(No Model.) 2 Sheets—Sheet 1.

J. T. WILSON.

MANUFACTURE OF DRAW BARS.

No. 454,101. Patented June 16, 1891.

Fig. 1.

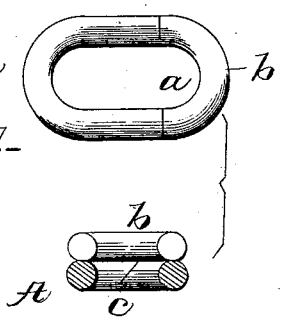


Fig. 2.

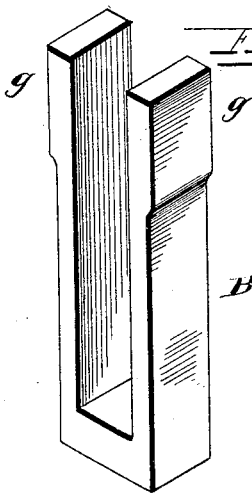


Fig. 5.

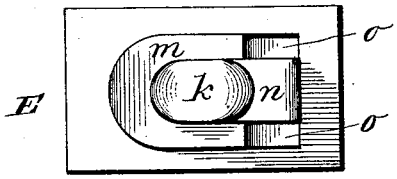


Fig. 6.

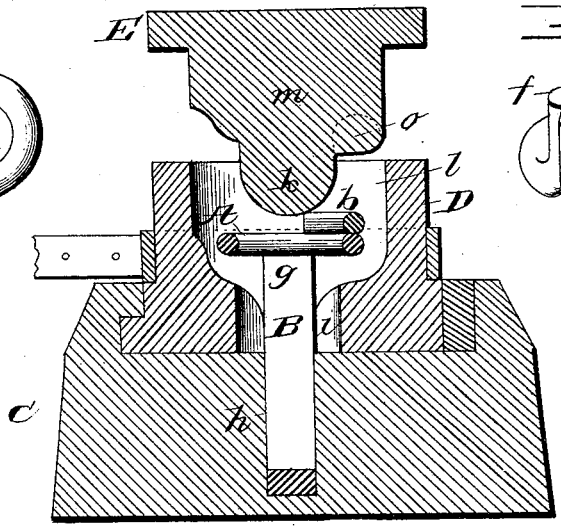


Fig. 3.

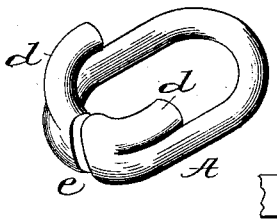
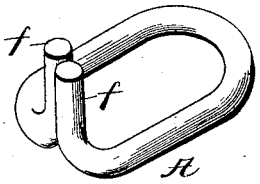


Fig. 4.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

J. T. WILSON.

MANUFACTURE OF DRAW BARS.

No. 454,101. Patented June 16, 1891.

Fig. 7.

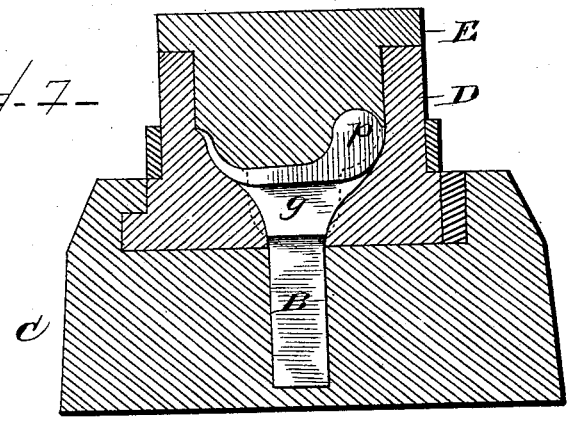
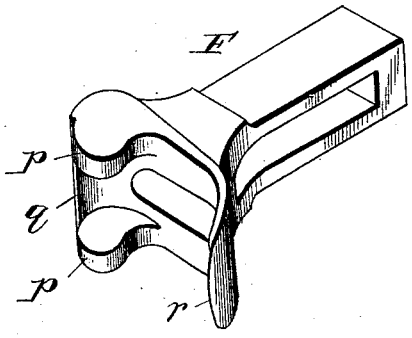


Fig. 8.



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MANUFACTURE OF DRAW-BARS.

SPECIFICATION forming part of Letters Patent No. 454,101, dated June 16, 1891.

Application filed April 11, 1891. Serial No. 388,567. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. WILSON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in the Manufacture of Draw-Bars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to the manufacture of draw-bars, and has especial reference to that class of draw-bars used in connection with vertical-hook couplers, and has for its object certain improvements which will be hereinafter described, and particularly pointed out in the claims. This class of draw-bars have heretofore generally been made of cast or malleable iron, which in practical use prove unserviceable for any great length of time on account of the crystallization of the metal. To overcome this defect, many efforts have been made to forge this class of draw-heads; but all of them have been attended with difficulty. To make them of one piece of metal in the form of a billet or fagot requires heavy machinery, and in upsetting a billet the fiber of the metal is more or less liable to disintegration. It is my purpose to forge the draw-head in such manner that the fiber of the metal in the head shall be continuous, and to so unite the head of the body of the draw-bar that the metal of the head is driven down into and becomes homogeneous with the ends of the body of the bar.

Having this purpose in view, I will proceed to describe my invention.

In the accompanying drawings, which form part of this specification, Figure 1 represents a plan and a cross-section of a blank for forming the head of a draw-bar for a vertical-hook coupler; Fig. 2, a perspective of a blank for forming the body portion of a draw-bar; Fig. 3, a perspective of a modified form of blank for the head; Fig. 4, a perspective of another modified form of said blank; Fig. 5, an inverted plan of the upper die; Fig. 6, a vertical longitudinal section of a pair of dies for welding the head-blank to the body-blank and forming lugs on the face of the head, the dies being shown separated and the blanks in position for welding; Fig. 7, a similar view showing the upper die down in the lower die and the head of the draw-bar forged, and Fig. 8 a perspective of a forged draw-bar enlarged.

Reference being had to the drawings and the letters thereon, A indicates a blank for the head of a draw-bar of the type hereinbefore described, and is in the form of a link thickened or re-enforced at one end, as *a* in Fig. 1. In this construction a separate piece of metal *b* is placed over and upon one end of the link, the piece covering the chamfered portion *c* of the link, and is for the purpose of supplying metal to form the lugs on the face and the rear portion of the head of the draw-bar. In Fig. 3 the blank A is thickened by bending the ends *d d* of the link back upon the link and forming a chamfer at *e*. Both of these forms of blanks are for draw-heads having a lug on each side of the head, between which the coupling-hook is supported.

In Fig. 4 the ends *f f* of the link A are bent up vertically, and this form of blank is designed for heads having a lug in the center, which is engaged on both sides by lugs on the coupling-hook.

B indicates the blank for the body of the draw-bar, across the free ends *g g* of which the blank A is placed and welded thereto, and at which operation the lug or lugs on the face of the head are formed.

C indicates a base having a seat in its upper surface to receive the lower die D, and a cavity *h* to receive the lower half of the body-blank B. The lower die has an aperture *i* through it to receive a tongue or projection *k* on the upper die E. The projection *k* centers or places the head-blank A and holds it in position upon the ends of the blank B while the forging is being done by the upper die, prevents the displacement of metal inward, and facilitates the welding. The lower die is provided with a recess or cavity *l*, the perimeter or wall of which conforms to the perimeter of the head of the draw-bar, is of sufficient depth to receive and contain the head *m* on the upper die E, and the bottom of the cavity is curved to conform to the rear side of the draw-head, there being provision made by rounded edges to form fillets at the juncture between the head and the body. The perimeter or outer surface of the head

m of the upper die conforms to the perimeter or wall of the recess *l* in the lower die, and the face of the head is provided with the tongue or projection *k*, a projection *n*, and one or more cavities *o* to form a lug or lugs *p* on the face of the head, to which the vertical hook (not shown) is secured.

In forging the draw-bars the ends *g g* of the blank B and the blank A are heated in a suitable furnace or furnaces to a welding heat. The blank B is placed in the die D and the cavity *h* in the base C, with the thickened ends *g g* of the blank A extending up in the recess *l* from two to three inches above the bottom thereof. The blank A is then placed in the recess *l* over the ends *g g* of the blank B, with the thickened portion *a* of the blank on one side of the ends *g g*. The upper die E then descends, forces the blank down in the recess *l*, upsets the ends *g g*, and forces the blank A at its points of juncture with the ends *g g* into the metal thereof, so that the fibers of the two blanks at the point named become one homogeneous body, and at the same time the metal in the thickened end of the blank A is so displaced as to fill the cavities *o* in the upper die to form the lug or lugs *p* on the face of the draw-head and form the rear wall *q* thereof, while the metal in the opposite end of the blank A flows out and forms the horn *r* of the head of the draw-bar F. The upper die may be attached to an ordinary drop-hammer, in which event a few blows effect the welding of the two parts, form the head with its lug or lugs, and all the fillets required.

Having thus fully described my invention, what I claim is—

1. The method of manufacturing draw-bars herein described, which consists in forming a blank for the head of the draw-bar with a thickened end, welding said blank to the free ends of a body-blank, and forming vertical lugs on the face of the head out of said thickened end of the blank for the head.

2. In the manufacture of draw-bars, a blank for the head of a draw-bar having a thickened or re-enforced portion jointly with a blank for the body of the draw-bar, the blank for the head being applied to the free ends of the blank for the body, with the thickened portion of the blank for the head extending on one side of the ends of the blank for the body.

3. In the manufacture of draw-bars, a blank for the head of a draw-bar in the form of a link, with its free ends bent, substantially as described.

4. Dies for the manufacture of draw-bars, consisting of a lower die having a recess in its upper side, the perimeter or wall of which conforms to the perimeter of a draw-bar head and the bottom of which conforms to the rear surface of said head, in combination with an upper die having a head the perimeter of which conforms to the wall of the recess in the lower die and the face of which conforms to the outer surface of a draw-bar head having a lug or lugs thereon and provided with a tongue or projection, for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN T. WILSON.

Witnesses:
D. C. REINOHL,
WM. E. DYRE.