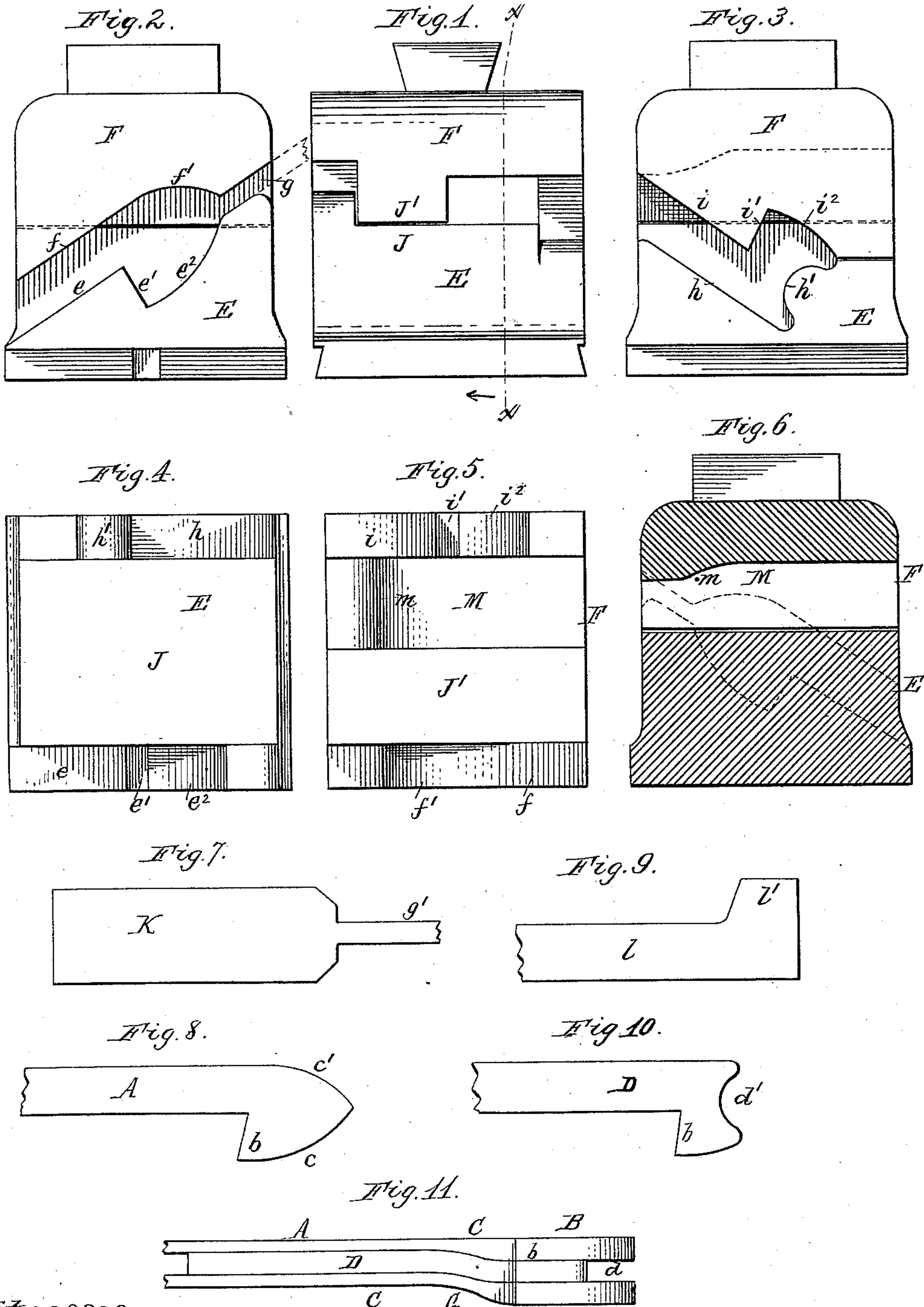


(No Model.)

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-COUPPLERS.

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.