

C. MERCADER, DEC'D.
E. MERCADER, ADMINISTRATOR.

FORGING PRESS.

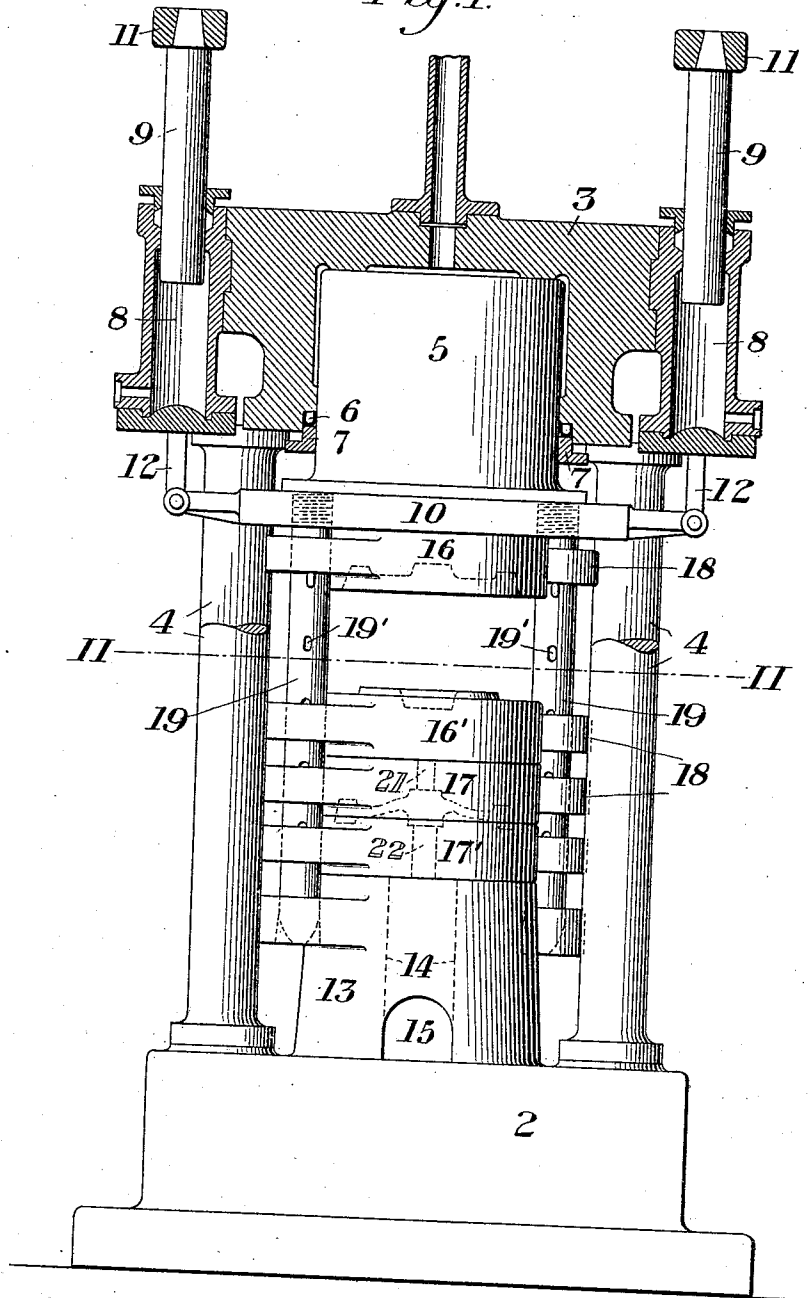
APPLICATION FILED APR. 10, 1906.

939,920.

Patented Nov. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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Fig. 2.

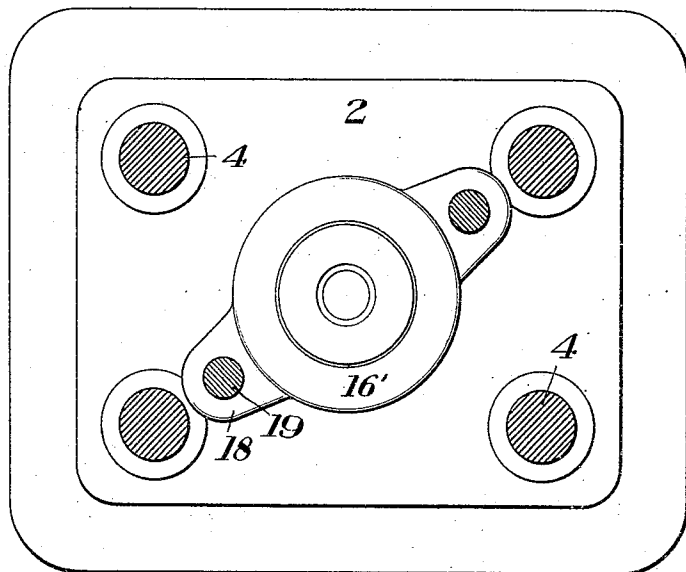
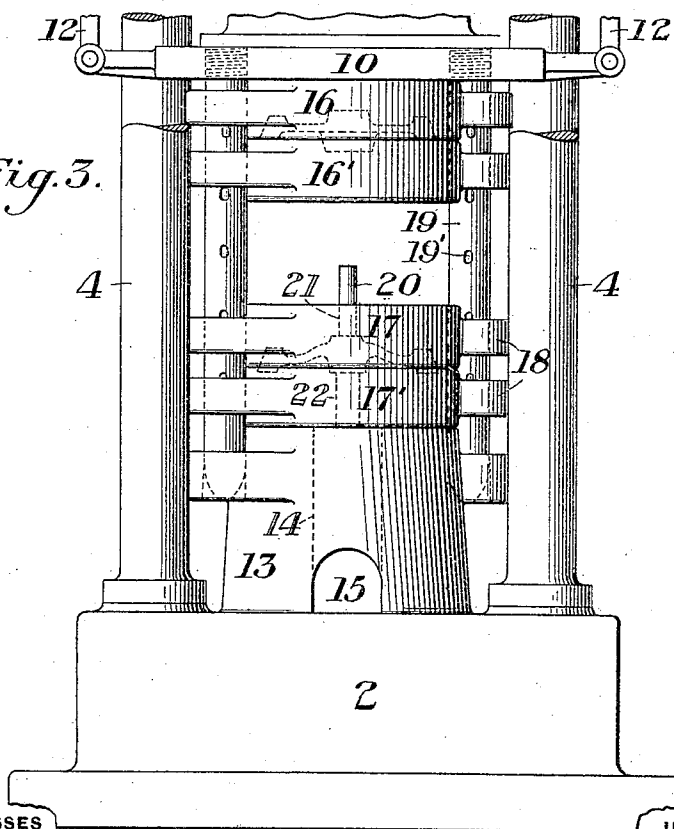


Fig. 3.



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UNITED STATES PATENT OFFICE.

CAMILLE MERCADER, OF PITTSBURG, PENNSYLVANIA; EUGENE MERCADER, ADMINISTRATOR OF SAID CAMILLE MERCADER, DECEASED, ASSIGNOR TO HERMAN LAUB, TRUSTEE, OF PITTSBURG, PENNSYLVANIA.

FORGING-PRESS.

939,920.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed April 10, 1906. Serial No. 311,015.

To all whom it may concern:

Be it known that I, CAMILLA MERCADER, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Forging-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation partly in section of a vertical forging press equipped with my invention; Fig. 2 is a horizontal section on the line II—II of Fig. 1; and Fig. 3 is a partial front elevation showing the forming dies in one of the several positions in which they are placed in carrying out the forging operation with my improved apparatus.

My invention relates to forging presses by which metal is formed into the desired shape, and the invention consists in the novel arrangement of forming dies by the use of which the time required in forging is reduced and the labor and expense of such operation is lessened.

In the drawings, I have shown the apparatus as it is arranged for the purpose of forging steel car wheels, although I do not limit my invention to this use, as it may be applied to various other purposes.

In the drawings, 2 represents the stationary base-plate of a vertical hydraulic forging press, which is fastened on a suitable foundation, by means of suitable foundation bolts, in the usual manner. Above the base-plate 2 is a hydraulic cylinder 3, which is secured to the base-plate by means of the rods or bolts 4, 4. The cylinder 3 is provided with the usual piston 5, having the usual packing-ring 6 and gland 7. Attached to the cylinder 3 are two pull-back cylinders 8 provided with pistons 9, 9. On the piston 5 is a cross-head 10, preferably guided on the rods 4, 4, which is connected to cross-heads 11, 11 on the upper ends of the pistons 9, 9 by means of connecting rods 12. All of the cylinders are single-acting, the piston 5 being moved in a downward direction by the fluid-pressure in the cylinder 3, and being raised in the opposite direction by means of the pull-back cylinders 8, 8 and its connecting mechanism.

On the base-plate 2 is an anvil block 13, provided with openings 14, 15, for a purpose

described later. The anvil block 13 may be formed integral with the base-plate as shown, or may be removably secured, as is desired.

Mounted on the press between the piston 5 and the anvil block 13 are a series of pairs of forming dies 16, 16', 17, 17', the dies being superimposed upon one another. The dies are provided with lugs 18, which lugs by engagement with the guide-rods 19 keep the dies in proper alinement with each other and with the anvil of the press. The guide-rods 19 are secured to the cross-head 10 on the piston 5, and also serve to lift the forming dies, suitable slots 19' being provided in the rods 19, in which slots keys are placed in position to lift the desired dies.

The operation of the apparatus is as follows:—The parts being in the position shown in Fig. 1, a suitable blank which has been heated is placed between the opposite faces of the dies 16, 16'. The piston 5 is then advanced, and the blank is operated on between these dies. The piston 5 and the die 16 is then lifted, and the blank is removed. The piston 5 is again advanced until the faces of the dies 16, 16' meet, the keys are removed from the slots 19' in the rods 19, in which they were first placed, and are then placed in the slot 19' below the lug 18 on the die 17. The piston 5 is then raised, carrying with it the dies 16, 16' and 17. The partly formed blank is then placed in position on the die 17', and the piston 5, together with the dies carried on it, are lowered until the die 17 contacts with the blank and performs the second step of the forging operation. The keys are then removed from the slot in the rods 19 and are placed in the slots 19' immediately below the lugs on the die 16'. The die 16' is then lifted and a punch 20 is placed in the opening 21 in the die 17, as shown in Fig. 3. The piston 5 is then advanced so as to punch a hole in the blank, the metal removed by the punch and also the punch passing through the opening located in the bottom die 17'. The punch and metal removed by this operation drops through the openings 14 in the anvil block 13, and is removed through the side opening 15 in the bottom of the anvil block 13. The dies 17, 17' are then separated and the blank removed. A new blank is then secured and the operation again repeated.

The advantages of my apparatus will be apparent to those skilled in the art. Instead of it being necessary to remove one pair of dies from its position on the press and placing a second set of dies on the press to perform the successive forging operations, the dies are always in position and in the center of the press. The time required for performing the forging operation is lessened, enabling the blanks to be finished in many cases without reheating, and the labor required in performing the forging operations is reduced.

The number of dies used may vary to correspond with the number of forging operations, and other modifications in the apparatus may be made within the scope of my invention. The forging press may be a horizontal press instead of vertical, as shown, and other variations may be made.

I claim:—

1. The combination with a forging press having opposing anvil faces and means for advancing and retracting one of said faces, of forming dies mounted between said faces, guides parallel with the line of movement of the movable anvil face, and means arranged to move the dies against the movable anvil face.

2. The combination with a forging press having opposing anvil faces and means for advancing and retracting one of said faces, of a plurality of forming dies mounted between said faces, and means for connecting one or more of said dies to move with the movable anvil face.

3. The combination with a forging press having opposing anvil faces and means for advancing and retracting one of said faces, of a plurality of forming dies mounted between said faces, and means movable with the movable die face and arranged to connect one or more of said dies to the movable anvil face.

4. The combination with a forging press having opposing anvil faces and means for advancing and retracting one of said faces, of a plurality of forming dies mounted between said faces, rods connected to the movable anvil faces and extending parallel with the line of movement thereof, and means for connecting either of the dies to said rods.

In testimony whereof, I have hereunto set my hand.

CAMILLE MERCADER.

Witnesses:

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H. M. CORWIN.