

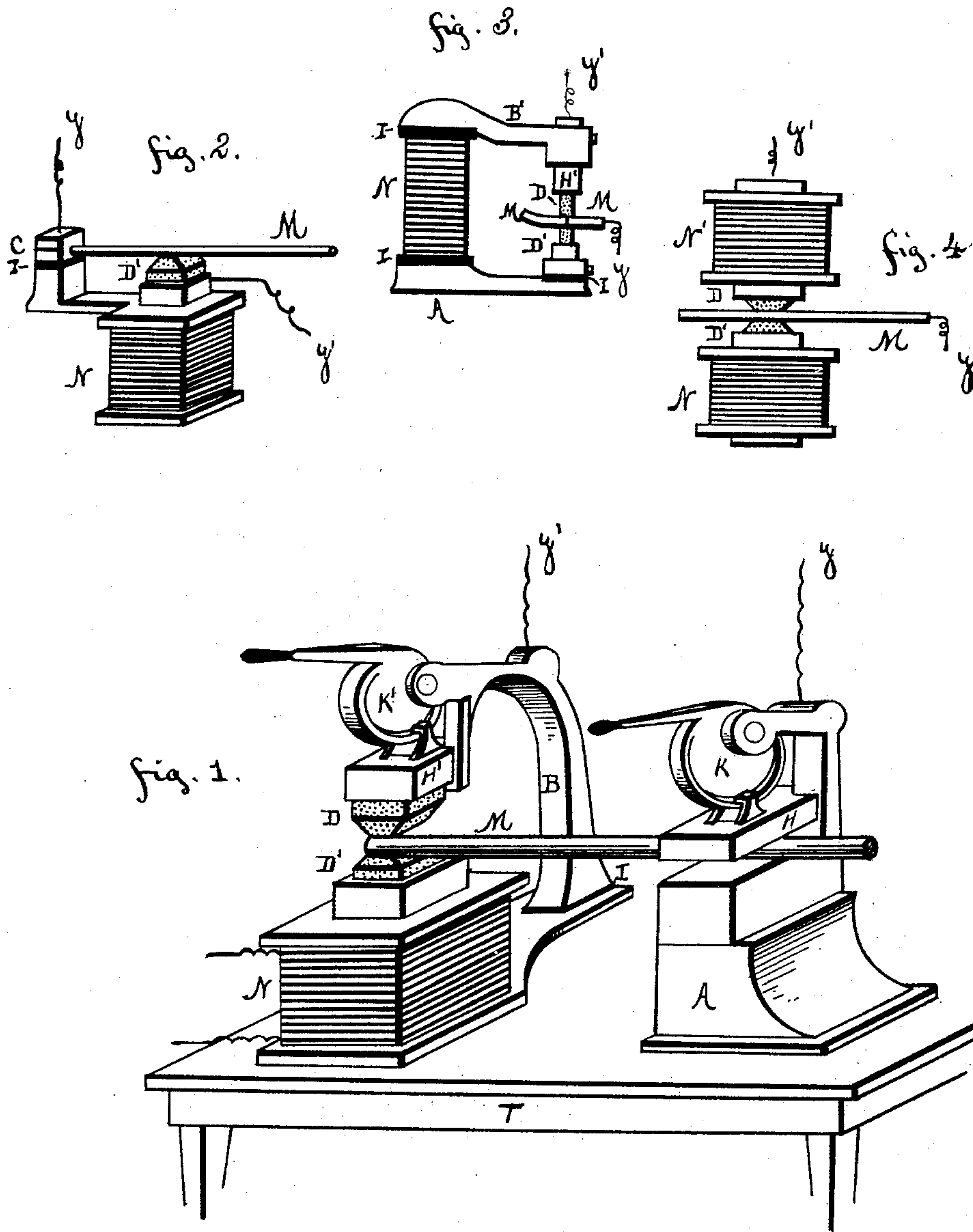
(No Model.)

C. L. COFFIN.

PROCESS OF HEATING METALS BY ELECTRICITY.

No. 435,284.

Patented Aug. 26, 1890.



Witnesses.
Alfred H. H. H.
John H. B. Anderson

Inventor.
Charles L. Coffin.

UNITED STATES PATENT OFFICE.

CHARLES L. COFFIN, OF DETROIT, MICHIGAN.

PROCESS OF HEATING METALS BY ELECTRICITY.

SPECIFICATION forming part of Letters Patent No. 435,284, dated August 26, 1890.

Application filed April 8, 1890. Serial No. 347,156. (No specimens.)

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 Improvement in the Process of Working or Welding Metals Electrically, of which the following is a specification.

My invention consists in the process of working or welding metals electrically, hereinafter fully described and claimed.

Figures 1 and 2 are perspectives, Fig. 3 a side elevation, and Fig. 4 a front elevation, of apparatus which may be used to practice my invention. Figs. 1, 2, and 4 illustrate apparatus for simply heating a piece of metal at any desired point, while Fig. 3 illustrates an apparatus for heating two pieces of metal for welding.

Referring to Fig. 1, T represents a table upon which is mounted a post A, carrying a clamp H, worked by an eccentric K. N represents an electro-magnet on said table and carrying an anvil D', preferably a conductor of high resistance, like carbon.

B represents a post secured to the table T, but insulated from the rest of the apparatus, carrying a vertically-movable block H', operated by an eccentric K, and carrying a conductor D, preferably of carbon, the object being to adjust the conductor D to make contact with a piece of metal M, which is supported on the anvil D'. The conductor D is connected by conductor Y' with one pole of a generator, and the article M is connected through the clamp H by the conductor Y with the other pole of said generator.

The operation of this mechanism is as follows: The parts being arranged as shown in Fig. 1, and a heating-current being passed through the conductors Y Y', said current traverses the article M and the conductor D, and at the point of contact between M and D is subjected to the influence of the electro-

magnet N, by which the passage of the current is at this point retarded, and the heating effect of the current is thus localized at the point of contact between M and D.

In Fig. 2 the article M is held in an insulated clamp C, and the point which it is desired to heat rests on the anvil D', which is carried by the electro-magnet N. The clamp C is connected by conductor Y with one pole of a generator, and the anvil D' is connected by the conductor Y' with the other pole of said generator, and in this arrangement the heating effect of the current passing through said conductors and the article M is localized at the point of contact between M and the anvil D'.

In Fig. 3 the movable head H' of Fig. 1 is carried on an extension B' from one end of the electro-magnet N, and two articles M M are shown in contact, or nearly so, between the conductor D and the anvil D'.

In Fig. 4 the conductor D is carried on the end of the core of electro-magnet N', which corresponds with the head H' of the other figures, and the operation is the same in the apparatus of each figure. I represents insulation in all the figures.

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

The herein-described process of heating metals electrically, consisting in connecting the article to be heated with one pole of a generator, bringing the part to be heated in contact with a conductor connected with the other pole of a generator, passing a heating-current through said article and said conductor, and localizing the heating effect of the current by a magnet.

CHARLES L. COFFIN.

Witnesses:

CYRUS E. LOTHROP,

GERTRUDE H. ANDERSON.