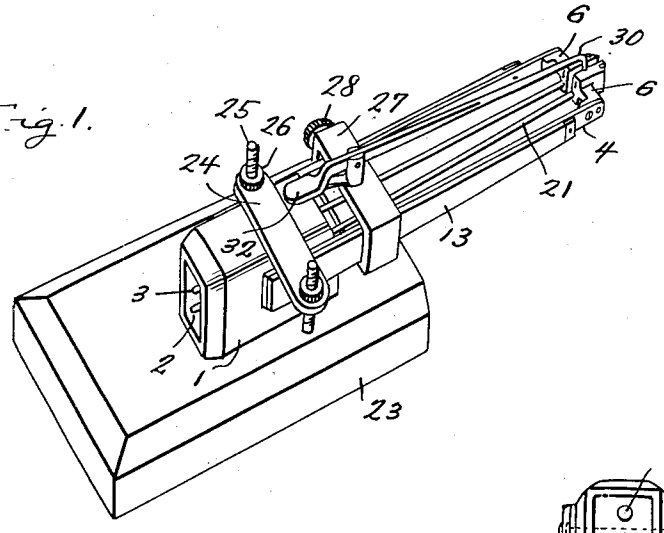
Feb. 4, 1941. J. W. GREEN 2,230,665

ELECTRIC HEATING, ANNEALING, AND JEWEL SETTING TOOL

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Fig. 1.



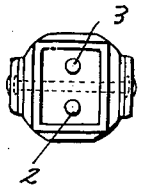
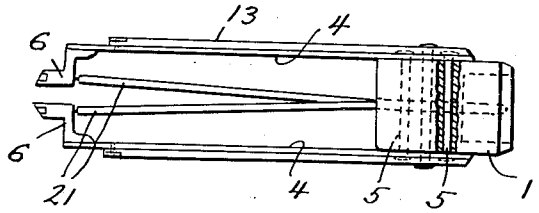


Fig. 4.

Fig. 2.



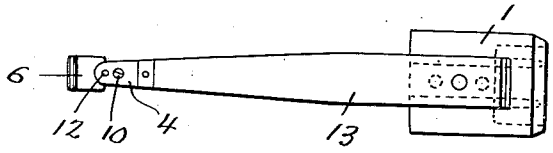


Fig. 3.

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Fig. 5.

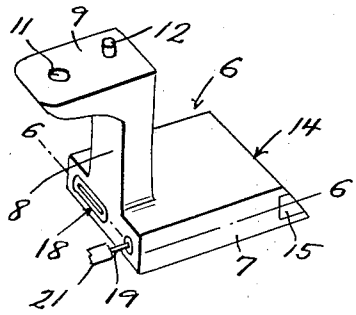


Fig. 6.

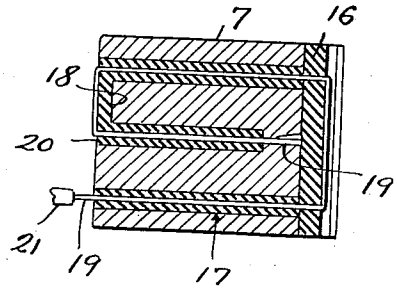
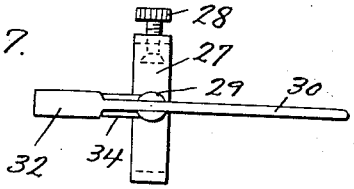


Fig. 7.



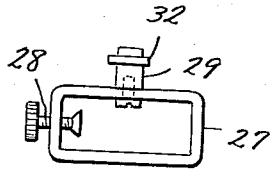


Fig. 8.

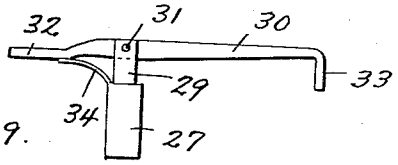


Fig. 9.

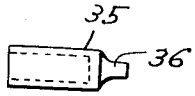


Fig. 10.

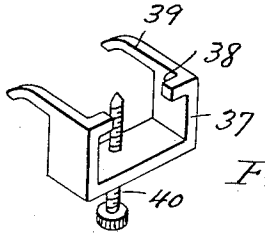


Fig. 11.

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UNITED STATES PATENT OFFICE

2,230,665

ELECTRIC HEATING, ANNEALING, AND JEWEL SETTING TOOL

James W. Green, Roxboro, N. C.

Application August 24, 1939, Serial No. 291,791

5 Claims. (Cl. 219—21)

This invention relates to a tool for electric heating, annealing and setting jewels, the general object of the invention being to provide a pair of jaw members carried by resilient arms which can be manipulated by the hands of the operator to cause the jaw members to grip an object, with electric means for heating the jaw members.

Another object of the invention is to provide attachments for enabling the device to be used for various purposes.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a perspective view of the device with a roller jewel setting attachment associated therewith.

Figure 2 is a side view of the device removed from the base and with the attachment removed.

Figure 3 is a top plan view of Figure 2.

Figure 4 is a view looking into the socket end of the device.

Figure 5 is a view of one of the jaw or heating members.

Figure 6 is a section on the line 6—6 of Figure 5.

Figure 7 is a top plan view of the attachment parts shown in Figure 1.

Figure 8 is an end view of Figure 7.

Figure 9 is a side view thereof.

Figure 10 is a socket member for use with the arm of the attachment shown in Figures 7, 8 and 9.

Figure 11 is a view of a member adapted to be connected with the jaw or feet members for use in roller jewel setting.

As shown in Figures 1 to 6, inclusive, the device includes a block 1 preferably of wood and having a socket 2 formed in one end thereof for receiving a socketed plug the sockets of which receive the prongs 3 located in said socket 2 for connecting the prongs 3 with a source of electricity. Spring arms 4 are fastened to opposite sides of the block 1 and extend well beyond the unsocketed end of the same and these spring arms are connected with the block and electrically connected with each other by the bolts 5. The free end of each arm carries a jaw or foot member 6 which includes a base part 7, a shank 8 extending from the center of an end of the base part and a head part 9 at the other end of the shank which is connected with the spring arm by a screw 10 fitting in a threaded hole 11 in the head 9 and a lug 12 fitting in a hole in the spring arm. The bases 7 of the two members 6 are arranged opposite each other and form jaw members for gripping an object placed between them when the spring arms are pressed toward each other, strips 13 of wood being connected with the outer faces of the spring arms so that the fingers of the user will not receive shocks from the spring arms when the device is in operation and he is pressing the members 6 toward each other. Each base part 7 is formed with a beveled outer end edge 14 which is provided with a square groove 15 which receives a strip 16 of non-conductive material and each base part is formed with three parallel holes 17 and a short groove 18 which connects two of the holes together at the inner end edge of the base. A wire 19 has one end portion passing through the center hole with its terminal electrically connected with the base 7 as shown in Figure 6. Then the wire passes into the large part of the hole and through the non-conducting material 20 which fills the hole and the groove 18, the wire passing through the non-conducting material in the groove 18 then through a second hole and the non-conducting material therein, then across the non-conducting material 16 and through the third hole and the non-conducting material therein and from this point the wire connects with the covered conductors 21 which pass into the block 1 and are connected with the prongs 3. Thus when the current is flowing through the parts the bases 7 of the members 6 will be heated and this heat will be communicated to the object held between the members 6 as will be understood and by pressing upon the wooden strips 13 the operator can cause the base parts 7 of the members 6 to grip an object and the object will be heated as the current is passing through the base parts.

A wooden base member 23 is provided with the device and the block 1 is clamped thereto by the clamping plate 24 having holes therein receiving the threaded members 25 rising from the base 23 and receiving the nuts 26 which when screwed downwardly causes the plate 24 to clamp the block 1 on the base 23.

The attachment shown in Figure 1 and in de-

tail in Figures 7, 8 and 9 includes a small frame 27 which is adapted to be placed around the arms 4 and in engagement with the strips 13 as shown in Figure 1 with the frame held in position thereon by the set screw 28 carried by an end part of the frame. A stud 29 rises from the frame 27 and a lever 30 is pivoted intermediate its ends to the stud as shown at 31, one end of the lever having a handle part 32 formed thereon with its other end bent downwardly as shown at 33 and a spring 34 carried by the frame 27 tends to push the handle end of the lever upwardly and the bent end 33 downwardly. By adjusting the frame 27 on the strips 4 the bent end 33 can be positioned to engage an object placed between the jaws 6 as shown in Figure 1.

Figure 10 shows a socket member 35 which can be placed over the bent end 33 and this socket member is provided with a tip 36. Figure 11 shows an attachment for placing over the jaw members, said member being of substantially U-shape as shown at 37 and having at the upper ends of its limbs the inwardly extending projections 38 and at the side edges of said limbs at the upper ends forwardly extending arms 39 which have their terminals curving downwardly as shown in Figure 11. A screw 40 passes through a threaded hole in the bight of the member 37 with its upper end pointed as shown.

This device can be used as a general heating tool and it is used in conjunction with a variable rheostat or transformer capable of varying current from a slightly warm to a red heat in the heating element.

It may be used for annealing or hardening balance staffs, stems and other small parts used by watchmakers and workers with small machines.

Small parts to be soft soldered may be conveniently held and heated with the tool.

Balance pivots of watches or other small machinery may be annealed and straightened without endangering the other delicate parts with heat.

Roller jewels of watches may be straightened in their settings without the necessity of removing the roller table from the staff.

Set up with the pallet jewel and roller jewel setting attachments it is a most useful tool, in that the heat can be directly and exactly regulated, which eliminates the hazards of over-heating, and the pallet or roller may be removed quickly and with ease, or replaced in the tool in the event that further adjustment is necessary.

It is very useful and convenient for holding and testing small bezels in which the cement must be warmed or melted to hold the crystal.

The tapered part 36 of the socket member 35 when placed on the arm 30 is used to hold the roller in place until proper adjustment is made for the length of the jewel to be set. The end of the arm 30, when setting pallet jewels, is indented to receive the pallet arbor, but since there is no arbor in the roller, a nipple 36 is necessary to give a tapered point to the arm 30 to go in the hole in the roller. When the attachment 37 is placed on the jaw members, the roller in which the jewel is to be set is placed over the jaw members, the safety roller being between them. The tightening screw on the pallet setting attachment is run in enough to slightly tighten the roller. The arm of the pallet setting attachment is turned around so that the tapered point fits into the hole of the roller. Screw 40 is run up until it goes into the bottom of this hole and until the roller is raised to the height of the length of the jewel to be set. The tightening screw on the pallet setting arm is screwed in until the roller is held securely. The arm of the pallet attachment may then be turned around to give room for work and visibility.

The jewel is now placed in the hole, the bottom resting on the heating base under it. The proper heat, regulated by the adjustable rheostat, is turned on and the cement applied.

The ease of inserting and removing roller from tool, the excellent visibility of work, the adjustability of proper length of jewel, and the ease of applying the proper temperature make this a very useful attachment.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts provided that such changes fall within the scope of the appended claims.

Having described the invention, what is claimed as new is,

1. In a tool of the class described, a block of non-conducting material, spring arms extending from the block, jaw members carried by the outer ends of said arms, the jaw members being normally held separated by the spring arms, electric means for heating the jaw members, a supporting member removably supported by a part of the tool and a lever pivoted to the supporting member and having a bent free end for engaging an object held between the jaw members.

2. A tool of the class described comprising a block of non-conducting material, spring arms connected with opposite sides of the block and extending beyond the same, jaw members connected with the outer ends of the spring arms and normally separated by the arms, each jaw member including a shank, a head connected to one end of the shank, means for connecting the head to an end of a spring arm and a base part at the other end of the shank, a heating wire passing through the base part and having a terminal connected therewith for heating the base part, the rest of the wire being insulated from the base part, means for connecting the wires to a source of electric supply, means for electrically connecting the spring arms together and strips of non-conducting material on the outer faces of the spring arms.

3. A tool of the class described comprising a block of non-conducting material, spring arms connected with opposite sides of the block and extending beyond the same, jaw members connected with the outer ends of the spring arms and normally separated by the arms, each jaw member including a shank, a head connected to one end of the shank, means for connecting the head to an end of a spring arm and a base part at the other end of the shank, a heating wire passing through the base part and having a terminal connected therewith for heating the base part, the rest of the wire being insulated from the base part, means for connecting the wires to a source of electric supply and means for electrically connecting the spring arms together, strips of non-conducting material on the outer faces of the spring arms, a base block, clamping means for connecting the block first-mentioned to the base block.

4. A tool of the class described comprising a

block of non-conducting material, spring arms connected with opposite sides of the block and extending beyond the same, jaw members connected with the outer ends of the spring arms and normally separated by the arms, each jaw member including a shank, a head connected to one end of the shank, means for connecting the head to an end of a spring arm and a base part at the other end of the shank, a heating wire passing through the base part and having a terminal connected therewith for heating the base part, the rest of the wire being insulated from the base part, means for connecting the wires to a source of electric supply, means for electrically connecting the spring arms together, strips of non-conducting material on the outer faces of the spring arms, a base block, clamping means for connecting the block first-mentioned to the base block, a frame for encircling the spring arms and contacting at its ends the strips of conducting material, means for adjustably holding the frame on the arms, a lever pivotally connected with the frame and having a bent end for engaging an object held by the jaws and a handle for manipulating the lever.

5. A tool of the class described comprising a block of non-conducting material, spring arms connected with opposite sides of the block and extending beyond the same, jaw members connected with the outer ends of the spring arms and normally separated by the arms, each jaw member including a shank, a head connected to one end of the shank, means for connecting the head to an end of a spring arm and a base part at the other end of the shank, a heating wire passing through the base part and having a terminal connected therewith for heating the base part, the rest of the wire being insulated from the base part, means for connecting the wires to a source of electric supply, means for electrically connecting the spring arms together, strips of non-conducting material on the outer faces of the spring arms, a base block, clamping means for connecting the block first-mentioned to the base block, a frame for encircling the spring arms and contacting at its ends the strips of conducting material, means for adjustably holding the frame on the arms, a lever pivotally connected with the frame and having a bent end for engaging an object held by the jaws, a handle for manipulating the lever, a socket member for fitting over the bent end of the lever and having a tapered free end and a U-shaped frame member fitting over the jaw members and having a screw passing through a threaded hole therein for cooperation with the lever for operating on objects.

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