

(No Model.)

W. R. WEBSTER.  
DIE FOR UPSETTING METAL BARS.

No. 400,148.

Patented Mar. 26, 1889.

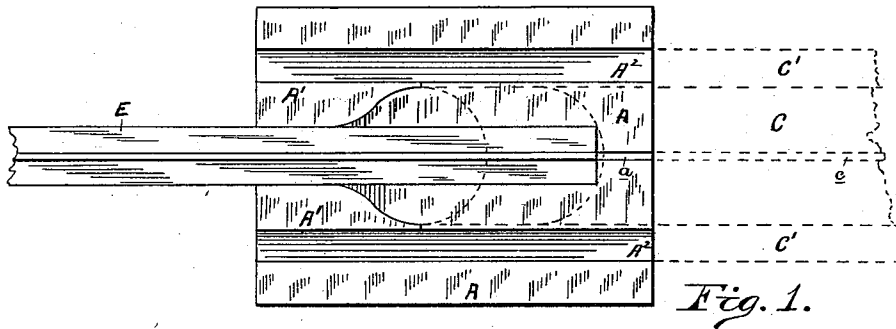


Fig. 1.

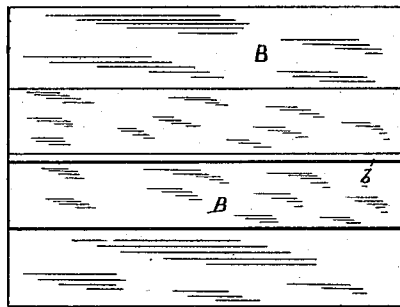


Fig. 2.

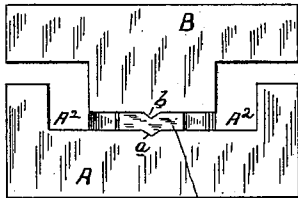


Fig. 3.

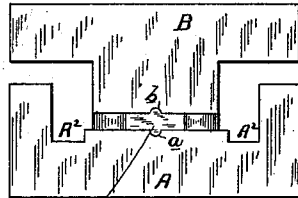


Fig. 4.



Fig. 5.

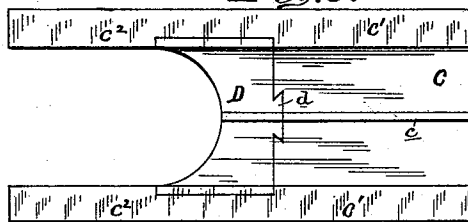


Fig. 6.

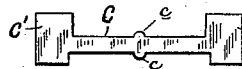


Fig. 7.

WITNESSES:

Joshua Matlack, Jr.  
Francis P. Caslake, Jr.

INVENTOR,

William R. Webster  
by his attorney  
Francis T. Chambers

# UNITED STATES PATENT OFFICE.

WILLIAM R. WEBSTER, OF PHILADELPHIA, PENNSYLVANIA.

## DIE FOR UPSETTING METAL BARS.

SPECIFICATION forming part of Letters Patent No. 400,148, dated March 26, 1889.

Application filed January 12, 1889. Serial No. 296,156. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM R. WEBSTER, of the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Dies for Upsetting Metal Bars, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to the construction of dies for use in upsetting metal bars, and is especially designed for use in the manufacture of eye-bars. In dies of this character the chief parts are the die-faces, between which the bar to be upset is held, and the plunger which acts upon the end of the bar.

As heretofore constructed and arranged it has been found that where the die-faces are stationary and the plunger made to work between them, it was not sufficiently strong to resist the great strains to which it was exposed, and among the plans for overcoming this difficulty a portion of the die-face has been made so as to slide in a groove cut in the die, the plunger being thickened so as to fit in the groove and push the sliding portion of the die-face in front of it. Another device, and one which has been successfully used, is to form a plunger of the same casting as one of the die-faces, or bolt it securely to such die-face, so that the die will have the same longitudinal movement as the plunger. By my invention, the novel features of which are hereinafter clearly set forth in the claims, I am enabled to give the plunger the necessary strength without making either of the dies a sliding die and without making any portion of either die-face movable.

The nature of my invention will be best understood after an explanation of the drawings in which it is illustrated, in which drawings—

Figure 1 is a plan view of the lower of a pair of dies adapted for use with my invention in its preferred form. Fig. 2 is a plan of the face of the upper die; Fig. 3, a front view of the said dies in the position they occupy in use; Fig. 4, a plan view of the plunger adapted for use in the dies shown in the former figures. Fig. 5 is an end view of the said plunger; Fig. 6, an end view of a modified form of dies, and Fig. 7 an end view of a

modified form of plunger adapted to the use of the dies shown in Fig. 6.

A is the lower and B the upper die. C is the plunger; D, a removable front end of the plunger; E, the bar to be upset into an eye-bar.

I provide the plunger with re-enforcing ribs C' C' on its sides, and preferably continue these ribs forward of the plunger-face, as is shown at C<sup>2</sup> C<sup>2</sup>. I also prefer to make the ribs C' extend both below and above the plunger, as is shown in Fig. 5, though this is not essential, such a construction as is shown in Fig. 7 giving the necessary strength to the plunger to resist the pressures to which it is subject. The sides of the dies are recessed, as is indicated at A<sup>2</sup>, so as to receive the ribs C' of the plunger, and by carrying these recesses through or substantially through the die, as is shown in Fig. 1, and prolonging the rib C', as is shown at C<sup>2</sup> in Fig. 4, these prolonged ribs may be made to serve as the sides of the die, moving, as they do, outside of the check-pieces A'.

It is constantly necessary to upset bars of varying thickness, and in all cases of course it is desirable that the plunger should be of substantially the same thickness as the bar, which would require the plunger to be changed whenever bars of materially different thickness are to be upset. By making the front end of the plunger removable, as is indicated at D, I am enabled to make the acting face of the plunger of any desired thickness. This removable end may be secured to the plunger by a dovetail joint, as is indicated at *d*, Fig. 3, or by inserting it in properly-formed grooves in the re-enforcing ribs, as is also indicated in the said figure.

At *a* and *b*, I have indicated the now generally used device for engaging the bar to be upset along its medial line, the said device being either a central longitudinal projection or a central longitudinal groove in the die-face—such as are described in my prior patents, Nos. 380,413 and 380,414, of April 3, 1888, and No. 383,508, of May 29, 1888—a rib or depression, as is indicated at *c*, being properly formed in the plunger to conform to the groove or projection of the die-face.

The various features of my improved construction are capable of separate as well as

conjoint use, and I do not wish to be understood as confining my claims to their use in combination except where they are specifically so claimed.

5 Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A plunger for upsetting metal bars, the sides of which are re-enforced by ribs of  
10 greater thickness than the plunger, substantially as and for the purpose specified.

2. A plunger for upsetting metal bars, the front end of which is removable, substantially as and for the purpose specified.

15 3. A plunger for upsetting metal bars, having re-enforcing side ribs extended beyond

the face of the plunger to form side walls for the dies.

4. A plunger for upsetting metal bars, the sides of which are re-enforced by ribs of  
20 greater thickness than the plunger and the front end of which is removable.

5. A plunger for upsetting metal bars, the sides of which are re-enforced by ribs of  
25 greater thickness than the plunger and which extend both above and below the plunger proper.

WILLIAM R. WEBSTER.

Witnesses:

LEWIS R. DICK,  
FRANCIS T. CHAMBERS.