

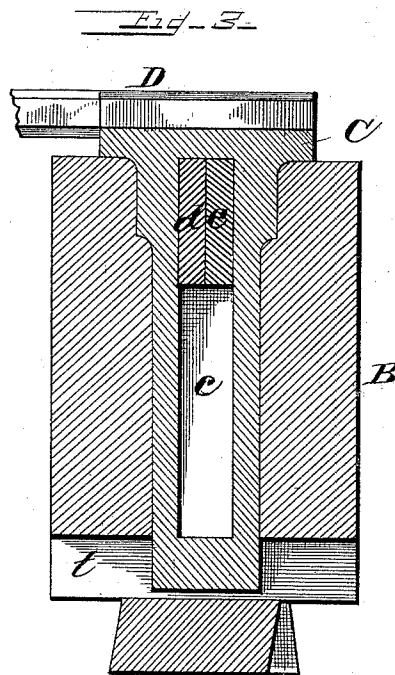
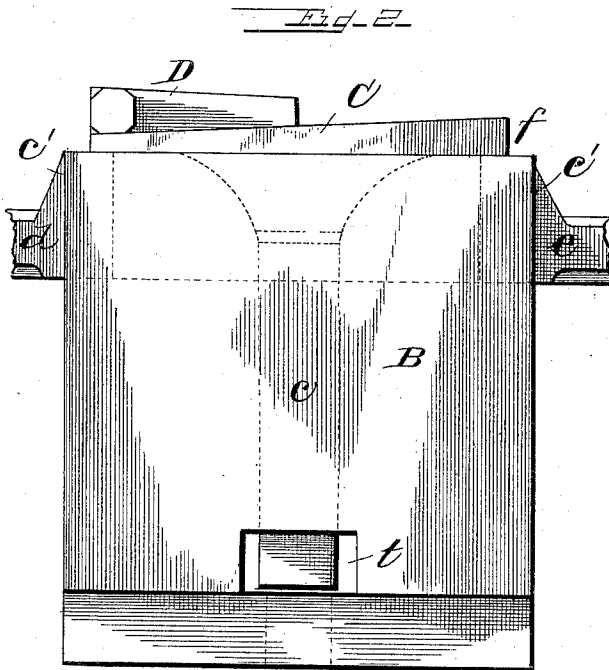
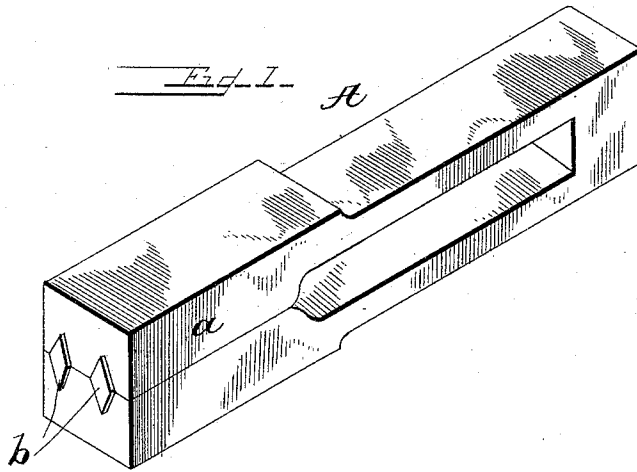
(No Model.)

3 Sheets—Sheet 1.

J. GREEN.
MANUFACTURE OF DRAW BARS.

No. 448,612.

Patented Mar. 17, 1891.



Witnesses

G. A. Taubenschmidt,
J. D. Kingbery

Inventor

John Green

By his Attorneys

Johnston, Remick & Dyer

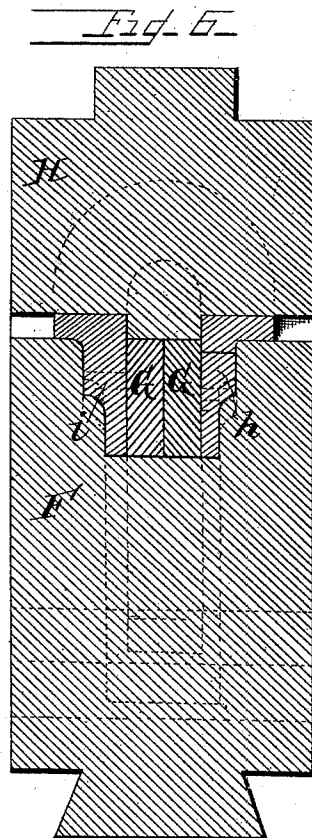
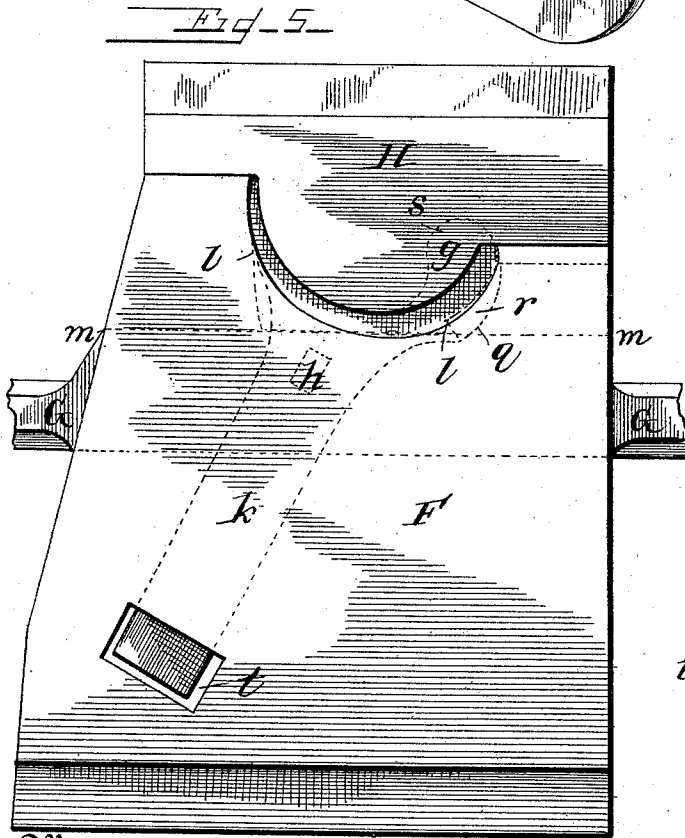
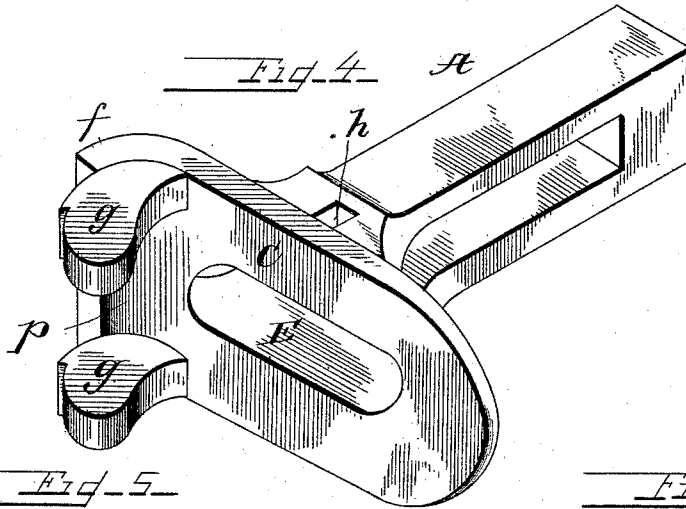
(No Model.)

3 Sheets—Sheet 2.

J. GREEN.
MANUFACTURE OF DRAW BARS.

No. 448,612.

Patented Mar. 17, 1891.



Witnesses

J. W. Faubuschmidt,
J. D. Kuegler

Inventor

John Green

By his Attorneys

Johnston, Reinohl & Dyne

(No Model.)

3 Sheets—Sheet 3.

J. GREEN.
MANUFACTURE OF DRAW BARS.

No. 448,612.

Patented Mar. 17, 1891.

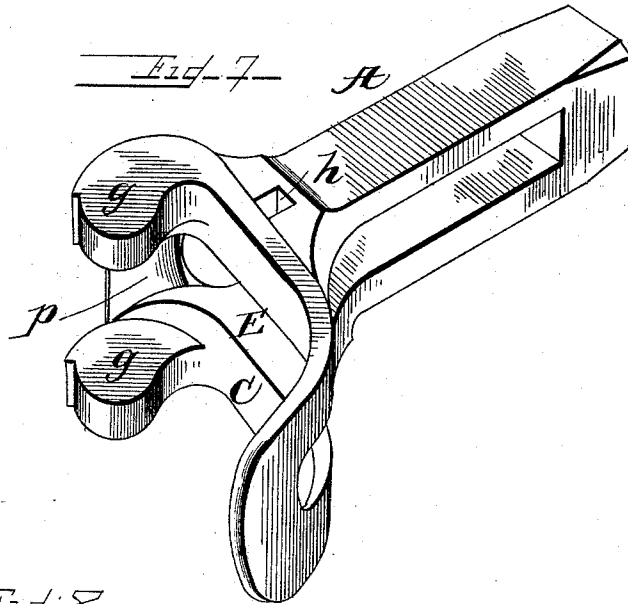


Fig. 8

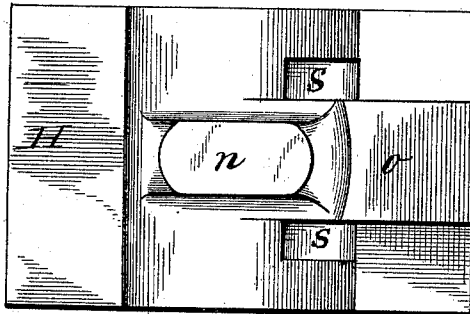
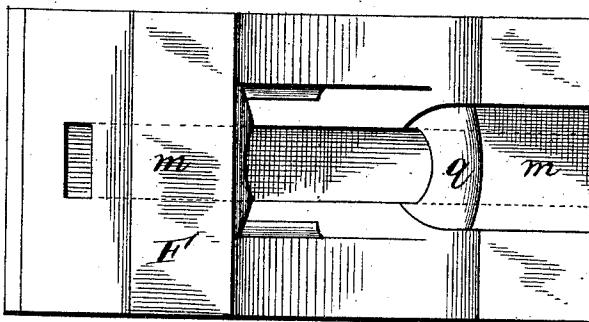


Fig. 9



Witnesses

G. W. Taubenschmitt
J. R. Kingatory

Inventor

John Green

By his Attorneys

Johnston, Reinold & Dyer

UNITED STATES PATENT OFFICE.

JOHN GREEN, OF RENOVO, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
WILLIAM L. HOLMAN AND JOHN MCCORD, BOTH OF SAME PLACE.

MANUFACTURE OF DRAW-BARS.

SPECIFICATION forming part of Letters Patent No. 448,612, dated March 17, 1891.

Application filed December 8, 1890. Serial No. 373,953. (No model.)

To all whom it may concern:

Be it known that I, JOHN GREEN, a citizen of the United States, residing at Renovo, in the county of Clinton 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 invention relates to the manufacture of draw-bars, and has especial reference to that class of draw-bars used in connection with the Janney type of car-coupling. This class of draw-bars as heretofore constructed has generally been made of cast or malleable iron or cast-steel, which in practical use become crystallized by the repeated jars incident to automatically coupling and the general wear and tear of service, and as a consequence their durability becomes impaired and they frequently break, especially in cold weather, causing in many instances irreparable damage or injury to employes.

My invention has for its object an improvement in the manufacture of this class of draw-bars, whereby they can be forged and constitute one homogeneous body of metal which is at no time heated to such a degree as to injure the fiber of the metal. With this object in view, I will proceed to describe my invention.

In the accompanying drawings, which form part of this specification, Figure 1 is a perspective of a blank for a draw-bar with a thickened head or end; Fig. 2, a vertical longitudinal section of a die for forging the thickened head of the blank; Fig. 3, a vertical transverse section of the same; Fig. 4, a perspective of the blank with the head forged and lugs formed thereon; Fig. 5, a side elevation of a pair of dies for shaping the head of a draw-bar; Fig. 6, a vertical transverse section of the same; Fig. 7, a perspective of a draw-bar on which the forging has been completed. Fig. 8 is an inverted plan of the upper die, and Fig. 9 a plan of the lower die.

Reference being had to the drawings and the letters thereon, A indicates a blank with a thickened head or end *a*, which is bent up

in the usual manner of preparing fagots. In the adjacent surfaces of the head are formed grooves, in which are placed dowels or rods *b* of bar-iron to prevent the two parts slipping upon each other and being displaced in forging the head.

B indicates a die having a cavity *c* therein to receive the body of the blank A and a longitudinal slot *c'* in the upper surface to receive wedges *d e* for clamping the blank to the die, preventing the side bars bending inward and for forming the lower surface of the center portion of the head or flange C on the blank as it is being forged out of the thickened end of the blank A. The forging is effected by the use of an ordinary drop-hammer or a hydraulic press, (not shown,) and to flatten the upper surface and make the head or flange C tapering, a flattener D, having a taper corresponding with the taper desired to be given to the head, is interposed between the head and the hammer, and is moved about upon the head as the forging proceeds. The head is preferably thickened at the end *f* to provide metal to work into lugs subsequently formed thereon, and a swell or bulge on the rear surface of the head of the draw-bar. After the head C has been drawn out the blank is raised in the die, a suitable punch (not shown) applied, and the link-slot E punched in the head. The blank is then removed from the die, an initial bend given to the head in a suitable former and the lugs *g g* formed thereon, which may be done by making the lugs separately and attaching them with dowels and welding, or sufficient metal may be left on the head to stamp the lugs and form them integral therewith. Preference is however given to the former practice. If the latter is used, the lugs may be bent up at the same time the initial bending is done. The rectangular slot *h* and the round hole *i* may be punched into the sides of the bar prior to or after the bending. The blank is now ready for shaping the head.

F indicates the lower shaping-die and is provided with an oblique cavity *k*, in which the body of the blank is placed, a recess or cavity *l* for the head of the blank, and a longitudinal slot *m* to receive the wedges G G, which, as in the die B, clamp the blank to the die while the forging or shaping of the head

is being effected, forms a mandrel for the center portion of the under side of the head and prevents the sides of the body of the bar bending inward.

5 II indicates the upper die, which is provided with a face for shaping the outer surface of the head, and which is attached to the face of an ordinary steam-hammer or hydraulic press (not shown) and is provided with a
10 guiding-tongue *n*, which enters the link-opening *E* in the head *C*, a projection *o* on one side of the tongue for shaping the inner surface *p* of the draw-head, and which corresponds
15 with a depression *q* in the cavity *l* for forming the swell or bulge *r* on the rear side of the draw-head, and two cavities *s s* on opposite sides of the projection *o* for shaping the lugs *g g* on the face of the head *C*.

The dies are provided with suitable curves
20 for forming fillets. By forming the cavity *k* oblique in the lower die the upper die is prevented from raising the draw-bar from its seat in the lower die as the upper die rises in the act of forging. Any scale or dirt which may
25 fall into the cavity for the body portion of the draw-bar may be removed through the transverse aperture *t* in the lower dies. This aperture may also be used for inserting a pointed bar to raise the draw-bar from its seat
30 in the die when the forging has been completed, and the draw-bar may then be raised out of the cavity by the use of a rod.

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

35 1. The method of manufacturing draw-bars, which consists in forming a blank with a thickened end, upsetting said end and forming a head integral with the body portion, then forming lugs on the face of one end of said
40 head, said lugs projecting at a right angle to the face of the head, and then placing the blank in a die and bending and shaping the head with its lugs into the form substantially as described.

45 2. The method of manufacturing draw-bars, which consists in forming a blank with a thickened end, upsetting said end and forming a head thereon, then punching the link-slot in the head, giving an initial bend to said head,
50 forming lugs on the face of one end of the head, said lugs projecting at a right angle to the face of the head, and then bending and shaping the head with its lugs in suitable dies into the form substantially as described.

55 3. The improvement in dies for manufacturing draw-bars, having a cavity to receive

the body portion of the draw-bar and a slot crossing the die, and the overlapping wedges for passing through the body portion of the draw-bar and die, substantially as described. 60

4. Dies for manufacturing draw-bars, consisting of a lower die having a cavity for the body portion of the draw-bar and a curved recess for shaping the rear surface of the head, in combination with an upper die having a shaping-face for the outer surface of the head and cavities for shaping the lugs thereon, substantially as described. 65

5. Dies for manufacturing draw-bars, consisting of a lower die provided with an oblique cavity for the body portion of the draw-bar and a recess for shaping the rear surface of the head, in combination with an upper die having a shaping-face for the outer surface of the head, substantially as described. 70

6. Dies for manufacturing draw-bars, consisting of a lower die provided with an oblique cavity for the body of the draw-bar and a curved recess for shaping the rear surface of the head, in combination with an upper die having a guiding-tongue to enter the link-slot in the head, a shaping-face for the outer surface of the head, and cavities for shaping the lugs on said face, substantially as described. 75

7. Dies for manufacturing draw-bars, consisting of a lower die provided with a recess for the body portion of the draw-bar, a cavity with a depression therein for shaping the rear surface of the head and forming a swell or bulge thereon, in combination with an upper die having a shaping-face for the outer surface of the head, a tongue, a projection on one side of said tongue and cavities on one side of said tongue, and cavities on both sides of the projection for shaping lugs on the face of the head, substantially as described. 80

8. A forged blank for draw-bars, consisting of a body portion and a head formed integral therewith and provided with projecting lugs on one end thereof, substantially as described. 85

9. A forged blank for draw-bars, consisting of a body portion and a tapering head formed integral therewith and provided with projecting lugs on one end thereof, substantially as described. 90

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

JOHN GREEN.

Witnesses:

D. C. REINOHLE,
WM. E. DYRE.