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S. CLAYTON

ELECTRIC SOLDERING DEVICE

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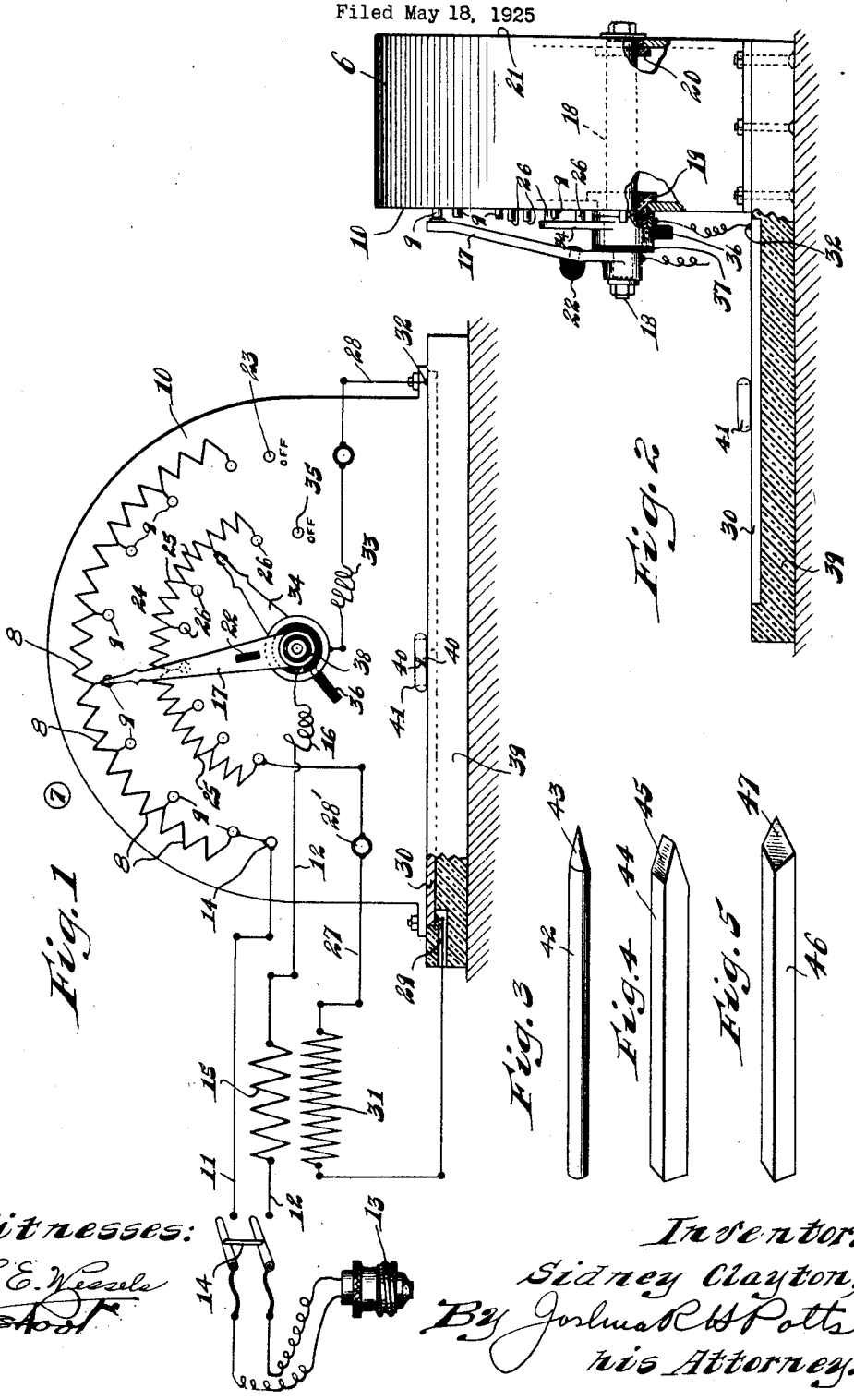

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UNITED STATES PATENT OFFICE.

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ELECTRIC SOLDERING DEVICE.

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My invention relates to electric soldering devices, designed especially for use by jewelers and watch makers to solder, fill and repair articles and devices used and dealt with in these occupations, and the paramount object of my invention is to provide an improved device of this character which will be economical in manufacture and highly efficient in use.

Other objects will appear hereinafter.

The invention consists in the combinations and arrangements of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings, forming a part of this specification, and in which,

Fig. 1 represents a face view of my improved device, parts being shown in section and the electrical instruments and connections being illustrated diagrammatically;

Fig. 2 represents an end elevational view of my improved device, parts being shown in section; and

Figs. 3, 4 and 5 are views of types of pencils that may be used in connection with the soldering operations.

The preferred embodiment of my invention as illustrated in the accompanying drawing, comprises a suitable resistance box 6 in which is arranged in any suitable manner a rheostat 7 comprising the usual series of coils 8 of different resistances and the usual contact posts 9 for the different coils, the series of coils being arranged in any suitable manner within the resistance box 6, while the posts 9 protrude in circular series through the face plate 10 of the resistance box.

The circuit wires 11 and 12 for the resistance coils comprising the rheostat 7 are preferably connected to an electric plug 13 adapted to be plugged into a suitable incandescent electric light circuit or other source of alternating current. Preferably inserted in the circuit wires 11 and 12 is a two pole switch 14 through which the circuit may be opened and closed in a manner that will be readily understood. The circuit wire 11 connects with the terminal post 14 at one side of the rheostat; while the other circuit wire 12, in which is incorporated a primary coil 15, is connected by a flexible connection 16 with a spring conductor lever 17 pivoted to make contact with the circular series of contact posts 9. Said spring conductor lever 17 is suitably mounted for turning movement upon the outer end of a pin 18 mounted in bushings 19 and 20 suitably arranged in the front and back plates 10 and 21, respectively, of the box. Said spring conductor lever 17 is provided with a knob 22 of suitable insulation material, whereby to be actuated. 23 denotes a neutral contact post for the conductor lever 17 to rest on when the device is not in use.

Also arranged in the resistance box is a second rheostat 24 comprising, as before, a series of coils 25 of different resistances and a series of contact posts 26 which protrude in circular series through the face plate 10. The circuit wires for rheostat 24 are indicated at 27 and 28; the wire 27 leading from the terminal post 28′ and having its extremity soldered as at 29 to a conducting plate 30 adapted to serve as a work plate whereon to place the articles to be soldered. Incorporated in the circuit wire 27 is a secondary coil 31 through which power is induced from the primary circuit containing the rheostat 7 to the secondary circuit containing the rheosat 24. The circuit wire 28 is soldered as at 32 to the conducting plate 30 and is connected through flexible connection 33 with a spring conductor lever 34 adapted to engage the circular series of contact posts 26, there being a neutral post 35 whereon to position this conductor lever when it is not in use. Said conductor lever 34 is rotatably mounted on the pin 18 and is actuated by means of a finger piece 36 of insulation material. Conducting levers 17 and 34 are insulated from each other by insulation material 37 as well as from the pin 18 by insulation material 38.

The current thus transferred from the primary circuit where the amount thereof is controlled by the rheostat 7, to the secondary circuit where the amount thereof is controlled by the rheostat 24 is thus passed through the conducting plate 30 which, as clearly shown in the drawing, is mounted in a work table or plate 39 of insulation material, the resistance box 6 being also suitably mounted upon this insulation plate 39 at the rear of the conductor plate 30. The electric current flowing through the plate 30 is employed for the purpose of heating the article to be soldered, filled or otherwise repaired. For example, let us assume that the ends 40 of a ring element 41 are to be soldered together. The ring is placed upon the

conductor plate 30 to receive current therefrom and to be heated thereby, and a little solder is dropped or placed upon the edges or points 40 of the ring, which edges or points are then engaged by the pointed end 43 of a carbon pencil 42 to intensify or concentrate the heat at the joint to be soldered, the conductor levers 17 and 34 being manipulated so as to obtain the amount of current necessary to bring the points 40 and solder to the necessary soldering temperature. The current, in passing through the solid plate from terminal to terminal, also passes through the ring and to or through the edges or points 40 thereof, so that upon application of the carbon pencil an electric arc is set up which is slowly drawn across the edges or points 40 thereby soldering them together. The carbon pencils to be employed for this purpose may have different types of points; thus, for instance the pencil 42 is shown provided with a round point 43 while the pencil 44 has a wedge-shaped point 45, and the pencil 46 is furnished with a diamond-shaped point 47.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. An electric soldering device having, in combination, a primary circuit; a rheostat incorporated therein; a secondary circuit; a rheostat incorporated in the secondary circuit; and a work plate comprising an electrical conductor for holding work thereon and imparting its current thereto inserted in the secondary circuit, substantially as described.

2. An electric soldering device comprising an open primary circuit including rheostat coils and contacts; a conductor lever movable to engage the contacts and short circuit the coils; an open secondary circuit including rheostat coils and contacts; a conductor lever movable to engage the contacts and short circuit the coils of the secondary circuit; and a work plate comprising an electrical conductor for holding work thereon and imparting its current thereto inserted in the secondary circuit, as and for the purpose described.

In testimony whereof I have signed my name to this specification.

SIDNEY CLAYTON.