A Preformed Ligature For Edgewise Brackets

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The buccal archwire used in the edgewise technique is anchored to the brackets by means of ligatures made of soft stainless steel wire of about .010 inch diameter. These ligatures are seated under the flanges of the brackets.

Various methods have been advocated for seating and tying the ligatures. Renfroe describes a technique of seating and tying entirely by hand.[1] This method enables one to maintain good tension control on the wire, but has the disadvantage of being laborious and wasteful since the long ends of the wire necessary to afford a good grip are subsequently discarded. A modification of the above technique is the use of ligature-locking pliers which enables a tight tie to be made, but is also tedious and wasteful. These disadvantages can be overcome by using the method advocated by Beän to seat and tie the ligature with a hemostat or artery clamp,[2] Fig. 1.

The preformed ligatures used in this method differ from those conventionally used in that the ends are short and twisted together. Ligatures preformed in this manner are more easily centered and clamped in the beaks of the hemostat.

Such preformed ligatures are unobtainable at the moment, but this should not preclude their use as they can easily and quickly be formed on a jig constructed from available orthodontic material.

The jig consists of a former, a twisting mechanism, a spring clamp and a spool of wire all mounted on a convenient stand, Fig. 2.

From the Oral and Dental Hospital, University of the Witwatersrand.

The base of the former can be made of acrylic, brass or like material to a shape which will provide ligatures of the desired form. Three prongs projecting from the acrylic in a direction away from the twisting device are positioned to form the size and shape of loop required on the ligature, Fig. 3.

The twisting mechanism, (Fig. 4) comprises a holder or hollow shaft made from a suitable length of .040 stainless steel tubing through which the ligature wire is fed from the spool.

A sleeve of .060 tubing to which the supporting arm of the former is secured is loosely fitted over the holder and located in an intermediate position of

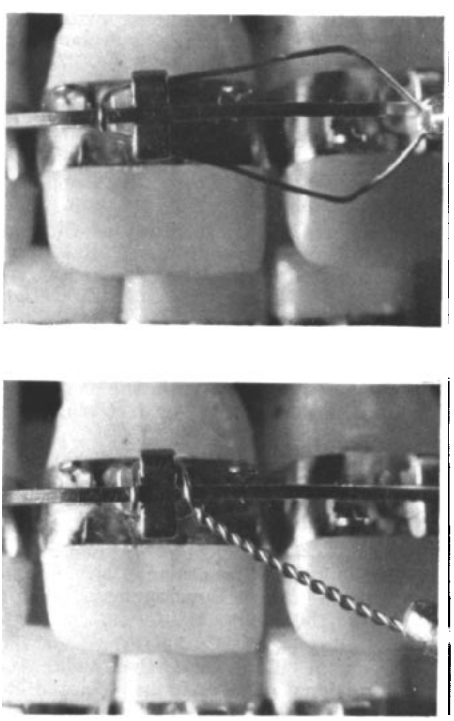

Fig. 1

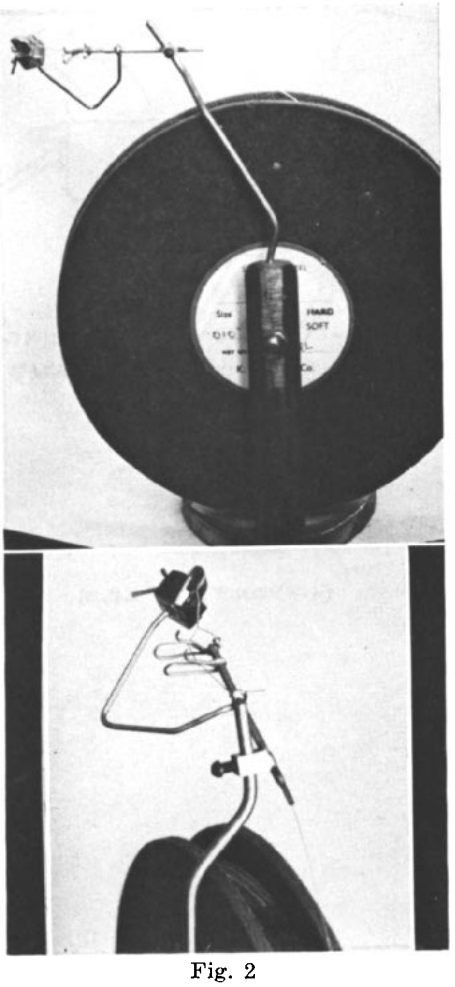

Fig. 2

its ends by means of two collars of .060 tubing which are soldered at each end of the holder; the support sleeve is allowed to rotate freely about its axis, preferably without axial displacement.

The supporting arm of the former is bent so as to maintain the former in a substantially axial position relative to the holder when the arm is arcuately displaced.

The twisting device is fixed to the stand by the collar sleeve at the inlet end of the holder to hold it in a convenient position for receiving the wire from the spool.

The spring clamp for receiving and holding the free end of the wire is fixed to the collar sleeve at the opposite end of the holder. It is preferably made from .022 × .028 rectangular stainless wire. It has been found that the flat faces of this clamp provide a firmer grip on the ligature wire than a clamp made of round wire. If the ligature wire tends to slip where a single clamp is in use, then a double clamp should be fitted.

In order to provide for the even twisting of the two ends of the ligature, an eyelet eccentrically disposed relative to the outlet opening of the holder and directly opposite the spring clamp is provided on the sleeve collar at this end.

To form a ligature, the ligature wire is fed from the wire spool, through the holder, through the eyelet, round the former, and back to be held in the clamp or clamps.

The former and its supporting arm are then rotated about the holder axis until a pigtail of desired length is formed which is then cut approximately one-fourth inch beyond the eyelet so that sufficient wire is left to provide a grip for the next ligature to be formed.

The completed or formed ligature is removed from the former, the loose remnant of wire removed from the clamp and discarded, and the machine

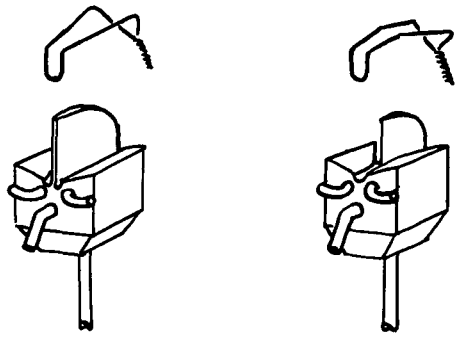

Fig. 3

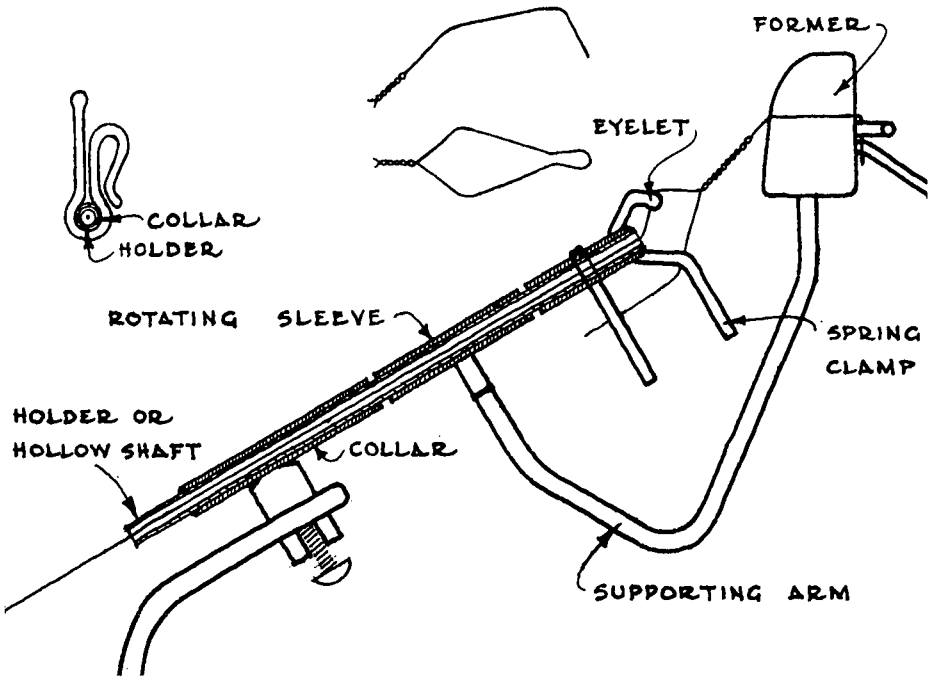

Fig. 4

is ready for the next operation.

SUMMARY

A ligature, preformed to facilitate seating and tying with a hemostat when using flanged or winged brackets, together with a jig for preforming it, is described.

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2. Beän N.: Unpublished Lectures, 1946.