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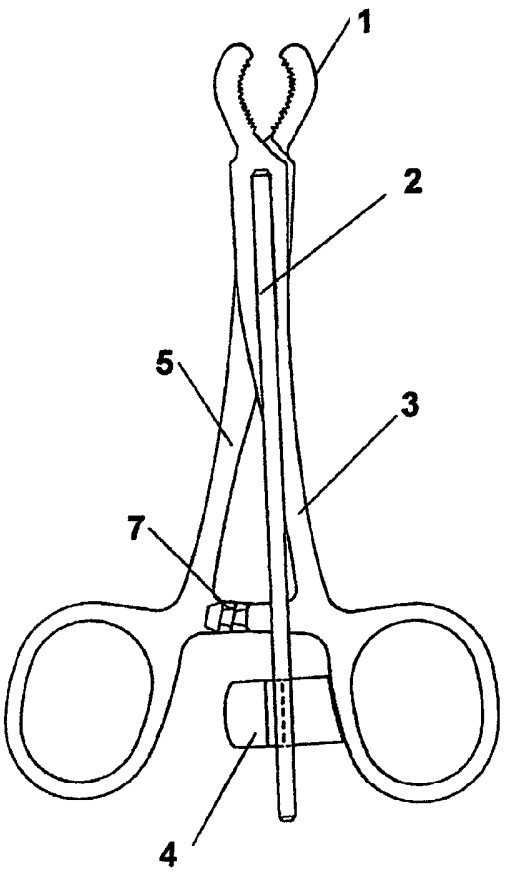
(54) Title: UNIVERSAL TORQUE WRENCH FOR DENTAL IMPLANT SYSTEMS



(57) Abstract: Nowadays, technological advances happen every day; and so are opportunities of development in new study areas, to an extent never seen before. Dental Implantology is one of these areas. Today there are several distinct dental implant systems, resulting from the tremendous evolution and ever increasing demand by the patients. Each system has parts and components witch are specific to it and therefore, only work in that particular system. For a dental practitioner who works with two or more different systems it becomes necessary to have different sets of wrenches or other tools for each system, as most of the times, wrenches are incompatible with any other system than their own. This invention consists of a Universal Torque Wrench for Dental Implant Systems which allows tightening and unscrewing abutment screws or prosthetic screws of any dental implant system. Moreover, this wrench provides the necessary and recommended torque for each and any of those systems apart from being a handy tool.

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Description

Universal Torque Wrench for Dental Implant Systems

State of the Art: Nowadays there is a huge variety of dental implant systems. Each system has its own parts, wrenches and screws. The clinical procedures however are quite similar, no matter witch system one decides to use. Tightening abutments (small piece that supports the crown) to dental implants with a predetermined torque and tightening the crown (artificial tooth made of metal and ceramics) to the abutment with another predetermined torque, both specific and predetermined, are standard procedures.

Invention object: This invention concerns of a wrench which allows tightening of dental implant screws with the intended torque for all dental implant systems as well as unscrewing several screws.

Picture description:

Fig 1 - anterior view

Fig 2 - posterior view

Invention functioning and description: This *Universal Torque Wrench for Dental Implant Systems* consists of a haemostatic like tweezers, in witch the extremities are in the shape of a circle segment, with their inner surfaces corrugated (number 1 in the picture). This wrench is composed of two arms, divided in a handle, a body and an extremity (numbers 3 and 5 in the pictures). One of the arms is rigid in his body and possesses a circular (or similar) ending (number 3 in the picture). To this arm is mounted a dynamometer (number 2 in the picture) which in this case consists of a steel rod. Near the handle of this arm is positioned the scale for the dynamometer (number 4 in the picture).

The other arm is semi-rigid in is body (number 5 in the picture), meaning it has some flexibility, also ending in a circular (or similar) handle.

Both arms are united by a hinge, located in the body, near the semi-circular extremity. Both arms possess a lock (number 7 in the picture) with several possible positions, witch is located in the body, near the handle.

The functioning is as follows: when there is a screw to be tightened to a predetermined torque, one grabs the screw connection (screw driver particular to each dental implant system) and locks it to the *Universal Torque Wrench for Dental Implant Systems;* next, the driver is delivered to the screw and with a finger leaning on the dynamometer, one tightens the screw by rotating the wrench, until the scale shows the intended torque; finally, one unlocks and removes the *Universal Torque Wrench for Dental Implant Systems*.

Claim

1 - Universal Torque Wrench for Dental Implant Systems made of two arms (numbers 3 and 5 in the pictures) witch in one of the extremities end in a circular handle or similar and on the other one in a semicircular termination(number 1 in the pictures), a dynamometer (number 2 in the pictures) and a scale (number 4 in the pictures), being that the two arms are united by a hinge; characterized by being capable of grasping by means of the semicircular ends(number 1 in the pictures) and applying the intended torque for the tightening of abutment screws and prosthetic screws of any dental implant system through a dynamometer (number 2 in the picture) and a scale (number 4 in the picture) assembled to it, being that the arm in witch the dynamometer is mounted is rigid (number 3 in the picture) and the other arm is semi-rigid (number 4 in the picture) in order to compensate for small changes in size and shape of the objects to be grasped, being the whole stability guaranteed by the lock.

Fig 1

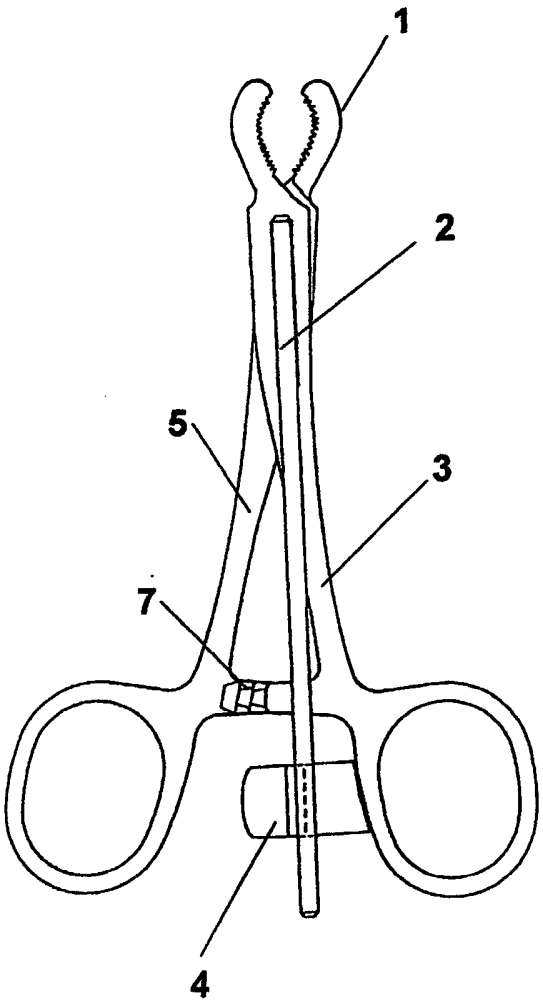
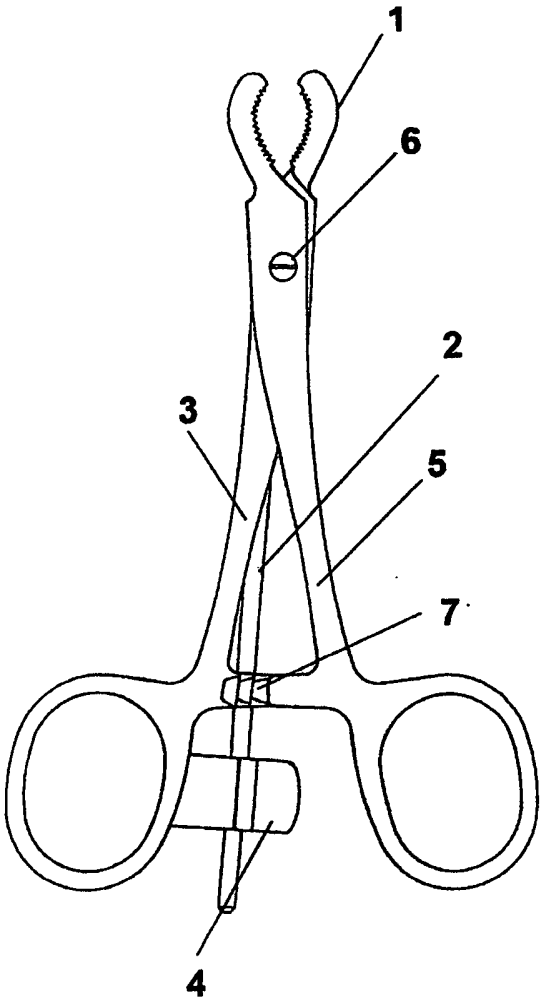


Fig 2



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61C19/04 A61C8/00 A61B17/88

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)
IPC 7 A61C A61B B25B

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	US 4 411 259 A (DRUMMOND ET AL) 25 October 1983 (1983-10-25) column 7, line 59 - column 8, line 26; figure 5	1
A	US 4 314 490 A (STONE ET AL) 9 February 1982 (1982-02-09) column 1, line 59 - column 2, line 15; figure 1	1

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Pypen, C

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4411259 A	25-10-1983	NONE	
US 4314490 A	09-02-1982	NONE	