Feb. 26, 1924. 1,484,800

J. J. STARK

DENTAL APPLIANCE

Filed Dec. 5, 1922

Fig. 1.

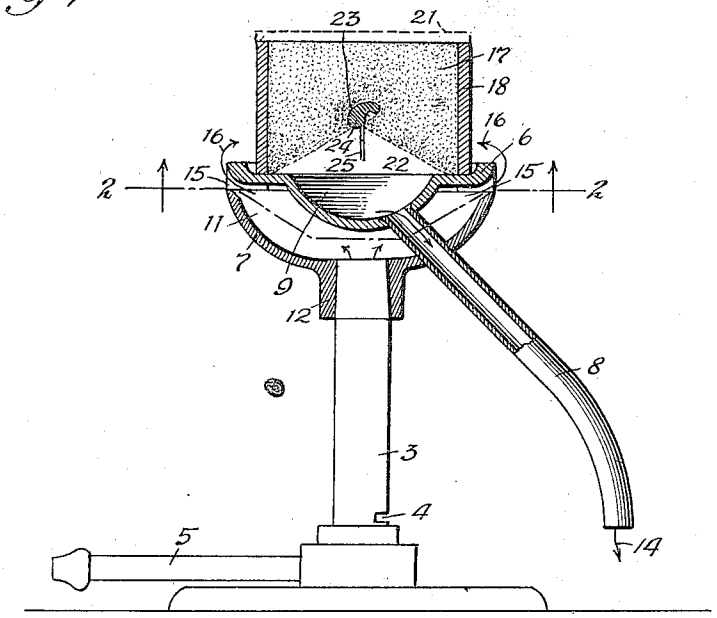
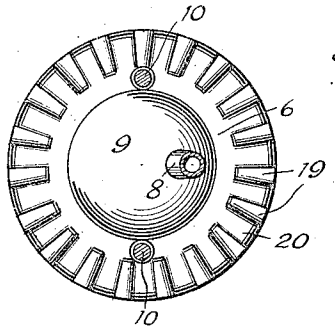


Fig. 2



WITNESSES

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UNITED STATES PATENT OFFICE.

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DENTAL APPLIANCE.

Application filed December 5, 1922. Serial No. 605,133.

To all whom it may concern:

Be it known that I, JACOB J. STARK, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and Improved Dental Appliances, of which the following is a full, clear, and exact description.

This invention has for its principal object to provide a new and valuable apparatus for quickly preparing dental molds for use in casting metal fillings.

According to prior practice, the mould while confined in a tubular flask to provide openings in the flask at the bottom as well as the top thereof, is inverted, that is, arranged so that the mold-gate is lowermost, and thereupon heat is applied thereto, to drive off water and steam in an upward direction, and simultaneously melt and drain off by gravity and by way of such gate, the fusible material of the cavity-form about which, in a manner well known, the cementitious or other suitable material of the mold was previously allowed to set.

An important object of the present invention is to provide, preferably as a gravity mounted attachment or cap-device for an ordinary Bunsen burner, a novel structure to receive and support the mold and carrying a permanently incorporated drainage means for the fused material of the cavity-form, with the burner proper having fuel and flame discharging and guiding openings and surfaces so shaped and related as to direct the flames upwardly and inwardly toward the center of the mold support to approach the mold flash radially and preferably intermediate the top and bottom thereof.

With these and various other objects in view, the invention consists in certain novel features of construction, combinations and arrangements of parts, and steps and proceedings, as will be hereinafter described and pointed out in the claims.

The invention will be more clearly understood from the following description, when taken in connection with the accompanying drawing, showing a preferred form of apparatus constructed pursuant to the invention.

In this drawing:

Fig. 1 is a vertical axial section through the new burner and the parts associated therewith, certain of the other parts being shown in elevation; and

Fig. 2 is a transverse section taken on line 2—2 of Fig. 1, and showing the underside of the burner plate.

At 3 in Fig. 1 is shown a conventional Bunsen burner having an air inlet as indicated at 4 and a gas-feeding connection 5.

The new burner and the parts associated therewith include merely a burner plate 6, a bowl-like plate or cup 7, a drain-pipe 8 leading as shown from near the bottom of a centrally dished portion 9 of plate 6, and two screws 10 for securing the burner plate on top of the cup 7, to establish, due to the just-mentioned shaping of the parts, a fuel-receiving and distributing chamber 11.

Cup 7 has a central opening communicating with the open upper end of tube 3 and surrounded by a depending collar 12 having an upwardly tapered bore to fit about the familiar coned upper end of the tube.

Drain-pipe 8 opens at its upper end into the centrally dished portion of burner plate 6, and below its drainage communication with such portion passes through chamber 11 and thence through a suitable opening in cup 7 to extend as illustrated and discharge the drained material as indicated by the arrow 14 into a suitable receptacle (not shown).

A very important feature of the new construction is the shaping of the peripherally spaced fuel-discharging and flame-guiding orifices marked 15 in Fig. 1, to result, as I have found in practice, in directing the gas flames as indicated by the arrows 16 of Fig. 1, that is, upwardly and inwardly toward the vertical axis of the burner and above the burner plate 6; so that a flask of any type and housing a dental mold 17, such as the flask 18 illustrated, may be uniformly heated when set on top of the burner plate merely by gravity. An important incidental advantage of the flame control as just described, is the fact that the peripheral line of flames wrap themselves around the circular marginal portion of burner plate 6 in such manner as to heat the same to a very high temperature and thus permit conduction to insure that the fused material which is to be drained by dished portion 9 and drain-pipe 8 will be drained clean through the pipe due to the heated condition of the latter, at least in the parts thereof which are inclined most from the vertical.

The orfices 15 are separated, pursuant to conventional gas-burner construction, by means of a peripheral series of short ribs marked 19 in Fig. 2; the flame control resulting from the fact that the underside of the peripheral edge of burner plate 6 is curved in cross-section as indicated in Fig. 1 and as marked 20 in Fig. 2, in combination with the gas-guiding surfaces of members 6 and 7 forming bounding walls of chamber 11 and the cross-sectional characteristics of such chamber.

In utilizing the just-described apparatus pursuant to the invention, the mold 17, if flasked, is preferably provided with a flask 18 in the shape of a cylindrical tube as illustrated, or even a flask of cup-shape as indicated by the broken line 21 of Fig. 1, provided openings are formed near the end of the flask where closed.

As the flask 18 is shown in Fig. 1, the same is inverted, and it will be seen that the mold is so shaped as to provide a conical gate 22 leading to the mold cavity 23 corresponding to the cavity in the patient's tooth. As well understood, the material of the mold 17 is set about a cavity-form 24 of wax or other suitable plastic and fusible material. It is also well known that such mold must be dried by heat and the cavity-form 24 and its sprue 25 removed before molten gold or the other selected material for the cavity filling is poured into the mold. With flask 18 constructed as hereinabove explained, it will be seen that it is very simple and easy operation to quickly prepare the mold, when once set about the cavity-form, for the making of a dental cast, when the new burner is used in connection therewith, so that the flames following the arrows 16 impinge against a circumferential section of the flask between the top and bottom thereof when the flask is inverted as shown in Fig. 1.

It will be understood that the flames are thus guided to the exterior of the flask to drive off water and steam while simultaneously fusing the cavity-form and draining out the cavity by gravity, and at the same time the drainage means is heated sufficiently by conduction to permit the latter to afford an unrestricted flow of the fused material in a heated and hence very liquid condition.

It should be understood in conclusion that the invention as above described may be varied considerably, and is susceptible to a number of different adaptations, without departure from the spirit of the invention as defined in the appended claims.

I claim:

1. In an appliance for drying out a dental mold and fusing and flowing out the cavity-form, the combination of a structure including a plate for supporting the mold, drainage means carried by the structure for the fluid from the fused cavity-form, fuel-discharging means carried by the structure along a circumferential line surrounding the upper portion of the drainage means and constituting a burner for heating the mold and simultaneously heating the draining means.

2. The appliance defined in claim 1, wherein said burner includes a plurality of spaced orifices, said orifices being shaped to delivery upwardly and inwardly directed flames all around said line.

3. In an appliance for drying out a dental mold and fusing and flowing out the cavity-form, the combination of a structure including a circular plate having a downwardly dished central portion, a drain pipe into which the dished portion opens, a bowl-shaped plate underlying the first plate and partially surrounding said pipe, the adjacent circular edges of the two plates being shaped therebetween to provide a plurality of outwardly and upwardly directed passages for the emission of a gaseous fuel to direct flames therefrom upwardly and inwardly over the upper plate when such fuel is ignited.

4. In an appliance for drying out a dental mold and fusing and flowing out the cavity-form, the combination of a structure including a circular plate having a downwardly dished central portion, a drain pipe into which the dished portion opens, a bowl-shaped plate underlying the first plate and partially surrounding said pipe, said plates being shaped to establish a chamber therebetween, the marginal end portion of the upper plate being provided with a series of notches to establish orifices for discharging beyond the plates gaseous fuel admitted to said chamber, said notches being established to direct the flames from the fuel when ignited, upwardly and inwardly toward the center of the upper plate.

JACOB J. STARK.