

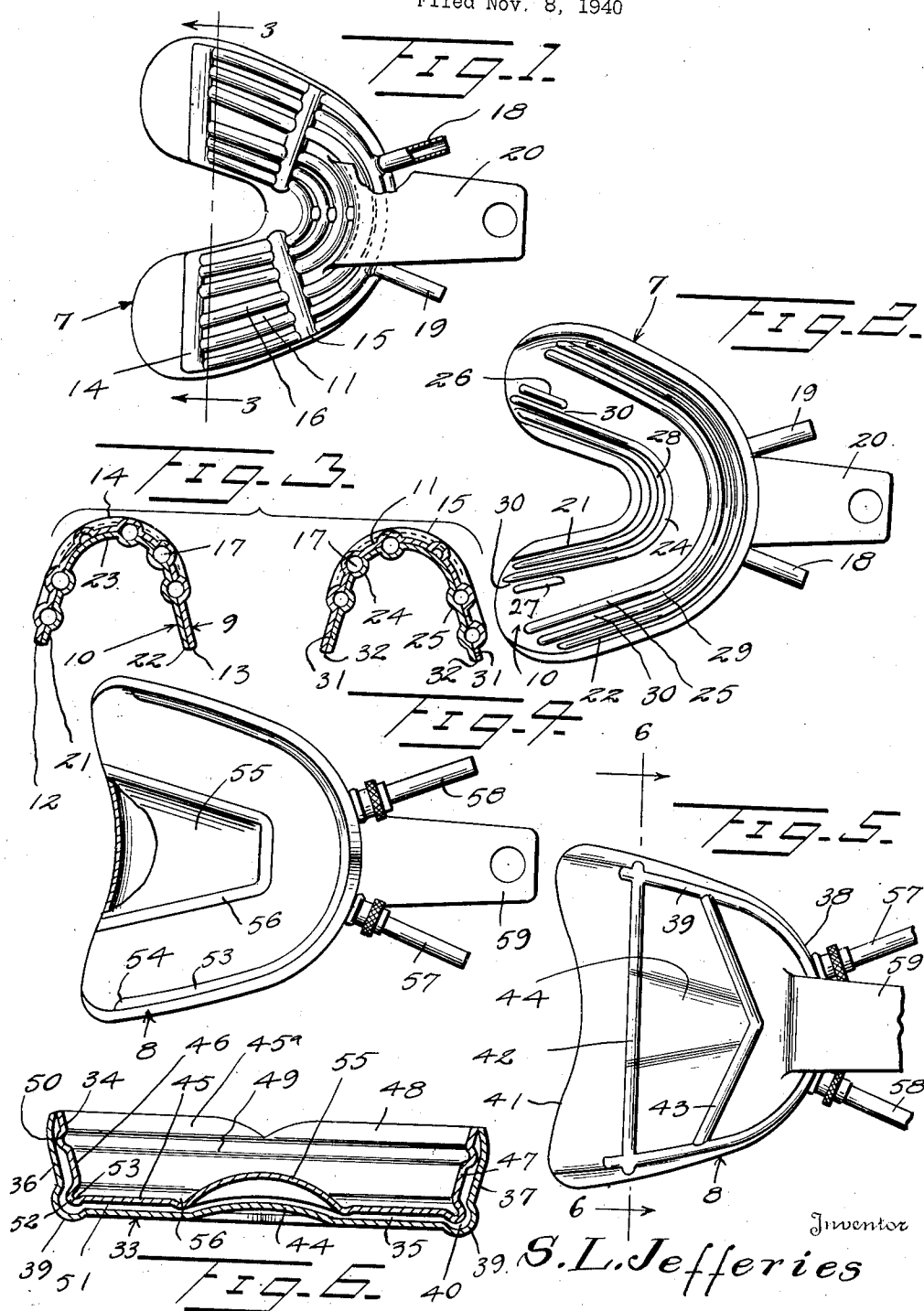
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WATER COOLED IMPRESSION TRAY

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WATER COOLED IMPRESSION TRAY

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4 Claims. (Cl. 32—17)

This invention relates to a water cooled impression tray.

The invention aims to provide, in a manner as hereinafter set forth, an impression tray for taking impressions with materials which are necessary to be cooled while the same is hardening in the mouth, such as all solid colloidal gums, waxes and metals of insoluble character and all modeling compounds and all such material requiring the moulding of the gums, flesh, processes and bones of the human anatomy.

The invention further aims to provide, in a manner as hereinafter set forth, a water cooled impression tray having as the essential and underlying factors and features thereof, the provisions for retaining and holding the various impression materials after they have hardened and set in the mouth or otherwise, and with such provisions disposed on the inner surface of the tray.

The invention further aims to provide, in a manner as hereinafter set forth, a water cooled impression tray, which is simple in its construction and arrangement, strong, durable, thoroughly efficient in its use, conveniently handled, readily assembled and comparatively inexpensive to manufacture.

Embodying the aims aforesaid and others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawing, wherein are shown embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a bottom plan view of a water cooled lower impression tray in accordance with this invention,

Figure 2 is a top plan view of the structure shown by Figure 1,

Figure 3 is a section on line 3—3 of Figure 1,

Figure 4 is a top plan view of a water cooled upper impression tray in accordance with this invention,

Figure 5 is a bottom plan view of the structure shown by Figure 4, and

Figure 6 is a section on line 6—6 of Figure 5.

With reference to the drawing, lower and upper water cooled impression trays are generally indicated at 7, 8 respectively.

The tray 7 is of V-form in plan and the tray 8 is of flared contour, that is to say the tray 8 flares from its outer to its inner end.

Each tray is in the form of a receptacle-like body normally open at its top and inner end.

The tray 7 includes an outer channel-shaped jacket 9 and an inner channel-shaped jacket 10 positioned within and snugly fitting the jacket 9. The jackets 9, 10 in vertical section are of substantially parabola contour and each includes an exposed face and a concealed face. The said concealed faces oppose each other. The jackets conform to the general curvature and shape of the lower jaw and more particularly to that part of the jaw known as the alveolar process. The jacket 9 includes a curved bottom 11 and a pair of oppositely outwardly inclined spaced upstanding parallel flanges 12, 13 which provide the sides and front of the jacket 9. The concealed face of the jacket 9 is stamped outwardly as at 14, 15 and 17 to provide lateral and anterior and lingual channels running around the sides and the bottom of the jacket. The said channels are generally indicated at 17. The stamped outward portions of the jacket 9 are arranged in such relation as to provide for the communication of the channels 17 in such a manner as to permit of the free circulation of cooling water throughout the greater portion of the concealed face of the jacket 9. The latter is provided on its exposed or outer face with a pair of tubes 18, 19 which communicate with a channel 15 at spaced points and project forwardly of the front end of the jacket 9. The tube 18 constitutes an intake for the cooling water to the jacket 9, and such intake is adapted to be secured to a cold water supply. The tube 19 provides an outlet and said tubes 18, 19 correlate with the jacket 9 to provide for the free circulation of a cooling medium (cooling water) substantially throughout its concealed inner face and against the lower or concealed face of the bottom of the jacket 10. The front portion of the bottom 11 of the jacket 9 has suitably secured therewith an apertured handle 20, which projects forwardly from the front end of the tray 7. It is further provided that the handles protruding anteriorly from all of the trays may be eliminated, and that the intake and outtake tubes for the cold water may be used instead of the handles if desirable.

The inner jacket 10 includes a pair of spaced upstanding parallel flanges 21, 22 which provide the sides and front of the jacket 10. The latter also includes a bottom 23 of concave contour and merges into the lower ends of the flanges 21, 22. The flanges 21, 22 are oppositely outwardly inclined. The jacket 10 has spaced portions thereof of stamped to provide spaced sets 24, 25 of elon-

gated hollow ribs on its exposed face and a pair of spaced short hollow ribs 26, 27 on such face. The set of ribs 24 are disposed at one side of the bottom 23 and also on the flange 21. The set of ribs 25 are disposed on the other side of the bottom 23 and also on the flange 22. The ribs 24, 25 extend from a point in proximity to one end of the bottom 23 and flanges 21, 22 to a point in proximity to the other end of said bottom and flanges. The ribs 26, 27 are formed in the bottom 23 and are spaced from one of the ribs 24. The ribs 24 correlate to form grooves 28 on the exposed face of the bottom 23 and on the exposed face of the flange 21. The ribs 25 correlate to form grooves 29 on the exposed face of the bottom 10 and the inner face of the flange 22. The ribs 26, 27 coact with a rib 24 to form the exposed face of bottom 23 with short grooves 30. The several ribs and the several grooves coact to retain and hold the impression material in the inner jacket after the material has hardened and set in the mouth or otherwise. Certain of the ribs 24, 25 open at their inner ends into certain of the channels 17. The jackets 9, 10 are open at their rear.

The inner jacket is disposed in the outer jacket in contacting relation, the inner jacket fitting the outer jacket and when so positioned they form at the upper ends of the flanges, common marginal portions 31, which are secured together, thereby providing for the correlation of said jackets in a manner to form a water space for the circulation of cooling water. The common marginal portions of the jackets are soldered or welded together, as at 32, in a manner to form an air and water tight joint between the jackets.

With reference to Figures 4, 5 and 6, the tray 8 includes an outer jacket 33 and an inner jacket 34. The upper tray 8 conforms in general shape to the upper ridge of the lower jaw (inferior maxillary bone), and it is separated and partitioned so as to provide space for the tongue. The upper tray conforms in general shape to the general shape of the upper jaw (superior maxillary bone), that is to the general shape of its upper ridge (alveolar process) and the hard palate when the inner jacket 34 is nested in the outer jacket 33. The latter includes a bottom 35 having integral therewith an upstanding flange which provides a pair of oppositely outwardly inclined side walls 36, 37 and a front wall 38 of arcuate contour merging into the side walls 36, 37. The jacket 33 is open at its rear. Between the walls 36, 37 and 38 and the bottom 35 the concealed face of the jacket 33 is stamped outwardly, as at 39, to form a water channel 40. The stamped portion 39 is of U-form and has its ends closed and spaced from the rear end 41 of the bottom 35. The concealed face of the bottom 35 is also formed with a stamped portion 42, which is disposed transversely of said bottom and arranged in proximity to the ends of the portion 39. The portion 42 forms a water passage, which is closed at its ends and intersected adjacent its ends by the passage 42. The concealed face of the bottom 35 between the portion 42 and its forward end is provided with an oppositely inclined stamped portion 43 forming a water channel, which at its ends communicates with the water channel provided by the part 39. The exposed face of the bottom 35 between the portions 42, 43 is stamped to provide an upstanding raised portion or hump 44, disposed equally on opposite sides of the lengthwise medium of bottom 35 and it extends from the portion 42 to the portion

43. The raised or hump portion 44 gradually decreases in width from its rear to its forward end and it is of convex contour in transverse section.

The inner jacket 34 is nested within the outer jacket 33 and it includes a bottom 45 having integral therewith an upstanding flange 45^a, which provides a pair of side walls 46, 47 and a front wall 48. The latter merges into the side walls 46, 47. The side walls 46, 47 are oppositely outwardly inclined. The jacket 34 has its exposed face formed with a groove or channel 49, which is of a length coextensive with the combined length of the walls 46, 47, 48. The channel 49 is provided by stamping outwardly the portion 50 of the flange 45^a and such portion 50 also forms a spacing rib disposed in proximity to the upper end of the jacket 34. When the latter is nested into the jacket 33, the aforesaid rib 50 disposes the jackets in spaced relation. The jacket 34 is suspended within the jacket 33 and for this purpose the upper part of the walls 36, 37 and 38 of the jacket 33 is secured by soldering or welding to the upper end of the walls 46, 47 and 48 of the jacket 34. When the jacket 34 is arranged within and connected to the jacket 33, the said jackets coact to form a water space 51. The rear ends of the bottoms 35, 45 and the rear ends of the sides 36, 37, 46, 47 are secured together by welding or otherwise for closing the rear end of the water space or chamber 51. Between the bottom 45 and the walls 46, 47 and 48 the exposed face of the jacket 34 is stamped inwardly, as at 52, to provide a substantially U-shaped channel or groove 53 having its ends 54 closed and said ends are spaced from the rear end of the walls 46, 47 and the bottom 45.

The exposed face of the bottom 45, centrally thereof is formed with a raised portion 55, which is of convexo-concave contour in transverse section. The portion 55 extends from the rear end of the bottom 45 to a point rearwardly of the forward end of said bottom. The portion 55 gradually increases in width from rear to front. The exposed face of the bottom 45 is depressed to provide a groove or channel 56, which completely encompasses the portion 55. The channel or groove 56 is spaced from the channel or groove 53.

Secured to the front wall 38 of the jacket 33 is a pair of forwardly directed pipes 57, 58, which open into the water space 51. The pipe 57 is adapted to be connected to a source of cold water supply and constitutes an inlet for the water chamber 51. The pipe 58 constitutes an outlet for the chamber 51. The pipes 57, 58 provide for a cooling medium circulating through the water space or chamber 51, and such medium acts to cool the impression material in the jacket 34. Secured to the bottom 35 of the jacket 33 is a handle member 59, which projects forwardly of the tray.

The sides 36, 37 and the front 38 of the jacket 33 are bent inwardly at their upper portions towards the sides and front of the jacket 34.

What I claim is:

1. A water cooled impression tray comprising a receptacle-like body open at its top and at its inner end, said body including an outer jacket and an inner jacket disposed within the outer jacket, each jacket having an exposed face and a concealed face, said jackets having related portions so formed to permit of the circulation of a cooling medium between the concealed face of the jackets, a cooling medium intake and outlet

secured to the outer jacket and extending from the exposed face of the latter, one of the said related portions of each jacket forming a bottom for the latter, said inner jacket having the exposed face of its bottom formed with sidewise arranged front and rear spaced sets of continuous grooves, the grooves of each set being disposed in sidewise spaced relation and being open at each end, and means for connecting opposed parts of the concealed faces of said jackets together to provide a sealed joint and for securing said jackets together.

2. A water cooled impression tray comprising a receptacle-like body open at its top and at its inner end, said body including an outer jacket and an inner jacket disposed within the outer jacket, each jacket having an exposed face and a concealed face, said jackets having related portions so formed to permit of the circulation of a cooling medium between the concealed faces of the jackets, a cooling medium intake and outlet secured to the outer jacket and extending from the exposed face of the latter, each of said jackets including side and bottom parts, said inner jacket being provided with sidewise arranged front and rear spaced sets of continuous grooves, the grooves of each set being disposed in sidewise spaced relation, the front set being arranged in the exposed face of the side and bottom part of said inner jacket, said rear set being arranged in the exposed face of the bottom part of said inner jacket, the grooves of each set being open at each end thereof, and means for connecting opposed portions of the concealed faces of said parts of said jackets together to provide a sealed joint and for securing the jackets together.

3. A water cooled impression tray comprising a receptacle-like body open at its top and at its inner end, said body including an outer jacket and an inner jacket disposed within the outer jacket, each jacket having an exposed face and a concealed face, said jackets having related por-

tions so formed to permit of the circulation of a cooling medium between the concealed faces of the jackets, a cooling medium intake and outlet secured to the outer jacket and extending from the exposed face of the latter, each of said jackets including side and bottom parts, said bottom parts being provided substantially centrally thereof with raised portions lengthwise thereof of convexo-concave contour in transverse section and disposed in superposed relation, said inner jacket having its exposed face formed with a continuous groove disposed adjacent to its raised portion and a continuous groove at the base of its side part, and means for securing said jacket together to provide a sealed joint between them.

4. A water cooled impression tray comprising a receptacle-like body open at its top and at its inner end, said body including an outer jacket and an inner jacket disposed within the outer jacket, each of said jackets including side and bottom parts, the bottom parts of said jackets disposed in superimposed relation, the side parts of said jackets disposed in abutting relation, each jacket having an exposed and a concealed face, said outer jacket having its concealed face formed with communicating channels for circulating a cooling medium between the concealed faces of said jackets, a cooling medium intake and outlet connected to said outer jacket and extended from the exposed face of the latter, said inner jacket having its exposed face formed with a front and a rear set of spaced continuous sidewise arranged grooves, said sets being disposed in sidewise relation, said rear set positioned on the rear portion of the bottom of said inner jacket, said front set being located on a portion of said side and forward portion of the bottom part of said inner jacket, and means for securing said jackets together to form a seal tight joint between them.

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