Oral Thermal Softener of the impression borders of the Removable Denture

Dr. Raeef Abdulghani Alnajjar

Tel. No. 0932278480

Technical Description

1- Previous Condition:

There have been different ways used to copy or imprint the sulcus of the mouth for edentulous patients. All the methods used aim to ensuring an ideal positioning of the borders of removable complete denture within the sulcus of the mouth and no interference with the adjacent tissues of the sulcus of the mouth while carrying out different functions. The most famous method is using a solid material for impressions as a pen with a green color (kerr wax), which softens by temperature and the sulcus of the mouth is registered according to the anatomy of each region. A section of the green wax after softening by alcohol lamp and adjusted manually at the edge of the custom tray designed for the final impression. Then it is dipped in water bath 55 degrees. Later, it can be applied in the patient's mouth while doing the necessary movements and registering the depth and width of the sulcus of the mouth. After being hardened, it is removed from the mouth to have another stage. This is repeated many times to get the real depth and width of the sulcus of the mouth.

As mentioned in the dental literature, the process of accommodating of the sides may happen at once after softening thermally. The negativity of this process is that it needs speed, experience and high skill that cannot be achieved but at the hands of high scientific experience. Lately a hydrophilic rubber material for impressions that gets solid slowly is developed to register the edges and the whole supporting tissue of the base. The negativity of this method is that: after the material hardens, it cannot be added or adjusted when finding out a flaw or shortage.

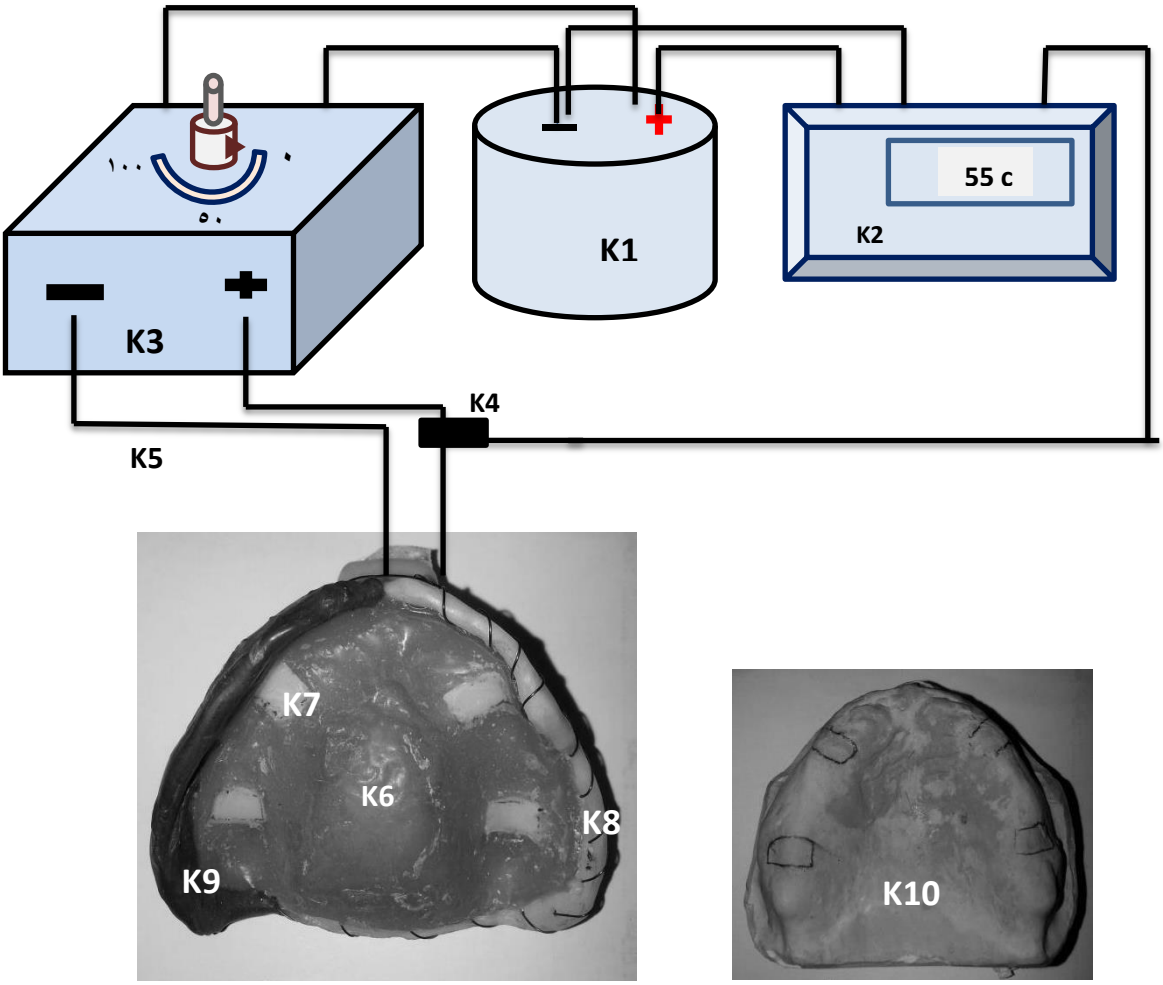
2- A detailed Explanation about the Invention:

The new invention has the possibility of registering the tissue of the sulcus of the mouth of an edentulous patient by supplying the material of registering the edges with a stationary heat resource in the patient's mouth and a thermally isolated copper wire is woven at the end of the custom tray designed for the patient. The holes are made at the end of the edges of custom trays designed for making the final impression for the dental removable complete denture, where the diameter of the holes is bigger than the diameter of the wire (diameter of the wire is 0.3 mm while diameter of the holes is 0.4 mm), the distance between the holes is (0.5-1 mm) and from edge of impression is (1.5-2.5 mm) where the wire is completely covered by the impression material.

In this invention there is a thermal softening for impression material by a safe continuous electrical current (12 volts). The heat spreads gradually and harmoniously through the whole the impression material and fully through the woven wire. When the temperature reaches the special and ideal 55 degrees that is suitable to make the impression material, it remains stationary through a thermal regulator. Later, we copy the width and length of the sulcus of the mouth functionally. When finishing the process of copying the sulcus of the mouth, the temperature is lowered to (0) and wait until it cools and hardens.

The negativity of this invention is the fear and phobia of the patient from thermal softener in the mouth. This can be overcome by elaborating that this device is safe because we use a wire isolated thermally with the impression material of the edges. This wire was supplied by a batter with a safe continuous electrical current (12 volts). This invention is also supplied by an electronic thermometer sensitive to control the temperature designed to soften the impression material of the edges in the patient's mouth and to carry out sterilization. Besides, this wire can be replaced from one patient to the other due its cheap price.

Plans and Drawings:



K1: Battery (12 volts).

K2: Electronic measurement to measure the temperature.

K3: Temperature regulator.

K4: Electric wire.

K5: Temperature sensor.

K6: Custom tray.

K7: Custom tray shocks.

K8: Woven wire (embracing the impression edges).

K9: Impression material for the edges that cover the woven wire.

K10: gypsum cast.

Invention Summery

It is an electric thermal device that ensures the thermal softening inside the mouth (a replacement for softening outside the mouth) for the green wax (kerr wax) designed for the copy of the tissues of the sulcus of the mouth safely. It ensures a mold of a texture that can be adjusted easily to copy the sulcus of the mouth for the patients of removable complete denture.

Protection Requirements:

1- Using a safe and electric heating method for ker wax inside the mouth.
2- A metallic isolated wire with diameter (0.3 mm) can be replace to each patient.
3- The diameter of the hole in the impression is (0.4 mm)
4- The distance among the holes is (1.5 mm) or less.
5- The distance between the holes and impression edge is (1.5-2 mm).
6- A continuous electric current regulator (12 volts)
7- A digital clock that shows the temperature and linked to the sensor registering the temperature of the wire.
8- 12 volts battery (7 ambers)

References

1. Professor Mohammad Ali Alhakim, complete denture, Syria, Damascus University 1992
2. Professor Ghassan Alwazir and Professor Eyad Alshaarani, complete denture, Syria, Damascus University 2006, page 11-.
3. Vig RC: A modified chew-in and functional impression technique. J Prosthet Dent. 1964; 14:214-20
4. Winkler S. Essentials of complete denture Prosthodontics. Delhi, A.I.T.B.S. publishers & distributers. 1996:123-33.
5. Rahan AO, Heartwell CM. Text book of complete dentures . 51h ed. Lea &febiger. Philadelpha. London 1993: 220-39.
6. Edwards, L.F, Buocher GO. Anatomy of the mouth in relation to complete dentures, J.A.D. 1942; 29: 331-45.
7. Levin B, Richardson GD. Complete denture prosthodontics, a manual for clinical procedures .17th ed. University of southern california school of Dentistry; 2002:24-9.
8. Boucher GO .Swenson's complete dentures. 5ed.St.Louis, 1964. The C.V.Mosby company: 120-2.
9. Wright CR. Evaluation of the factors necessary to develop stability in mandibular dentures. J Prosthet Dent. 1966;16: 414-30.
10. Syrian Market.

Chart With Documents:

1- Invention name (Oral Thermal Softening Material of the Edges of the Removable Complete Denture)
2- Technical Description
3- Plans and Drawings
4- Invention Summery
5- Protection Requirements
6- References
7- Chart With Documents