May 27, 1941. C. E. SUMMY 2,243,445

COMBINATION EXPANSIBLE ABSORBENT RECEPTACLE FOR INVESTMENTS

Filed July 8, 1939

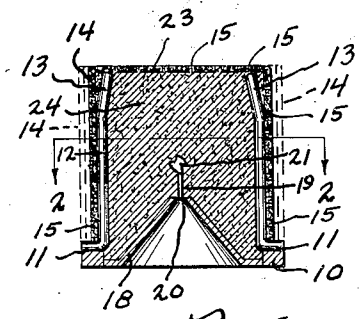


Fig. 1

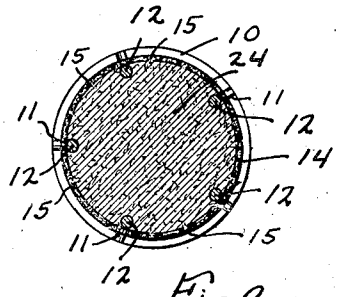


Fig. 2

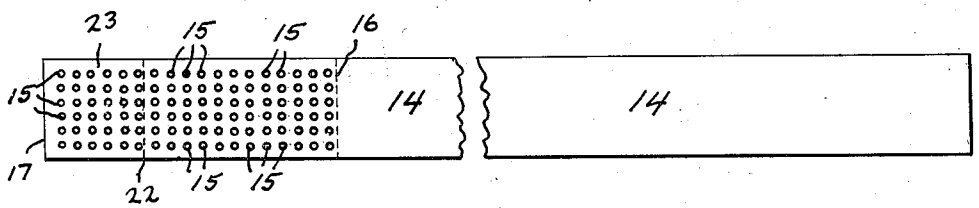


Fig. 3

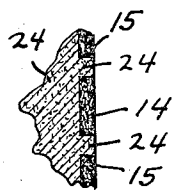


Fig. 4

INVENTOR.
Charles E. Summy

BY

Sam J. Slotky
ATTORNEY.

Patented May 27, 1941

2,243,445

UNITED STATES PATENT OFFICE

2,243,445

COMBINATION EXPANSIBLE ABSORBENT RECEPTACLE FOR INVESTMENTS

Charles E. Summy, Paullina, Iowa

Application July 8, 1939, Serial No. 283,467

4 Claims. (Cl. 22—97)

My invention pertains to a dental process and device.

An object of my invention is to provide an expansible arrangement for receiving investments which will allow compensation for the contraction in size of gold inlays, in combination with suitable means for holding such investments.

A further and important object of my invention is to provide a simple absorbing arrangement for absorbing the moisture from the investments so that the investment liquid is removed to the greatest possible extent.

A further object of my invention is to provide an absorbing member which includes a certain means for rigidifying and bracing the investment structure.

A further object of my invention is to provide the above mentioned objects in a structure of great simplicity, and which can be manufactured at a very reasonable cost.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Figure 1 is a sectional view taken through an investment with my form of structure used therewith,

Figure 2 is a sectional view taken along the lines 2—2 of Figure 1,

Figure 3 is a view of the absorbent and bracing strip, and

Figure 4 is an enlarged detail.

The principal objective contemplated in my invention is that of providing an investment with a lining engaging the outer boundaries thereof which will completely absorb the moisture from the investment in a convenient manner and in a minimum of time. Since the moisture must be removed from the investment in order to provide the best type of filling in dental inlays and the like, such means are important in the art. My invention also contemplates the provision of an interiorly positioned supporting structure for the absorbent members so that when the absorbing member is placed thereabout, a receptacle is provided for filling the investment into the necessary cavities.

I have used the character 10 to represent a circular ring to which is attached at equally spaced intervals at 11 the vertically positioned bars 12 which bars extend upwardly and terminate in the slightly inwardly inclined extremities 13. I have further used the character 14 to represent a comparatively long strip of absorbent material such as asbestos, which has strong water absorbing characteristics and which can be fireproof for the necessary purpose. The member 14 includes at one end a series of perforations 15 which perforations extend substantially the width of the member 14, but which extend only to the approximate point 16 from the end 17 of the member 14, the distance between the end 17 and the part 16 being substantially equal to the circumferential distance around the ring 10 or the bars 12, plus the diameter of the ring 10.

The arrangement is used in the following manner. The inlay supporting cone which is indicated by the character 18 is inserted within the ring 10 with the pin 19 being attached to the cone at 20, and the usual wax shape 21. The member 14 is then wrapped around the bars 12. However, before wrapping the member 14 about the bars 12, first a substantially square portion approximately up to the point 22 (see Fig. 3) is torn off of the strip, which portion is indicated by the character 23. Next, the strip 14 is wrapped about the bars 12 starting at the point 22 so that the perforated portion of the strip will be directly adjacent to the said bars 12. The strip 14 is then wrapped about a consecutive number of times, forming two or three layers as indicated by the dotted structure in Figure 1. The investment material, which comprises the usual fireproof powder which is mixed with water, is then poured into the receptacle provided by the strip 14 and the cone and will then completely surround the wax form 21 as shown in Figure 1. The small square strip 21 which has been torn off is then placed at the top of the investment material and pressed downwardly slightly, occupying the position as shown in Figure 1.

It should be noted that the investment material which is indicated by the character 24 will flow through the perforations 15 along the cylindrical sides of the member 14 as well as the upper member 23. The absorbent material 14 will then completely absorb all of the moisture from the investment so that there will be no pockets formed at the main body of the investment and the perforated portions of the absorbent strip will allow the moisture to travel through such perforations into the outer layers of the strip. This complete absorption causes rapid drying of the investment and after which the outer layers, as indicated by the dotted lines in Figure 1, can be unwound and torn away.

leaving, however, the inner layer which includes the perforations 15. As a result, after drying and hardening of the investment material, it will be noted that the presence of the hardened portion of such material in the perforations serve to support the entire cylindrical portion of the strip 14 and to brace the entire unit solidly together with the upper member 23 providing a firm outer cover.

In now referring to the bracing bars 12 again it will be noted that the bars 12 are movable radially from the center of the unit and which bars are adapted to compensate for the loss in volume of the gold inlay which is to be formed in the impression 21 after the wax is removed by heat. In other words, after the gold is placed in the cone 18 and is then melted into the form 21 to form the inlay, the bars 12 will bend outwardly from the center to compensate for the expansion necessary to offset the loss of volume in the gold inlay itself when heated. If the inlays were formed in a solid cylindrical member, the expansion of the member itself would not take care of this discrepancy, but the bars being laterally movable, there will be a tendency to provide this desirable result. It will be understood that if desired the arrangement can be filled with the investment by inverting the ring 10 and placing the portion 23 beneath the same and pressing the cone into the mass of investment material; however, any arrangement can be used. The bending of the bars 12 at 13 provides a more convenient manner of filling when the arrangement is reversed, and the portion 23 of the absorbent strip 12 is smoothed around the peripheral boundaries of the arrangement to provide a circular form.

If such is desired, the member 14 can be preformed into a cylindrical cavity with the perforate portion being inside as described, so that the cylindrical cavity can be made by the manufacturer and usable in the cylindrical form which can be then slipped over the bars 12. This arrangement will provide a cavity ready for use which will not be in the strip form as shown in Figure 3.

It will now be seen that I have provided a process as well as an apparatus for removing moisture from investments which works in combination with an expansible arrangement, which expansible arrangement compensates for the diminution in size of gold inlays when heated or formed, and it will be seen further that I have provided an absorbing member which also acts as a bracing structure for an investment unit, and it will also be seen that I have provided a method of forming a completely absorbing receptacle for investments, and that I have provided the above in a simple structure.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

1. A device for forming investments comprising a substantially cylindrical open framework, a lengthened strip of highly absorbent material adapted to be wound upon said framework, said strip having a plurality of spaced perforations at one end thereof to provide a single ply perforated investment receiving member, the further portions of said strip adapted to provide further absorbing plies, when said strip is wound continuously about said framework.

2. A device for forming investments comprising a substantially cylindrical open framework, a lengthened strip of highly absorbent material adapted to be wound upon said framework, said strip having a plurality of spaced perforations at one end thereof to provide a single ply perforated investment receiving member, the further portions of said strip adapted to provide further absorbing plies, when said strip is wound continuously about said framework, said framework having free ends to provide elasticity thereto for expansion purposes.

3. A device for forming investments comprising a substantially cylindrical open framework, a lengthened strip of highly absorbent material adapted to be wound upon said framework, said strip having a plurality of spaced perforations at one end thereof to provide a single ply perforated investment receiving member, the further portions of said strip adapted to provide further absorbing plies, when said strip is wound continuously about said framework, said framework having free ends to provide elasticity thereto for expansion purposes, the perforate portions of said strip being of a length substantially equal to the circumference of said framework plus the diameter thereof to provide a perforate top covering member to the investment.

4. A device for forming investments comprising a lengthened strip of moisture absorbing material, said strip being wound spirally to form a cylinder to provide retainer means for plastic investment, said strip including a plurality of perforations in which said investment material is adapted to flow to provide means for passage of moisture of said investment material to the outer lining of said strip.

CHARLES E. SUMMY.