

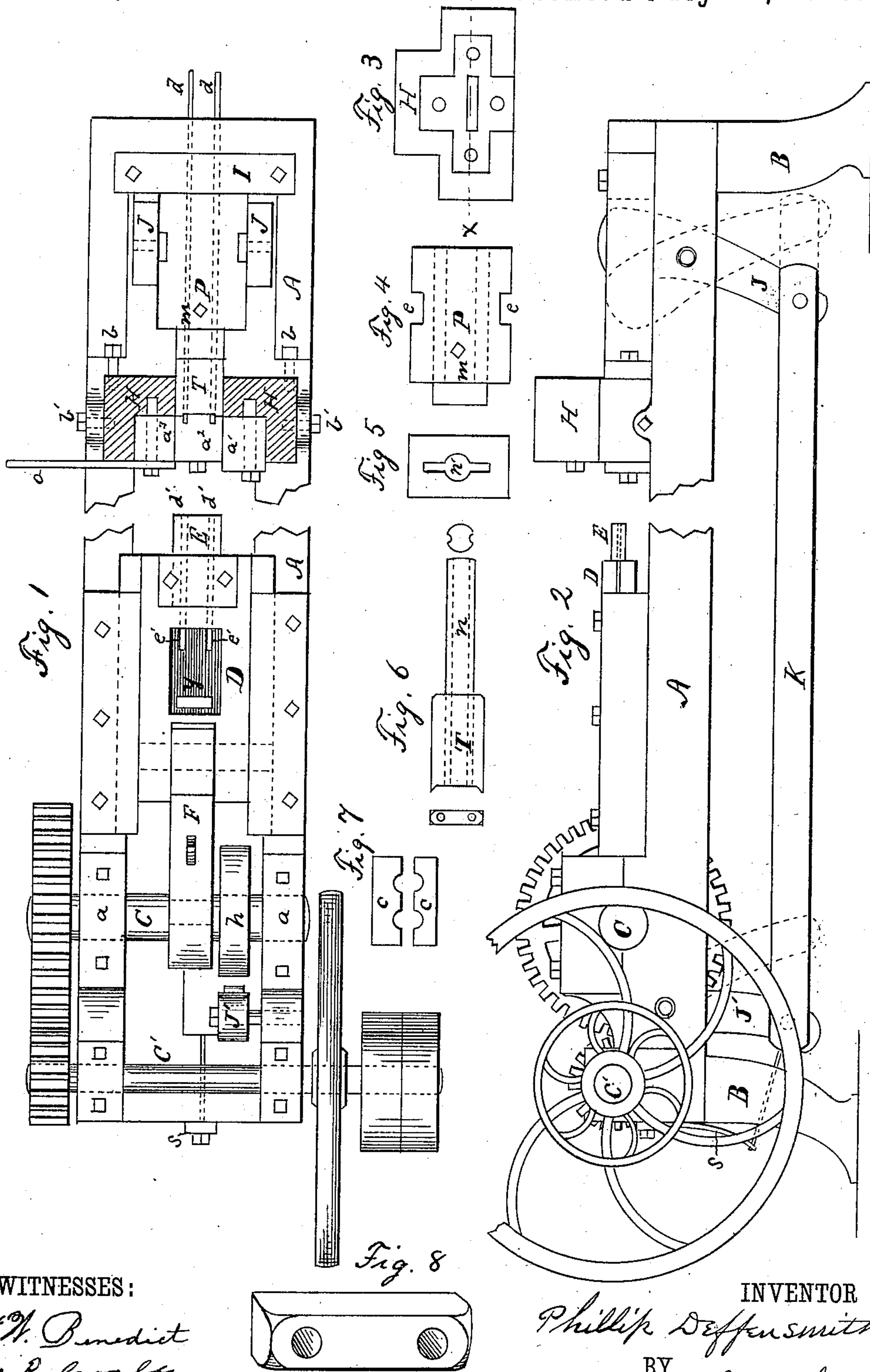
(No Model.)

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MACHINE FOR MAKING CLIP YOKES.

No. 323,284.

* Patented July 28, 1885.



WITNESSES:

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MACHINE FOR MAKING CLIP-YOKES.

SPECIFICATION forming part of Letters Patent No. 323,284, dated July 28, 1885.

Application filed May 8, 1885. (No model.)

To all whom it may concern:

Be it known that I, PHILLIP DEFFENSMITH, a citizen of the United States, residing at Hamden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Clip-Yoke Machines, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a top view or plan of my improved machine, the frame or bed A being represented as broken to facilitate showing the several parts, which would otherwise become confused. A sectional view of the die-block on line *x x*, Fig. 3, is also given in this figure that a clearer perception of the several parts may be had. Fig. 2 is a side elevation. Fig. 3 represents a front view of the die-block. Fig. 4 is a plan, and Fig. 5 an end view, of the carrier-block holding the crowning-tool. Fig. 6 comprises three views of the crowning-tool. Fig. 7 is an end view of two clamping-dies, all of which are more fully explained hereinafter.

This invention relates to improvements in a machine for making an article of manufacture known as a "carriage clip-yoke." These clip-yokes consist of a bar having holes in each end, and adapted to pass onto the threaded ends of the axle-clip and serve as a clamping-bar for the same, against which the nuts of the clip are screwed. The ends of the clip-yoke are square; but the corners of one side are rounded to give them a more finished appearance, as will be seen by reference to the perspective view, Fig. 8, which represents a finished clip-yoke. It has been generally the custom, prior to this invention, to forge these clip-yokes under a "drop," afterward drilling or punching the holes in the ends, involving several different operations, and handling them over before being finished for use.

The object of this invention is to provide a machine which will cut a blank from the heated bar and convert the same into a finished clip-yoke at each complete revolution of the machine; and to this end it consists of the machine hereinafter described, and specified in the claims.

A is the frame or bed of the machine, supported upon the legs B B or otherwise.

C is a crank-shaft rotating in bearings *a a*. Said crank-shaft is rotated by the auxiliary shaft C', by means of the gear and pinion attached to the end of each, and shown in the drawings. The cross-head D, into which is secured a punch, E, is connected with the shaft C by means of the pitman F, whereby a reciprocating motion is imparted to the cross-head D as the crank-shaft is revolved.

H is a die-block provided with a rectangular opening, which passes through the same. Around this opening, but upon the front side of the block H, a space is recessed out to receive the four smaller blocks *a' a' a' a'*, which form a rectangular space by their inner surfaces, corresponding to the size of the clip-yoke, and in the same plane as the opening in the die-block H, Fig. 3. The small circles in the block H, represent holes, into which the bolts are entered which hold the blocks *a' a' a' a'* that form the clip-yoke die, three of which may be seen in position in Fig. 1 at *a' a' a'*. It will be noticed that the block *a'* projects from the block H farther than the others, thereby serving as a stop to regulate the amount of stock to be cut off for each clip-yoke. The die-block H is secured to the bed of the machine by the bolt *b b*, and may be adjusted laterally by the bolts *b' b'* at each side.

At the rear end of the machine is a removable cap, I, beneath which is a recess adapted to receive the two clamping-dies *c c*, Fig. 7, between which the rods *d d* are placed and securely clamped in the desired position, which I will fully explain later.

The carrier-block P is adapted to be placed in between the forked ends of the swinging-lever J. Each of said forked ends is provided with a revolving stud having a square head projecting inwardly and fitting into the recesses *e e* of the carrier P, whereby said carrier is adapted to oscillate upon said studs when the carrier is being moved to and fro by the swinging lever J. The carrier P is also provided with an aperture, *n'*, which passes longitudinally through the same, as shown in end view, Fig. 5, into which the shank *n* of the crowning-tool T is entered and secured by a suitable set-screw, *m*. The front end of this crowning-tool is in form the opposite of the crowned surface of the finished clip-yoke, hav-

ing the corners rounded over, as shown in Fig. 8.

The swinging levers J and J' are connected with the bar K, and are arranged to be operated by the cam *h* on the crank-shaft C. The punch E is provided with two longitudinal openings, *d' d'*, operating in conjunction with the rods or punches *d d* to puncture the holes in the ends of the clip-yoke. (Shown in Fig. 8.) To operate the machine after the several parts have been arranged as shown in the drawings, a heated bar, *o*, is introduced from the side, as represented in Fig. 1, until it abuts against the stop *a'*. Then as the cross-head D moves forward the punch E cuts off from the end of the bar *o* a blank for a clip-yoke, which is pressed forward into the die formed by the four blocks in the die-block H, meeting the ends of the rods or punches *d d*, which are arranged to enter the openings in the ends of the punch E, thereby punching the holes in the ends of the clip-yoke while the clip-yoke is confined by the walls of the swaging-die, thereby avoiding any spreading of the clip-yoke, as it would if it were not so confined. As soon as the punches *d d* have entered into the openings in the punch E the continued forward movement of the punch E and blank clip-yoke is arrested by meeting the crowning-tool T, which forms the back or bottom of the swaging-die. At this point the blank is submitted to a very great pressure between the ends of the punch E and the crowning-tool T. The swaging and finishing of the clip-yoke being all done while the punches *d d* are in the clip-yoke, said punches operating in conjunction with both the crowning-tool T and the punch E, afford a means of producing a uniformity of finished work that cannot be accomplished by separate operations. As soon as the clip-yoke is thus swaged the punch E recedes from the die, to be immediately followed by the crowning-tool T, which is moved longitudinally through the die by means of the swinging levers J and J', being actuated by the cam *h* on the crank-shaft C. Said movement of the crowning-tool T ejects the finished clip-yoke from the die, which drops therefrom to the floor or receptacle below. The lever J' is made to follow the contour of the cam *h* by the spring *s* or its equivalent.

The punches *d d* are entered from the back end of the machine and passed through openings in the carrier P and crowning-tool T, being positively secured at any point desired by the clamping-dies *cc* and cap I. These punches, as well as the punch E, being the working parts which require the most repairing—i. e., need to be sharpened—by the herein-described arrangement of those parts either may be easily removed and replaced without deranging the rest of the machine. The small punchings from the holes in the ends of the clip-yoke which remain in the reciprocating punch E are ejected therefrom by the loose rods *e' e'* coming in contact with the stationary piece *y*, said piece *y* being a portion of the bed of the machine, which projects upwardly from beneath the cross-head D into the opening in the gate D, as shown in Fig. 1.

Having described my invention sufficiently to enable those skilled in the art to make and use the same, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for making clip-yokes, the combination of the die-block H, having a series of removable pieces, *a' a² a³ a⁴*, the reciprocating punch E, and the reciprocating crowning-tool T, substantially as described.

2. In a machine for making clip-yokes, the combination of the die-block H, having a series of removable pieces, *a' a² a³ a⁴*, the reciprocating crowning-tool T, the stationary punches *d d*, and the reciprocating punch E, having circular openings *d' d'* in the end of the same, arranged to operate in conjunction with the stationary punches *d d* to punch holes in the end of the clip-yoke, substantially as and for the purpose described.

3. In a machine for making clip-yokes, the combination of the die-block H, having a series of removable pieces, *a' a² a³ a⁴*, the reciprocating crowning-tool T, the reciprocating punch E, having circular openings *d' d'* in the end, the stationary punches *d d*, and the ejecting-rods *e' e'*, substantially as and for the purpose described.

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

PHILLIP DEFFENSMITH.

Witnesses:

DANIEL VISEL, Jr.,
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