No. 849,335. PATENTED APR. 2, 1907.

L. MARKWITZ.

ELECTRIC DENTAL FURNACE.

APPLICATION FILED JAN. 22, 1906.

3 SHEETS—SHEET 1.

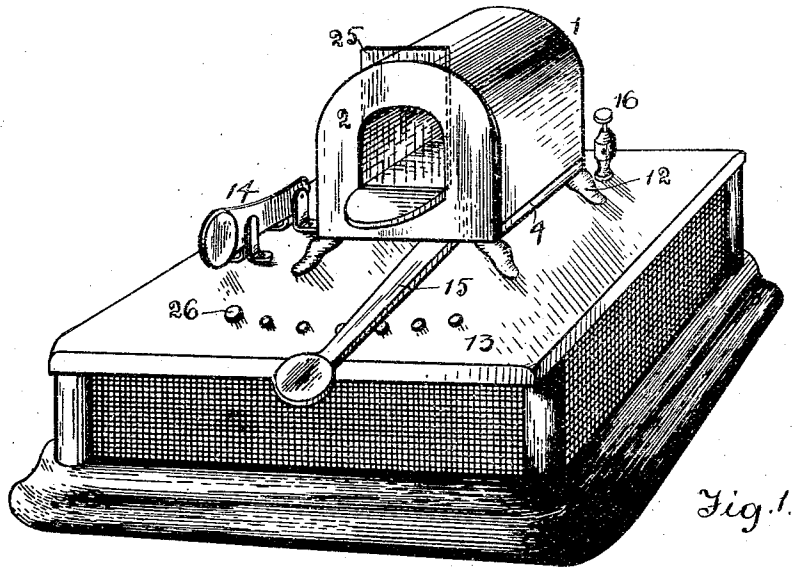


Fig. 1.

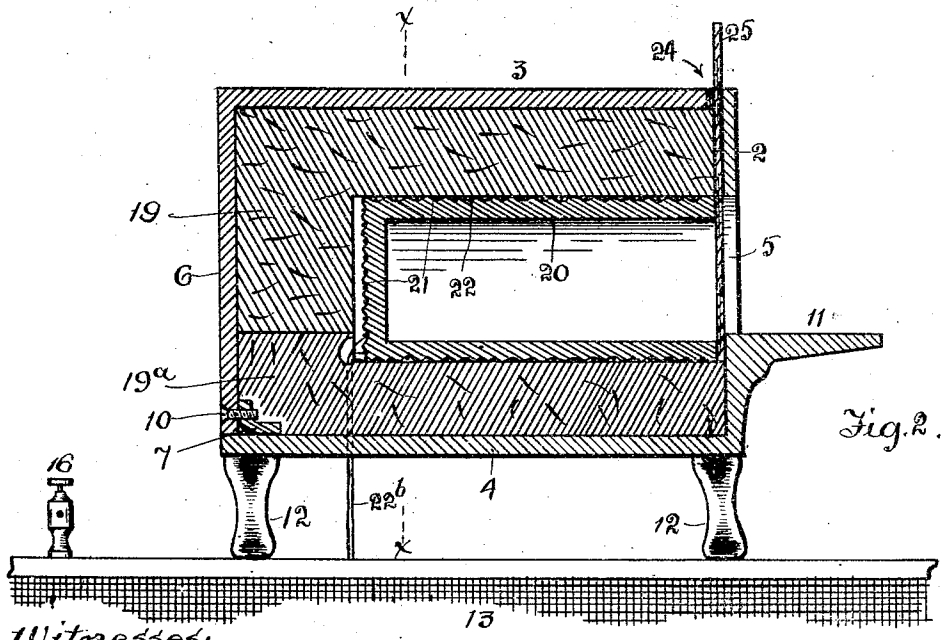


Fig. 2.

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Inventor:
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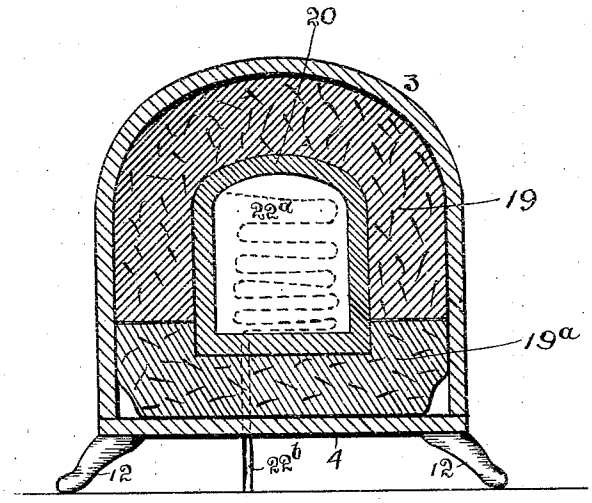


Fig. 3.

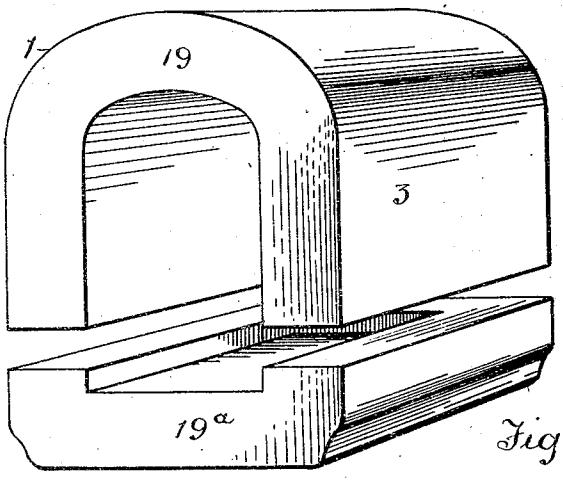


Fig. 5.

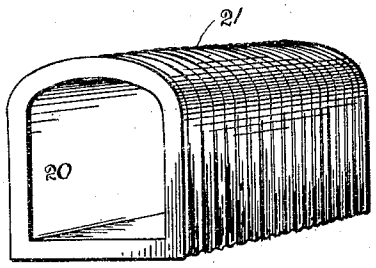


Fig. 4.

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3 SHEETS—SHEET 3.

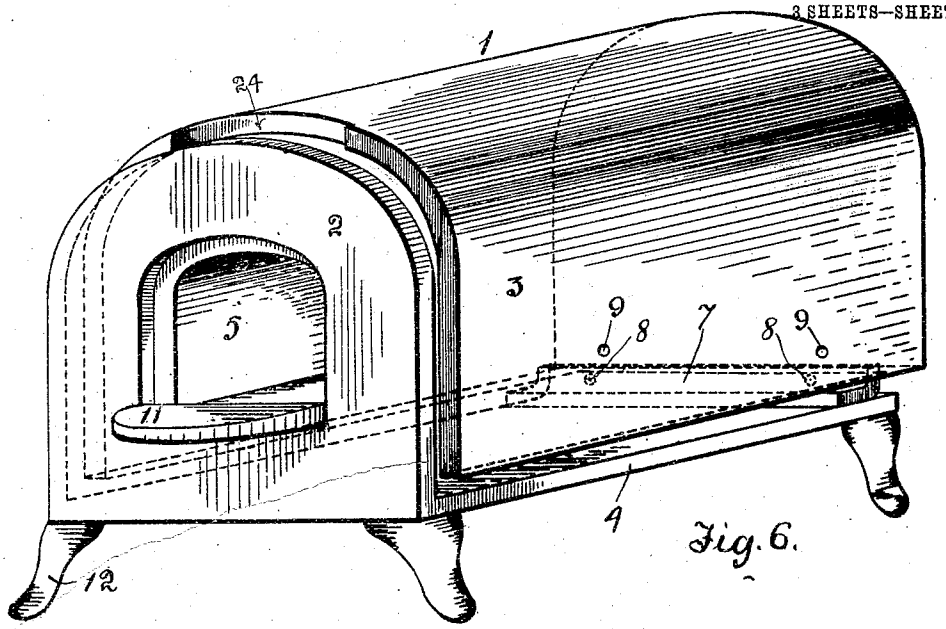


Fig. 6.

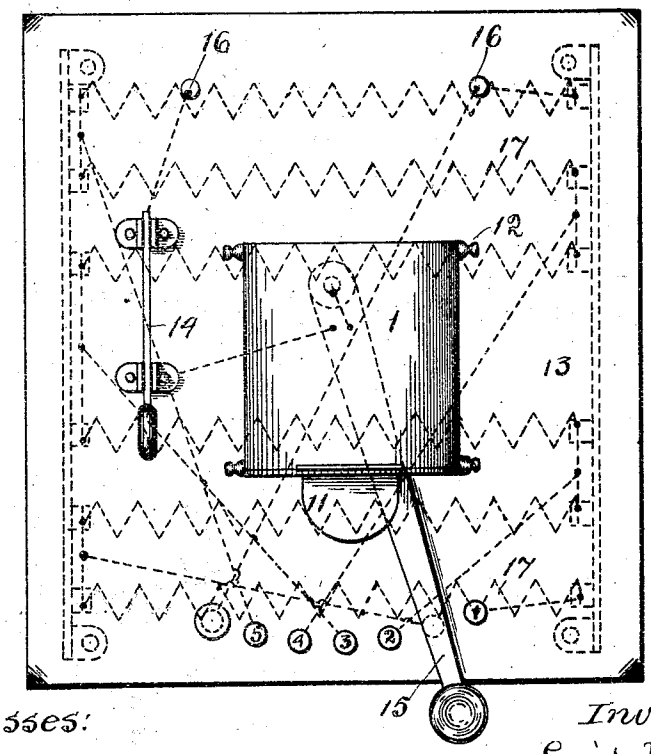


Fig. 7.

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UNITED STATES PATENT OFFICE.

LOUIS MARKWITZ, OF SAN FRANCISCO, CALIFORNIA.

ELECTRIC DENTAL FURNACE.

No. 849,335. Specification of Letters Patent. Patented April 2, 1907.

Application filed January 22, 1906. Serial No. 297,367.

To all whom it may concern:

Be it known that I, LOUIS MARKWITZ, a citizen of the United States, and a resident of the city of San Francisco, county of San Francisco, and State of California, have invented a new and useful Improvement in Electric Dental Furnaces, of which the following is a specification, reference being had to the accompanying drawings as constituting a part thereof.

My invention relates to electric dental furnaces, and has for its object to obtain in devices of this character the certain features and improvements hereinafter described and claimed.

It is well known that by reason of the very intense heat necessarily generated in dental furnaces the winding of platinum wire around the muffle is very frequently burned out and then, of course, requires immediate repair, and it is therefore desirable that the arrangement of the parts be such that the repair of the platinum wiring can be immediately made when necessary, and that it will take but a few minutes. To this end the parts of my furnace are arranged and combined as illustrated in the drawings.

In the latter, Figure 1 represents a general view in perspective of my furnace. Fig. 2 is a longitudinal section about centrally taken. Fig. 3 is a cross-section on a line *x x* of Fig. 2. Fig. 4 is a front end perspective of the muffle. Fig. 5 is a perspective detail of the two-part heat-resisting jacket of the muffle. Fig. 6 is a perspective detail of the outer casing of my furnace; and Fig. 7 is a top view or plan of my furnace, also showing the position of the resistance-coils in broken outline.

The numerals designate the parts referred to.

My furnace comprises an exterior casing, of cast-iron, 1, consisting of two parts 2 3, (see Fig. 6,) the former including the bottom 4 and the front wall and the latter including the side walls, roof, and back wall 6. It is to be noted that the two parts are separable and may be fastened together, as illustrated in Fig. 6 and the sectional views, Figs. 2 and 3. When arranged together, the side walls and the back of the removable part 3 rest on the bottom 4.

To secure the parts in place, the bottom 4 is provided with a vertical flange-plate 7 at the rear end, having two threaded holes 8, (see Fig. 6,) in which to receive screws 10, inserted through corresponding holes 9 in the base of the rear wall portion 6. The bottom 4 is also made with a projecting hearth-plate 11 and legs 12.

Within the outer casing is placed a heat-resisting jacket 19, made of fire-clay and silex or other suitable material. Said jacket is made in two parts 19 19^a, so as to be readily separated. Within the jacket 19 is placed the muffle 20, also made of heat-resisting material. On the exterior of the muffle 20 are provided spirally-arranged grooves 21, in which is wound the platinum wire 22, one end of which wire, 22^a, is led downward through grooves on the rear exterior face of the muffle, as is shown in broken line in Fig. 3. The casing 1 rests on a resistance or rheostat box 13, provided with a usual circuit-switch 14, also a resistance-switch 15 to adjust the degree of resistance and binding-posts 16, to which to connect the circuit-wires.

The resistance-box is conveniently made with a marble top, and the resistance-coils 17 are preferably arranged as shown in Fig. 7, the idea being to leave ample room or space at the center of box, so as to make it convenient to detach the platinum-wire ends when required. The two ends 22^b of the platinum wire 22 are led downward from the muffle through apertures therefor provided in the encompassing parts and are connected with the coils of the resistance-box.

From the foregoing description the convenience of the arrangement of my furnace is now apparent. In case of a burn-out it is the work of a moment to remove the screws 9 10, lift off the upper part 3 of the outer casing, next to lift off the upper part of the jacket 19, so as to expose the muffle 20, then to repair the wire windings of the latter, and finally to reassemble the parts. This repair can be made in from five to fifteen minutes and at the nominal cost of from five to ten cents, approximately.

To render the adjustment of the resistance-switch 15 convenient when desiring to operate within a predetermined degree of resistance, I provide a removable tip 26, made of vulcanized rubber, which is adjustable to any convenient point of the resistance-switch.

The circuit-switch 14 is preferably placed on the left side, as shown, so as to leave a space clear on the right side on which to lay the instruments being used.

The front wall 2 of the outer casing has an

opening 5 leading into the muffle 20, and the front end of the roof of such outer casing is made with a slot 24, in which to slide a door 25, made of a sheet of mica.

I claim—

1. In an electric furnace, the combination comprising a muffle provided with corrugations or grooves on its exterior surface arranged to receive a winding of wire; a jacket of earthy non-heat-conducting material, encompassing said muffle, and made in two separable parts, and an outer metal casing also made of two separable parts, and provided with means for fastening the same together; the front wall of said outer casing being made with an opening leading into the muffle, and provided with a suitable sliding door to close said opening.

2. In an electric furnace, the combination comprising a muffle provided with corrugations or grooves, on its exterior surface, arranged to receive a winding of wire, a jacket of earthy non-heat-conducting material, encompassing said muffle and consisting of two horizontally-separable parts as 19, 19ª and an outer metal casing also made of two separable parts, and provided with means for fastening the same together; the front wall of said outer casing being made with an opening leading into the muffle, and provided with a suitable sliding door to close said opening.

3. In an electric furnace, the combination comprising a muffle provided with corrugations or grooves on its exterior surface arranged to receive a winding of wire, a jacket of earthy non-heat-conducting material, encompassing said muffle, and made in two separable parts, an outer metal casing made of two integral parts, one consisting of the bottom and the front end wall, and the other consisting of an arched roof, the side walls and the rear end wall; the front wall being made with an opening leading into the muffle, and provided with a suitable sliding door to close said opening; and means for fastening the two parts of the outer casing after assembling the parts.

4. In an electric furnace, the combination comprising a muffle provided with corrugations or grooves on its exterior surface arranged to receive a winding of wire, a jacket of earthy non-heat-conducting material, encompassing said muffle, and made in two separable parts, an outer metal casing made of two parts, one consisting of the bottom and the front end wall and the other consisting of an arched roof, the side walls and the rear end wall, the front wall being made with an opening leading into the muffle, and provided with a sliding door to close said opening; a flange-plate on the rear end of the bottom part of such outer casing, and means for locking the rear end wall of the outer casing thereto, to hold the parts together.

5. An electric furnace comprising a muffle provided with corrugations or grooves on its exterior surface arranged to receive a winding of wire, a jacket of earthy non-heat-conducting material, encompassing said muffle and consisting of two horizontally-separable parts as 19, 19ª, an outer metal casing made of two parts, one consisting of the bottom and the front end wall, and the other consisting of an arched roof, the side walls and the rear end wall; the front wall being made with an opening leading into the muffle, and provided with a sliding door to close said opening; a flange-plate on the rear end of the bottom part of such outer casing, and means for locking the rear end wall of the outer casing thereto, to hold the parts together.

6. An electric furnace, comprising a base consisting of a rheostat or resistance box, the coils of which are arranged in groups rearward and forward of the center, so as to leave a space between said groups for the purpose specified; means for adjusting the rheostat, an outer metal casing, mounted on said base, said casing consisting of two parts 2, 3 one comprising the bottom and the front end wall, the latter being made with a door-opening, and the other part of said casing comprising an arched roof, the side walls, and the rear end wall, the roof portion being made with a slot 24; a door of transparent material inserted in said slot to close the opening of the front wall, means for fastening the two parts of the outer casing together; a muffle provided with corrugations or grooves on its exterior surface, and having a winding of wire lying in said grooves electrically connected with the rheostat; and an intermediate jacket, of earthy non-heat-conducting material, encompassing said muffle and consisting of two separable parts, as 19, 19ª.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

LOUIS MARKWITZ.

Witnesses:
WILLIAM KELLNER,
LOUIS B. JACOBS.