



Technique

ISSN: 2581-3218
IJDR 2023; 8(2): 46-48
Received: 17-07-2023
Accepted: 11-09-2023
© 2023, All rights reserved
www.dentistryscience.com
doi: 10.31254/dentistry.2023.8205

The Churro Fabricator

Shreya Gupta¹, Sandhya Jain²

¹ Lead Dentist & Orthodontist, Ziva Dental, San Antonio, Texas, USA

² Professor & Head, Department of Orthodontics, Government College of Dentistry, Indore, MP, India

Abstract

Technique to prepare an easy, cheap, relatively safe and portable fabricator for the Churro Jumper appliance has been put forth. The Churro fabricator simplifies the fabrication process, minimizes the risk of operator's injury and reduces labor involved in the Churro Jumper construction.

Keywords: Churro Jumper, Fixed functional appliance, Fabricator, PVC pipe, Round SS wire.

INTRODUCTION

Since the past many decades treatment of skeletal malocclusions using fixed functional appliances has become increasingly popular because of their favorable results as well as by the reduced need for patient compliance [1].

Although, the Churro Jumper fixed functional appliance furnishes the orthodontist with an effective and most inexpensive alternative force system for antero-posterior correction of Class II and Class III malocclusions [2], this appliance is still not in vogue. One of the reasons being its fabrication requires great manual effort and expertise.

The conventionally suggested techniques for fabrication of Churro Jumper include a wooden handle with a headed nail or a nail projecting out of a table top which is used as a spindle around which the circle/ loops of the Churro Jumper can be formed [2]. However, in the routine clinical scenario these methods are not as practical as they seem. There is always a chance of slippage of wire and injury to the operator while forming the circles using a wooden handle with a headed nail, due to the inadequate grip offered to the operator's hands while handling the tough 0.032" SS wire. Furthermore, a nail projecting out of a table top pose a risk of injury to the operator, staff or any other individual present near it in the dental office.

We believe that if an apparatus/ assembly be prepared which can simplify the fabrication and reduces the risk and labor involved in the construction of Churro Jumper appliance, this versatile appliance may be more readily included in the treatment curriculum among the orthodontic practitioners.

Thus, an easy, cheap, relatively safe and portable fabricator for the Churro Jumper appliance was designed.

Technique for Fabrication:

The steps for making "the Churro fabricator" are described as under:

1. Cut a length of 5.25-inch hollow PVC rigid pipe (2mm thick, 19mm diameter). Assume one end as top and other as bottom end (Fig.1A, 1B).

2. (i) Mark two small dots at 1.25-inch, 2-inch distance from the top (Fig. 2A). Draw a centered vertical line from the top meeting the upper dot and a horizontal line encircling the pipe from the upper dot at a distance of 1.25 inch from the top (Fig. 2A).

(ii) Block the bottom end of the PVC pipe with dental stone (Fig. 2B), by placing the pipe vertically with bottom end over a small thick mix of dental stone, so that the mix covers the bottom opening entirely. Let the dental stone mix dry up and block the bottom opening.

*Corresponding author:

Dr. Shreya Gupta

Lead Dentist & Orthodontist,
Ziva Dental, San Antonio, Texas,
USA

Email:
drshreyagupta@gmail.com

(iii) Pour some more dental stone mix from the top opening filling about half the length of the PVC pipe and allow it to harden (Fig. 2C).

3. (i) Mix cold cure acrylic resin polymer and monomer liquid and pour the mix into the PVC pipe, from above the surface of dental stone up to the upper margin of the PVC pipe. Insert two straight SS wire (0.040-inch thick, round, around 5-inch length, kept 2mm apart from each other) vertically inside the PVC pipe while the acrylic mix is still in the liquid state. The depth of insertion of the two wires is marked by the hardened surface of the dental stone (Fig. 3A).

(ii) For ease the two SS wire can be held using a hollow plastic straw, by passing the wires through the straw. The straw can then be allowed to rest horizontally over the margins of the PVC pipe (Fig.3B). Before placing the straw over the PVC pipe apply separating medium on the straw surface that will come in contact with the acrylic resin. Hold the wires until the acrylic resin mix sets.

(iii) Remove the straw once the acrylic resin mix sets completely. The wires now get firmly fixed in the acrylic resin set mass (Fig. 3C).

4. (i) Using a long thin Tungsten-Carbide straight fissure bur drill shallow channels on the PVC pipe along the marked horizontal and vertical lines and through and through holes from the two dots (Fig. 4).

(ii) With a hard wire cutter adjust the lengths of the SS wire, so that one wire extends just 3mm above the surface of acrylic and the second wire to a length of about 2.25 inch above the surface of acrylic (Fig. 4).

5. Fabricate the Churro Jumper by passing 0.032-inch round SS wire through the holes and along the vertical and horizontal channels prepared on the PVC pipe (Fig. 5). Locking the wire as it reaches the top, where it is passed between the space of the two vertical wires. The long vertical wire should be used as a spindle around which the circles can be formed. The short vertical wire holds the 0.032-inch wire and locks it, preventing slippage while forming the closely packed circular loop over the long vertical wire.

6. Once the closely packed Churro Jumper coils are formed, the anterior and posterior arms with terminal circles and anterior hook are prepared using universal plier (Fig. 6).

7. To ensure safety and ease of storage a cap may be used over the Churro fabricator to cover the projecting wires (Fig. 7). In this instance a handle cap from a discarded mopper was used.

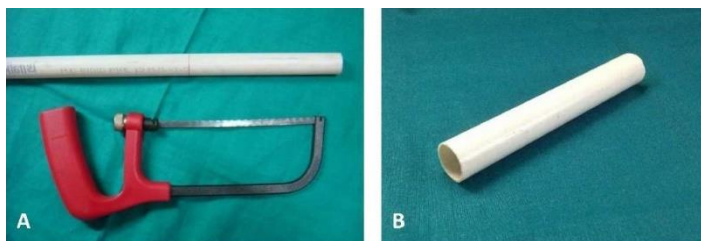


Fig. 1 A, B: A 5.25-inch hollow PVC rigid pipe is cut using a gigli saw



Fig. 2 A: Dots and horizontal and vertical lines are marked on the PVC pipe



Fig. 2 B: Bottom opening of the PVC pipe blocked with dental stone

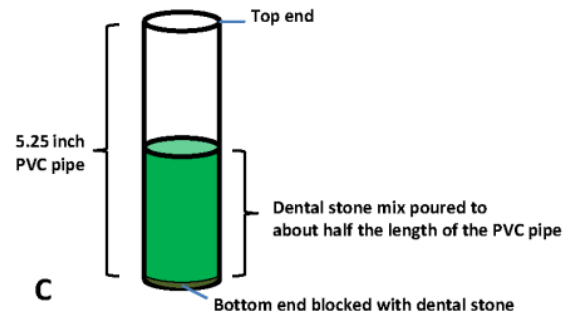


Fig. 2 C: Dental stone mix poured to about half the length of the PVC pipe

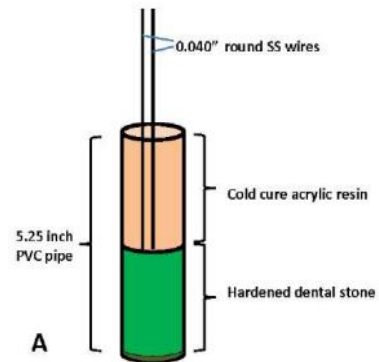


Fig. 3A: Cold cure acrylic resin mix is poured from above the level of hardened dental stone up to the top margin of the PVC pipe. Two straight SS wire inserted vertically inside the PVC pipe while the acrylic mix is still in the liquid state

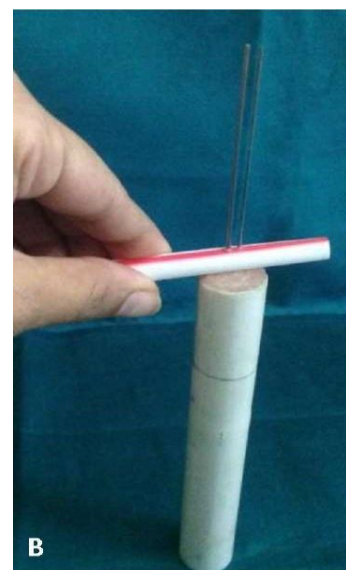


Fig. 3B: A plastic straw can be used to hold the 0.040-inch vertical SS wires together while the acrylic resin sets

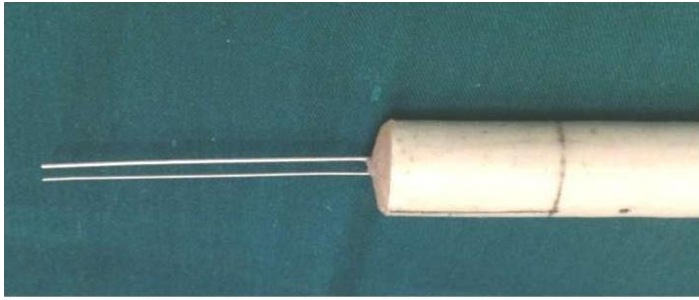


Fig. 3C: The two SS wires firmly fixed in the set acrylic resin mass



Fig. 4: Shallow channels are drilled on the PVC pipe along the marked horizontal and vertical lines and through and through holes from the two dots using a Tungsten Carbide straight fissure bur. Length of the SS wires is adjusted using a hard wire cutter, one to extend 3mm above the acrylic and other to extend 2.25 inch above acrylic surface

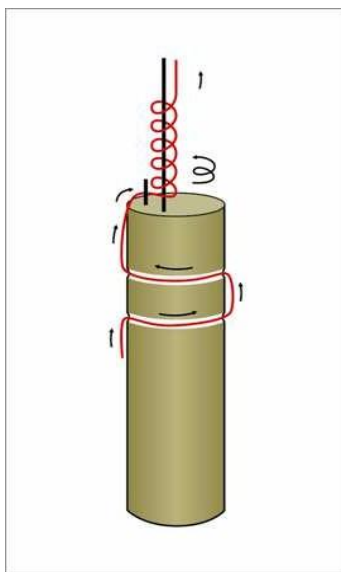


Fig. 5: The Churro dumper is fabricated by passing 0.032-inch round SS wire through the holes and along the vertical and horizontal channels prepared on the PVC pipe. The long vertical wire is used as a spindle around which the circles can be formed. The short vertical wire holds the 0.032-inch wire and locks it preventing slippage while forming the closely packed circular loops.



Fig. 6: Churro Jumper prepared by utilizing the Churro Fabricator



Fig. 7: Cap used over the Churro Fabricator to cover the projecting wires to ensure safety



Fig.8: Churro Jumper installed in patient's mouth

CONCLUSION

The present invention provides an apparatus which allows the clinician to prepare closely packed circular loops of Churro Jumper appliance without requiring assistance, in relatively no time. Locking of wire in the holes and channels of the fabricator allows better grip, avoids slippage of wire and prevents injury to the operator. This apparatus is easy to prepare, inexpensive, handy and can be safely stored in the dental office.

Conflict of Interest

None declared.

Financial Support

None declared.

ORCID ID

Dr. Shreya Gupta: <https://orcid.org/0000-0002-3367-797X>

REFERENCES

1. O'Brien KD, Wright J, Conboy F, Sanjie Y, Mandall N, Chadwick S et al. Effectiveness of treatment for class II malocclusion with the Herbst or twin-block appliances: a randomized, controlled trial. *Am J Orthod Dentofacial Orthop.* 2003; 124:128-37.
2. Castanon R, Valdes S M, White W L. Clinical use of the Churro Jumper. *JCO* 1998; 35 (12): 731-745.

Creative Commons (CC) License-

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY 4.0) license. This license permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. (<http://creativecommons.org/licenses/by/4.0/>).

HOW TO CITE THIS ARTICLE-

Gupta S, Jain S. The Churro Fabricator. *Int J Dent Res* 2023; 8(2):46-48. doi: 10.31254/dentistry.2023.8205