Template for Soldering Retraction Hooks on Archwires

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ABSTRACT
This article describes a template which can be used for stabilizing the archwire during the soldering of the hook on archwires for retraction. This permits hands free operation and decreases the chances of incorrect positioning and annealing of the bare archwire.

Keywords: Soldering, Posted-archwire, Retraction hooks.

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INTRODUCTION
Orthodontic treatment often involves retraction of anterior teeth en masse. Soldered or crimpable hooks are often attached to the archwire for applying retraction force. Crimpable hooks, although convenient to use, have a disadvantage of slipping along the archwire, at times, necessitating soldering hooks to the archwire. Stabilizing the archwire and the hook during soldering has been a problem. This article explains a template which can be used for stabilizing the archwire during soldering.

MATERIALS AND METHODS
The materials required for the fabrication of the template are:
1. A 0.019 × 0.025 inch stainless steel archwire with a 3 cm brass wire soldered to it at the canine-lateral incisor region of the wire
2. Two premolar PEA brackets (0.022 inch slot)
3. One Begg buccal tube (0.036 inch diameter and 0.025 inch length)
4. Two pieces of 0.036 inch round stainless steel wires, one 5 cm long bent to “V” shape in the middle and the other 4 cm bent to “L” shape at 1.5 cm
5. A thin PVC pipe (1 inch radius and 2 inches length)
6. A blow torch, solder and flux.

The premolar brackets are ligated to the archwire at 1.5 cm distance on either side of the soldered wire with steel ligatures (Fig. 1). The V-shaped wire is soldered to the base of the brackets, maintaining the plane of the archwire (Fig. 2).

The long end of the L-shaped wire is soldered to the Begg buccal tube (Fig. 3). The buccal tube is passed through the brass wire on the archwire and the end of the “L” is soldered to the junction of the “V” (Fig. 4). The slots of the brackets and the
Fig. 3: Long end of the 'L' shaped wire soldered to Begg-buccal tube

Fig. 4: Free end of the 'L' soldered to the junction of the 'V' wire

Fig. 5: Cuts made in the PVC pipe

Fig. 6: Wire framework and the plaster jig with the PVC pipe around it

Fig. 7: The brackets and the Begg-buccal tube invested in plaster

Fig. 8: Brass wire is passed through the buccal tube and kept in contact with the wire and is bent at the top of the buccal tube
buccal tubes are covered with a mix of Plaster of Paris before soldering to prevent solder from entering it.

A PVC pipe as described earlier is taken and cut through its length vertically so that it can be separated by force and another cut is made in horizontal direction half way across the pipe with a fret saw as shown (Fig. 5). The soldered wires along with the archwire are inserted into the pipe through the grooves keeping equal clearance all around between the archwire and the pipe. A thick mix of dental stone is poured into it (Fig. 6). After its set, the pipe is removed by pulling apart its cut ends. The archwire is also removed and the template is ready to use (Fig. 7).

Method of Use

The archwire onto which hooks need to be soldered is inserted into the brackets and ligated with stainless steel ligature. The brass wire is passed through the buccal tube and kept in contact with the wire, and a bend is made at the top of the buccal tube for stabilizing (Fig. 8). The flux can be applied on to the parts and soldering is done (Fig. 9). The excess length of the brass wire is cut and the brass wire is bent to appropriate shape.

REFERENCE