

A method of moving teeth

Field

The present invention relates to a method of moving teeth, in particular, the invention relates to such a method when employing an orthodontic device.

Background art known to the applicant

Orthodontic devices (known colloquially as 'braces') are used to correct the position of the teeth of a patient. In one of the most common types of orthodontic device, brackets are bonded to the labial (or visible) surface of a patient's teeth and coupled together using an archwire of a standard arch-form. The archwires generate a force on the teeth, causing the teeth to move. Once the teeth have moved to a desired position and are held in place for a certain time period, the body of the patient adapts bone and tissue to maintain the teeth in the desired position enabling the device to be removed.

The force generated by the archwire on the teeth is usually varied by one of two methods.

The first varies the force by varying the thickness of the archwire whilst the second varies the force by varying the material used.

One of the most important properties exploited in orthodontics is the resilience of the archwire material. Resilience in this context is the ability of the archwire to spring-back to its original 'archwire shape' once it has been deflected to fit into the brackets attached to the maloccluded teeth.

A malocclusion generally occurs with the crowding of teeth in the anterior arch region of the mouth (where it is usually most severe) with a compressed posterior arch region of the mouth where the teeth are not in the ideal position or the ideal rotation or the ideal angulation or proclination or indeed a combination of the aforementioned problems.

In orthodontics, light forces have been shown to be beneficial in treatment. A major innovation has been the introduction of Nickel/Titanium (Ni/Ti) wires which once formed into an archwire and fitted to brackets onto teeth to form an orthodontic device allow for a continuous light force to be applied to teeth irrespective of the deflection necessary to engage with maloccluded teeth, gradually realigning the teeth into the desired position. Light force orthodontic treatment is considered to be beneficial to the long term health of the teeth as it reduces root resorption. A traditional treatment would start with a small dimension, Ni/Ti orthodontic archwire to mainly align the anterior teeth, (canines and incisors) as these anterior teeth only have single roots they are usually the first to respond to treatment and hence only need light forces to move them. A similar archwire of a larger dimension (or thickness) will then usually replace the smaller dimension archwire to increase the applied force. At a later stage, materials of progressively increasing dimensions and increasing stiffness are used. The force applied increases because of the increase in the stiffness of the materials. The increased stiffness of the archwire allows the posterior arch of the teeth to move and form into the desired arch-form which is similar to the shape of the archwire. The flexibility and high resilience of the Ni/Ti wire has meant that it is the alloy of choice by orthodontists to form the archwire to start treatment and reach alignment and leveling. Known archwire systems are to be found in US 5,456,600, US 6,688,885 and US 6,928,733.

However, this 'stiffness based' approach of treating malocclusions has resulted in some compromises in the treatment path. The anterior teeth are inevitably moved first *before* the space to resolve the crowding has been created because the crowding is typically more severe in the anterior arch region and also, the anterior teeth require lower stiffness to move to the final position. This means that the anterior teeth are initially moved into an undesirable position in terms of proclination and are aligned into an arch-form which is not representative of the final arch-form.

It is only afterwards, that space is created to resolve the crowding using stiffer archwires before the anterior teeth are re-corrected into the desired final arch-form position and desired proclination. This is generally called as 'round tripping' in orthodontics.

The stiffness based movement approach for such labial braces suffers from the following shortcomings:

- 1) undesirable (and usually initial) anterior tooth or teeth movement which results in the need for re-correction during treatment;
- 2) the type of tooth or teeth movement achievable at a given stage is defined by the stiffness of the archwire and may not be the ideal movement for the stage;
- 3) there may be an unpredictable path of tooth movement as there is no defined end point for each archwire, movement occurring wherever there is a relevant force;
- 4) the Ni/Ti archwires come in a standard arch-form which cannot be modified at chair-side because of the shape memory property of the archwire, so forces will be applied until the teeth move into the arch-form shape of the archwire or until the applied forces are insufficient for tooth movement to occur; and
- 5) the arch-form shape designed in the final arch-form is irrelevant when the tooth is crowded because the actual expressed shape of the archwire is different as it is defined by the position of the molar. For example, in a narrow arch where the molar-molar width is lower than the final desired arch-form, the arch-form expressed when inserted is narrower than the desired arch-form. This means the teeth are moved continuously until they are aligned along the narrow and pointed anterior arch-form. The only way for crowded teeth to fit into a narrow arch-form and also to be aligned edge to edge is by causing them to procline to an undesirable angle due to torque loss. This will be progressively re-corrected as the stiffer archwire moves the posterior teeth including the molars towards the final inter-molar width or inter-premolar width.

Attempts to overcome some of the problems associated with non –customized appliances used in labial braces have involved so-called ‘custom orthodontic solutions’. Some solutions like Sure Smile TM by Orametrix and Insignia TM by Ormco provide catered treatment planning and metal archwire customization.

It allows the orthodontist to input patient related data and plan treatment on a software program. Based on the placement of the brackets on the patient's teeth, Sure Smile TM provides 'custom bent' metal archwires that are bent by a robotic arm. This approach promises to reduce the treatment time by placing accurate bends to compensate for the errors made during bracket placement by the doctors. This reduces the time necessary for final detailing where the doctor traditionally bends the standard archwire by hand to compensate for the errors or for insufficient tooth response. Another major development in the field of orthodontics has been the shift towards aesthetic orthodontic appliances. One such device employs the use of metal wires and brackets placed on the lingual side of the teeth and is thus a more aesthetic treatment as it is generally 'hidden' from view when the patient smiles. However, more aesthetic, lingual braces have a limited working space for the orthodontist, and to maximise the available working space, standard archwires are unsuitable. Instead, archwires are customized to a patient's teeth configuration.

For example, Lingualcare Inc TM acquired by 3M, produces lingual braces with custom metal wires for patients based on the initial teeth configuration and makes the archwires such that they are parallel to the tooth surface in the bracket slot. The archwires used in the treatment are metal wires that are generally customized for the following reasons

1. The limited working space means wire insertion is difficult when the wire is not customized.
2. Making bends using visual methods is not easy because the wires are placed in the lingual side of the tooth.
3. The labial braces have an advantage of finishing with a straight wire because at the end of treatment, one of the objectives is to ensure that the surface of the teeth form a smooth arch. But the lingual arch is not a smooth surface. It has a big step at the transition from anterior teeth to the posterior teeth and additionally in the anterior teeth as well, compensations have to be made to adjust for the varying thickness of the teeth. If these compensations are not made, the surface of the teeth will not be smooth at the end of treatment.

Though archwires are customized for the above mentioned reasons, the mechanics of treatment are similar to the standard treatment with archwires. In other words, the anterior teeth are moved first to resolve the crowding issue and this is followed by posterior movement.

As the treatment still employs a wire-stiffness based resultant movement approach however, it also suffers from the aforementioned issues already highlighted hereinabove.

Accordingly, although lingual braces may be used for both mild and severe cases, because of the restricted working space, possible tongue interference and the unsuitability of the standard archwires, labial braces are still preferred.

Nevertheless, the lingual orthodontic techniques and the custom labial orthodontic techniques (which are all improvements to the standard stiffness based approaches of treatment) still suffer from the same clinical shortcomings as mentioned previously and in addition, for lingual braces, additional shortcomings exist.

Another aesthetic and customised orthodontic treatment appliance is a clear tray based appliance made from polymeric materials. Examples of such tray based systems include Invisalign™ by Align Technology and a transparent system by ClearCorrect™. The methods employed generally utilise a series of customized trays that are adapted to fit tightly onto the teeth. The trays are programmed to have movements of approximately 0.2 to 0.25 mm per tooth per tray, assuming a collision free movement of teeth. Individual trays of unique shape are custom designed for the patient from the start to the finish of the treatment.

They are compressed and fit onto the teeth of the patient forcing the teeth to adapt to the shape of the tray. Movement of the teeth in response to the trays is different to that based on archwires and results in a tooth movement plan that is somewhat limited per stage.

Also a variety of attachments need to be attached to the teeth to bring about complex movements in directions other than the buccal lingual plane.

The tray cannot be made much wider than the arch in the posterior because it is made to tightly fit on arch by adapting to the individual teeth. So it cannot be compressed and fit the arch. If it made wider, it will not be able to fit the anterior of the arch. So space creation using expansion of the posterior arch cannot be done effectively.

The tray material is also uniform throughout the arch and the trays are closely adapted to the teeth so the force applied is restricted to the tray materials' stiffness resulting in very little variation in the force and the arches are not in contact through the treatment, so even though the treatment allows for the teeth to be aligned and leveled into an arch-form, the occlusal contact corrections are difficult to perform with aligners (a very important part of functional correction while undergoing orthodontic treatment).

So the system suffers from treatment limitations in space creation methods, treatment of sections of the arch and in the ability to apply variable ranges of forces. Though movements can be targeted and staged per tooth to result in a predictable outcome, force variation is limited because it is limited by the stiffness of the material of the tray and its resilience. Also an inability to bring about effective correction of the occlusal contact results in less than desirable functional results at the end of treatment.

WO/2012/108833 introduces a method of customization which uses polymer composite archwires for treatment in aesthetic labial orthodontics. The method describes the manner of placing bends with a range of 0 to 3 mm per wire. The method of customization further illustrates the ability to make multidimensional bends to be able to produce the desired movement of any tooth or teeth.

As there has been no motivation to adopt a different approach in terms of treatment path as the standard approach used with metal wires exploited the properties of the Ni/Ti wires to reduce the chair side time spent by the doctors, a need still exists for a custom orthodontic device which attempts to alleviate the aforementioned problems.

Summary of the invention

With the foregoing in view, there is broadly provided in one aspect a method of moving teeth by applying forces to the teeth using a custom orthodontic device to move the teeth from an initial configuration to a final configuration including the steps of:

- 1) providing a wire to be formed into an archwire;
- 2) providing a plurality of brackets to which the wire is to be fitted;
- 3) fitting the brackets to the teeth of a patient;
- 4) forming the wire into an archwire which is so sized and shaped as to primarily create space by the forces it applies to the teeth within a patient's mouth once the wire has been fitted to the brackets to form the custom orthodontic device;
- 5) fitting the archwire to the brackets to create the custom orthodontic device; and having begun the process of space creation within the mouth of a patient, subsequently applying forces to align the teeth by moving them into the space created.

Such a method of ensuring that the forces generated to the teeth are such that space creation or space closure within the mouth is the primary objective of the method, means that any initial undesirable proclination of the anterior teeth is minimized, thus providing an efficient treatment path for the patient. The forces necessary for space creation are applied by customizing the forces applied in the relevant section of the arch by design of the wire. The design of such wire is not restricted by the targeted final form of the patient archform. The force required for the movement in the relevant section of the arch determines the design of the archwire.

Preferably, space creation employing the device occurs through either:

- a) the expansion of the posterior arch;
- b) the movement of teeth into a pre-formed space or spaces created by tooth or teeth extraction; or

- c) by the reduction of the enamel at the interproximal edges of the tooth where the teeth contact each other.

In such form, angulation correction of the canines and the posterior teeth are effected by distalization of the teeth while maintaining the position of the incisors is carried out prior to employing the device for space creation.

Preferably, space creation by the device occurs through forces applied preferentially to the posterior teeth whilst the device applies relatively little to no forces to the anterior teeth.

Preferably, the forces applied by the device are such that once sufficient space has been created for the process of teeth alignment to begin, the forces applied are either:

- a) then such as to enable further space creation and the process of teeth alignment to occur at the same time; or
- b) such as to enable space closure and the process of teeth alignment to occur at the same time.

In such form, the forces applied by the device are changed by the removal of the existing archwire and the application of a different archwire to the brackets. In this way, the form of the archwire is determined by the forces necessary to create the necessary movements and is not determined by the size of the final arch shape of the archwire.

Preferably, the method further includes the step of applying tooth or teeth leveling forces at the same time as applying the forces required for space creation. In such form, the forces applied by the device are through the removal of the existing archwire and the application of a different archwire to the brackets.

Preferably, the method further includes the step of torque expression subsequent to the process of teeth alignment. In such form, the method further includes the step of finishing

and detailing at the same time that the step of torque expression is being carried out.

Preferably, the wire is translucent, and the brackets are translucent.

There is broadly provided in another aspect an archwire which is so sized and shaped as to be able to apply forces to move teeth by preferentially applying forces to the posterior teeth of a patient whilst the applying relatively little to no forces to the patient's anterior teeth, once the archwire has been fitted to a series of brackets which have been attached to the patient's teeth to form a custom orthodontic device.

Preferably, the archwire is used in the method as described in the method herein.

There is broadly provided in another aspect a custom orthodontic device incorporating an archwire as specified herein.

Brief description of the drawings.

In order that the invention may be more readily understood and put into practical effect, reference will now be made to the accompanying drawings wherein:

Fig 1 is a pictorial representation showing the initial form of the patient's teeth along with the requirements that the design of the final archwire of the present invention needs to achieve.

Fig 2 is a pictorial representation of the patient teeth as shown in Fig 1 together with the wire design considerations.

Fig 3 is a pictorial representation showing the patient's teeth of Figs 1 and 2, the desired standard arch-form of the teeth on the completion of the treatment and the customized deflection of the archwire before being fitted to brackets on the teeth to hint at the size of the forces applied to the teeth.

Fig 4 is a pictorial representation showing the size of the forces applied to the teeth once the archwire shown in Fig 3 has been fitted to the brackets on the teeth of the patient arch shown in Fig 1, 2 and 3.

Fig 5 is a pictorial representation showing a typical treatment progression path for a non-extraction case when employing a custom orthodontic device of the present invention compared to a conventional treatment progression path employing a conventional orthodontic device.

Fig 6 is a pictorial representation showing the archwire of the present invention as shown in Fig 1 and when fitted to brackets on the teeth to form a custom orthodontic device of the present invention with the movement seen in the posterior of the arch for the purpose of space creation. This is an actual typical treatment progression path for an expansion case.

Fig 7 is a pictorial representation showing a typical treatment progression path for an extraction case when employing a custom orthodontic device of the present invention compared to a conventional treatment progression path employing a conventional orthodontic device.

Fig 8 is a pictorial representation showing an example of an actual typical treatment progression path for an extraction case when employing a custom orthodontic device of the present invention showing the start, space creation and alignment and closure.

Fig 9 is a pictorial representation showing the different forces applied to the teeth when the archwire shown in Figs 1 and 2 is fitted to brackets on the teeth to form the custom orthodontic device.

Fig 10 is a pictorial representation showing a cast of the initial and final position of the leveling of teeth employing a custom orthodontic device of the present invention.

Fig 11 is a pictorial representation showing casts of the process of teeth alignment.

Fig 12 is a pictorial representation showing casts of the process of space closure followed by teeth alignment.

Description of the preferred embodiments

Figs 6 and 8 show a translucent archwire 10 in the mouth of a patient. In this embodiment of the method, no teeth have been extracted so space creation has to begin by the movement of teeth. The archwire 10 is formed from a composite wire of the type disclosed in WO/2012/108833 and the arch-form of the archwire is far wider than the standard arch-form normally employed. Brackets 11 (Figs 6 and 8) are fixed to the labial side of the teeth of a patient as shown in Fig 10 and the archwire 10 is then fitted to brackets 11 as shown in Fig 6 and 8 to form a custom orthodontic device of the present invention. The forces 12 exerted on the teeth by the archwire 10 once fitted to the brackets 11 are shown in Fig 4, the tooth specific forces are being exerted on the molars and next to no force is exerted on the incisors as a direct result of the initial shape of the archwire 10.

Accordingly, in this example, given the forces exerted on the teeth, primarily, space is created as the posterior arch is widened and once sufficient space has been created within the mouth of a patient, additional forces for example by removal of archwire 10 and the fitting of a different archwire (not illustrated) to the brackets 11, to align the teeth by moving them into the space created may begin. The arch-form of the replacement archwire may be so-sized and shaped as to enable space creation to continue (see Fig 5).

In the case where space has already been created through the extraction of teeth towards the posterior end of the arch, (see Figs 7 and 8) space creation towards the anterior end of the arch still needs to occur to enable the alignment process to begin as there is crowding of the teeth at this anterior portion of the arch.

Accordingly, the archwire will be so-sized and shaped as to enable the forces generated on the teeth to enable such space creation to occur once the archwire has been fitted to the brackets. Once again, once space has been created, the process of alignment can take place. In this particular example, space creation at the anterior arch means space closure at the posterior arch, teeth movement essentially filling the hole created by the extraction.

Such a method of ensuring that the forces generated to the teeth are such that space creation or space closure within the mouth is the primary objective of the method, means that any initial undesirable proclination of the anterior teeth is minimized, thus causing less stress for the patient.

The current innovation is a further development which exploits the method of customising the composite wires for treatment in orthodontics by employing a force based customization instead of a stiffness based customization.

Shortcomings of the stiffness based approach to orthodontics has been mentioned above.

The ability to customize a composite wire allows for passive customization ie minimal or no forces being applied in the crowded anterior region of the arch, while force is targeted and applied only in the posterior region or by allowing for retraction of a tooth or teeth into a space created through extraction of a tooth or teeth or by the reduction of the enamel at the interproximal edges of the tooth where the teeth contact each other.

This is followed by consolidation of the space created by the expansion of the posterior teeth or retraction of teeth or reductions of enamels while still holding the anterior teeth passive without the application of any force by employing the method of making bends taught in WO/2012/108833. Only after the space is created and consolidated is the crowding resolved by moving the anterior teeth into the space created.

The advantages of the method of the present invention over the traditional stiffness based approach may be summarised as follows:

- 1) the different archwires of a particular stiffness are known to produce measurable forces when deflected. The force increases when the deflection increases. Hence by deflecting the wire away from the tooth position by an amount, there is now an ability to produce a desired force in that region that will apply the forces that are relevant for the movement of a particular tooth;
- 2) Angulation correction of the canine and posterior teeth can be corrected without affecting the anterior teeth by holding the crowded archform passive and distalizing or mesializing the arch as desired.
- 3) the correction of molar tooth position is corrected first as the position of the molars define the shape of the arch expressed because the free ends of an archwire are each anchored to a molar tooth;
- 4) the displacement of the wire at the pre-molar position is calculated from the expected shape of the wire after the wire is inserted into the molar. So this allows for forces to be applied for correction of the pre-molar regions at the same time that the molar region is being corrected. But the movement will stop when the pre-molar reaches the ideal final position it is supposed to occupy in the arch or when the relevant forces cannot be expressed anymore because of the shape restricted by the molar;
- 5) the or each wire that is used until the crowding is resolved use a passive arch-form in the anterior crowded regions by the use of customized bends; and
- 6) there is no defined bends at the anterior region in the space creation stage. So the arch-form that is smooth and rounded, allows for natural expression of the arch as defined by the molar position. Hence, it does not move the anterior tooth or teeth into an undesirable position.

By employing the above mentioned method, the arch-forms that are produced using the composite wires are not defined by the standard arch-form that is needed to be achieved at the end of treatment. Such movement through the application of forces is achieved through the programmable forces created in sections of the archwire as needed for treatment.

The arch-form is defined by the deflective force that needs to be applied at a particular tooth. Hence, the arch-form at a stage can be much smaller than the desired arch-form by strictly following the tooth position for a passive form or can be very wide at the pre-molar and the molar regions to apply the relevant forces when the wire is inserted into the molars. This is a departure from traditional orthodontic treatment methods and the use of wire braces.

Additional advantages of the invention include:

- 1) the avoidance of undesired movements by creating space before movement resulting in lesser movement per tooth to reach the final end result;
 - 2) predictable movement or treatment path because the wires are customised to become passive at the end of the desired movement by applying no force or forces that are not relevant for moving the particular tooth or teeth; and
 - 3) the employment of larger archwires from the start of the treatment compared to traditional Ni/Ti wire based orthodontic treatment provide more control by reducing the size difference between the slot of the bracket and the wire used.
- Accordingly, the increased dimension does not come at a compromise by applying light, relevant and targeted forces because of the force customisation approach.

Reduction of torque losses by use of large dimension wire to provide improved control, space creation and consolidation before resolving crowding, together with customization to hold the crowded teeth passive during space creation and the ability to apply targeted light force treatment results in a very predictable treatment path towards resolving crowding of the teeth and also towards developing the arch-form to the final desired shape.

The use of labial brackets with torque and angulation information built in and wire as a force delivery method means there is the same ability as in a traditional metal wire based treatment method to correct functional aspects like anterior posterior corrections, occlusal contact etc. after the initial resolving of crowding and establishing the arch is performed

in a predictable and a straight line treatment path. Thus the force customization approach presented here is an improvement in the treatment methodology traditionally followed while still using metal wires. an aligner system employing a plastics aligner is used with additional devices known to the person skilled in the art combined with the plastics aligner. None of the available materials allow for the degree of control and application of light forces that are made available through the use of the polymer composite wires disclosed in WO/2012/108833 and sold by the applicant.

The customized treatment together with the near elimination of undesired tooth movement means, certain stages like space creation and such which are all pre-planned and broken down into treatment with a fixed number of wires, means that the change of wires can be potentially affected by either the patient or by a hygienist with minimal involvement from the doctor.

By using targeted force application instead of movement dependent upon stiffness as is commonly practiced in straight wire appliance treatment in orthodontics, controlled treatment with defined phases of treatment become possible which further brings about the ability to allow patients to change their wires within a particular phase of treatment due to the predictable end results. In the drawings only one archwire is shown but it is to be understood that the lower teeth of a patient could incorporate one orthodontic device of the present invention and the upper teeth of the patient could simultaneously incorporate another orthodontic device of the present invention.

The metal wires used to make the archwire can be appropriately designed using the above force based customization methodology to achieve the predictability desired. In addition, this methodology can be used to advantage while using aligners by for example splitting the aligner into distinct pieces and also combining it with other orthodontic force application like rapid palatal expander devices to overcome current short comings.

Some of the procedures employing the present invention on SimpliClear™ is summarized in the appendix below.

Appendix

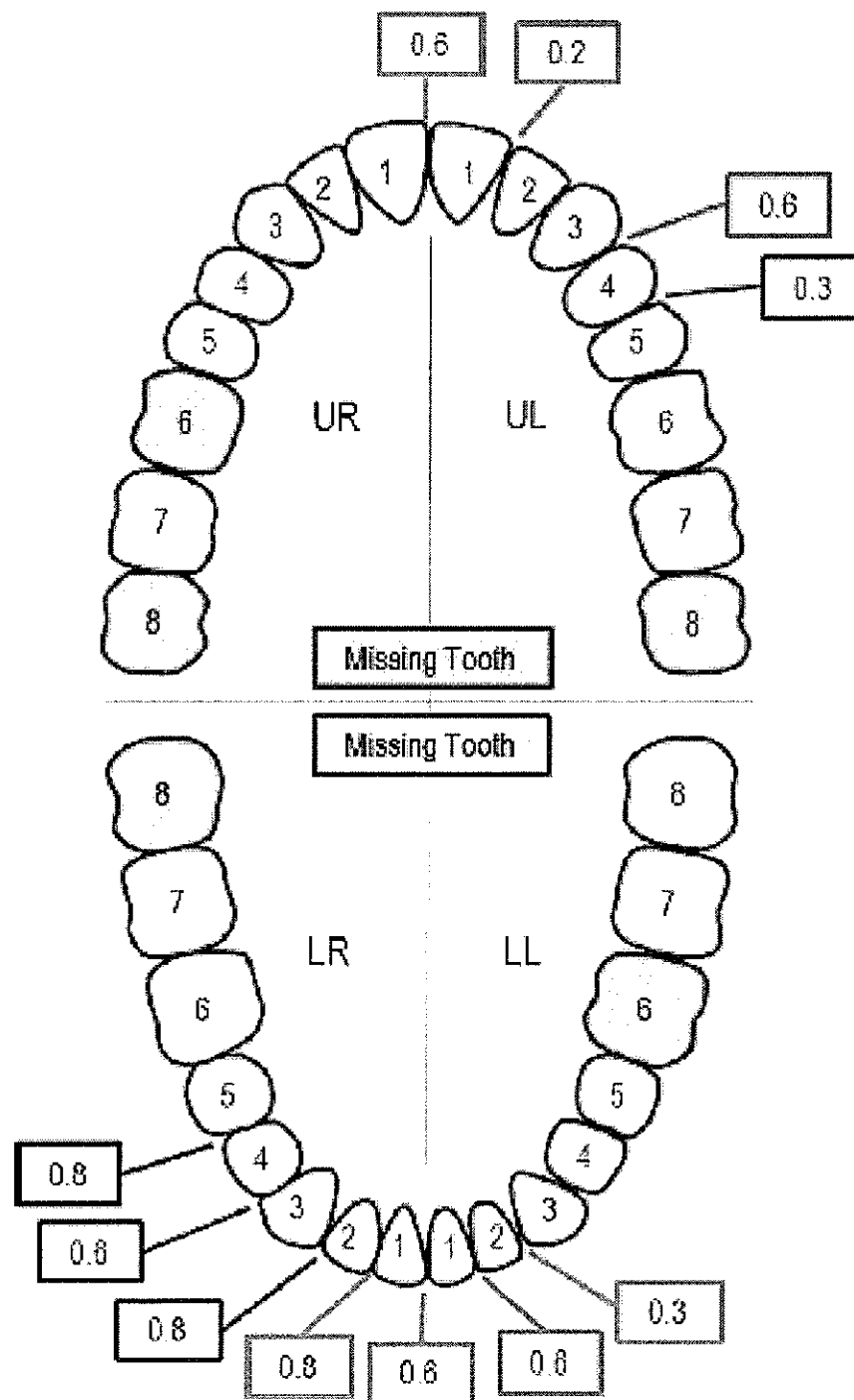
How SimpliClear™ works Non-Extraction – Expansion cases

- a) Leveling of unobstructed teeth and tipping correction
 - I. Tipped incisors can be corrected after space is created. It can be done with other movements as wire design will take care of the control of other tooth
 - II. Tipped canines – Incisors will be held passive (except for leveling) while angulation is corrected by tip correction of the canines, pre-molars and molars, as is relevant. So expansion corrections would be very minimal if any. The dumping of incisors will be controlled by this.
 - III. Tipped pre-, molars and molars, sections without angulations will be expanded while the correction is done in certain segments;
- b) Early expansion is started when leveling of posterior is achieved;
- c) Expansion of posterior arch inclusive of molar and pre-molar region is achieved;
- d) Consolidation of space together with aligning and leveling of obstructed teeth;
- e) Completion of aligning of all teeth and leveling of unobstructed teeth;
- f) Proclination correction if any;
- g) Torque expression; and
- h) Finishing and detailing.

How SimpliClear™ works Non-Extraction – Anterior Crowding cases via IPR

- a) Leveling of unobstructed teeth and angulation correction;
- b) IPR is performed based on assessment of space required
 - a) IPR should be done right from the beginning;
 - b) using Bolton's analysis to predetermine the amount and doing them right away; or
 - c) This can be done progressively – IPR done sequentially;

- c) Aligning and leveling of teeth is completed;
- d) Proclination correction if any needed;
- e) IPR required for class correction, midline correction, proclination correction is performed;
- f) Torque expression; and
- g) Finishing and detailing.



How SimpliClear™ works – Extraction

- a) Leveling of unobstructed teeth and angulation correction
 - a) Specially pertaining to teeth being retracted – should be in level with the molar;
- b) Retraction of teeth to gain space to resolve crowding;
- c) Aligning and leveling of teeth is completed;
- d) Space closure – using – posted hooks, lacebacks/tiebacks, first order elastics; power chain, other elastics, closed coil Ni/Ti etc;
- e) Torque expression; and
- f) Finishing and detailing

Claims

1. A method of moving teeth by applying forces to the teeth using a custom orthodontic device to move the teeth from an initial configuration to a final configuration including the steps of:
 - a) providing a wire to be formed into an archwire;
 - b) providing a plurality of brackets to which the wire is to be fitted;
 - c) fitting the brackets to the teeth of a patient;
 - d) forming the wire into an archwire which is so sized and shaped as to primarily create space by the forces it applies to the teeth within a patient's mouth once the wire has been fitted to the brackets to form the custom orthodontic device;
 - e) fitting the archwire to the brackets to create the custom orthodontic device; and having begun the process of space creation within the mouth of a patient, subsequently applying forces to align the teeth by moving them into the space created.
2. The method of claim 1, wherein space creation employing the device occurs through either:

the expansion of the posterior arch;

the movement of teeth into a pre-formed space or spaces created by tooth or teeth extraction; or

by the reduction of the enamel at the interproximal edges of the tooth where the teeth contact each other.
3. The method of claim 2, wherein angulation correction of the canines and posterior teeth are effected by distalization of the teeth while maintaining the position of the incisors is carried out prior to employing the device for space creation.
4. The method of any one of the preceding claims, wherein space creation by the

device occurs through forces applied preferentially to the posterior teeth whilst the device applies relatively little to no forces to the anterior teeth.

5. The method of any one of the preceding claims, wherein the forces applied by the device are such that once sufficient space has been created for the process of teeth alignment to begin, the forces applied are either:
 - a) then such as to enable further space creation and the process of teeth alignment to occur at the same time; or
 - b) such as to enable space closure and the process of teeth alignment to occur at the same time.
6. The method of claim 5, wherein the forces applied by the device are through the removal of the existing archwire and the application of a different archwire to the brackets.
7. The method of any one of the preceding claims, wherein the method further includes the step of applying tooth or teeth leveling forces at the same time as applying the forces required for space creation.
8. The method of claim 7, wherein the forces applied by the device are through the removal of the existing archwire and the application of a different archwire to the brackets.
9. The method of any one of the preceding claims, wherein the method further includes the step of torque expression subsequent to the process of teeth alignment.
10. The method of claim 9, wherein the method further includes the step of finishing and detailing at the same time that the step of torque expression is being carried out.

11. The method of any one of the preceding claims, wherein the wire is translucent, and the brackets are translucent.
12. The method of any one of the preceding claims, wherein the wire is made from Ni/Ti.
13. The method of any one of the preceding claims, wherein an aligner system is used with additional devices combined with a plastics aligner
14. An archwire which is so sized and shaped as to be able to apply forces to move teeth by preferentially applying forces to the posterior teeth of a patient whilst the applying relatively little to no forces to the patient's anterior teeth, once the archwire has been fitted to a series of brackets which have been attached to the patient's teeth to form a custom orthodontic device.
15. An archwire as claimed in claim 14, used in the method of any one of the preceding method claims.
16. A custom orthodontic device incorporating an archwire as claimed in claim 14 or claim 15.