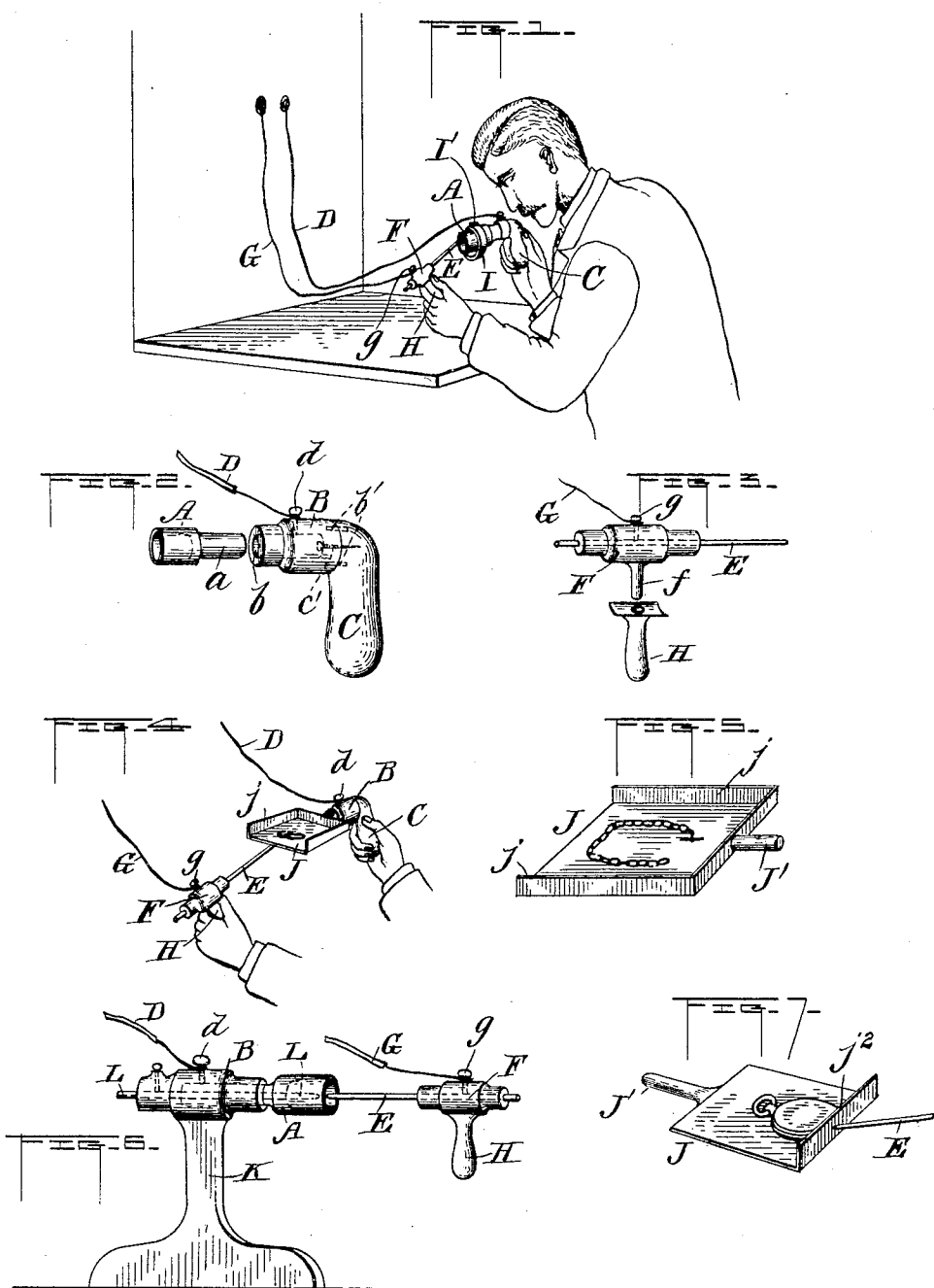


(No Model.)

W. MITCHELL.
ELECTRICAL BRAZING DEVICE.

No. 478,201.

Patented July 5, 1892.



Witnesses

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ELECTRICAL BRAZING DEVICE.

SPECIFICATION forming part of Letters Patent No. 478,201, dated July 5, 1892.

Application filed August 17, 1891. Serial No. 402,825. (No model.)

To all whom it may concern:

Be it known that I, WILLIS MITCHELL, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Electrical Brazing Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electrical devices for brazing or hard-soldering; and it consists, chiefly, in the combination of a holder for the article or articles to be brazed or soldered, forming one terminal or electrode of an electric circuit, with a point or pencil forming the other terminal or electrode thereof, the said point or pencil being adapted to be directed to various parts of the holder at will, so that the heating action may take place at the point where soldering is needed.

The said invention also consists in the especial construction and combination of parts constituting the said holder and point and their supporting and connecting devices, all substantially as hereinafter more particularly set forth and claimed.

In the accompanying drawings, Figure 1 represents in perspective the brazing or hard-soldering devices embodying my invention as applied to a ring, the operator being also shown in the act of applying them. Fig. 2 represents a detail perspective view of the ring-holder with hand-support, the ring-holding cup being partly detached and the recesses indicated by dotted lines. Fig. 3 represents a similar view of the point or pencil and its hand-holder and connections. Fig. 4 illustrates in perspective the application of such a point or pencil to a flat holder adapted to receive and hold chains and other articles. Fig. 5 represents a detail view of such a holder. Fig. 6 represents a perspective view of devices similar to those shown in Fig. 1, but having an independent support for the ring-holder instead of its hand-hold. Fig. 7 represents a detail perspective view of a holder similar to that shown in Fig. 5, but slightly modified to adapt it to be used in making or mending a watch-case, the point or pencil being shown

in position for acting on the edge or periphery of the latter.

A designates a ring-holding cup or hollow cylinder, which is normally held in horizontal or inclined position, the ring being held on the outside thereof and the internal recess of said cup or cylinder being open at its outer end only to admit the pointer or pencil hereinafter described. This cup has a rearwardly-extending stem *a*, which fits into a recess *b* of a socket B, which is cylindrical in its general form, both socket and cup being of electrically-conducting material. As shown in Figs. 1 and 2, the said socket is attached to a handle or hand-hold C, which is bent down like the stock of a pistol for convenience in grasping. The fastening together of the said parts is preferably effected, as shown in Fig. 2, by pins *b'*, which extend from the said socket into the said handle, and by a screw *c'*, which extends from the base of recess *b* through an opening in the rear end of the said socket into the said handle. A clamp-screw *d*, turning into the said socket, makes connection between it and a circuit-wire D.

E designates a rod pointer or pencil, of electrically-conducting material, which extends from end to end through the upper part of a socket F, having the general shape of the letter T, with a short stem *f* and a broad upper part. A clamp-screw *g*, extending down through the material of the upper part of the socket, at the middle thereof, binds against this rod pointer or pencil, holding it in place, and also making electrical connection between it and the circuit-wire G. The stem *f* enters a handle H.

When a broken ring is to be soldered, it is slipped on the cup A, as indicated at I, Fig. 1, and the solder I' is placed on it. The pencil E is then introduced into the cup A and the point presented against the interior thereof, completing the circuit opposite the fracture in the ring. The said point is then slightly withdrawn, producing an arc, which heats that part of the said cup against which the point of the said pencil is directed sufficiently to melt the solder, which runs into and solders together the broken part of the ring. The operator's sight is not dazzled or confused by any flame and the operation is

very speedy. Both the cup and the pencil are preferably of carbon, this material being found to be the best for such purposes. When the devices are constructed as in Figs. 1, 2, 5 and 3, the said cup and pencil, being held quite freely in the operator's hands and moved about at will, may easily be arranged at any convenient angle with regard to each other and manipulated so as to secure the best result.

As shown in Figs. 4 and 5, a flat form of holder may be substituted for the cup hereinbefore described, the latter being available only for annular articles. A flat sheet J of carbon, with edges *j* raised on three sides to form flanges and an outwardly-extending stem *J'*, Fig. 5, constitutes this substituted device. The recess *b* of the socket B receives this stem and the operation is as before described, the pencil being applied to the bottom of the holder at a point under the part of the article which needs soldering. Several articles may be held in this dust-pan-like holder at once, or it may hold a chain broken in several places, the pencil being shifted from point to point until all are mended.

In mending a watch-case or similar article it is often necessary to solder some part of the peripheral face which could not be reached in this manner from below. Therefore, as shown in Fig. 7, I employ a holder of carbon not unlike that shown in Fig. 5, but having a larger flange *j'* raised at one edge of it. The watch, watch-case, or similar article is arranged on this holder with the part of its periphery which is in need of soldering against this flange. The pencil constituting the other terminal or electrode is applied to the exterior face of this flange opposite the part to be soldered with results as before.

Instead of mounting both of the electrodes on movable sockets with handles, the ring-holder or holder for other articles may be mounted on a fixed standard K, as shown in Fig. 6. In this case it is often found desirable to use an additional carbon L, a pencil of small diameter, which protrudes into the recess *b* of the cup B and practically forms a part of the latter. Being the point of this electrode which is directly opposite the point of the other electrode or pencil E, when the latter is centrally presented to the said cup an arc will be formed passing from one point to the other of the said electrodes, and this arc will heat the contiguous part of the cup, as desired.

Many other forms of holder may of course be substituted and the construction of the pencil E and auxiliary devices may be modified considerably without departing from the spirit of my invention.

The holder must be thin enough to allow an arc to heat through it from the point of the pencil to the article to be soldered.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In devices for brazing and soldering, the combination of a holder for the article or articles to be soldered with a movable pencil or pointer which is adapted to be presented to different points of the said holder opposite the parts in need of soldering, the said holder being of carbon or equivalent material and thin enough to allow an arc to heat through it from the pencil to the article or articles, the pencil and holder constituting the electrodes of an electric circuit, substantially as set forth.

2. In combination with a carbon cup forming one electrode of an electric circuit and adapted to receive and support a ring or rings upon it, a movable carbon pencil forming the other electrode of the said circuit and adapted to be introduced into the cavity of the said cup, substantially as and for the purpose set forth.

3. In combination with a holder for articles to be brazed or soldered, a socket into which the said holder is fitted, an electric conductor attached to the said socket, making the said holder one of the electrodes of an electric circuit, and a handle attached to the said socket for moving the latter about at will, substantially as set forth.

4. In combination with a holder of infusible electrically-conducting material for supporting articles to be brazed or soldered and connections making it one of the electrodes of an electric circuit, a pencil constituting the other electrode thereof, electrical connections with said pencil completing the circuit, and a socket and handle for the said pencil, whereby it may be presented to any point of the said holder, as desired, substantially as set forth.

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

WILLIS MITCHELL.

Witnesses:

ROBERT W. SCOTT,
PELATIAH R. TRIPP.