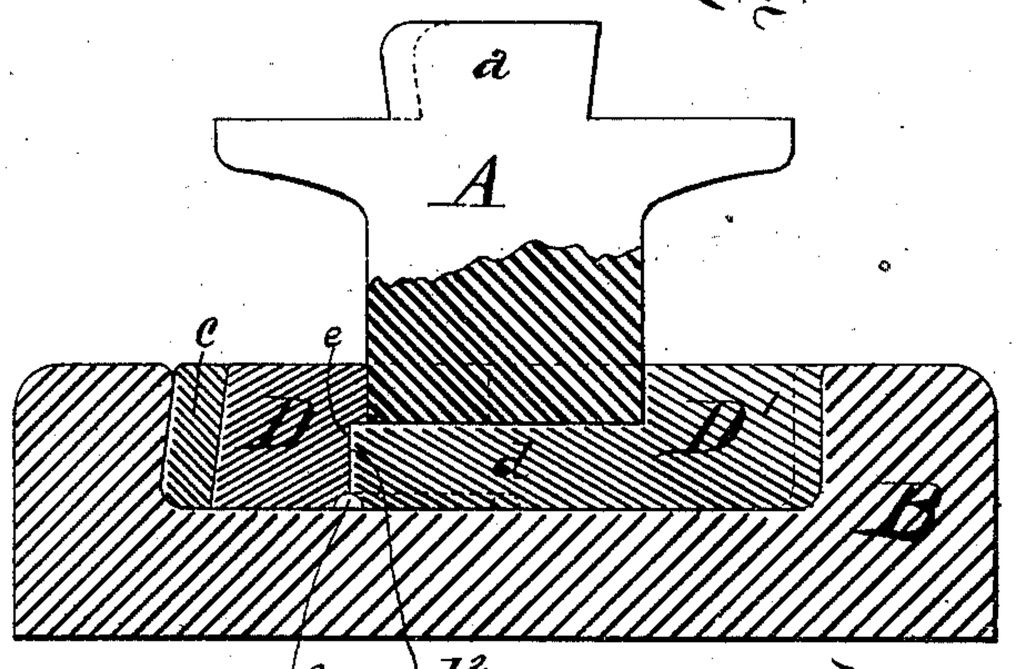


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES H. SIMPSON AND WILLIAM G. GLADHILL, OF PITTSBURG, PA., ASSIGNORS TO WILSON, WALKER & CO., (LIMITED,) OF SAME PLACE.

DIE FOR MAKING EYE-BARS.

SPECIFICATION forming part of Letters Patent No. 305,345, dated September 16, 1884.

Application filed January 23, 1884. (No model.)

To all whom it may concern:

Be it known that we, JAMES H. SIMPSON, a citizen of the United States, and WILLIAM G. GLADHILL, a subject of the Queen of Great Britain, residing at Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Dies for Forming the Heads on Bridge and Eye Bars; and we do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a perspective view showing the face view of the male die. Fig. 2 is a plan view of the female die; and Fig. 3 is a transverse sectional view of both dies, part of the male die being shown in elevation.

Our invention relates to dies for forging the heads of bridge-bars and eye-bars; and the object of our invention is to so construct the female die that while the parts of the die are separable, to allow of the withdrawal of the forging, no fin or rib will be formed on the head shaped in said die; and to this end our invention consists, in general terms, in the construction and combination of parts, all as more fully hereinafter described and claimed.

A indicates the male die, which is of the usual construction, and provided with an undercut projection, *a*, for attachment to the hammer-head of a steam-hammer.

B indicates an anvil-block of the usual construction, provided with a recess, *b*, having undercut walls b' b^2. Within this recess *b* are secured, by means of the key or wedge *c*, the parts D D′, forming the female die. In place of making these two parts D and D′ duplicates of each other—that is, dividing the die on a central line—as usual, we form the dies so as to separate along one edge. To this end we form the part D′ with a ledge, *d*, which forms the bottom of the matrix, and with a vertical wall, d', which forms one half of the vertical walls of the matrix. The ledge *d* is made somewhat larger than is desired for the bottom of the matrix, thereby forming a shoulder or ledge, d^2. (Shown by dotted lines in Fig. 2.) This shoulder projects into a recess, *e*, in the other half, D, of the die; and above this recess *e* is formed the vertical wall c', which forms the other half of the vertical walls of the matrix. It will be seen that the wall c' projects a short distance over the ledge or bottom *d* of the matrix, and that the line of separation of the two parts D and D′ of the die is entirely under the vertical wall c', except where the two vertical walls d' and c' separate. The recess *e* does not extend entirely along the inner face of the part D, but at the ends the recess is closed by shoulders *g*, which project into recesses in the extension d^2 of the ledge *d*, thereby affording means whereby the two parts of the die may be brought into proper relation with each other. Along the line of separation of the two parts of the die, in the under side of the same, is formed a groove, *f*, for the removal of dust and dirt. This groove is shown as formed partly in both parts of the dies, but may be formed wholly in one part.

To secure the parts of the die in the recess in the anvil a lug, g^2, is formed on one side of the part D′, said lug fitting in a recess, *h*, in one of the walls, b', of the recess *b*. This lug and recess will prevent any transverse movement of the parts of the dies. Between the part D of the die and the other vertical wall, b^2, is driven a wedge, *c*, which firmly locks the parts of the die in the recess in the anvil-block. This wedge *c* may be provided with a cross-head at its small end, to prevent its being driven entirely out when struck to loosen the parts of the die. A screw-rod swiveled to one end of the wedge, and working in a threaded aperture in a bracket attached to one side of the anvil, may be used to operate the wedge.

The operation of our device is as follows: The parts of the female die having been adjusted in the anvil B, as shown in Fig. 2, the head of the bar is placed in the matrix of the female die, and forged into shape by the male die, and when so forged completely and snugly fills the matrix. An operative then strikes the small end of the wedge *c*, and, driving it back, loosens the parts D and D′, so that the forged head can be removed from the matrix. The wedge is then driven back into its seat,

thereby securing the parts in position for forging another bar.

It is obvious that by the use of our die we avoid the formation of fins or ribs on the head, such as inevitably occurs when a centrally-divided die is used.

Another important advantage gained by the use of a die constructed as above described arises from the fact that the bottom of the matrix always presents a level surface, being made in one piece, whereas when the line of separation passes centrally through the die one of the parts is liable to be slightly raised above the other part by dust, so that the bottom of the matrix presents an uneven surface.

We are aware that it is not new to form the dies used in forging bridge and eye bars having both side walls detachable from the anvil or bottom part of the matrix, said side walls, when in place, being constructed to overlap the edges of the anvil; but we are not aware that dies having one of the side walls formed integral with the anvil or bottom of the matrix and the other side wall detachable therefrom has ever been heretofore constructed.

We claim herein as our invention—

1. A forging-die composed of two separable parts, one of said parts being provided with one half of the vertical walls and the entire bottom of the matrix, and the other part being provided with the other half of the vertical wall, whereby the line of separation of said parts of the die is exterior to the matrix, substantially as set forth.

2. A forging-die composed of two separable parts, one of said parts being provided with one half of the vertical wall and the entire bottom of the matrix, and the other part being provided with the other half of the vertical walls, adapted to overlap the edge of one half of the bottom of the matrix when the two parts are placed together, substantially as set forth.

3. In a die, the part D, having the vertical wall c' and the recess e, in combination with the part D′, having the ledge d and the vertical wall d', substantially as set forth.

4. In a die, the part D, having the vertical wall c', recess e, and shoulders g, in combination with the part D′, having the ledge d, recesses at its ends, and the vertical wall d', substantially as set forth.

5. A forging-die composed of two separable parts, one of said parts being provided with one half of the vertical wall and the entire bottom of the matrix, and the other part being provided with the other half of the vertical wall of the matrix, and adapted to overlap the edge along one side of the bottom of the matrix, and a dust-passage arranged along the line of separation of the two parts, substantially as set forth.

In testimony whereof we have hereunto set our hands.

JAMES H. SIMPSON.
WILLIAM G. GLADHILL.

Witnesses:
R. H. WHITTLESEY,
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