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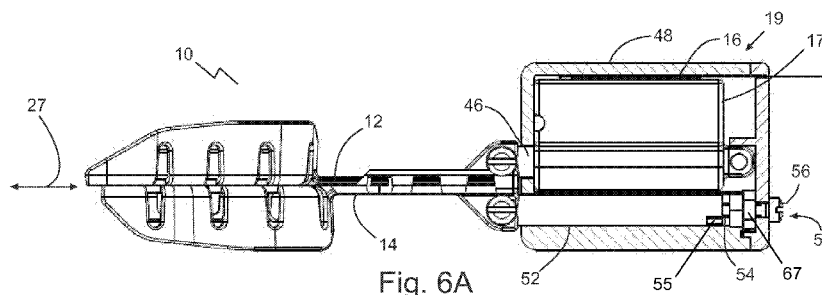
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(54) Title: APPARATUSES AND METHODS FOR MANDIBULAR PROTRUSION



(57) Abstract: Embodiments of methods and mandibular protruders and positioning devices, comprising, for example: an upper mounting bracket having an upper dental appliance; a lower mounting bracket having a lower dental appliance; and a rail system configured to couple the upper mounting bracket to the lower mounting bracket.. Some embodiments comprise a drive motor and/or an initial position adjustment mechanism.



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**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2010/037475

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A61F5/56

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
A61F A61C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 832 306 A1 (UNIV KURUME [JP]) 12 September 2007 (2007-09-12) figures 1-5 paragraph [0036] - paragraph [0043]	1-34, 66-69, 73
X	US 2005/175954 A1 (ZACHER ADRIAN K [GB]) 11 August 2005 (2005-08-11)  paragraph [0015] - paragraph [0017]	1-5, 8-20, 30-34, 73
Y	paragraph [0019] - paragraph [0022]  paragraph [0023] - paragraph [0025]; figures 1-8  ----- -/--	6, 7, 21-29, 66-69

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search  7 December 2010	Date of mailing of the international search report  17/12/2010
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Jansson Godoy, Nina

## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2010/037475

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 826 579 A (REMMERS JOHN E [CA] ET AL) 27 October 1998 (1998-10-27) cited in the application column 3, line 64 - column 5, line 48; figure 1 column 8, line 36 - line 46; figure 3 -----	6,7, 21-29, 66-69
A	US 2005/081859 A1 (SCARBERRY EUGENE N [US] ET AL SCARBERRY EUGENE N [US] ET AL) 21 April 2005 (2005-04-21) figures 10-11 column 10, line 3 - column 12, line 51 paragraph [0058] - paragraph [0071] -----	1-34, 66-69,73
A	US 5 678 567 A (THORNTON W KEITH [US] ET AL) 21 October 1997 (1997-10-21) figure 1 -----	1-34, 66-69,73

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2010/037475

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-34, 66-69, 73

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-34, 66-69, 73

A protruder and a method for positioning the mandibula comprising a rail system for coupling the upper bracket to the lower bracket.

2. claim: 35

A protruder wherein the dental trays comprise lateral portions that flex relative to front portions in order to enhance patient comfort.

3. claims: 36-40, 45-47, 51-65

A protruder coupled to a drive motor for linearly adjusting the position of the lower bracket relative to the upper bracket.

4. claim: 41

A protruder having upper and lower release mechanisms for releasing the dental appliances from the positioning mechanism.

5. claims: 42-44

A protruder comprising a mechanism for adjusting the initial position of the brackets.

6. claims: 48-50

A protruder having a position indicator for indicating the relative position of the brackets.

7. claims: 70-72

A method for positioning the mandibula wherein the device is disposed in a bag for protecting the device from contamination.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2010/037475
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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