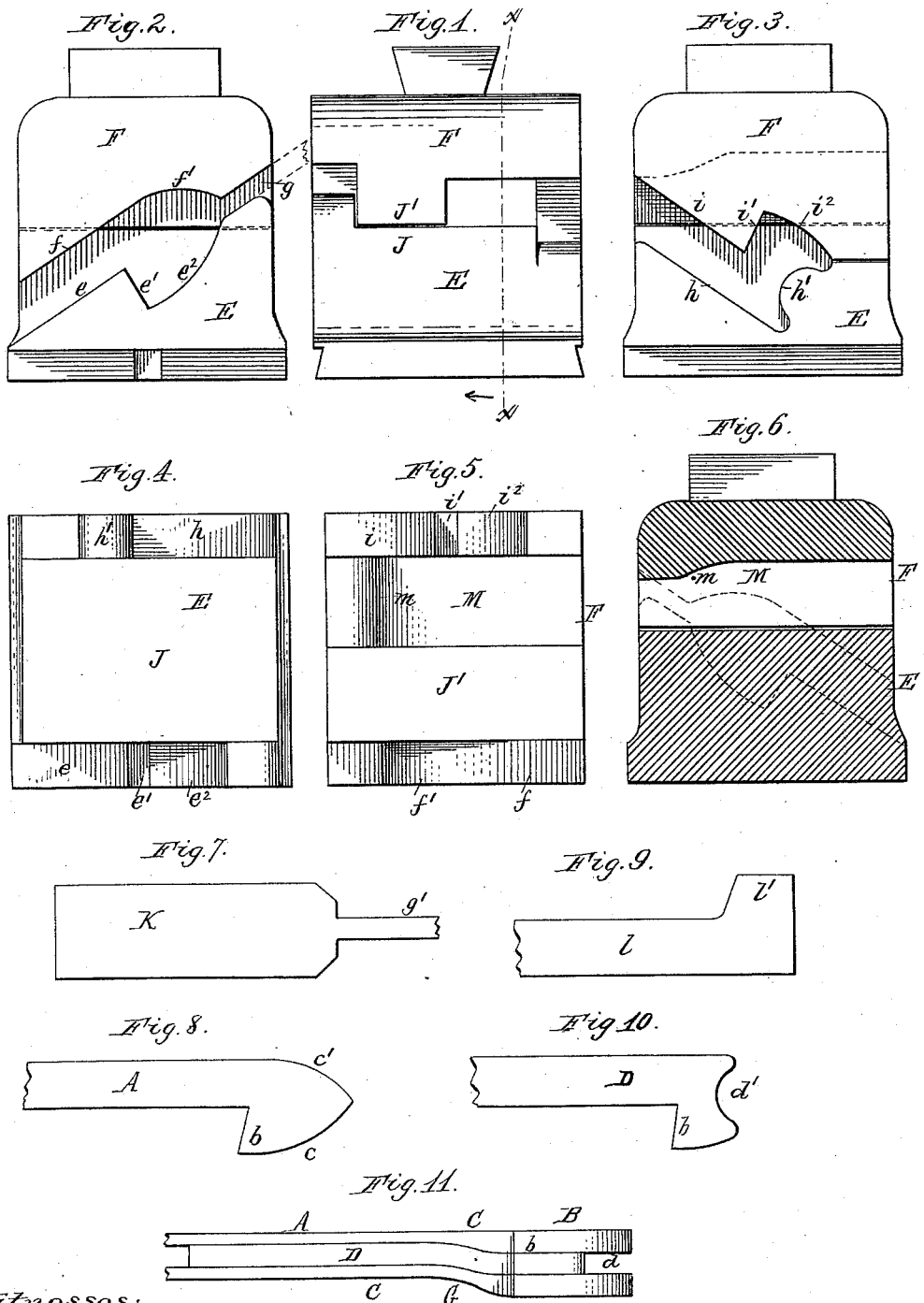


(No Model.)

J. REILLEY.
DIE FOR FORGING CAR COUPLERS.

No. 421,142.

Patented Feb. 11, 1890.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES REILLEY, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO
CLAES BERGMAN, OF SAME PLACE.

DIE FOR FORGING CAR-COUPERS.

SPECIFICATION forming part of Letters Patent No. 421,142, dated February 11, 1890.

Application filed July 31, 1889. Serial No. 319,322. (No model.)

To all whom it may concern:

Be it known that I, JAMES REILLEY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Dies for Forging Car-Couplers, of which the following is a specification.

This invention relates to dies for forging that class of car-couplers which are commonly known as the "Miller coupler."

The object of my invention is to construct a pair of dies whereby couplers of this class can be produced more expeditiously than heretofore, and at the same time be finished in a superior and more uniform manner.

The invention consists of the improvements which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of my improved dies. Figs. 2 and 3 are elevations showing opposite sides of the dies. Fig. 4 is a top plan view of the lower die. Fig. 5 is a bottom plan view of the punch or upper die. Fig. 6 is a vertical section of the dies in line *xx*, Fig. 1, looking in the direction of the arrow. Fig. 7 is a plan view of one of the cheek-pieces of the coupler, showing the form thereof previous to being operated upon by the dies. Fig. 8 is a similar view of a finished cheek-piece. Fig. 9 is a plan view of the filling-piece of the coupler, showing the form of the same before being operated upon by the dies. Fig. 10 is a similar view of a finished filling-piece. Fig. 11 is a side elevation of a finished car-coupler.

Like letters of reference refer to like parts in the several figures.

A represents the shank or body, and B the head or hook of the coupler. The latter is composed of two cheek-pieces C and an intermediate or filling piece D. The two cheek-pieces are of the same outline, and are secured to opposite sides of the filling-piece D by welding, riveting, or otherwise, as represented in Fig. 11.

The head B is provided with a lateral extension or offset *b*, forming the hook, having a curved face *c* and a curved back *c'*, so as to form a V or arrow shaped head. The front

ends or head portions of the cheek-pieces C project beyond the filling-piece D, so as to form a cavity or recess *d* for the reception of an ordinary coupling-link. This filling-piece is concaved at *d'*, as shown in Fig. 10, to form a seat for the end of the link.

E represents the lower stationary die, which is secured to the anvil-block of a steam or power hammer.

F represents the punch or upper movable die which is secured to the head of the power-hammer.

The die E is provided on its upper side, near one of its lateral edges, with an upwardly-inclined face *e* for forming one edge of the shank portion A of the coupler, a downwardly and forwardly inclined face or shoulder *e'*, and an upwardly and forwardly curved or concave face *e''*, which latter, together with the inclined face *e'*, form the hook or projecting portion *b* and the curved face *c* of the coupler.

f represents an upwardly-inclined face formed on the lower side of the upper die or punch F. The face *f* is arranged immediately above and parallel with the face *e* of the lower die E, and between these faces the shank A is formed. The face *f* terminates at its front upper portion with a concave face *f'* for forming the retreating back *c'* of the coupler.

g is a passage or guide-space formed at the adjacent front faces of the dies E and F, in rear of the faces *f'* *e''*, respectively, for the admission of a staff or bar *g'*, which latter is welded to the front or head portion of each cheek-blank, as shown in Fig. 7, whereby the blanks are manipulated by the operator during the operation of heating and forging the same. This staff is cut off from the head B when the cheek-piece is finished, as shown in Fig. 8.

h represents a downwardly-inclined face formed on the opposite upper side of the lower die E, near the lateral edge thereof, for forming one side of the shank portion A of the filling-piece D.

h' represents a convex face formed above the lower inner portion of the face *h* and facing the latter, whereby the concave or link seat *d* of the filling-piece D is formed.

i represents a downwardly-inclined face formed on the upper die F above the inclined face *h* and arranged parallel therewith, whereby the opposite edge of the shank portion A of the filling-piece D is formed.

i' represents an upwardly-inclined face or shoulder, and *i*² a downwardly-curved or concave face, which latter, together with the shoulder *i'*, form the hook or projecting portion *b* of the filling-piece D.

The lower die E is provided on its upper side with a flat working-face or anvil J, which extends across the die from the faces *e e'* *e*², whereby the cheek-piece is formed, to the faces *h h'*, in which the filling-piece is formed. The upper movable die or punch F is provided above the face J, and adjacent to the faces *f f'*, with a similar flat face J', which extends partly across the die. The blanks for the cheek-pieces and filling-pieces are forged between these flat faces preparatory to placing the blanks between the shaping faces or dies.

The cheek-pieces are forged between the flat faces J J' to the form shown in Fig. 7 before being placed in the shaping-dies, and the filling-pieces are forged in a similar manner to the form represented in Fig. 9. Each cheek-piece blank consists of a flat plate K, having at its end the above-described staff or bar *g'*. The filling-piece blank consists of a narrow shank portion *l* and an enlarged or laterally-projecting portion *l'*.

When the cheek-piece blank has been forged to the form shown in Fig. 7, it is heated and then placed with its lower end upon the inclined faces *e e'* *e*². It is then shaped by bringing the faces *f f'* of the upper die down upon the blank. The shank is forged and drawn out to the proper length by alternately placing it between the flat anvil-faces J J' and the die-faces *f e*.

When the filling-piece blank has been forged to the form shown in Fig. 9, it is heated and placed with its long flat edge upon the inclined face *h*, and with its lower end resting against the front side of the convex face *h'*. It is then shaped by bringing the upper shaping-faces *i i'* *i*² down upon the blank. The shank of this piece is formed to the proper width between the shaping-faces *i* and *h*, and is drawn out to the proper length between the flat faces J J'.

The heads B of the cheek-pieces C are forged somewhat thicker than the shanks A. The metal gradually tapers from the head toward the shank, so as to form a wide coupling-face and a comparatively narrow shank. The cheek-piece is preferably forged to one thickness over its entire length. This construction forms an offset G when the parts are welded together. This offset or curved connecting portion is formed by assembling the three parts and placing the same upon the flat anvil-face J of the lower die, below a recessed face M formed on the lower side of the upper die or punch F on one side or ad-

jacent to the face J'. The face M is curved at *m* to conform to the offset on the lower side of the coupler.

With my improved dies car-couplers can be produced in much less time than heretofore, and by a single heating, and in a more uniform and highly-finished manner, than by hand-work, whereby a great saving of time and labor is effected and the cost of production greatly reduced.

I claim as my invention—

1. The combination, with the lower stationary die E, provided with inclined faces *e e'*, arranged at an angle to each other, and a concave face *e*², of an upper movable die provided with an inclined face *f*, arranged parallel with the inclined face *e* of the lower die, and with a concave face *f'*, arranged opposite the concave face *e*² of the lower die, substantially as set forth.

2. The combination, with the lower stationary die E, provided with inclined faces *e e'*, arranged at an angle to each other, and a concave face *e*², of an upper movable die provided with an inclined face arranged parallel with the inclined face *e* of the lower die, and with a concave face *f'*, arranged opposite the concave face *e*² of the lower die, and a passage *g*, formed in the adjacent portion of the two dies and communicating with the space formed between the concave faces *e*² and *f'* of the two dies, substantially as set forth.

3. The combination, with the lower stationary die E, provided with inclined faces *e e'*, arranged at an angle to each other, and a concave face *e*², of an upper movable die provided with an inclined face *f*, arranged parallel with the inclined face *e*² of the lower die, and with a concave face *f'*, arranged opposite the concave face *e*² of the lower die, and flat anvil-faces formed on both dies, substantially as set forth.

4. The combination, with the lower die E, provided with an inclined face *h*, and a convex face *h'*, arranged at the lower end of the inclined face *h*, of an upper die provided with a downwardly-inclined face *i*, arranged parallel with the inclined face *h* of the lower die, an upwardly-inclined face *i'*, arranged at an angle to the downwardly-inclined face *i*, and a concave face *i*² arranged above the convex face *h'* of the lower die, substantially as set forth.

5. The combination, with the lower die E, provided with a downwardly-inclined face *h*, and a convex face *h'*, arranged at the lower end of the inclined face *h*, of an upper die provided with a downwardly-inclined face *i*, arranged parallel with the downwardly-inclined face *h* of the lower die, an upwardly-inclined face *i'* and a concave face *i*², arranged above the convex face *h'*, and flat anvil-faces J J', substantially as set forth.

6. The combination, with an upper and a lower die, provided at one side with inclined die-faces for shaping the cheek pieces, and

at the other side with inclined die-faces for
shaping the filling-pieces, of an intermediate
flat face arranged between the inclined faces
of the lower die, and intermediate flat and
5 curved faces arranged side by side between
the inclined faces of the upper die, forming
two pairs of intermediate faces, one pair com-
posed of two flat faces for forging the shanks
and one pair composed of a flat and a curved

face for forging the offset, substantially as is
set forth.

Witness my hand this 27th day of July,
1889.

JAMES REILLEY.

Witnesses:

JNO. J. BONNER,
F. C. GEYER.