

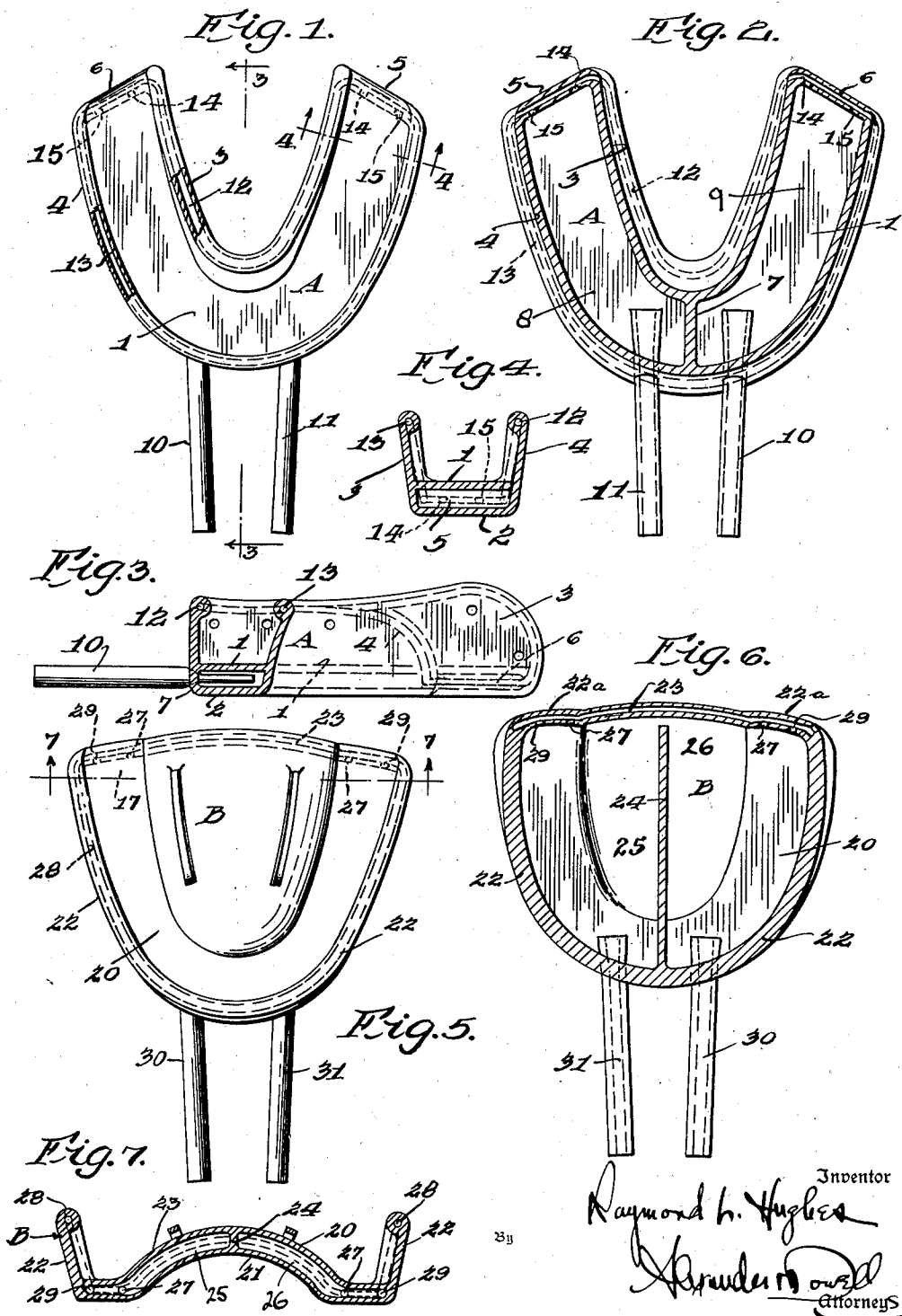
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IMPRESSION TRAY

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IMPRESSION TRAY

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6 Claims. (Cl. 32—17)

This invention is a novel improvement in dental impression trays, and the principal object thereof is to provide a set of upper and lower trays having means for circulating cooling water there-
 5 through, the trays being substantially no larger or more cumbersome than the ordinary trays now in use, and the water circulating in such a manner that the formation of air pockets in the water ducts is prevented.

10 Heretofore impression trays have been made through which water is circulated, but it has been found that the water did not circulate throughout the entire extent of the water ducts due to the formation of air pockets at the corners and other
 15 portions of the trays remote from the inlet and outlet, and thus the trays were not uniformly cooled. My trays however obviate the above objection, and provide for proper regulated water circulation through the desired portions and the
 20 entire extent of the water ducts of the trays.

I will explain the invention with reference to the accompanying drawing which illustrates one practical embodiment thereof, to enable others to adopt and use same; and will summarize in the
 25 claims, the novel features of construction, and novel combinations of parts, for which protection is desired.

In said drawing:—

30 Fig. 1 is a bottom plan view of a lower impression tray.

Fig. 2 is a top plan view of said lower impression tray with the upper cover plate removed, showing the location of the partition dividing the main water chamber of the base into two water
 35 passages; also showing the arrangement of the water inlet and outlet pipes, and showing the ducts leading from the two water chambers to the tubes which form beads around the outer edges of the sides of the tray.

40 Fig. 3 is a section on the line 3—3, Fig. 1.

Fig. 4 is a section on the line 4—4, Fig. 1.

Fig. 5 is a top plan view of the upper impression tray.

45 Fig. 6 is a bottom plan view of the upper impression tray showing the bottom cover plate removed, exposing the partition dividing the main water chamber of the base into separate water chambers, also showing the ducts leading from the chambers into the tubes forming beads at the inner end of the tray and around the outer
 50 edge of the sides of the tray.

Fig. 7 is a section on the line 7—7, Fig. 5.

55 As shown in Figs. 1—4, the lower impression tray A is preferably of the usual horseshoe shape, the tray consisting of spaced substantially U-shaped

base plates 1 and 2 connected together by the inner and outer perforated side walls 3 and 4 of the tray, the space between the walls 1, 2, 3, 4, forming a U-shaped water chamber. The outer
 5 ends of the legs of the chamber are closed by tubes 5 and 6 (Fig. 2) connecting the plates 1 and 2. Along the axis of the tray between the spaced plates 1—2 is a partition wall 7 dividing the water chamber into substantially equal water pas-
 10 sages 8 and 9. A water inlet nozzle 10 enters passage 9, and a water outlet nozzle 11 leads from the other passage 8, as shown, the nozzles 10 and 11 preferably comprising tubes having their ends
 15 within the chambers 8 and 9 flattened as shown in Figs. 2 and 3 so that the water will enter and leave the tray under considerable pressure.

Around and conforming with the outer edges of the side walls 3 and 4 of the tray are tubes 12 and 13 respectively, forming beads, said tubes extending into and having their ends communicat-
 20 ing with the water passages 8 and 9 respectively by means of ducts 14 and 15 formed in the tubes 5 and 6 of the water passages 8 and 9 as indicated.

Water is conducted by a hose or the like into the inlet nozzle 10 and fills the passage 9, the water from said chamber dividing and passing
 25 out through ducts 14 and 15 into and through the tubes 12 and 13, and around and into the passage 8 at the other side of partition 7, the water discharging from passage 8 through outlet nozzle 11.
 30 Preferably the respective inlet and outlet nozzles 10 and 11 are of cross-sectional area substantially equal to the combined cross-sectional areas of tubes 12 and 13, in order that a substantially constant steady flow of water will be maintained
 35 through the water circuit of the tray, and in such manner that formation of air pockets is prevented.

The upper tray B, as shown in Figs. 5—7, is provided with the usual suction cavity B' in the
 40 base, the base being formed of spaced substantially semi-circular bottom plates 20—21 connected together at their sides by the semi-circular perforated side wall 22 of the tray, the plates
 45 20—21 being connected together along the substantially straight edge of the base by a tube 23, the plates 20, 21, walls 22 and tube 23 forming a closed water chamber throughout the area of the base.

An axially disposed partition 24 divides the wa-
 50 ter chamber into separate passages 25—26, the partition extending from the inner end to a point adjacent the tube 23 as shown in Fig. 6. A water inlet nozzle 30 enters one chamber, such as 26, and an outlet nozzle 31 leads from the other
 55

chamber 25. Tube 23 has its ends communicating respectively with ducts 27 disposed in walls 22a at the outer corners of the water passages 25—26 of the base. A tube 28 forms a bead
 5 around the outer edge of the semi-circular side 22 of the tray and has its ends respectively communicating with ducts 29 also disposed in the walls 22a at the outer corners of the water passages 25—26.

10 Water is introduced through the inlet nozzles 30 and fills the passage 26 of the base, the water dividing in chamber 26, part of same passing into the duct 27 and through the tube 23 across the end of the base and entering the passage 25,
 15 part also of the water entering duct 29 and passing around through tube 28 and entering the passage 25 of the base, and remaining portion of the water passing directly around the outer end of partition 24 into the water passage 25 of
 20 the base, from which passage 25 the water is discharged through outlet nozzle 31. The gap in partition 24 adjacent tube 23 prevents formation of air pockets in its adjacent vicinity.

Preferably the sizes of the inlet and outlet
 25 nozzles 30—31 of the tray, and the gap in partition 24 are of such size or area that a continuous uninterrupted stream of water may be maintained in circulation throughout the water circuit of the tray, the stream maintaining the
 30 chamber in the base of the tray completely filled at all times, and the circulation of water being such that the formation of air pockets is rendered impossible. The ends of the nozzles within the chambers 25—26 are flattened to cause the
 35 water to enter and leave the tray under pressure.

I claim:

1. An impression tray comprising a hollow base

having an axially disposed partition forming separate water passages having a water inlet and outlet respectively; solid upstanding walls extending around part of the side of the base; and tubes extending along the outer edges of the
 5 walls and along the open parts of the side of the base, each tube having openings communicating with the respective passages.

2. In a tray as set forth in claim 1, said partition extending to a point adjacent the tube in the open part of the side of the base, whereby
 10 a portion of the water may pass directly from one passage to the other around the partition, the remaining portion passing through said tubes.

3. In a tray as set forth in claim 1, the inlet
 15 and outlet being disposed adjacent the partition at the end remote from the openings of the tubes, whereby the water is caused to circulate throughout the entire areas of the passages without formation of air pockets.

4. In a tray as set forth in claim 1, said inlet
 20 and outlet each comprising a tube having its inner end flattened to form a nozzle.

5. In a tray as set forth in claim 1, the inlet
 25 and outlet each being of cross-sectional area substantially equal to the combined cross-sectional areas of the tubes.

6. In a tray as set forth in claim 1, said partition extending to a point adjacent the tube in the open part of the side of the base whereby
 30 a portion of the water may pass around the end thereof, the inlet and outlet being disposed adjacent the partition at the end remote from the openings of the tubes, whereby the water is
 35 caused to circulate throughout the entire areas of the passages without formation of air pockets.

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