Simplicity in the Preparation, Measurement, and Utilization of Tapered Molar Bands

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After employing many various techniques in molar-band construction, both direct and indirect, I have finally developed an efficient and accurate method of preparing and directly utilizing ready-made chrome-alloy posterior bands. The technique herein described may also be adapted to welding stainless steel or soldering prefabricated gold alloy bands. The method is quite simple and does not require eyestrain in measuring lengths of band material before contouring and welding. Chrome-alloy has been selected in my practice because of its superior ease of manipulation, and its quality of permitting excellent soldering of attachments with a minimum of after-polishing. Because it is comparatively inexpensive, a poorly adapted band may be readily discarded rather than salvaged, and a new one easily placed.

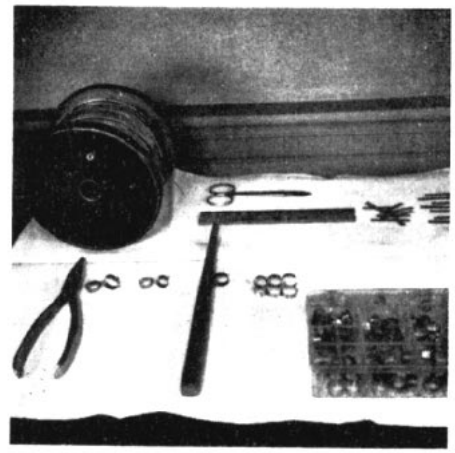


Fig. 1 Armamentarium: Spool of molar band material, varied lengths of cut strips, pliers no. 134, bands in stages of preparation, nail-punch (tapered gauge-rod), and box partitioned for various size bands.

Armamentarium

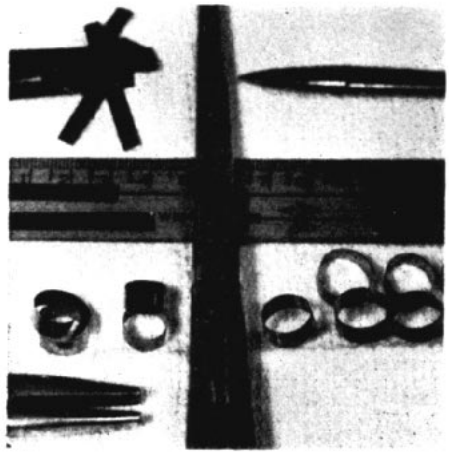
An 8" to 12" long, slightly tapered nail-punch, evenly tapering from a circumference less than 30 mm to more than 40 mm.
No. 134 clasp-bending pliers
Chrome-alloy molar band material (or stainless steel)
Spot welder and partitioned box to place ready-made bands (with 10 to 12 compartments)

Preparing the Calibrated Gauge-Rod for Measurement

The tapered nail-punch must be calibrated or marked in some fashion so that completed bands, both straight and tapered, may be measured and assorted. I have found it convenient to place ten file scratches, each consecutively numbered from 1 to 10, equidistant from one another. Coincidentally the No. 1 mark measures a 31 mm circumference; the No. 2 equals 32 mm, and so on to No. 10, which measures a 40 mm circumference. Practically all molar bands have inside perimeters which lie within this wide range. The more gradual the taper of the nail-punch selected, the more precise can bands be measured and assorted.

Preparation of Ready-made Straight and Tapered Bands

The band material is perpendicularly cut in strips of from 31 to 41 millimeters. This can most easily be accomplished by marking off these distances on a work-bench (Fig. 2 and 4) and cutting many bands of various lengths between these two points. Measuring each strip at this time is unnecessary since they will be accurately measured on the tapered gauge-rod as completed bands, and even more precisely measured when utilized on a tooth.



Fog. 2 Close-up of two strips of band material upon a millimeter ruler, tapered gauge rod with completed tapered band being measured, beaks of no. 134 pliers, and bands in various stages of preparation.

When a sufficient number of strips of different lengths have been cut, they are curled into straight cylinders with the No. 134 pliers. (Fig. 3).

Straight bands are prepared by spot-welding along a 1 - 1½ mm lap. Five to six welds are sufficient to make strong lap-joints.

If tapered bands are desired, the following technique will prove most efficient: one spot-weld is placed near one edge of a 1½ to 2 mm lap. The band is now placed on the tapered rod, the single spot-welded edge toward the narrowed end. The band is now forcibly tapered by hand pressure, pushing the band down upon the rod as far as possible: this will create a slight rotational stress in the previous weld, but will taper the band very evenly. (Fig. 3). The band is then removed from the rod and welds are placed along the now gradually narrowing lap-joint; this completes the prefabrication. Mildly tapered and extremely tapered bands must be fashioned on separate rod of appropriate taper. Only one need be calibrated for measuring, preferably the mild-tapered rod. *ALL* completed bands are gauged on this rod.

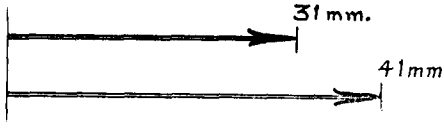


Fig. 4. Two lines are prominently marked on the work-bench, one 31 mm. long and the other, 41 mm. Strips of band material are cut to varying lengths (between 31 and 41 mm.). The actual length of each strip at the time of cutting is unimportant: bands are sized after they are welded or soldered to shape.

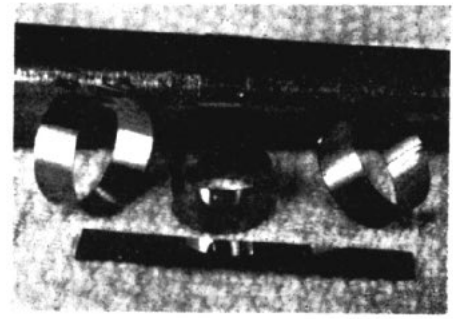


Fig. 3 Steps in preparation: Step 1. Band material curled into a straight cylinder with the no. 134 pliers. Step 2. Straight band is lapped 1½ to 2 mm., and single spot weld placed on occlusal edge. Step 3. Single welded band placed upon tapered gauge-rod, weld toward narrowing end of rod, and hand pressure down causes taper to band and rotational stress in weld. Step 4. Band completed by finishing with 5 or 6 spot welds along gradually narrowing lap-joint. Step 5. The band is now measured and placed in its corresponding compartment of the assortment tray (not shown here).

Measuring the Prepared Bands, and Their Assortment

The prepared band is now measured by replacing it on the gauge-rod and reading the calibration at the gingival edge. It is placed in the properly numbered compartment of the assortment tray. Two or three of such partitioned boxes (of straight, mildly tapered

and/or extremely tapered bands) may be conveniently kept for immediate use.

"Assembly-line" Preparation

To prepare many bands at one time, in an assembly-line manner, they are all first tapered, then completely welded, and finally measured. All straight bands, since they need not be shaped on any rod, can be completely welded initially, and finally measured on the tapered gauge-rod. The calibrated gauge-rod therefore may have a two-fold usage: shaping tapered bands, and gauging *all* prefabricated bands for assortment and eventual utilization.

Utilization of Ready-Made Bands

Bands needs not be individually numbered since they are assorted into sized groups, and are each of slightly varying measurement within their own group: e.g. 7.2 mm. bands are found with 7.9 mm. bands in the No. 7 compartment. Therefore, before trying a band on a tooth for size, it is first *accurately* remeasured on the calibrated gauge-rod. If it is much too large or small, a band is randomly selected from another group; again first measured, then tried. Having a large number of bands within each group will enable the operator to obtain, by measuring, the most accurately fitting band within a minute's time. As long as measurements are retained, re-measuring a band that has already been tried in the mouth can be avoided, so that sterilization of the gauge-rod is usually unnecessary. All bands tried and not used, must naturally be sterilized before they are again measured and returned to their group.

Once an accurate frictional fit is obtained, the band is carefully festooned and contoured, and neatly adapted to position in the usual manner. Auxiliary attachments can now be either welded or soldered to these chrome-alloy bands.

Summary

A method of preparing ready-made tapered molar bands, employing a large evenly tapered nail punch, has been described. Circumferential calibration of this carpenter's tool will transform it into a valuable orthodontic instrument which the author has termed a "tapered gauge-rod". It has proved most helpful in shaping tapered bands and measuring both these and straight bands. Inside dimensions of bands are measured for assortment into groups, and are precisely gauged for comparative size within said groups just before utilization in the mouth.

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