

[54] DENTAL INSTRUMENT FOR ROOT CANAL WORK

Primary Examiner—Robert Peshock
Attorney—Robert E. Burns et al.

[72] Inventor: Jean Masseran, Metz-Magny, France

[57] ABSTRACT

[73] Assignee: Micro-Mega, Metz-Magny, France

A dental instrument for the extraction of filiform objects from the channels of extracted teeth, having a longitudinal tube on which is formed a first bearing surface, and a rod which is axially displaceable within the tube and which has a second cooperating bearing surface so that an object can be gripped between the two surfaces on longitudinal movement of the rod, and thereby extracted from the root channel.

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5 Claims, 3 Drawing Figures

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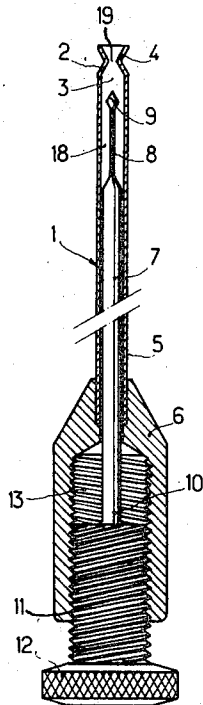
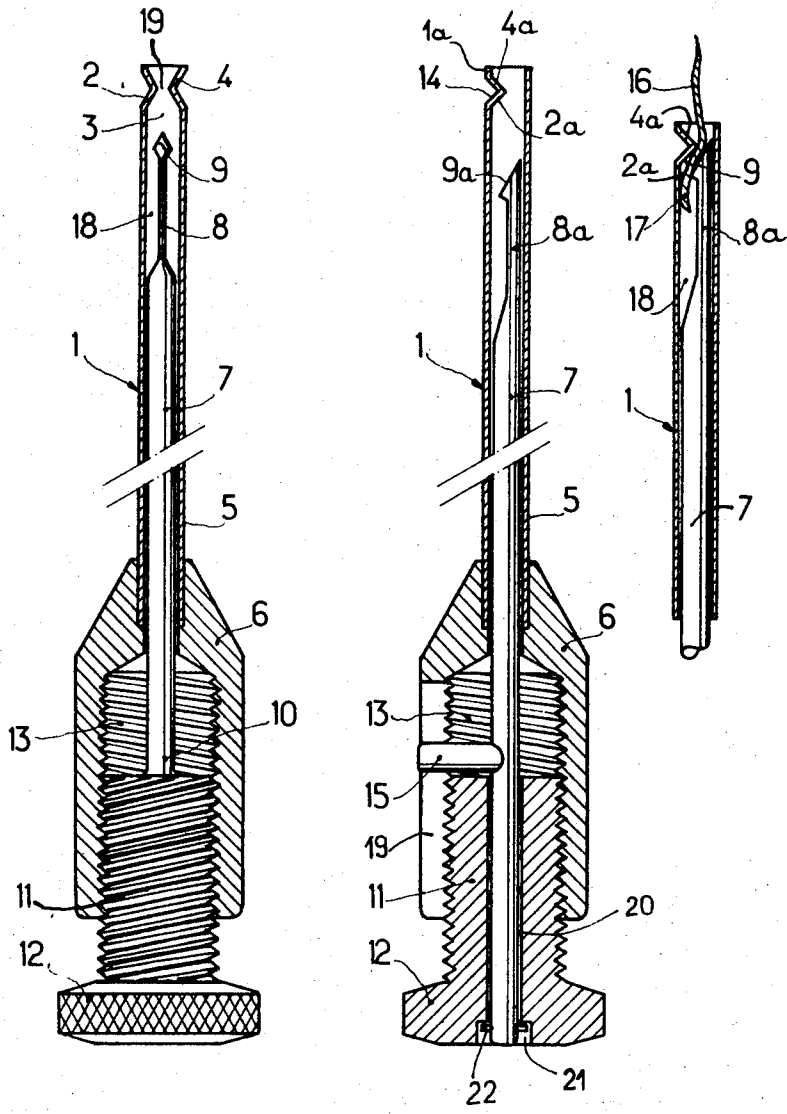


FIG.1

FIG.2

FIG.3



DENTAL INSTRUMENT FOR ROOT CANAL WORK

The invention relates to an instrument intended to extract filiform objects retained in the root channels.

It is known that the a dentist often employs small filiform instruments, such as scrapers or nerve "pullers" which, fitted to an apparatus entraining these in a motion of alternating rotation, render it possible to drill the channels evenly. These small instruments, although being flexible, break occasionally and it is then difficult to withdraw them. On other occasions also the dentist or practitioner frequently has the need to extract objects retained or broken off in the root channels.

The tweezers are not commonly sufficiently fine to penetrate into the root channel and to extract the filiform objects from the same.

According to the invention there is provided a dental instrument for extraction of long thin objects from root channels comprising a longitudinal tube, a first bearing surface formed at one extremity of the tube and directed towards the inside of the tube, a rod which is axially displaceable within the tube and has a narrower terminal portion and a second bearing surface located at the extreme end of the terminal portion of the rod and of a shape complementary to that of the first bearing surface, for the purpose of gripping the object between the two bearing surfaces as a result of the advance of the rod towards the extremity of the tube.

The invention will be further described with reference to the accompanying drawings, which illustrate various embodiments of the invention which are given by way of example only and not by way of limitation.

In the drawings:

FIG. 1 is a view in longitudinal section of apparatus constituting a first embodiment of the invention;

FIG. 2 is a view in section similar to FIG. 1, of apparatus constituting a second embodiment of the invention;

FIG. 3 is a fragmentary sectional view illustrating the grasping of a filiform object by the apparatus.

Reference is made to FIG. 1 which shows that the instrument according to the invention is formed by an elongated, rigid tube 1 of a length of a few centimeters, which at its upper extremity has a bearing surface 2, for example of frustoconical shape, directed towards the inside 3 of the tube 1. Access to the inner part of the tube is facilitated by an extension 4, also of frustoconical form, of the bearing surface 2, this extension 4, which forms the extreme portion of the tube 1 is flared outwardly. The other extremity 5 of the tube is rigidly attached to a sleeve 6 of the instrument.

A elongated, rigid rod 7 which is housed within the tube 1, at its upper extremity has a narrower axial portion 8 which terminates in a head having a bearing surface 9 complementary to the first bearing surface 2 of the tube, that is to say frustoconical and having substantially the same apex angle.

In the case of FIG. 1, the bearing surface 9 is formed by the peripheral surface of a cone, since the bearing surface 2 of the tube 1 is frustoconical. The lower extremity 10 of the rod 7 is rigidly attached to the body of a screw 11 which, at its extremity, has a knurled crown 12. The sleeve 6 is tapped at 13 on its inner surface to allow the displacement of the axial rod 7 in the tube 1 when the screw is caused to turn by rotating the crown 12.

Reference is now made to FIG. 2 which shows another form of embodiment of the dental instrument according to the invention, in which in particular the form of the bearing surfaces has been modified. The bearing surface 1a of the tube 1 is not longer frustoconical but consists simply of one face of a tooth or projection 14 facing inwards, in the upper portion of the tube. The other or upper face of this projection 4a which adjoins the cylindrical extremity of the tube 1, renders it possible to guide the filiform object into the tube. The narrower part 8a of the rod 7 is laterally offset from the axis of the rod 7 and has a bearing surface 9a which is no longer a surface of revolution but which is formed as a simple flat cut, at its extremity.

A peg 15 rigidly attached to the longitudinal rod 7 is guided in a longitudinal slot 19 of the sleeve 6 during axial displacement of the screw 11. The rod 7 passes right through an axial hole 20 drilled in the screw 11 and its lower extremity extends into a recess 21 of the screw, in which it is held by a split pin 22. In this way, when the screw 11 is rotated, the rod 7 is not entrained in rotation and undergoes a simple translational displacement only. This embodiment renders it possible to take the object to be grasped between the surfaces 2a and 9a without applying a shearing strain to the same with the risk of breaking the same again. It may be employed more particularly in difficult extraction cases; the simpler instrument of FIG. 1 is preferable for normal cases.

The instrument is employed in a simple manner as follows, with reference to FIG. 3, if it is intended to extract a filiform object, for example the object 16, from a root channel. The root channel is prepared by means of a hollow drill bit so that the extremity of the tube 1 may be inserted into the same. The tube, of a cross-section of the order of a millimeter, is inserted into the channel in which it catches the extremity 17 of the object with the upper face of its projection 14. A slightly deeper insertion of the tube into the root channel renders it possible to position the extremity 17 in the tube 1 beyond the lower bearing surface 2a of the projection 14 of the tube 1. The rod 7 is then displaced upwards so that its bearing surface 9a clamps the object 16 against the bearing surface 2a of the tube 1. During this displacement, the surface 9a guides the extremity 17 of the object into the space 18 between the inner surface of the tube 1 and the narrower part 8a of the rod 7. In the case of the apparatus of FIG. 1, the periphery of the narrower part 8 having a clearance all around, the displacement is especially facilitated. The cone 9 can then penetrate partially into the truncated cone delimited by the surface 2 and grasp the object. The constricted orifice 19 of the tube limits the action of the instrument to objects to be extracted having a diameter at most equal to that of the orifice. In this case, the practitioner may possess several instruments of different sizes.

Although the invention has been described in respect of a particular form of embodiment, it equally covers the modifications in shape and combination of these different elements as claimed.

I claim:

1. A dental instrument for the extraction of filiform objects from root channels of a patient's tooth comprising, a rigid tube having an open extremity and having a

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restriction adjacent said extremity defining inwardly of the tube a first bearing surface, a rigid rod selectively displaceable axially within said tube and having a tip comprising a second bearing surface complementary to said first bearing surface movable into position relative to said first bearing surface for bearing thereon to coact therewith for gripping therebetween an object entering the open extremity of said tube, and means manually operable on said tube for moving said rod axially for engagement and disengagement of said first bearing surface and said second bearing surface.

2. A dental instrument for the extraction of filiform objects from root channels of a patient's tooth according to claim 1, in which said means manually operable

comprises an axially threaded screw and said tube has threads complementary to threads on said threaded screw.

3. A dental instrument as claimed in claim 1, wherein the first and second bearing surfaces are conical.

4. A dental instrument as claimed in claim 3, in which the open extremity of said tube comprises a frustoconical part which is outwardly flared and extends axially the first bearing surface.

5. A dental instrument as claimed in claim 1, wherein said tip on said rod comprises a face thereof defining the first bearing surface.

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