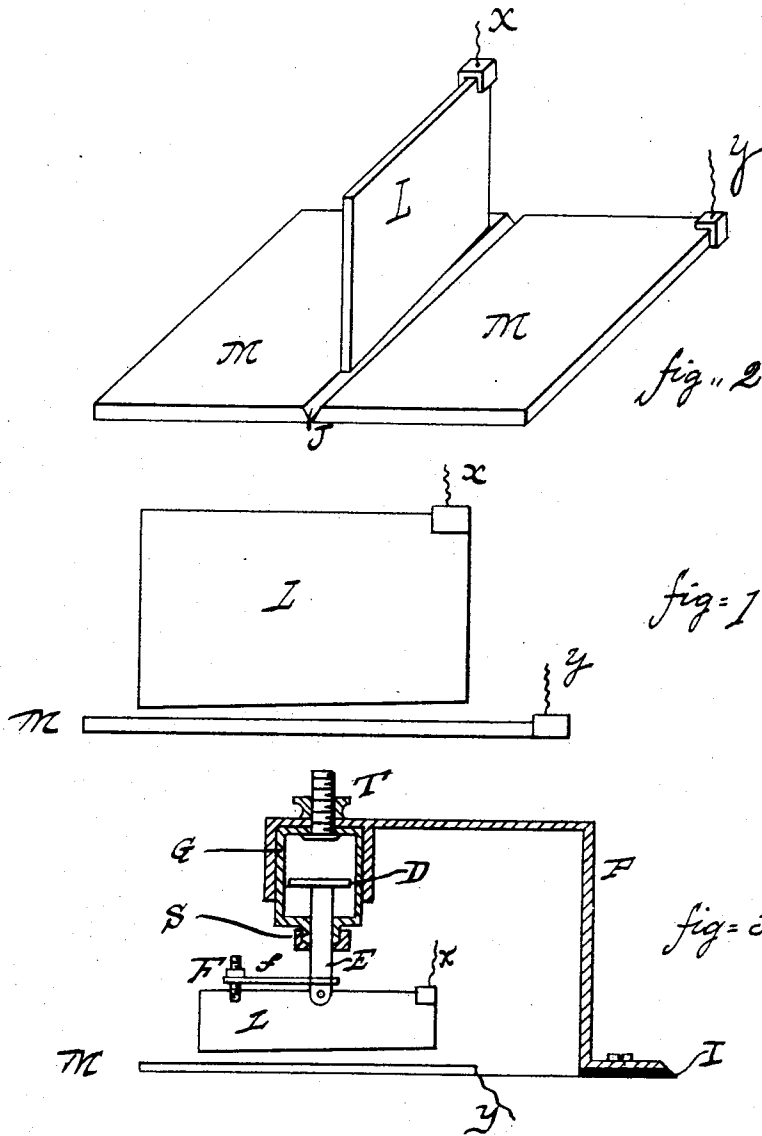


(No Model.)

C. L. COFFIN.
PROCESS OF ELECTRIC METAL WELDING.

No. 483,425.

Patented Sept. 27, 1892.



Witnesses
Herbert H. Anderson
Geo. H. Lothrop

Inventor
Charles L. Coffin.

UNITED STATES PATENT OFFICE.

CHARLES L. COFFIN, OF DETROIT, MICHIGAN.

PROCESS OF ELECTRIC METAL-WELDING.

SPECIFICATION forming part of Letters Patent No. 483,425, dated September 27, 1892.

Application filed January 21, 1892. Serial No. 418,811. (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 Processes of Electric Metal Working or Welding, of which the following is a specification.

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

The drawings are diagrams illustrating modes of practicing my invention.

In all the figures, M M represent either one article which has a seam or opening which is to be filled with metal or two articles partly welded, in which an open seam or joint is left to be filled with metal, and L represents a metal plate from which metal is to be supplied to the seam or joint, which is marked J.

In Figure 3 I have shown in section a support and dash-pot for supporting and feeding the plate L.

Fig. 1 is a side elevation; Fig. 2, a perspective, and Fig. 3 a side elevation with the supporting mechanism in section.

Assuming that the seam or joint marked J is a seam in the metal plate M which is to be filled with metal, the process is as follows: The plate M is connected with one pole of a generator of electricity by the conductor *y*. Plate L being a plate of the metal with which the seam is to be filled, is connected with the other pole of the generator by conductor *x*, and is supported over said seam on an angle therewith, as clearly shown in Figs. 2 and 3, so that the distance between plates L and M is greater at one end of plate L than at the other. By passing a current through conductors *x* and *y* and momentarily connecting plate L with plate M and then breaking contact a voltaic arc is formed between said plates, which melts the edge of plate L, which is preferably the positive electrode, and causes the molten metal to drop into the seam below. As the edge of plate L melts away the distance between the plate at the point of the arc increases until finally the arc finds a

shorter path by moving along plate L, and this will continue, the arc moving along plate L from one end to the other and back until the distance between said plates becomes too great for the arc, when the current will break. By using a dash-pot such as is shown in Fig. 3, where P is a support carried on a suitable table and insulated, as shown at I, G is the cylinder of the dash-pot, fastened to the support P in any suitable way, as by bolt T. D is a loosely-fitting piston provided with a piston-rod E, passing through a stuffing-box S. The lower end of piston-rod E being secured to plate L, (the dash-pot being a well-known and common device,) a gradual and regular feed of plate L toward plate M may be obtained. An arm *f* may be fastened to piston-rod E and provided with a set-screw F, by which the inclination of plate L may be regulated.

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

1. The herein-described mode of electrically filling a seam in a plate with molten metal, consisting in connecting said plate with one pole of a source of electricity, supporting over said seam a plate of metal with which said seam is to be filled at an angle with said first-named plate, connecting said last-named plate with the other pole of the electric generator, and forming a voltaic arc between said plates.

2. The herein-described process of electrically welding sheets or plates of metal, consisting in connecting said plate with one pole of a source of electricity, supporting over said plate in line with the joint a plate of metal at an angle with said first-named plate, connecting said last-named plate with the other pole of the generator, and forming a voltaic arc between said plates, whereby the joint is progressively heated and supplied with molten metal from the last-named electrode-plate.

CHARLES L. COFFIN.

Witnesses:

GERTRUDE H. ANDERSON,
GEO. H. LOTHROP.