

**Details of the Innovations
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Army College of Dental
Sciences**

F O R M 2

**THE PATENTS ACT, 1970
(39 of 1970)**

**COMPLETE SPECIFICATION
(See section 10; rule 13)**

1. TITLE OF THE INVENTION

ORTHODONTIC INSTRUMENT FOR SEATING AN ARCHWIRE

2. APPLICANTS

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Complete specification:

The following specification particularly describes the invention and the manner in which it is to be performed.

5 BACKGROUND

[0001] Unless otherwise indicated herein, the materials described in this section are not prior art to the claims in this application and are not admitted to being prior art by inclusion in this section.

Field of Invention

10 [0002] The disclosed subject matter relates to the field of orthodontic devices. More particularly, but not exclusively, the subject matter relates to an orthodontic instrument for seating an archwire.

Discussion of Prior Art

[0003] Many people suffer from misaligned teeth or jaws which may lead to
15 improper bites, poor dental health and bad facial aesthetics. It is well known that dental braces are used to correct the misaligned teeth or jaws thereby improving the dental health of a person. Referring to FIGs.1 and 2, a typical dental brace 100 may comprise brackets 102 and archwire 108 seated within the brackets 102. Each of the brackets may comprise a gate 104 and a groove 106, wherein the archwire 108
20 is seated inside the groove 106. Typically, the brackets 102 are placed on the teeth and dental cement may be used to hold the brackets 102 on the teeth. Further, the archwire 108 is placed within the grooves 106 of the brackets 102 and gates 104 of the brackets 102 are closed thereby securely positioning the archwire 108 within the groove 106 of the bracket 102. Thus, the tension in the archwire 108 gradually
25 corrects the misalignment of the teeth or jaws.

[0004] Referring to FIG. 3, conventionally, the archwire 108 is seated within the groove 106 of the brackets 102 using a straight probe instrument 302. The straight probe 302 is used to push the archwire 108 into the groove 106 from one side of the bracket 102 and then the gate 104 of the bracket 102 is closed. However,
30 in such approach, a perfect seating of the archwire 108 within the groove 106 is difficult and time consuming. The reason being, pushing the archwire 108 on one side of the bracket 102 causes the archwire 108 to pop out of the bracket 102 from the other side, thereby making the process of seating the archwire 108 within the groove 106 of the bracket 102 and closing the gate 104 of the bracket 102 a time

5 consuming task.

[0005] Additionally, in such approach, there is a risk of slippage of the straight probe 302 while seating the archwire 108 within the brackets 102. It is well known that the straight probe 302 is a sharp and pointed instrument and any slippage of the straight probe 302 while seating the archwire 108 may result in an injury to the mouth of the patient.

[0006] In addition, conventionally orthodontic brackets as disclosed in US10039618B2 are used for coupling the archwire onto the bracket body. The bracket body comprises an archwire slot to receive the archwire therein. The prior art includes a pair of tie wings to hold the archwire in the archwire slot intact when the arch wire is seated in the orthodontal brackets.

[0007] In addition, conventionally an orthodontic bracket having an archwire channel and archwire retaining mechanism as disclosed in prior art US20100233644A1 are used for seating archwires. The orthodontic bracket includes three archwire retention channels. Further, the orthodontic bracket includes a recess that opens towards the bracket base and is configured for grasping or holding the archwire when the archwire is seated in the orthodontic brackets.

[0008] In light of the above, there is a need for an instrument for seating the archwire within the brackets of the dental braces.

SUMMARY

[0009] In an embodiment, an orthodontic instrument for seating an archwire comprises an elongated handle portion and a first pair of prongs. The first pair of prongs branches from a first side of the elongated handle portion. Each of the first pair of prongs terminates at a first end side and the first end side defines a first groove configured to receive the archwire.

BRIEF DESCRIPTION OF DRAWINGS

[0010] Embodiments are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements and in which:

5 [0011] FIG. 1 illustrates a conventional dental brace 100, in which a gate 104 of one of the brackets 102 is yet to be closed;

[0012] FIG. 2 illustrates the conventional dental brace of FIG. 1 in which all the gates 104 of the brackets 102 are closed;

[0013] FIG. 3 illustrates the conventional method of seating an archwire 108;

10 [0014] FIGs 4 illustrates an orthodontic instrument for seating an archwire, in accordance with an embodiment;

[0015] FIG. 5 illustrates an orthodontic instrument for seating an archwire, in accordance with another embodiment; and

[0016] FIG. 6 illustrates a method of seating the archwire using the orthodontic
15 instrument, in accordance with another embodiment.

DETAILED DESCRIPTION

[0017] The following detailed description includes references to the accompanying drawings, which form a part of the detailed description. The drawings show illustrations in accordance with example embodiments. These
20 example embodiments, which may be herein also referred to as “examples” are described in enough detail to enable those skilled in the art to practice the present subject matter. However, it may be apparent to one with ordinary skill in the art, that the present invention may be practised without these specific details. In other instances, well-known methods, procedures and components have not been
25 described in detail so as not to unnecessarily obscure aspects of the embodiments. The embodiments can be combined, other embodiments can be utilized, or structural, logical, and design changes can be made without departing from the scope of the claims. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope is defined by the appended claims and their
30 equivalents.

[0018] In this document, the terms “a” or “an” are used, as is common in patent documents, to include one or more than one. In this document, the term “or” is used to refer to a nonexclusive “or,” such that “A or B” includes “A but not B,” “B but not A,” and “A and B,” unless otherwise indicated.

5 [0019] FIGs. 4 illustrates an orthodontic instrument 400 for seating an archwire, in accordance with an embodiment. The instrument 400 may comprise an elongated handle portion 402 and a first pair of prongs (406a and 406b). The elongated handle portion 402 may be dimensioned to be held comfortably by a human. The first pair of prongs (406a and 406b) may branch from a first side 404 of the elongated handle
10 portion 402. Each of the first pair of prongs (406a and 406b) may terminate at a first end side (408a and 408b), wherein the first end side (408a and 408b) of each of the first pair of prongs (406a and 406b) defines a first groove (410a and 410b). The first groove (410a and 410b) may be configured to receive the archwire of the dental braces.

15 [0020] In one embodiment, the first pair of prongs (406a and 406b) branching from the first side 404 of the elongated handle portion 402 may be parallel to each other.

[0021] In one embodiment, each of the first pair of prongs (406a and 406b) may be spaced apart from each other in a manner that the prongs do not touch the
20 brackets while seating the archwire.

[0022] In another embodiment, the distance between each of the first pair of prongs (406a and 406b) may be in the range of 3.5 to 7 millimeters.

[0023] In one embodiment, the length of each of the first pair of prongs, starting from the first side 404 of the elongated handle portion 402 to the first end side (408a
25 and 408b) may be in the range of 8 to 11 millimeters.

[0024] In one embodiment, the distance between the lateral walls (412a and 412b) of the first groove of each of the first pair of prongs may be in the range of 1 to 2.5 millimeters.

[0025] In one embodiment, the depth of the first groove (410a and 410b) may
30 be in the range of 0.7 to 1.5 millimeters.

[0026] In one embodiment, the first groove (410a and 410b) may be semi-circular, rectangular or V-shaped.

[0027] FIG. 5 illustrates an orthodontic instrument 500 for seating an archwire,

5 in accordance with another embodiment. The instrument 500 may comprise an elongated handle portion 502, a first pair of prongs (508a and 508b) and a second pair of prongs (516a and 516b). The first pair of prongs (508a and 508b) may branch from a first side 504 of the elongated handle portion 502 and the second pair of prongs (516a and 516b) may branch from a second side 506 of the elongated handle
10 portion 502. Each of the first pair of prongs (508a and 508b) may terminate at a first end side (510a and 510b), wherein the first end side (510a and 510b) of each of the first pair of prongs (508a and 508b) defines a first groove (512a and 512b). Further, each of the second pair of prongs (516a and 516b) may terminate at a second end side (522a and 522b), wherein the second end side (522a and 522b) of
15 each of the second pair of prongs (516a and 516b) defines a second groove (518a and 518b). The first groove (512a and 512b) and the second groove (518a and 518b) may be configured to receive the archwire of the dental braces.

[0028] In one embodiment, the first pair of prongs (508a and 508b) branching from the first side 504 of the elongated handle portion 502 may be parallel to each
20 other and the second pair of prongs (516a and 516b) branching from the second side 506 of the elongated handle portion 502 may be parallel to each other.

[0029] In one embodiment, each of the first pair of prongs (508a and 508b) may be spaced apart from each other in a manner that the prongs do not touch the brackets while seating the archwire. Similarly, each of the second pair of prongs
25 (516a and 516b) may be spaced apart from each other.

[0030] In one embodiment, the distance between the first pair of prongs (508a and 508b) may be in the range of 3.5 to 5.5 millimeters and the distance between the second pair of prongs (516a and 516b) may be in the range of 5 to 7.5 millimeters.

30 **[0031]** In one embodiment, the length of each of the first pair of prongs (508a and 508b), starting from the first side 504 of the elongated handle portion 502 to the first end side (510a and 510b) may be in the range of 8 to 11 millimeters. Similarly, the length of each of the second pair of prongs (516a and 516b), starting from the second side 506 of the elongated handle portion 502 to the second end side

5 (522a and 522b) may be in the range of 8 to 11 millimeters.

[0032] In one embodiment, the distance between the lateral walls (514a and 514b) of the first groove (512a and 512b) of each of the first pair of prongs (508a and 508b) may be in the range of 1 to 2.5 millimeters. Similarly, the distance between the lateral walls (520a and 520b) of the second groove (518a and 518b) of each of the second pair of prongs (516a and 516b) may be in the range of 1 to 2.5 millimeters.

[0033] In one embodiment, the depth of the first groove (512a and 512b) may be in the range of 0.7 to 1.5 millimeters and the depth of the second groove (518a and 518b) may be in the range of 0.7 to 1.5 millimeters.

15 **[0034]** In one embodiment, the first groove (512a and 512b) and the second groove (518a and 518b) may be semi-circular, rectangular or V-shaped.

[0035] In one embodiment, the distance between each of the prongs of the first pair of prongs (508a and 508b) is greater than the distance between each of the prongs of the second pair of prongs (516a and 516b).

20 **[0036]** Referring to FIG. 6, the doctor may use the orthodontic instrument 400 push the archwire from both the sides of the bracket thereby seating the archwire within the groove of the bracket. The archwire is received by the groove of the pair of prongs thereby eliminating the possibility of slippage during the seating of archwire.

25 **[0037]** Although embodiments have been described with reference to specific example embodiments, it will be evident that various modifications and changes may be made to these embodiments without departing from the broader spirit and scope of the system and method described herein. Accordingly, the specification and drawings are to be regarded in an illustrative rather than a restrictive sense.

30 **[0038]** Many alterations and modifications of the present invention will no doubt become apparent to a person of ordinary skill in the art after having read the foregoing description. It is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation. It is to be

5 understood that the description above contains many specifications, these should not be construed as limiting the scope of the invention but as merely providing illustrations of some of the personally preferred embodiments of this invention.

List of Reference numerals with respect to each feature illustrated in the drawings
10 are as follows:

- 400 – Orthodontic Instrument
- 402 – elongated handle portion
- 404 – First side of the Elongated handle portion
- 406a and 406b – First pair of prongs
- 15 408a and 408b – First end side of each prong
- 410a and 410b – First groove on each First end side
- 412a and 412b – lateral walls of each First groove
- 500 – Orthodontic Instrument
- 502 – elongated handle portion
- 20 504 – Second side of the Elongated handle portion
- 506a and 506b – Second pair of prongs
- 408a and 508b – Second end side of each prong
- 510a and 510b – Second groove on each Second end side
- 512a and 512b – lateral walls of each Second groove

25

CLAIMS

We Claim:

1. An orthodontic instrument (400) for seating an archwire, the instrument (400) comprising:
 - 5 an elongated handle portion (402); and
characterized in that,
the orthodontic instrument (400) comprises:
a first pair of prongs (406a and 406b) branching from a first side (404) of the elongated handle portion (402), wherein:
 - 10 each of the first pair of prongs (406a and 406b) terminates at a first end side (408a and 408b); and
the first end side (408a and 408b) defines a first groove (410a and 410b) configured to receive the archwire.
2. The instrument (400) as claimed in claim 1, wherein the first pair of prongs
15 (406a and 406b) are parallel to each other.
3. The instrument (400) as claimed in claim 1, wherein the distance between each of the first pair of prongs (406a and 406b) is in the range of 3.5 to 7 millimeters.
4. The instrument (400) as claimed in claim 1, wherein the length of each of
20 the first pair of prongs (406a and 406b) is in the range of 8 to 11 millimeters.
5. The instrument (400) as claimed in claim 1, wherein the distance between lateral walls (412a and 412b) of the first groove (410a and 410b) is in the range of 1 to 2.5 millimeters.
6. The instrument (400) as claimed in claim 1, wherein the depth of the first
25 groove (410a and 410b) is in the range of 0.7 to 1.5 millimeters.
7. The instrument (400) as claimed in claim 1, wherein the first groove (410a and 410b) is semi-circular, rectangular or V-shaped.
8. The instrument (500) as claimed in claim 1, comprising:

a second pair of prongs (516a and 516b) branching from a second side (506) of the elongated handle portion (502), wherein:

each of the second pair of prongs (516a and 516b) terminates at a second end side; and

5 the second end side (522a and 522b) defines a second groove (518a and 518b) configured to receive the archwire.

9. The instrument (500) as claimed in claim 8, wherein the second pair of prongs (516a and 516b) are parallel to each other.

10. The instrument (500) as claimed in claim 8, wherein the distance between each of the second pair of prongs (516a and 516b) is in the range of 5 to 7 millimeters.

11. The instrument (500) as claimed in claim 8, wherein the length of each of the second pair of prongs (516a and 516b) is in the range of 8 to 11 millimeters.

12. The instrument (500) as claimed in claim 8, wherein the distance between the lateral walls (520a and 520b) of the second groove (518a and 518b) is in the range of 1 to 2.5 millimeters.

13. The instrument (500) as claimed in claim 8, wherein the depth of the second groove (518a and 518b) is in the range of 0.7 to 1.5 millimeters.

14. The instrument (500) as claimed in claim 8, wherein the second groove (518a and 518b) is semi-circular, rectangular or V-shaped.

15. The instrument (500) as claimed in claim 8, wherein the distance between each of the prongs of the first pair of prongs (508a and 508b) is greater than the distance between each of the prongs of the second pair of prongs (516a and 516b), wherein the ratio between the distance between each of the prongs of the first pair of prongs (508a and 508b) and the distance between each of the prongs of the second pair of prongs (516a and 516b) is below 2.

Dated this 16th day of February 2021

(Digitally signed)

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Patent agent of the Applicants (IN/PA-1809)

ABSTRACT

ORTHODONTIC INSTRUMENT FOR SEATING AN ARCHWIRE. The present invention relates to an orthodontic instrument (400) that can be used for seating the archwire in dental braces. The instrument (400) comprises an elongated handle portion (402) and a first pair of prongs (406a and 406b). The first pair of prongs (406a and 406b) branches from a first side (404) of the elongated handle portion (402). Each of the first pair of prongs (406a and 406b) terminates at a first end side (408a and 408b) and the first end side (408a and 408b) defines a first groove (410a and 410b) configured to receive the archwire.

5
10

Reference figure: FIG. 4

Dated this 10th day of November, 2020

(Digitally signed)

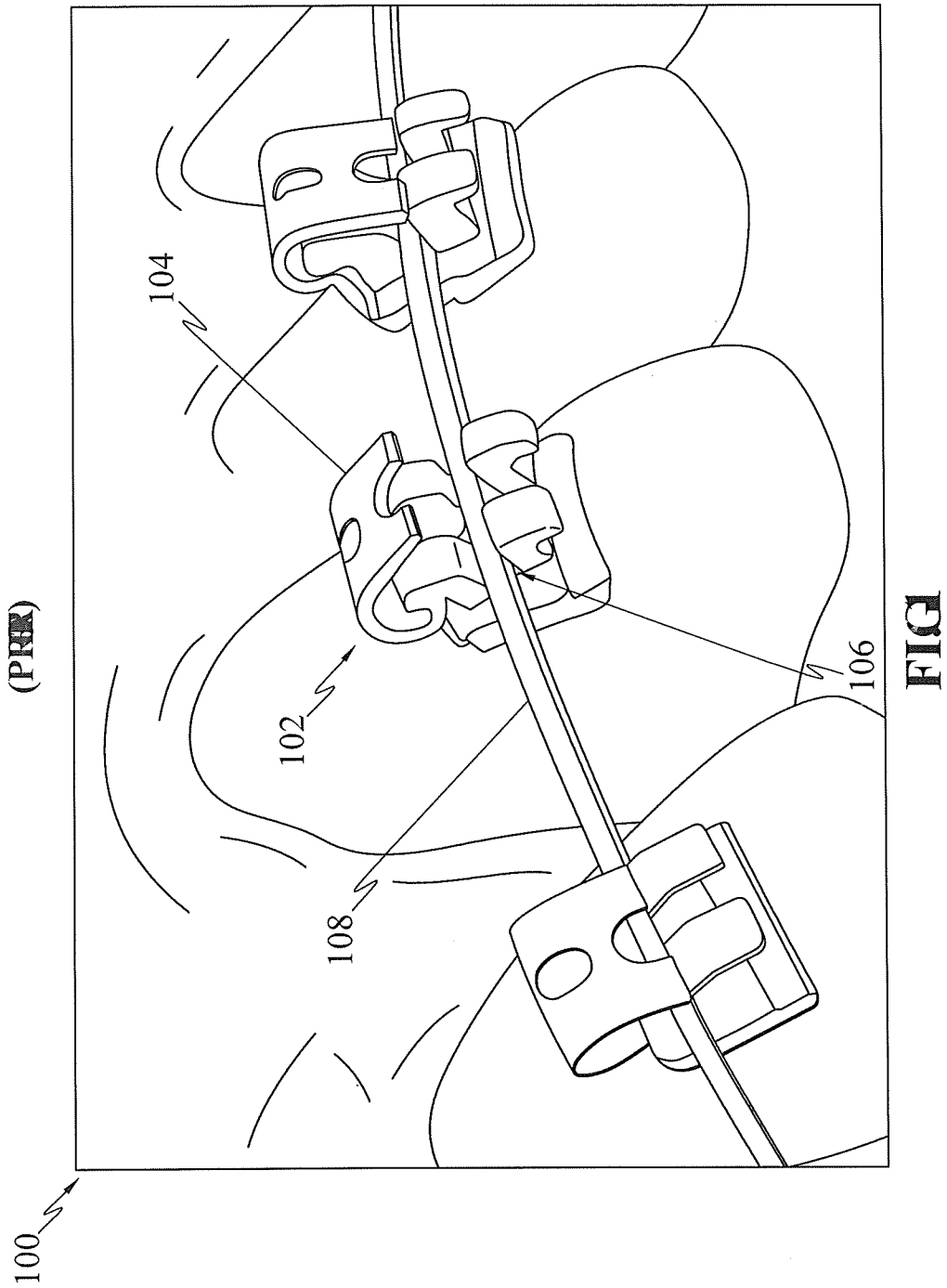
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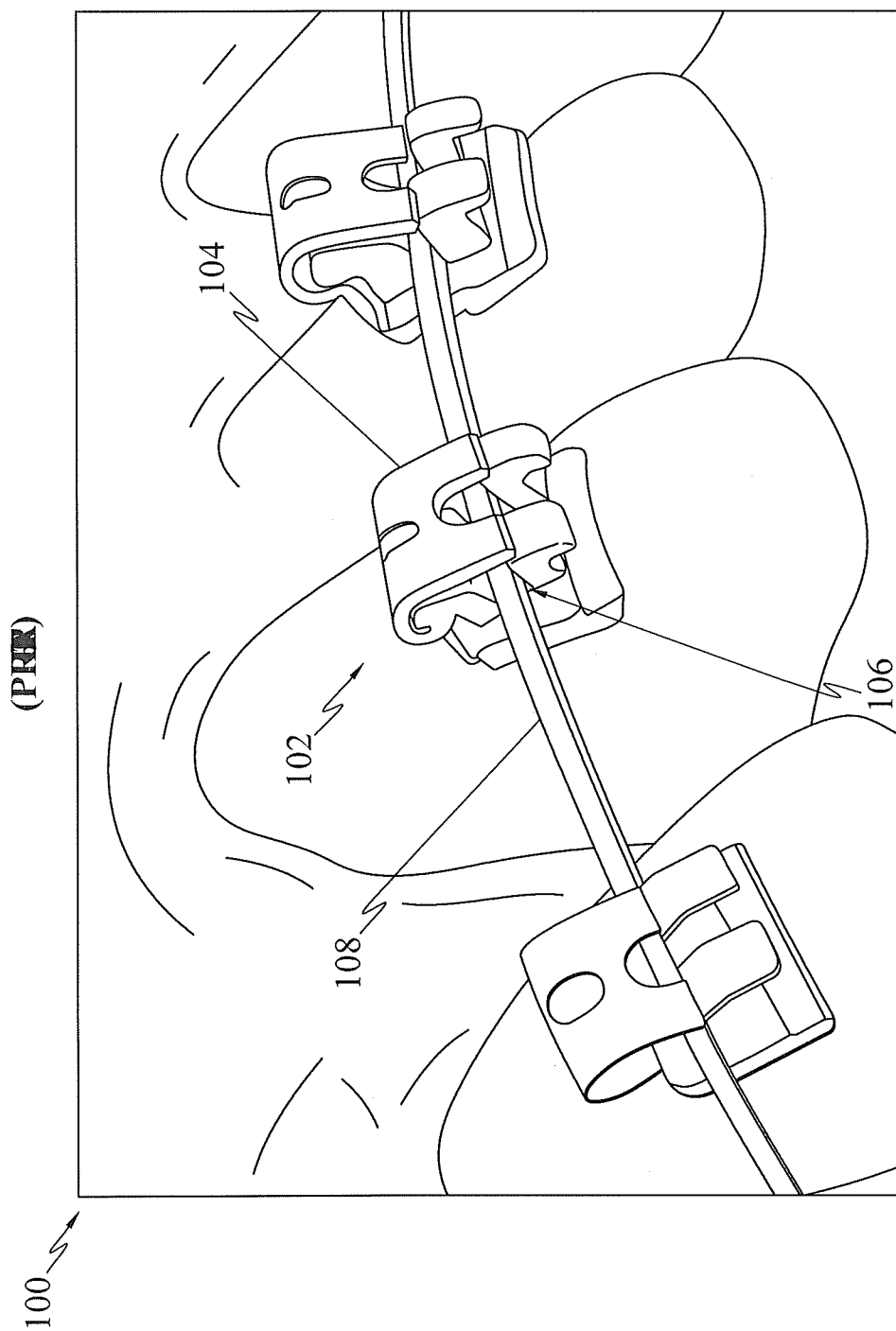
Kartik PUTTAIAH

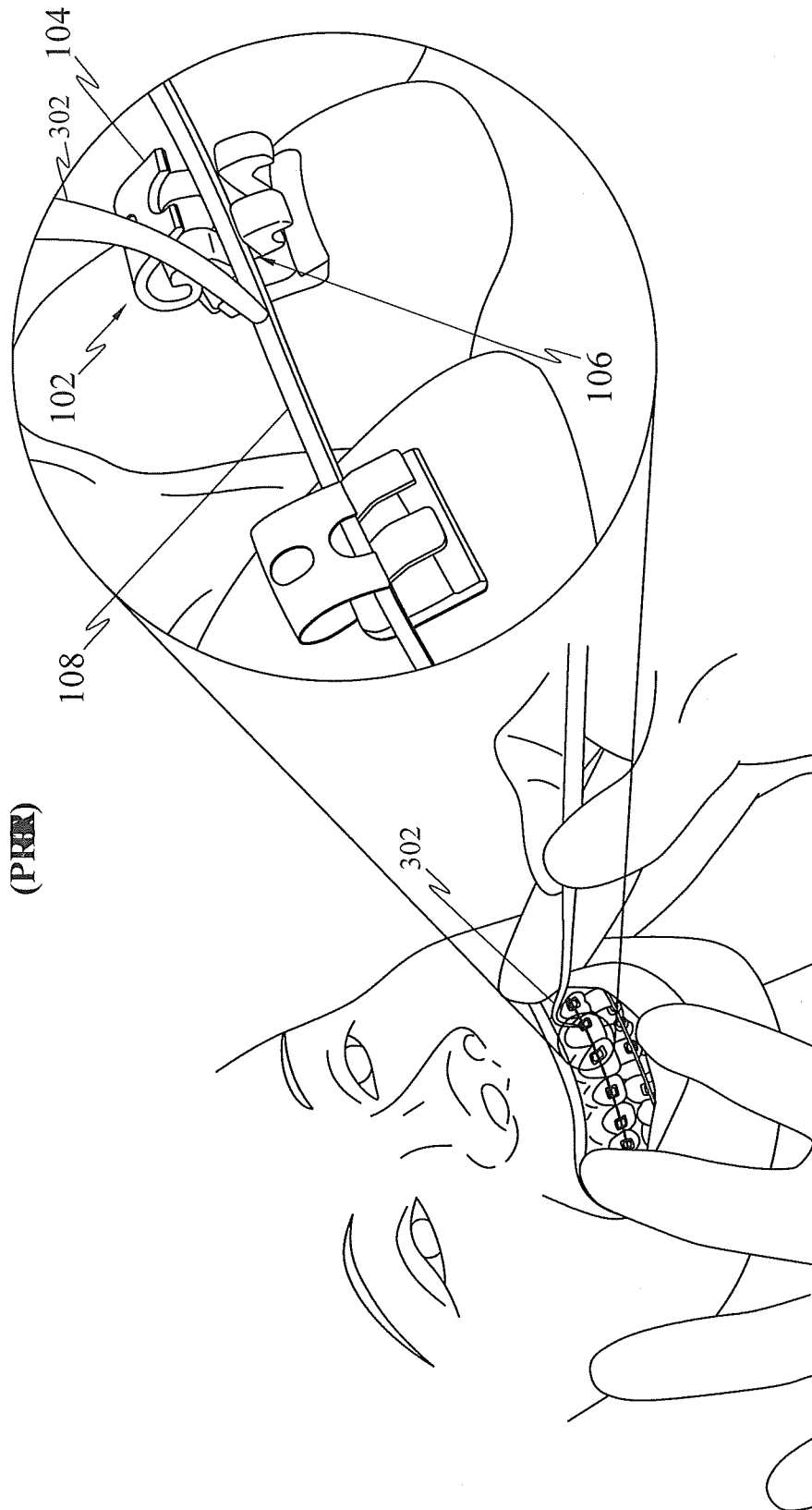
Patent agent of the Applicants (IN/PA-1809)



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(PHE)

FIG

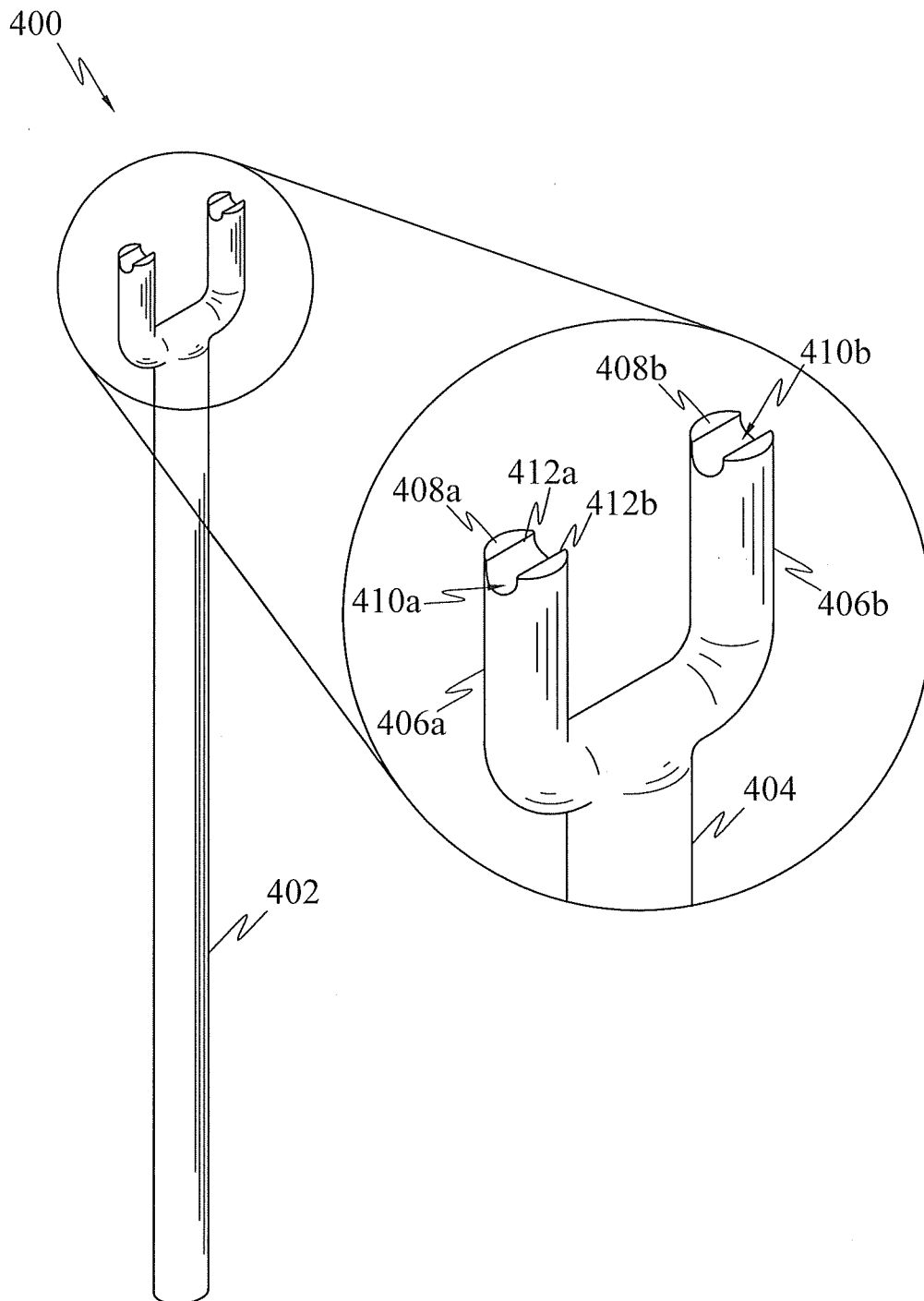


FIG 4

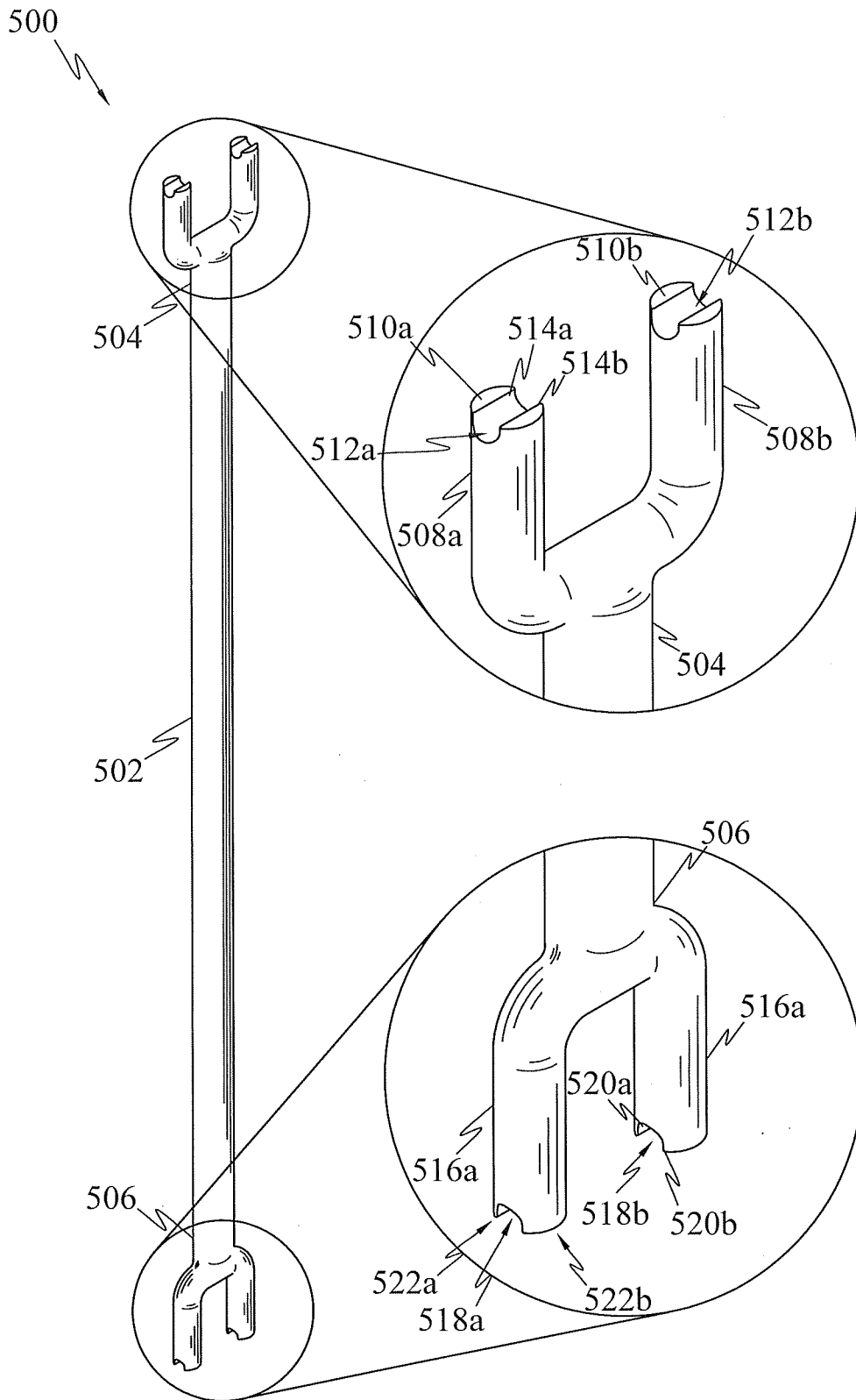


FIG 5

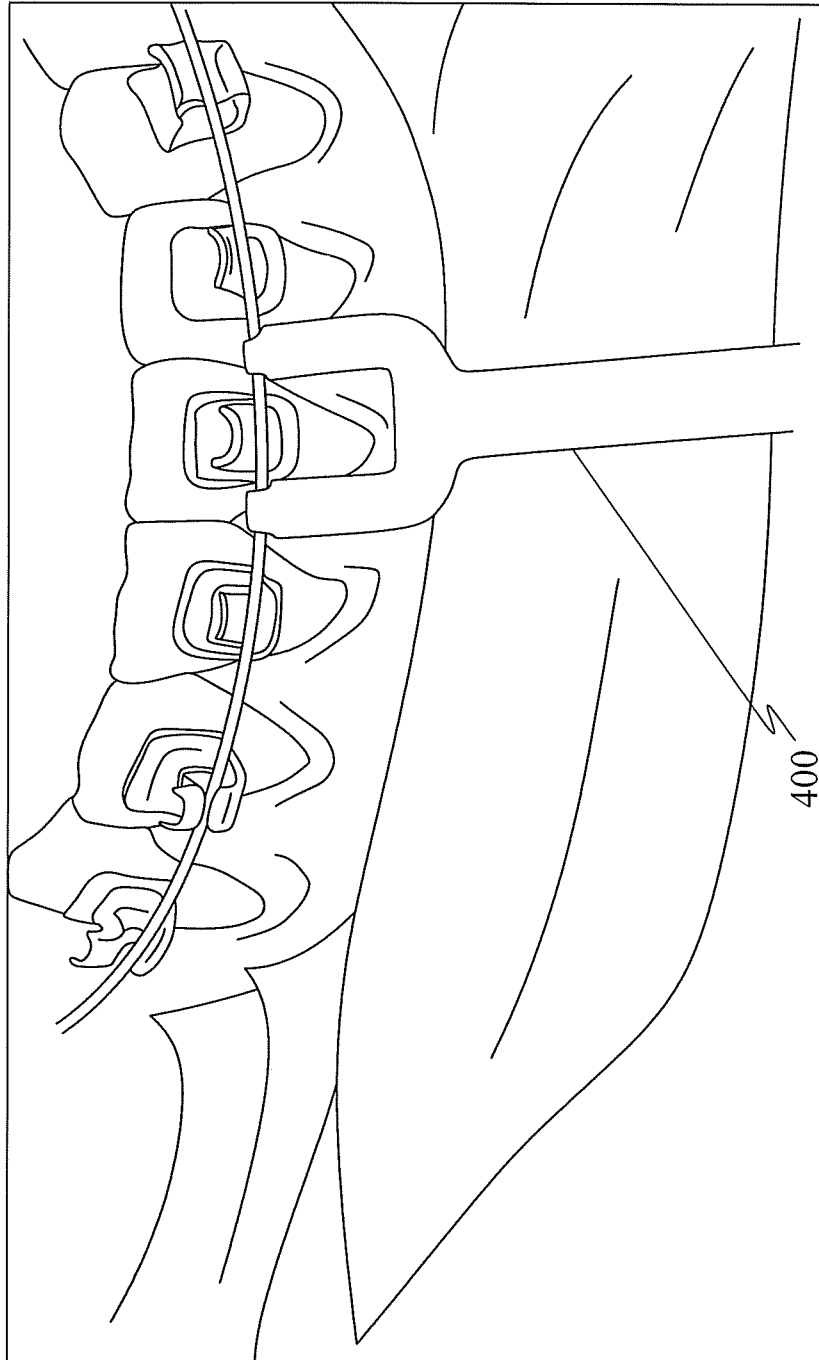


FIG 6



**INTELLECTUAL
PROPERTY INDIA**

एकस्व/PATENTS|अभिकल्प/DESIGNS|
व्यापार चिह्न/TRADE MARKS|भौगोलिक
उपदर्शन/GEOGRAPHICAL INDICATIONS



सत्यमेव जयते

**भारत सरकार
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सं. \ No. 202041033823

सेवा में, \ To :

Address of Service:- InvnTree IP Services 399, 15th Cross, 5th main, Sector-6, HSR Layout, Bengaluru: :
Email Id:- ipo@invntree.com

विषय :- पेटेंट आवेदन संख्या 202041033823 के संबंध में अधिनियम की धारा 43 के तहत पेटेंट अनुदान तथा पेटेंट रजिस्टर में
Sub :- Intimation of the grant and recordal of patent under section 43 of the Act in respect of patent ap

महोदय/महोदया,
Sir/Madam,

आपको सूचित किया जाता है कि पेटेंट अधिनियम, 1970 की धारा 12 व 13 तथा उस आधार पर बने नियम के तहत उपर्युक्त
हुई सुनवाई] के उपरान्त एतद्वारा पेटेंट अनुदान किया जाता है। तथा पेटेंट अनुदान की प्रविष्टि 16/03/2021 को पेटेंट रजिस्टर में कर दी।

This is to Inform you that following the examination of above mentioned patent application under
1970 and Rules made thereunder [and hearing held on 11/02/2021] a patent is hereby granted and reco
16/03/2021. The Patent Certificate is enclosed herewith.

पेटेंट संख्या \ Patent No	: 361311
आवेदक का नाम \ Name Of Applicant	: 1.Prasad Chitra 2.Suma Liz Panicker
पेटेंट दिनांक \ Date of Patent	: 07/08/2020
पूर्विका तिथि \ Priority Date	: 07/08/2020
परीक्षण हेतु अनुरोध दाखिल करने की तिथि \ Filling date of Request for examination	: 07/08/2020
शीर्षक \ Title	: ORTHODONTIC INSTRUMENT FOR SEATING AN ARC
दावों की संख्या \ Number of claims	: 1-15

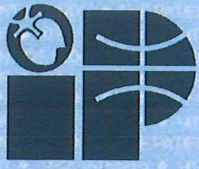


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उपर्युक्त पेटेंट के अनुदान का प्रकाशन अधिनियम की धारा 43 के तहत पेटेंट कार्यालय के आधिकारिक जर्नल में किया जाएगा।
The grant of above mentioned patent will be published in the Official Journal of the patent Office under

पेटेंट अधिनियम 1970 यथा संशोधित पेटेंट (संशोधन) नियम, 2005/ पेटेंट नियम, 2003 यथा संशोधित पेटेंट (संशोधन) नियम,
प्रावधानों के तहत उपरोक्त प्रविष्टि की तिथि से 3 माह के भीतर इस कार्यालय में नवीकरण शुल्क जमा किया जाना चाहिए।

The payment of renewal fee is required to be made at this office within three(3) months from the aforesaid
proviso in sub-section(4) of Section 142 of The Patents Act,1970, as amended by The Patents (Amendi



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क्रमांक : 044127991
SL No :



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THE PATENT OFFICE
पेटेंट प्रमाणपत्र
PATENT CERTIFICATE
(Rule 74 Of The Patents Rules)

पेटेंट सं. / Patent No. : 361311
आवेदन सं. / Application No. : 202041033823
फाइल करने की तारीख / Date of Filing : 07/08/2020
पेटेंटी / Patentee : 1.Prasad Chitra 2.Suma Liz Panicker

प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में यथाप्रकटित ORTHODONTIC INSTRUMENT FOR SEATING AN ARCHWIRE नामक आविष्कार के लिए, पेटेंट अधिनियम, १९७० के उपबंधों के अनुसार आज तारीख 7th day of August 2020 से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled ORTHODONTIC INSTRUMENT FOR SEATING AN ARCHWIRE as disclosed in the above mentioned application for the term of 20 years from the 7th day of August 2020 in accordance with the provisions of the Patents Act, 1970.



अनुदान की तारीख : 16/03/2021
Date of Grant :



Principal
Army College Of Dental Sciences

पेटेंट नियंत्रक
Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, 7th day of August 2022 को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 7th day of August 2022 and on the same day in every year thereafter.