April 21, 1925. 1,534,733

M. H. PÉREZ

ELECTRIC HEATER

Filed Oct. 8, 1923 2 Sheets-Sheet 1

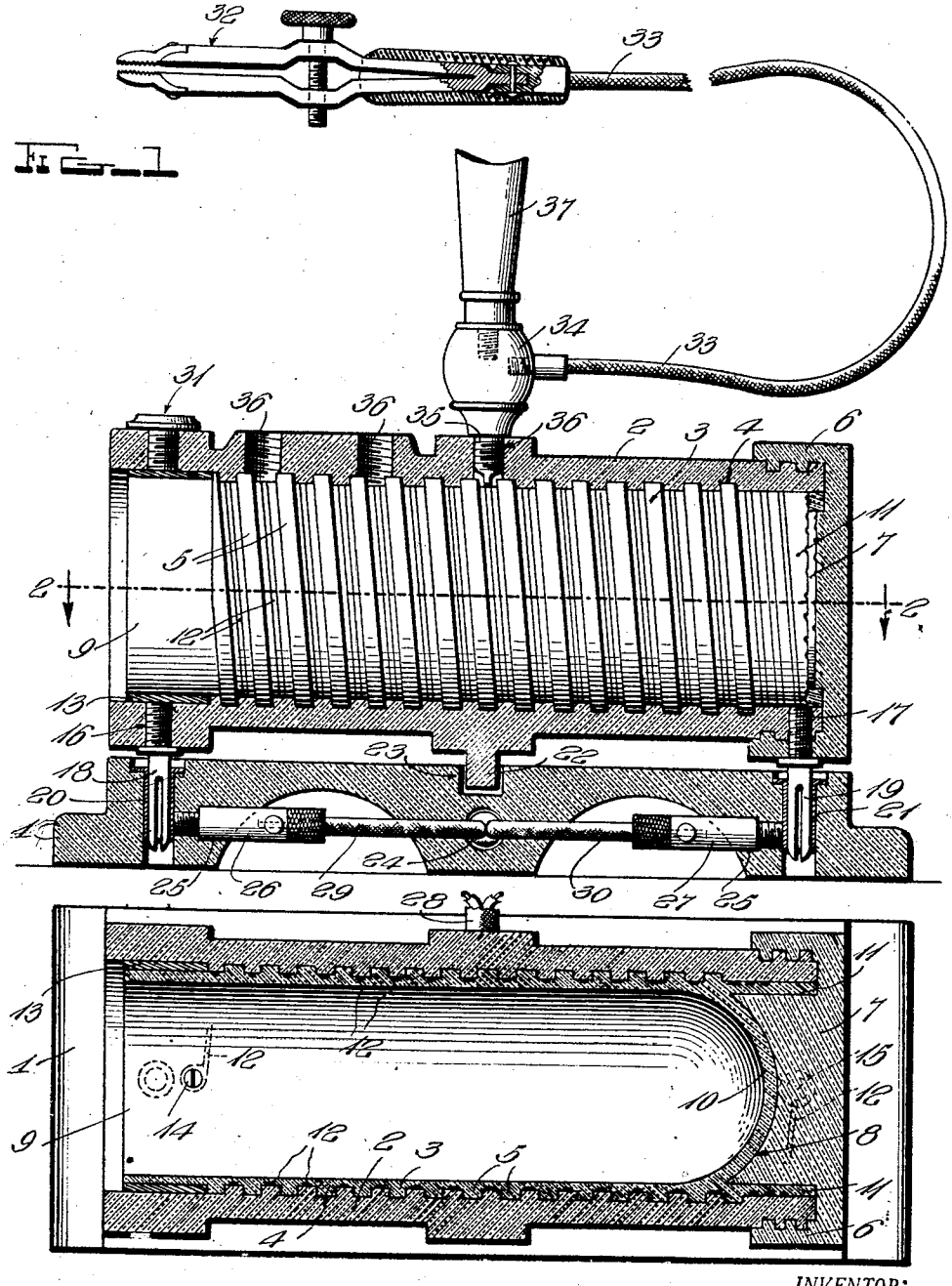


Fig. 1

Fig. 2

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FIG. 3

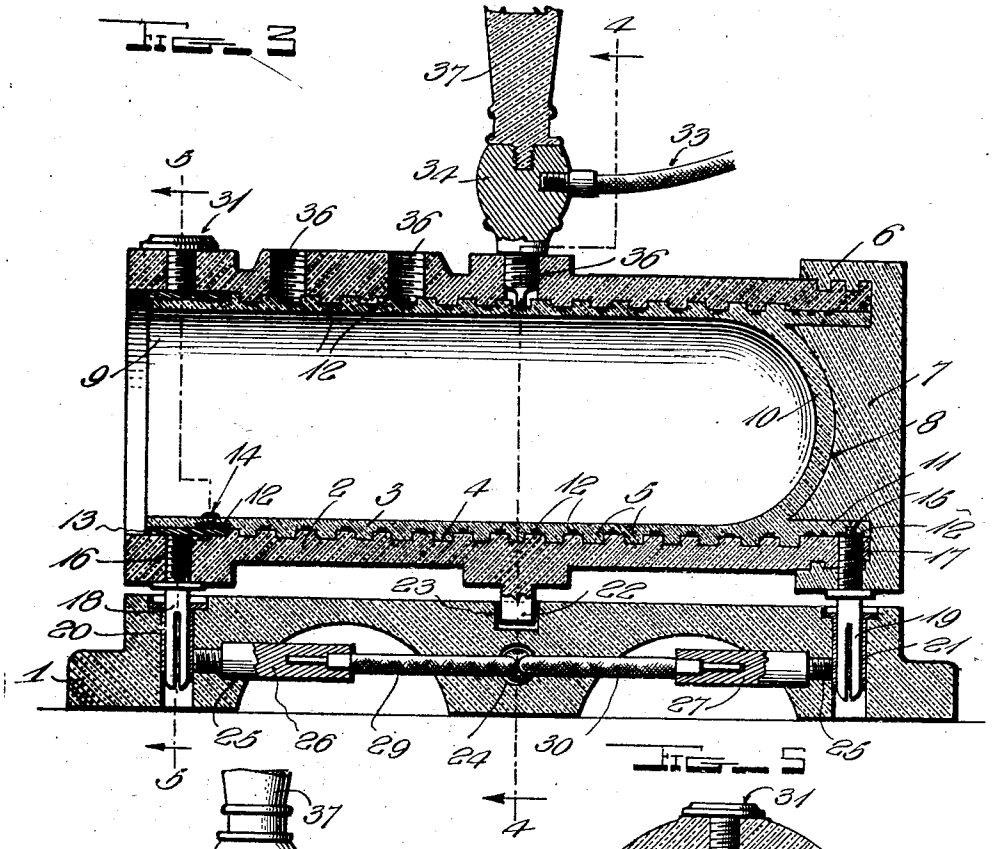


FIG. 4

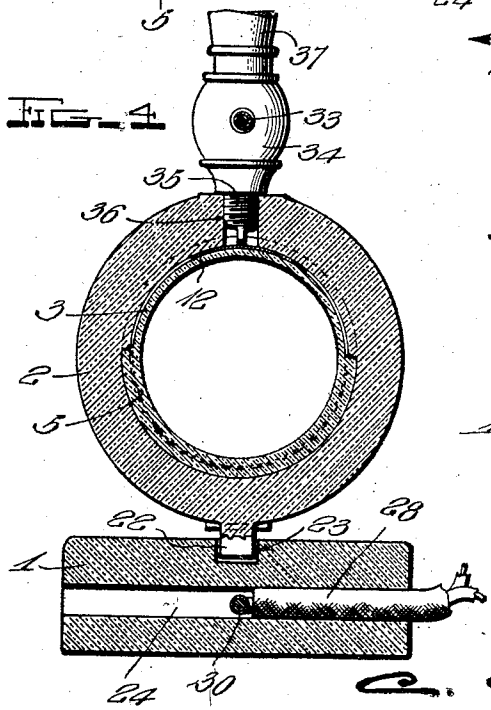
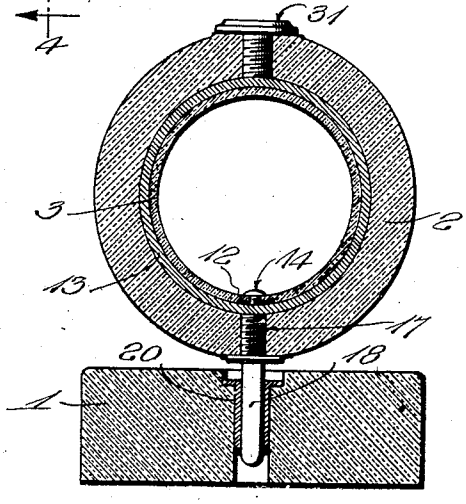


FIG. 5



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Patented Apr. 21, 1925. 1,534,733

UNITED STATES PATENT OFFICE.

MANUEL HUMBERTO PÉREZ, OF SAN PEDRO SULA, HONDURAS.

ELECTRIC HEATER.

Application filed October 8, 1923. Serial No. 667,343.

To all whom it may concern:

Be it known that I, MANUEL HUMBERTO PÉREZ, a citizen of the Republic of Honduras, residing at San Pedro Sula, in the Department of Cortez and Republic of Honduras, have invented new and useful Improvements in Electric Heaters, of which the following is a specification.

This invention relates to electric heaters, and one object of my invention is to provide a simple, reliable and efficient type of heater adapted for general uses in heating various materials and for fusing metals or other purposes, and which embodies a novel form and construction of heating chamber or retort and electrical heating means for heating the same.

Another object of the invention is to provide an electric heater which may be employed for heating elements to be joined by soldering, brazing, welding and other similar methods.

The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a vertical longitudinal section through an electric heater embodying my invention, the core appearing in elevation.

Figure 2 is a horizontal transverse section on line 2—2 of Figure 1.

Figure 3 is a central vertical longitudinal section through the complete device.

Figure 4 is a vertical transverse section on line 4—4 of Figure 3.

Figure 5 is a vertical transverse section on line 5—5 of Figure 3.

In carrying my invention into practice, as herein disclosed, I provide an electric heater comprising a suitable supporting base 1, made of porcelain or other insulating material, and upon which is disposed a cylindrical casing or jacket 2 containing a cylindrical core 3, both the casing and the core being also made of porcelain or other suitable material which is a non-conductor of heat.

The casing 2 is provided upon its interior with a continuous spiral thread 4, and the core 3 is provided with an external spiral thread 5 to engage the threads 4, whereby the core when inserted is positively held and secured within the casing against shifting movement of any character, and yet is capable of removal when occasion requires. The casing is normally open at both ends, as shown, and adapted to be closed at one end by a cap or cover member 6 having exterior screw threaded engagement therewith and provided with a projection 7 extending into such end of the cylinder. This projection 7 is of somewhat less diameter than the internal diameter of the adjacent end of the cylinder and is provided with a concaved inner surface 8.

The core 3 provides a heating chamber or retort which is open at one end 9 and closed at its opposite end by a hemispherical wall 10, beyond which a portion of the core projects in the form of an annular flange 11. The concaved face 8 of the projection 7 of the cap 6 bears against the hemispherical wall 10, and forms a positive abutment against which the closed end of the core bears, and the flange 11 of the core surrounds said projection 7 and is clamped thereby against the wall of the casing 2, thus giving additional security against movement or displacement of the core within the casing. Embedded in the circumference of the core is a resistance unit 12, which is in the form of a spiral band or wire, the surfaces of the convolutions of which are exposed in the grooves or spaces between the threads 5 and, when the core is fitted in position, lie in abutting contact with the threads 4. A conducting ring or metal band 13 surrounds the open end of the core and carries a binding post 14, to which one end of the resistance unit 12 is fastened, the wire thence extending continuously around the surface of the core body and the flange 11 and being attached at its opposite end to a binding post on a contact terminal 15, the conductors 13 and 15 forming terminals at the opposite ends of the resistance unit for proper connection with current supplying means. By the described mode of mounting the core in the casing, and mounting the resistance unit on the core, a close fit between the elements just described is secured in order to obviate any liability of moisture or other foreign particles entering the surfaces and causing liability of short circuiting of the resistance coil. The casing 2 is provided at one end with a threaded opening 16, and the casing and its cap are provided at the opposite end with registering threaded openings 17, which openings 16 and 17 respectively receive the threaded ends of

plugs 18 and 19, having split spring lower end portions adapted for engagement with conducting bushings 20 and 21 forming sockets fitted in the base, which plugs serve both as circuit supply connectors or switch members and as fastening means to assist in supporting the casing and core upon the base 1. The casing is also provided with a central projection 22 to enter a recess 23 in the base 1, whereby the casing is centered in position upon the base and held from movement in any direction, so as to effectually prevent any bending or other strain on the plugs 18 and 19.

Provided in the base 1 is a transverse passage 24 intersecting longitudinal bores 25 in which are disposed metallic connecting terminals 26 and 27 which are in electrical contact with the bushings 20 and 21. A supply cable 28 leading from any suitable source of electric current supply, enters the passage 24 and is provided with branches 29 and 30 forming the supply return conductors which are electrically connected respectively with the terminals 26 and 27, through which terminals, the plugs 18 and 19 and the conductors 13 and 15, current may be supplied to the resistance unit in an obvious manner. Any suitable type of control switch may, in practice, be employed to let on and cut off the flow of electric current and govern the supply of the same to the resistance unit.

When current is supplied to the resistance unit the core will be heated, with the result that the heating chamber thereof will be heated to a desired temperature, governed by the amount of current supplied to the coil. In this chamber metals or materials may be placed to be heated, fused or melted, and, if desired, a temporary closure for the open end of the chamber may be employed whenever required during a heating operation.

I also provide means whereby the heater may be used for heating metals to be joined by soldering, brazing, welding, etc., making the device of value to watchmakers, jewelers, electricians, and others having much work of this kind to do. For the purpose described, I provide the casing 2 with a conducting surface 31 which is in electrical engagement with the conductor band or ring 13 and provides an anvil or support against which one element of two metals to be joined may be placed. The other metal to be joined to the metal part resting on this support 31 may be gripped between the jaws of a holding tool, such as a pair of pinchers 32 electrically connected with a conductor 33 coupled to a plug 34 having a contact terminal 35 adapted to be fitted in any one of a series of openings 36 in the casing 2 and provided with a handle 37 of insulating material. The openings 36, of which any number may be used along the length of the resistance unit, and which register with convolutions of predetermined heating flues at different distances along the resistance unit, so that when the contact 35 is fitted in a certain opening 36, it will electrically engage selected convolutions of the resistance coil. Current will then pass from conductor 29, plug 18, and band 13 to the surface 31 and the article resting thereon, and from conductor 30, plug 19, contact 17 and the portion of the resistance unit between said contact 15 and the plug 34 and through the conductor 33 to the holding tool 32 and the metallic part held thereby. The circuit will then be completed for the production of a heating arc by bringing the two portions of metal into proximity for more or less intimate contact, thereby softening or reducing and metling them to any desired degree for union by soldering, brazing, welding or other similar methods, making the device of great value to mechanics, artisans and others having work of this kind to do.

From the foregoing description, taken in connection with the drawings, the construction, mode of operation and use of my improved electric heater will be readily understood, and it will be seen that it provides a device of this character which is not only simple in construction and embodies all the stated advantages, but which supplies an article of convenient type for the use of those having need for a simple, inexpensive portable type of heater of this character adapted for general uses. While the construction disclosed is preferred, it is to be understood that various changes in the form, proportions and details of construction of the device may be resorted to, within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus fully described my invention, I claim:

1. An electric heater comprising a casing, a core threaded into the casing and forming a heating chamber, a resistance unit wound about the core between the threads thereof, circuit connections leading to said resistance unit, and a conductor connected with one terminal of the coil, said casing having sockets therein in line with certain convolutions of the unit.

2. An electric heater comprising a casing having internal threads, a core fitted in the casing and forming a heating chamber and having external threads engaging the internal threads of the casing and grooves between said external threads, a resistance unit embedded in the grooved surface of the core thereof, and circuit connections leading to said resistance unit.

3. An electric heater comprising a casing

having internal threads and open at each end, a core open at one end and having its opposite end closed, said core being externally threaded to engage the threads of the casing, a resistance unit embedded in the surface of the core between the threads thereof, a cap closing one end of the casing and abutting against the closed end of the core, and circuit connections leading to said resistance unit.

4. An electric heater comprising a casing having internal spiral threads, a core forming a heating chamber disposed in said casing and having external spiral threads engaging the threads of the casing and spiral grooves between said external threads, a resistance wire disposed within the grooves, and circuit connections leading to said resistance wire, the casing being provided with plug receiving sockets therein in line with certain convolutions of the wire.

5. An electric heater comprising a casing open at each end and having internal threads, a hollow core fitted in said casing and having a heating chamber and having external threads engaging the threads of the casing, said core being open at one end and having a hemispherical opposite end portion and an annular flange extending beyond the same, a cap closing one end of the casing and provided with an inwardly projecting portion enclosed by said flange and having a concaved face receiving the hemispherical end of the core, a resistance unit embedded in the surface of the core between the threads thereof, and circuit connections leading to said resistance unit.

6. An electric heater comprising a base of insulating material, a casing of insulating material arranged above the base, a core of insulating material fitted within said casing, a spiral coil of resistance wire surrounding the core, conductors carried by the base, sockets upon the base in electrical connection with said conductors, and plugs upon the casing in electrical connection with the resistance wire and engageable with the sockets for supporting the casing from the base and connecting the resistance wire with said conductors.

7. An electric heater comprising a horizontal casing open at one end, a hollow core, forming a heating chamber, fitted longitudinally within the casing, said core being open at one end and closed at its other end, and having a circular flange projecting beyond said closed end, a cap closing one end of the casing and having a projection extending into the casing and abutting the closed end of the core and embraced by said flange, a resistance unit carried by the core, and electric circuit connections for the resistance unit.

8. An electric heater comprising a base, a casing, a core within the casing, a resistance unit carried by the core, spring plugs on the casing connected to the terminals of the core, sockets in the base to receive said plugs, and current conductors on the base leading to said sockets.

9. An electric heater comprising a casing having a series of sockets therein, a core within the casing, a resistance coil extending spirally about the core and having certain of its convolutions in register with said sockets, a supporting and conducting surface electrically connected with one terminal of the coil, a plug adapted to be fitted in any of said sockets to contact with the convolutions of the coil registering therewith, a conductor carried by the plug, and a terminal carried by said conductor and provided with gripping jaws.

10. An electric heater comprising a casing having a series of sockets therein, a core within said casing, a resistance coil extending spirally about the core and having certain of its convolutions in registry with said sockets, a supporting and conducting surface electrically connected with one terminal of the coil, and a plug adapted to be fitted in any of said sockets to contact with the convolution of the coil registering therewith.

In testimony whereof I affix my signature.

MANUEL HUMBERTO PÉREZ.