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DENTAL FLASK

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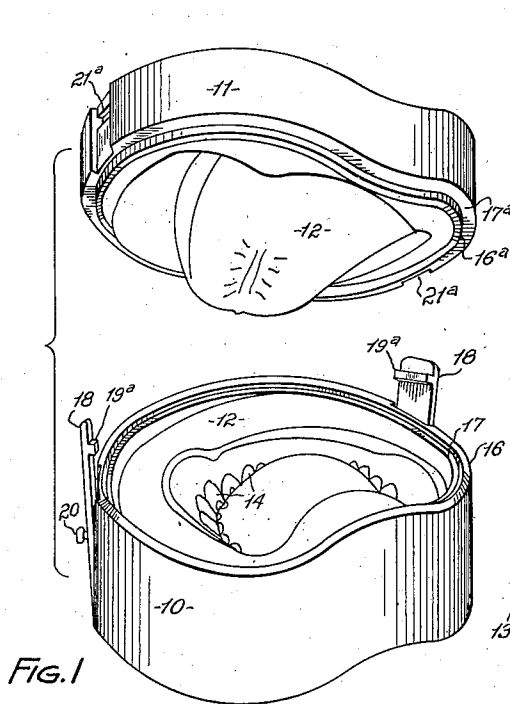


FIG. 1

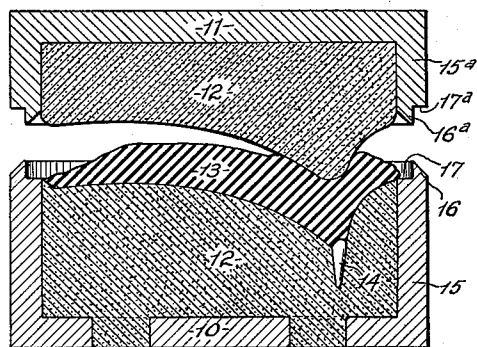


FIG. 2

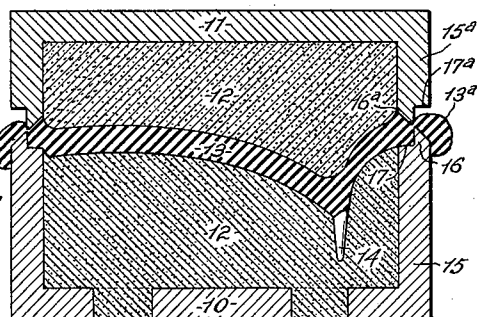


FIG. 3

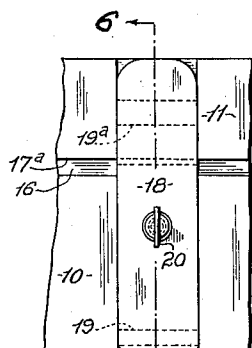


FIG. 5

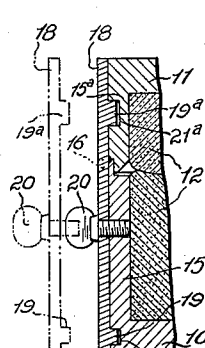


FIG. 6

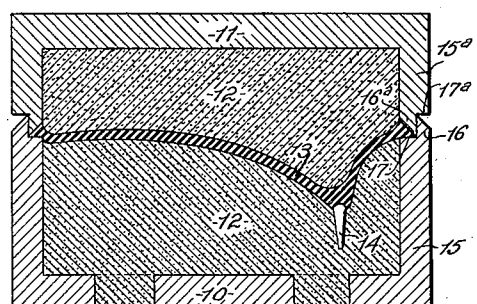


FIG. 4

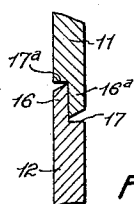


FIG. 7

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DENTAL FLASK

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3 Claims. (Cl. 18—33)

This invention relates to molding apparatus and particularly to flasks used for casting pyroxilin and similar materials used in the formation of artificial dentures.

5 The primary object of the invention is to provide a device of this type which will retain a predetermined amount of the plastic substance without overflow or shrinkage and which device compresses the plastic substance during the
10 hardening or vulcanizing process, so that the finished material has a definite density and minimum porosity.

Another object of the invention is to provide a set of flasks of different capacities so as to accommodate pyroxylins, vulcanites, resinoids and other similar plastics each of which has a different co-efficient of expansion.

15 A further object is to provide an artificial denture mold with a flask which will improve and strengthen condensite or Bakelite dentures made therein.

These and other objects and advantages will become apparent from a reading of the accompanying specification and claims together with the appended drawing in which like parts are designated by like reference characters and wherein:
25

Figure 1 is a perspective view of a flask showing the upper and lower boxes each containing a matrix for making a denture;
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Figures 2, 3 and 4 show the important initial steps of making a denture with this new flask. The Figure 2 shows a large mass of plastic material in the matrix; the Figure 3 shows a measured quantity of the plastic material in the matrix; and the Figure 4 shows the measured quantity of material compressed and ready for vulcanizing, setting or hardening;
35

Figure 5 is an elevation of a portion of a side of the assembled flask showing how the two boxes are clamped together;
40

Figure 6 is a cross sectional view of the Figure 5 taken along the lines 6—6 of same; and
45

Figure 7 is a sectional view of the rim edges of a flask, the flanges of which are longer so as to accommodate a plastic having a relatively high co-efficient of expansion.

The flask constituting this invention consists of two boxes, one the lower or upright box 10 and the other the upper or inverted box 11. Both of the boxes are made of durable and substantial metal, preferably bronze, and are shaped to conveniently retain a plaster matrix 12 which forms the denture desired. In shaping the matrix 12
50 the operation is substantially the same as in the
55

prior art. That is, the soft wax model is impressed with the artificial teeth 14 in the plaster or investment material before it hardens, and the wax is subsequently melted and drained out so as to leave the space for the initially elastic thermoplastic or similar material 13 which is finally inserted and in which the teeth 14 become embedded. The material 13 may be either of the granulated or viscous type depending upon the particular compound used and the ultimate results desired.
5 10

The brims of the vertical wall structures 15 and 15a of the boxes 10 and 11 are provided with flanges 16 and 16a which are substantially in telescopic engagement with each other. The flange 16 on the upright box 10 runs around the outer side of the wall 15 while the flange 16a extends around the inner side of the adjacent wall 14a. The brims of the walls 15 and 15a are contiguous to the flanges 16 and 16a respectively, and form shoulders designated by the characters 17 and 17a respectively. The flange 16 is beveled outwardly and the flange 16a is beveled inwardly, and the two flanges are vertically aligned and are made to fit perfectly so that the beveled flanges form sharp reciprocating shear-like edges which ultimately rest on or engage the shoulders 17 and 17a. The shear-like cutting edges assist in the closing of and sealing of the boxes 10 and 11 and in the compressing of the inclosed material 13. Some plastics have a tendency to harden immediately upon coming in contact with the metal walls, and therefore to facilitate the complete closing of the boxes the shear-like edges are provided.
15 20 25 30 35

A means for or holding the two boxes 10 and 11 together is provided. This consists of a short length of metal herein termed clamps 18, which is provided with lower and upper horizontal lugs 19 and 19a facing inward or toward the walls 15 and 15a of the boxes. Each of the clamps 18 are drilled a little below center to receive a wing-bolt 20. The upright box 10 has a horizontal groove 21 to receive the lug 19 and similarly the inverted box 11 has a horizontal groove 21a to receive the lug 19a. The upright box is drilled and tapped to receive the bolt 20. When the clamp members 18 are applied with the lugs 19 and 19a engaging the grooves 21 and 21a, the flanges 16 and 16a are in close contact with their shear-like edges touching the shoulders 17 and 17a respectively thereby forming a sealed leak-proof juncture.
40 45 50

To use the herein mentioned flask, the operator inserts in the mold 12 in the boxes 10 and
55

11 a substantially large mass of material 13; an amount more than is actually needed and which will overflow both of the boxes 10 and 11. The inverted box 11 is pressed downward so that the excess material 13a is squeezed out. When the shear-like edges of the flanges 16 and 16a meet, the excess material 13a is neatly cut off and the rest is retained in the matrix 12. Pressure is then applied to the boxes in order to compress the remaining material 13 and the boxes are then locked together with the clamps 18 and heated for a period of time to vulcanize or set the compressed material 13 therein.

In view of the fact that different plastics have different expansion co-efficients, a series or set of five or any desired number of similar flasks is provided each of which has flanges 16 and 16a of a different height so as to measure and compress different amounts of the material to different degrees of consistency. The Figure 7 shows a portion of the upper and lower walls 15 and 15a having longer flanges to accommodate a plastic which has greater expansion characteristics when heated. The flanges shown in the Figure 7 permits the material to be compressed more.

It should be borne in mind that the dimensions of the flanges shown in the drawing is somewhat exaggerated in order to more clearly illustrate the idea. In practice the difference in height and the relative dimensions of the various flanges is considerably less than as illustrated. Their dimensions are calculated to correspond with the expansion characteristics and normal porosity of the particular material intended to be used in the individual flask.

One of the most important advantages of this invention over the prior art is that it insures a definite and measured quantity of the plastic material 13 in the matrix 12 which when compressed during the setting or vulcanizing process forms a less porous solid and which is harder and more durable for the use intended.

Another advantage is that after the clamps 18 are applied and the boxes 10 and 11 are securely locked together, they may be placed in the vulcanizer or heater without extraneous vices, clamps or presses now used and applied or attached during the heat treatment.

It will now be clear that there is provided by this invention a denture flask which accomplishes the objects of the invention. While the invention has been described in its preferred form and while certain general terms and specific language have been used, it is to be understood that the embodiment of the invention as described is illustrative only and is not to be

considered in a limiting sense. It is to be further understood that there are other forms of the invention which will suggest themselves to persons making, using or selling similar devices and those modifications as well as the modifications of the illustrated form are all considered to be within the broad scope of the invention as no limitations upon it are intended other than those imposed thereon by the scope of the appended claims.

I claim:

1. A flask for molding dentures made of an initially elastic thermoplastic material, comprising in combination, an upright lower box including a matrix and having an upwardly extending flange thereon, an inverted upper box including a matrix and having a downwardly extending flange thereon slidably engageable with the upwardly extending flange and sealing the said boxes, and an inwardly flared edge on the downwardly extending flange compressing the said material between the matrices.

2. A flask for molding dentures made of an initially elastic thermoplastic material, comprising in combination, a first box member including a matrix and having a flange thereon, a second box member including a matrix and having a flange thereon slidably engageable with the first box flange and sealing the said box members, a cutting edge on the first box flange co-acting with the second box member and causing a definite amount of material to remain in the sealed box members, and a means on the second box flange compressing the definite amount of material between the said matrices.

3. A flask for molding dentures made of an initially elastic thermoplastic material, comprising in combination, a first box member including vertical wall portions and having a matrix therein, the said first box member wall portions having a flange thereon adjacent to the outside edge thereof, a second reciprocal box member including vertical wall portions and having a matrix therein, the said second box member wall portions having a flange thereon adjacent to the inside edge thereof slidably engageable with the first box member flange sealing the said box members, a cutting edge on the first box flange co-acting with the second box wall portion determining the amount of material remaining in the box members, and an inwardly flared edge on the second box member flange compressing the elastic material remaining in the box member between the said matrices simultaneously with the sliding engagement of the two flanges.

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