The concept of the “fixed functional” appliance continues to grow as witnessed by the many new designs of Herbst® type appliances. Over the past several years we have seen new devices introduced including the Flip-Lock®, the HTH® (or Hanks) mechanism and now an updated telescope design available from Specialty Appliances called the MiniScope mechanism.

There are several significant advantages and benefits to this new design. The traditional Herbst® places the lower pivot (and hex head screw connector) in the first bicuspid area and the upper pivot at the distal of the first molar in order to gain the mechanism length necessary so it will not disengage in the mouth. The conventional rod and tube mechanism will not function properly unless there is at least twenty plus millimeters of total length to support the normal vertical opening. Our new MiniScope is a self contained telescope that cannot disengage when the patient opens. This design allows the entire part to be much shorter than the traditional rod and tube parts and therefore less bulky in the mouth.

Another major advantage with the MiniScope is the ability to position the lower pivots in the center of the second bicuspid instead of a full tooth forward adjacent to the first bicuspid. The clinical feedback we have received to date suggests patients tolerate the mechanism on the lower much better when the connectors are placed in the second bicuspid area, away from the corner of the mouth. Also, depending on the age of the patient, brackets can now be placed on the anteriors through the first bicuspids to be used in conjunction with the Herbst®.

Stainless steel crowns have been used as the traditional anchorage units for fixed Herbst® appliances for well over 20 years. At Specialty Appliances today, we use crowns on approximately 70% of all Herbst® fabricated. Our typical Herbst® appliance uses crowns on the upper and lower first molars. On the upper arch, the Herbst® pivots are soldered directly to the buccal of the molar crowns. On the lower, we “cantilever” forward from the molar crowns and locate the pivots in the bicuspid area. We also fabricate designs with crowns on the lower first bicuspids and on younger patients crowns can be used on the second deciduous molars when the first molars are not fully erupted.

The main advantage with crowns is their tremendous strength, which is critical on an appliance that may be in the mouth for up to 12 months. Crowns also solve an inventory issue for the practice as they can be fit indirectly in the lab which eliminates maintaining an inventory in the practice. The primary disadvantage in using crowns is the removal. Removal issues with crowns have led a percentage of clinicians to opt for bands with their Herbst® cases.

Most orthodontists use some type of glass ionomer cement to bond the Herbst® due to its superior strength. If the crowns are etched prior to delivery, however, the cement tends to adhere to the inside of the crowns, making removal easier. Clinicians typically use one of two primary techniques to remove crowns. The first technique is to make a cut up the side of the crown so it can be “split” and removed. The other popular method is to cut a hole in the top of the crown so the tip of the crown removing pliers has an occlusal rest for leverage. Both techniques involve grinding or cutting crowns in the mouth which some offices are reluctant to do.

In comparing bands to crowns when using the Herbst®, there are obvious advantages in removing banded designs due to the issues described above. With bands, removal of the Herbst® is similar to any other banded appliance. The occlusal rest portion of the band removing pliers is easy to locate on the tooth to remove the Herbst®. As with crowns, when the bands are micro-etched in the lab, the adhesive tends to adhere to the metal at removal, making clean-up much easier.
Continued from the bottom of page 1.

Stainless Steel Crown Update

New Crowns with Occlusals Removed

Over the years, we’ve found a slightly higher incident of breakage with the banded Herbst® compared to the crown design. Despite the best laboratory practices used, bands are more difficult to weld and solder to which can affect their long term strength. From a fabrication standpoint, we now reinforce our banded Herbst® design with support wires added mesial and distal to the molars as shown in the photos. We have found these features improve the long term durability of the banded Herbst®. Even with these improvements, however, many clinicians prefer the strength of crowns over bands despite the issues in removing them.

Over the last year or so we’ve worked with several clinicians to develop a major improvement using crowns that addresses the problems involving removal. We now use a template to remove the occlusal of the crowns in our laboratory as shown in the photos. This unique pattern removes a large portion of the occlusal material without sacrificing the “occlusal roll” segment of the crown which provides much of its integral strength. We also burnish the occlusal margins of the crown as best possible for adaptation to the anatomy of each tooth. Depending on the exact anatomy (prominence of the cusp tips) of the molars, these crowns typically fit quite well. Any excess space occlusally between the inside of the crown and the surface of the tooth is filled in with the glass ionomer cement during clinical delivery.

To date, we’ve found the occlusally modified crowns to be as strong as standard crowns. By leaving the occlusal roll intact as shown, the cross sectional strength is maintained. We are also able to eliminate the added occlusal support wires used in the banded Herbst® design. This helps in reducing any occlusal interference from the opposing arch. At the end of treatment, the process used to remove these crowns is the same as with bands.

To try our “occlusal removed” crown design, please mark our Herbst® Rx form. We can also incorporate this into your computerized Special Instruction file as a standard on all cases. Please feel free to contact us at 1-800-522-4636 with any further questions on this new design.

The RES™ Ratchet Expansion Screw

“A New Force In Expansion”

Palatal Expansion is an important part of orthodontic treatment. The primary appliance of choice is the RPE, or Rapid Palatal Expander. Despite the benefits of rapid palatal expansion, many clinicians have been frustrated by these appliances on occasion “backing up” during treatment. Oftentimes, RPE is the initial phase of treatment and is viewed by the parents and patients as a time to build confidence in the practitioner which can be a challenge when failures of the appliance occur.

The RES has several unique features including the “ratchet clip” as shown. As the screw is turned or activated, the leading edge of this high tempered clip engages the vertical indents of the revolving center spindle. Each 1/4 turn produces subsequent expansion which is ensured by the locking action of the clip against the spindle.

The RES is available from Specialty Appliances in several ways. First, it can be incorporated in any appliance we fabricate including Rapid Palatal Expanders, Lower Fixed Expanders and all types of Herbst® Appliances. Doctors with their own in-office laboratories can order the RES directly from Specialty in convenient packages of 10 or 100 to save money on the unit price. You can also request the RES on appliances ordered from other commercial laboratories as Specialty is making the RES available to all other laboratories as well.

Ordering Information:
The RES is available individually, or in packages of 10 or 100.

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US Patent No. 6783361—Foreign Patents Pending
With the telescope mechanism, the pivot is located in the center of the molar. The upper pivot placement towards the distal of the molar on the standard Herbst®.

With the MiniScope mechanism not only can we position the lower pivot in the second bicuspid area but we also place the upper pivot in the center of the first molar as the mechanism requires a total length of just 16-18mm for maximum opening. Centering the attachment on the upper first molar allows easier access to the hex head screw used to secure the mechanisms in place, as the cheek does not need to be retracted as much. When the pivots are centered on the molars, the angle of the distal eyelet on the mechanism is also reduced which helps increase lateral movement on certain patients.

On the upper mechanism, the eyelet is offset so the screw head is even with the body of the tube.

The mesial eyelet on the lower rod is offset to the lingual.

Another benefit of the telescope mechanism is the offset designs that have been incorporated into the eyelet positioning on the mechanism. As seen from the distal view, the upper eyelet is offset to the lingual on the mechanism. This offset profile locates the outer edge of the screw head in a continuous line with a mechanism itself, reducing the total buccal dimension of the appliance. The offset effect of the lower rod is shown here with the Specialty Cantilever Herbst® design. The combination of this offset with the reduced prominence of the AppleCore screw and nuts results in a lower profile appliance.

The radius of the screw barrel is tapered to allow the inner portion of the rod increased movement laterally.

In addition to the MiniScope mechanism, we are also introducing a new hex head screw to connect the Herbst® to the crowns or bands. We have taken the traditional hex head screw with a uniformed thickness barrel and introduced a curved, inner radius to the barrel. We have termed this the AppleCore™ screw due to its profile in cross section. By combining the cross sectional profile of the AppleCore screw with the corresponding dimension of the Herbst® eyelets, we are able to gain additional lateral movement in comparison to the traditional Herbst® screws. This is an advantage in terms of not only allowing the patient more lateral freedom but reducing stresses on the overall appliance.

The new telescope nuts have a much flatter buccal profile.

With the MiniScope mechanism not only can we position the lower pivot in the second bicuspid area but we also place the upper pivot in the center of the molar.

With the telescope mechanism, the pivot is located in the center of the molar.

Another benefit of the telescope mechanism is the offset designs that have been incorporated into the eyelet positioning on the mechanism. As seen from the distal view, the upper eyelet is offset to the lingual on the mechanism. This offset profile locates the outer edge of the screw head in a continuous line with a mechanism itself, reducing the total buccal dimension of the appliance. The offset effect of the lower rod is shown here with the Specialty Cantilever Herbst® design. The combination of this offset with the reduced prominence of the AppleCore screw and nuts results in a lower profile appliance.

The new telescope nuts have a much flatter buccal profile.

The MiniScope is formed as a 3 part telescope that cannot disassemble in the mouth. This avoids the issues sometimes seen with the traditional Herbst® where the rods and tubes come apart.

The standard Herbst® pivot without the screw projects into the cheek area.

The new telescope nuts have a much flatter buccal profile.

Try the Specialty MiniScope On Your Next Herbst® Case

You can try the new MiniScope Herbst® from Specialty on your next case by simply checking the box on our Herbst® Rx form as shown. This can also be added to your standing Special Instruction file to be automatically incorporated into all your Herbst® appliances. Also please keep in mind we offer all the popular mechanism options including the Flip-Lock®, HTH® and the Standard Herbst® rod and tube configuration.
Practices implementing the Herbst® will require additional products to effectively use the system. Specialty offers a complete line of Herbst® mechanisms, screws, pliers and other important clinical supplies to help your practice operate more efficiently. Visit our newly updated web site at www.specialtyappliances.com for a complete list of Herbst® products and supplies.

Most Herbst® patients require additional mandibular advancement beyond what was built into the original appliance. This is accomplished clinically by adding “shims” to the lower rod sections. Specialty has a selection of shims depending on the amount of advancement required and the type of mechanism used. Our new “crimpable” shims can be used with any mechanism and are available in 2, 3 and 4mm lengths. Crimpable shims offer a tremendous advantage over traditional shims as they can be “snapped” over the lower rods which eliminates the steps of disassembling and reassembling the mechanisms. Our new Shim Crimping Plier makes the job even easier since the ends of the plier are designed specifically to hold and crimp the shims in one step.

Specialty Appliances Herbst® Demonstration Models
Specialty can supply Herbst® demonstration appliances to help educate patients and parents. These resilient models made in pink and white acrylic are invaluable in explaining the function of the Herbst® and showing patients exactly how the appliance works. Sample Herbst® appliances are available with any type of mechanism, expansion screws and can also incorporate fixed appliances on the anterior teeth.