

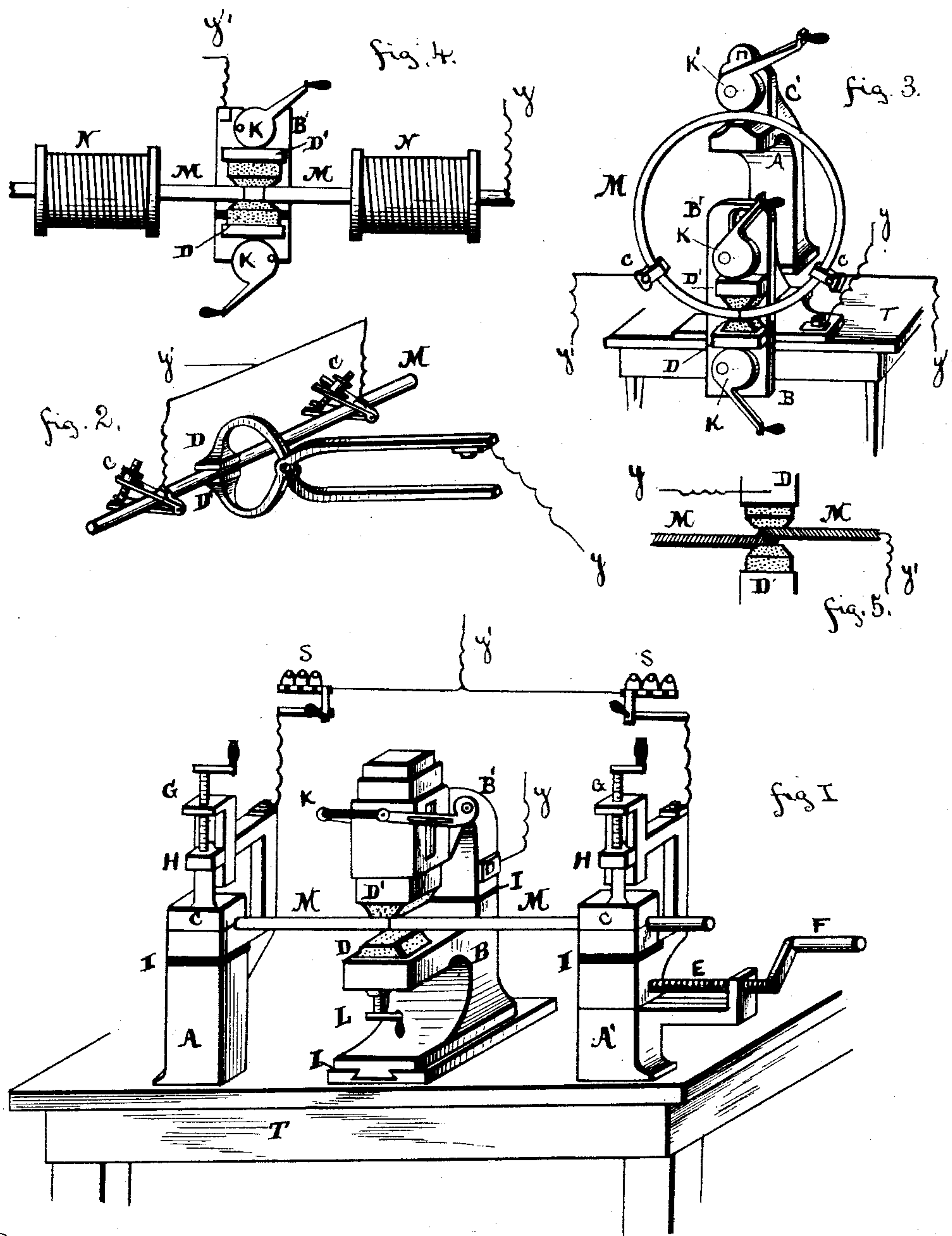
(No Model.)

C. L. COFFIN.

PROCESS OF ELECTRICALLY WELDING METALS.

No. 437,571.

Patented Sept. 30, 1890.



Witnesses.
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PROCESS OF ELECTRICALLY WELDING METALS.

SPECIFICATION forming part of Letters Patent No. 437,571, dated September 30, 1890.

Application filed April 8, 1890. Serial No. 347,155. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. COFFIN, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful
5 Improvement in Process of Electric Welding and Metal-Working, of which the following is a specification.

My invention consists of an improved process of electric welding and metal-working,
10 hereinafter fully described and claimed.

The drawings represent apparatus by which my invention may be practiced. Figures 1, 2, and 3 are perspectives, and Figs. 4 and 5 are partial elevations.

15 In Fig. 1, T represents a table, upon which are mounted two posts A and A', the upper part of post A' being made movable and controlled by a screw-shaft E, having a crank F. I represents insulation in all the figures. C
20 C represent clamps supported on posts A and A', but insulated therefrom, the upper half of each clamp being movable by means of a winch G and sliding block H or in any other convenient manner. B represents a post,
25 movably mounted on table T, carrying an anvil-block D, preferably of carbon, which is movable vertically by a screw-shaft L. B' represents a post secured to but insulated from table T, which carries a vertically-sliding
30 head K, at the lower end of which is a conductor D', (preferably of carbon.) The post B' is connected by the conductor Y with one pole only of a generator, and the clamps C C are connected by a branched conductor
35 Y', in which there may be resistance-switches S to equalize the resistance of the branches with the other pole of said generator. M M represent the articles to be welded together, which are clamped in the clamps C, and are
40 supported by the anvil D, either in contact, as shown in Figs. 1, 3, and 5, or separated, as shown in Fig. 4.

In the operation of this apparatus, the articles being clamped, as shown in the figures,
45 the conductor D' is brought down to make contact with the articles M M, and a heating-current is then passed through the conductors Y Y', traversing the articles M M and passing out through conductor D', or vice
50 versa, by which the articles M M are heated at their point of contact with the conductor D', when they may be pressed together by the winch E F to form the weld, which may be completed by hammering, rolling, &c.

In Fig. 2 conductor D' and anvil D are 55 both represented by one pair of tongs, which are clamped on the article M at the point where it is desired to heat said article, and the clamps C C are connected with the article M at each side of this point, being both con- 60 nected by a branched conductor Y' with one pole of a generator, and the tongs D' being connected by the conductor Y with the other pole of said generator.

In Fig. 4 the arrangement is substantially 65 the same as Fig. 1, the conductor D' being raised and lowered by an eccentric K, and a similar eccentric being substituted for the shaft L to lower and raise the anvil D''. In this figure the articles M M pass through hol- 70 low magnets N N and are not in contact, one being connected by the conductor Y with one pole only of a generator, and the conductor D' being connected by the conductor Y' with the other pole of the generator, one of the 75 articles M being directly heated by the current and the other heated by radiation.

In Fig. 3 the apparatus of Fig. 4 is shown as applied to welding a hoop, which is held in the upper clamp C', provided with the ec- 80 centric K', and the clamps C C, which are connected with the branched conductor Y', are in this case connected with the hoop on opposite sides of the joint.

In Fig. 5 the mechanism of Figs. 3 and 4 is 85 indicated as applied to making a lap-joint between the articles M M.

A description of the operation of Fig. 1 applies to all the figures.

What I claim as my invention, and desire 90 to secure by Letters Patent, is—

The process herein described of welding metals electrically, which consists in bringing the parts to be welded in contact with an anvil, and a conductor, which is connected 95 with one pole of a generator, connecting said articles with the other pole of said generator only, passing a heating-current through the articles and conductor, and pressing the articles together and forming the weld while in 100 contact with said conductor, substantially as set forth.

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