US 20090236249A1

(19) United States

(12) Patent Application Publication

(10) Pub. No.: US 2009/0236249 A1

(43) Pub. Date: Sep. 24, 2009

Erskine-Smith

(54) **DENTAL WELL AND DENTAL INSTRUMENT HOLDING DEVICE**

(76) Inventor: **Craig Matthew Erskine-Smith**, New South Wales (AU)

Correspondence Address:
SCHIFF HARDIN, LLP
PATENT DEPARTMENT
233 S. Wacker Drive-Suite 6600
CHICAGO, IL 60606-6473 (US)

(21) Appl. No.: **12/439,066**

(22) PCT Filed: **Sep. 29, 2007**

(86) PCT No.: **PCT/AU2007/001450**

§ 371 (c)(1),
(2), (4) Date: **Feb. 26, 2009**

(30) **Foreign Application Priority Data**

Sep. 29, 2006 (AU) 2006905386

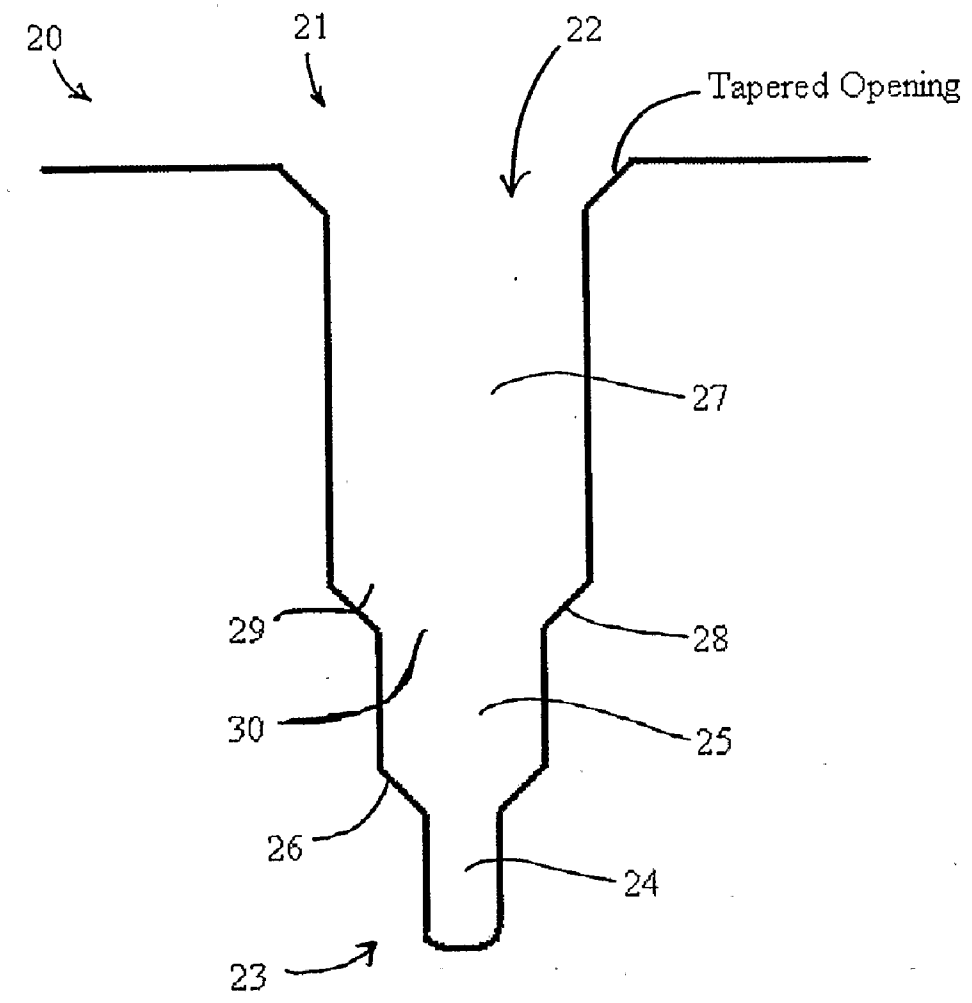
Publication Classification

(51) **Int. Cl.**
B65D 81/00 (2006.01)

(52) **U.S. Cl.** **206/368**

(57) **ABSTRACT**

A dental instrument holding device that Includes one or more spaced apart holding wells in which each well extends between an open end configured for receiving a dental instrument and a closed end. Each well includes a pair of coaxial bores longitudinally spaced apart from each other and a stepped portion disposed intermediate the pair of coaxial bores. An upper of the coaxial bores has a minimum diameter of 2.3 mm to 2.6 mm and a lower of the coaxial bores have a minimum diameter of 1.6 mm to 1.9 mm with the upper and lower coaxial bores each extending a predetermined depth.



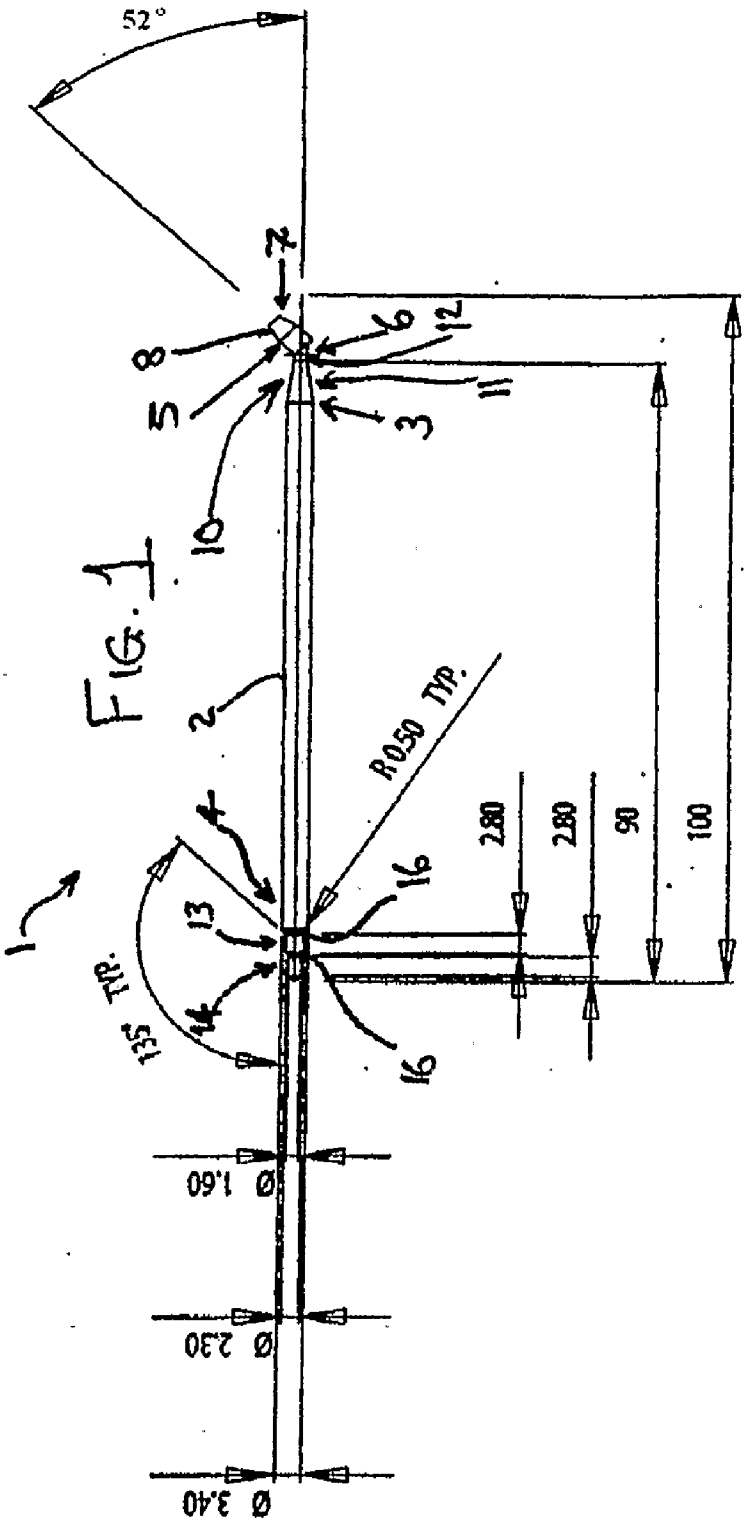

52°
7
8
6
12
5
11
3
10
2
R.050 TYP.
280
280
90
100
4
16
13
1
135° TYP.
16
Ø 1.60
Ø 2.30
Ø 3.40

FIG. 1

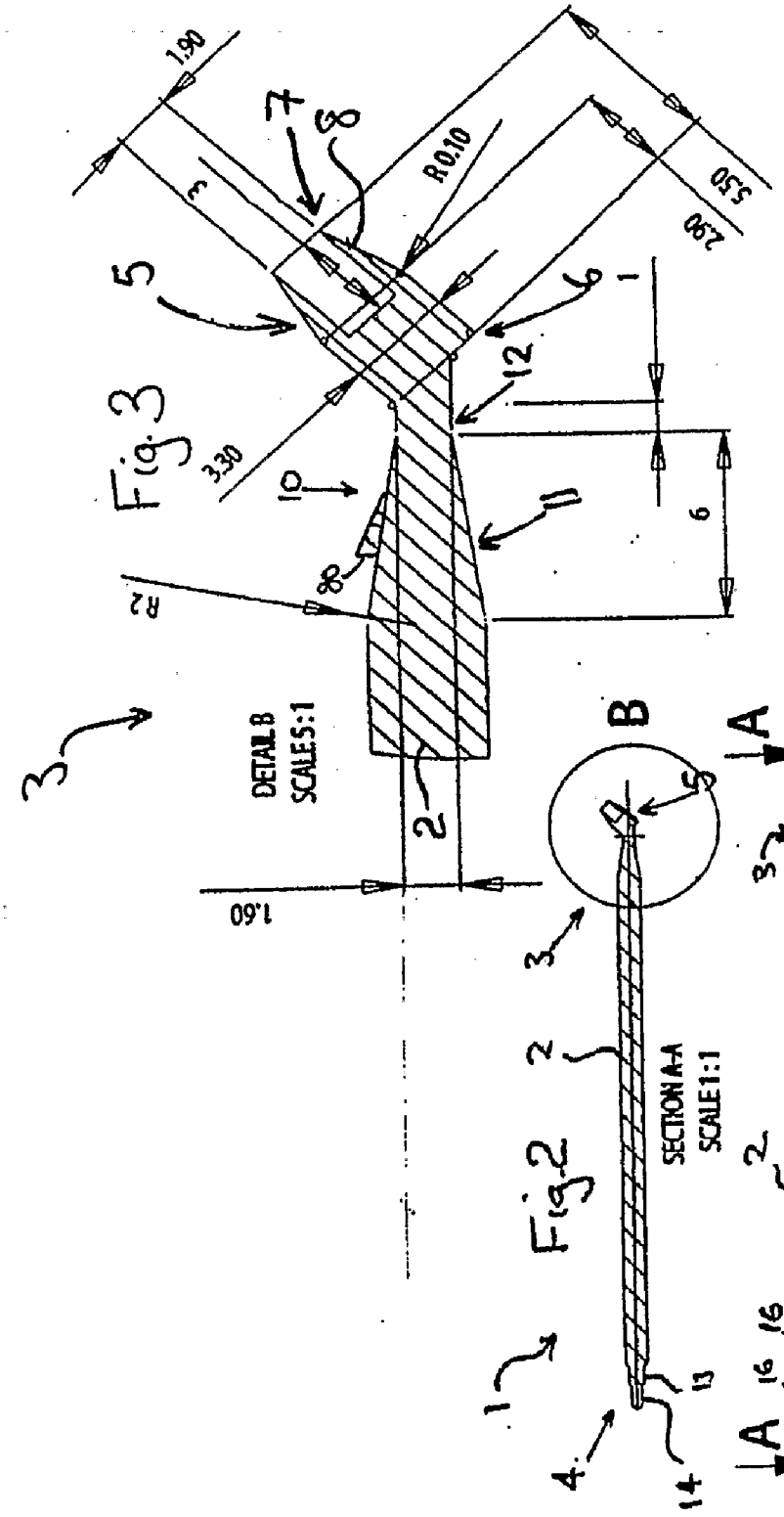


Fig. 3

Fig. 2

Fig. 4

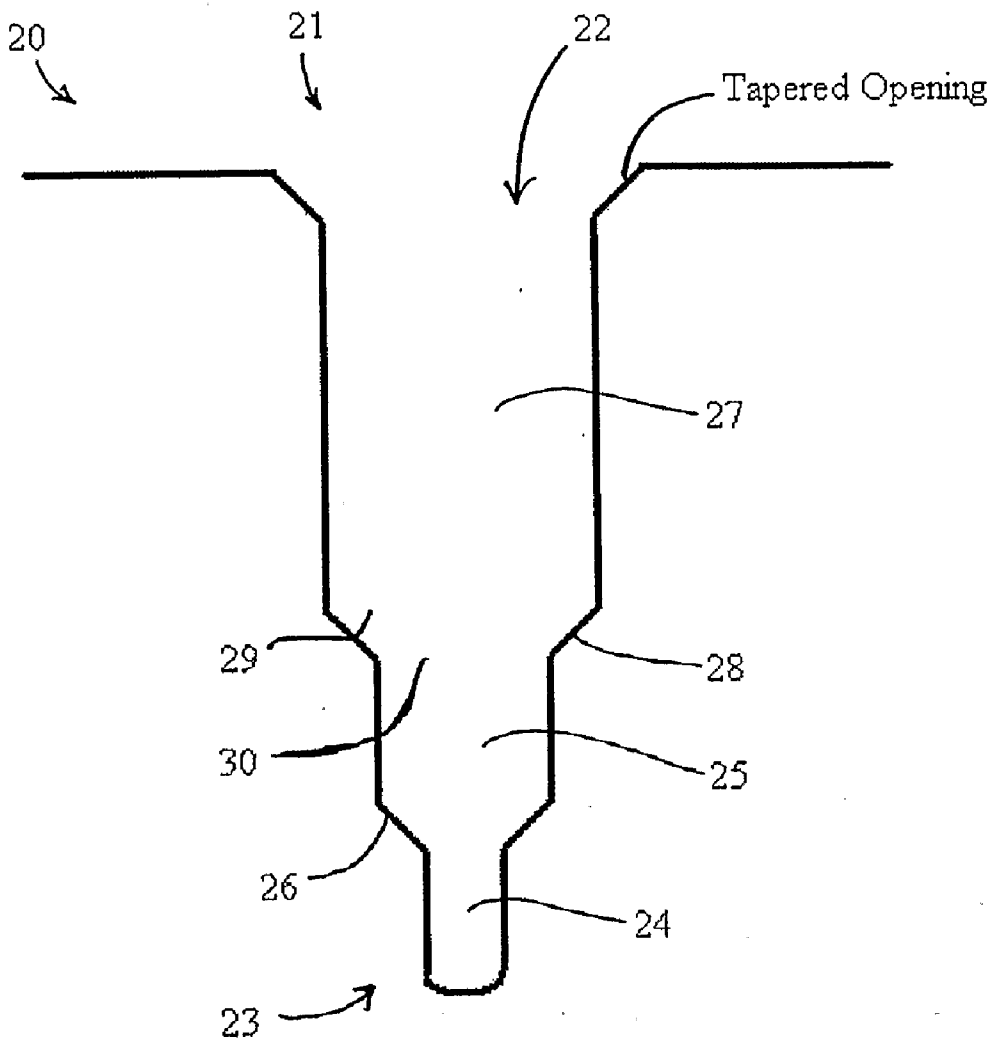


FIG. 5

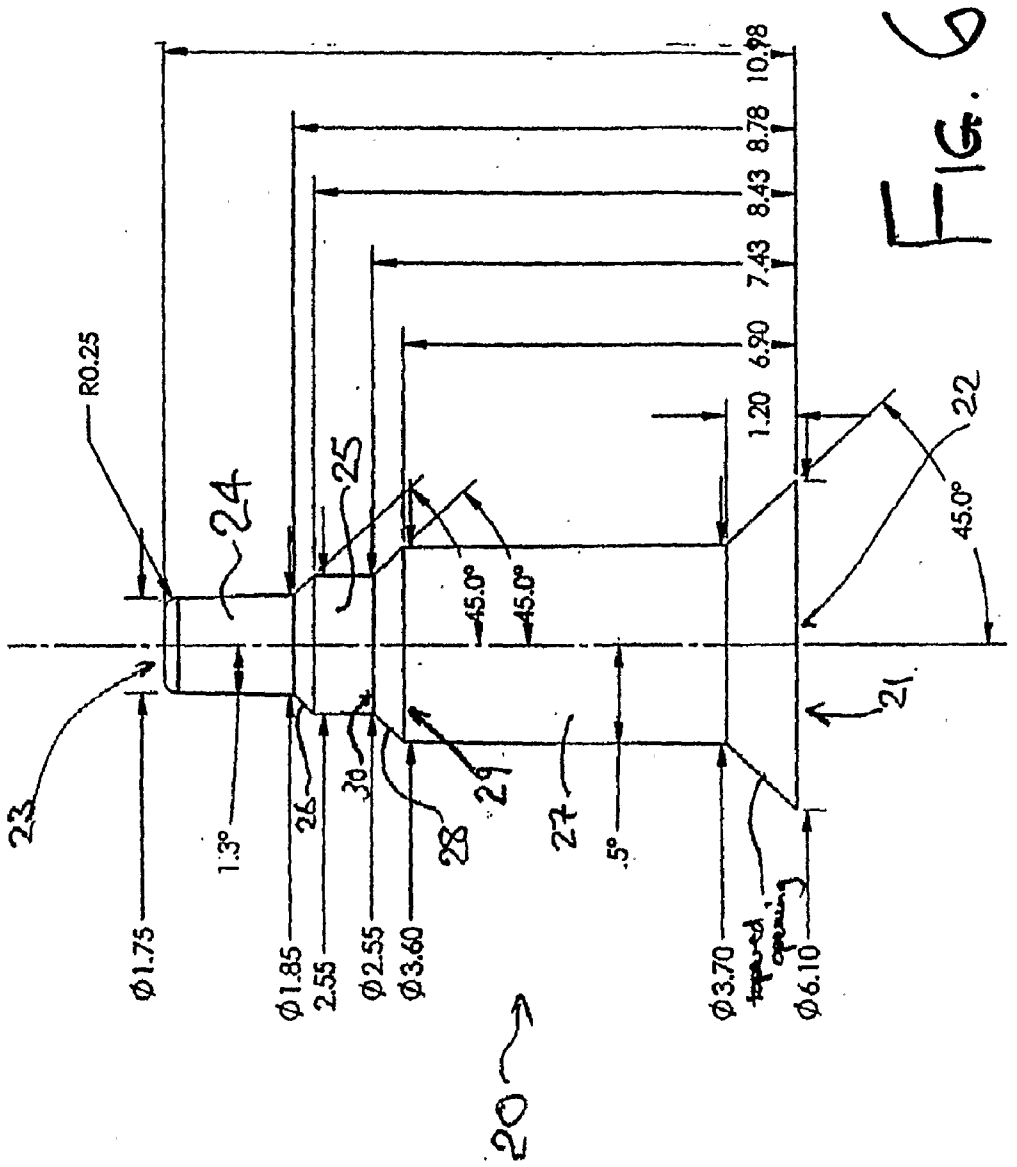

10.98
8.78
8.43
7.43
6.90
1.20
R0.25
24
25
22
45.0°
45.0°
45.0°
23
1.3°
26
30
28
29
27
.5°
21
Φ1.75
Φ1.85
2.55
Φ2.55
Φ3.60
Φ3.70
tapered opening
Φ6.10
20

FIG. 6

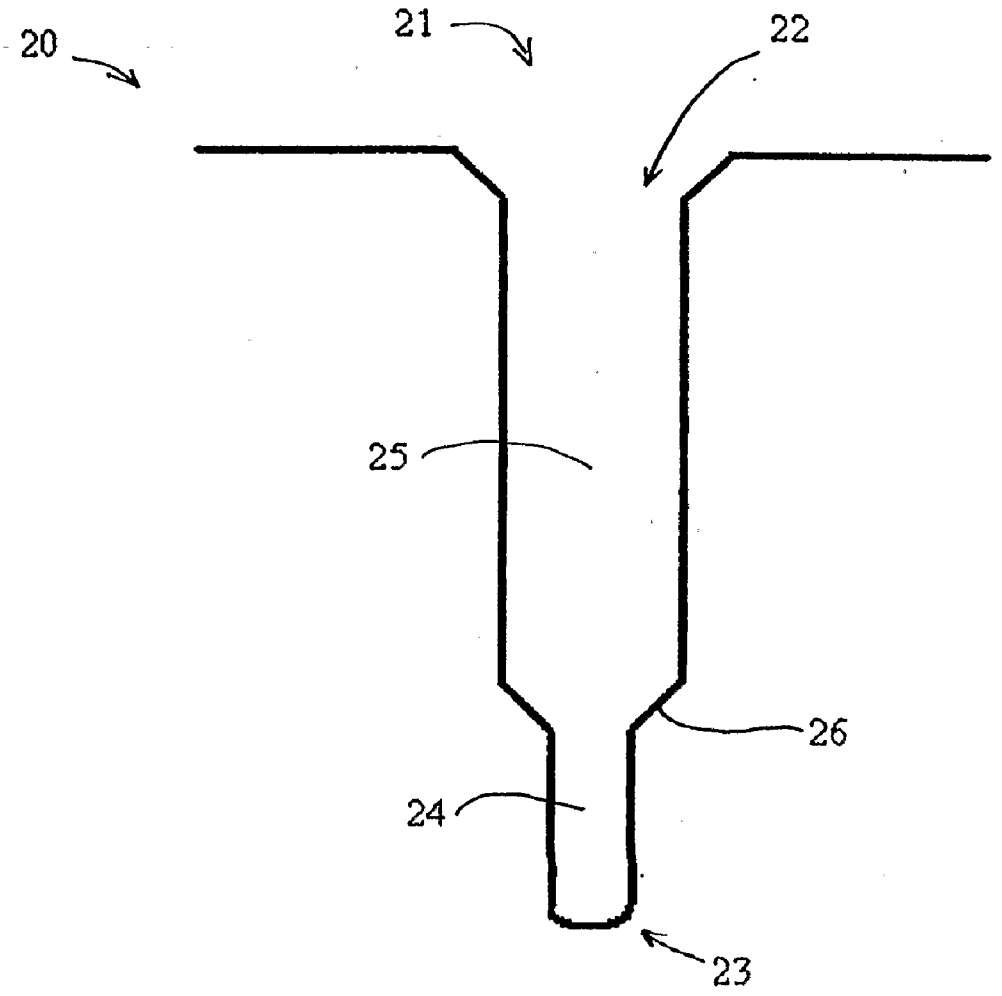


FIG. 7

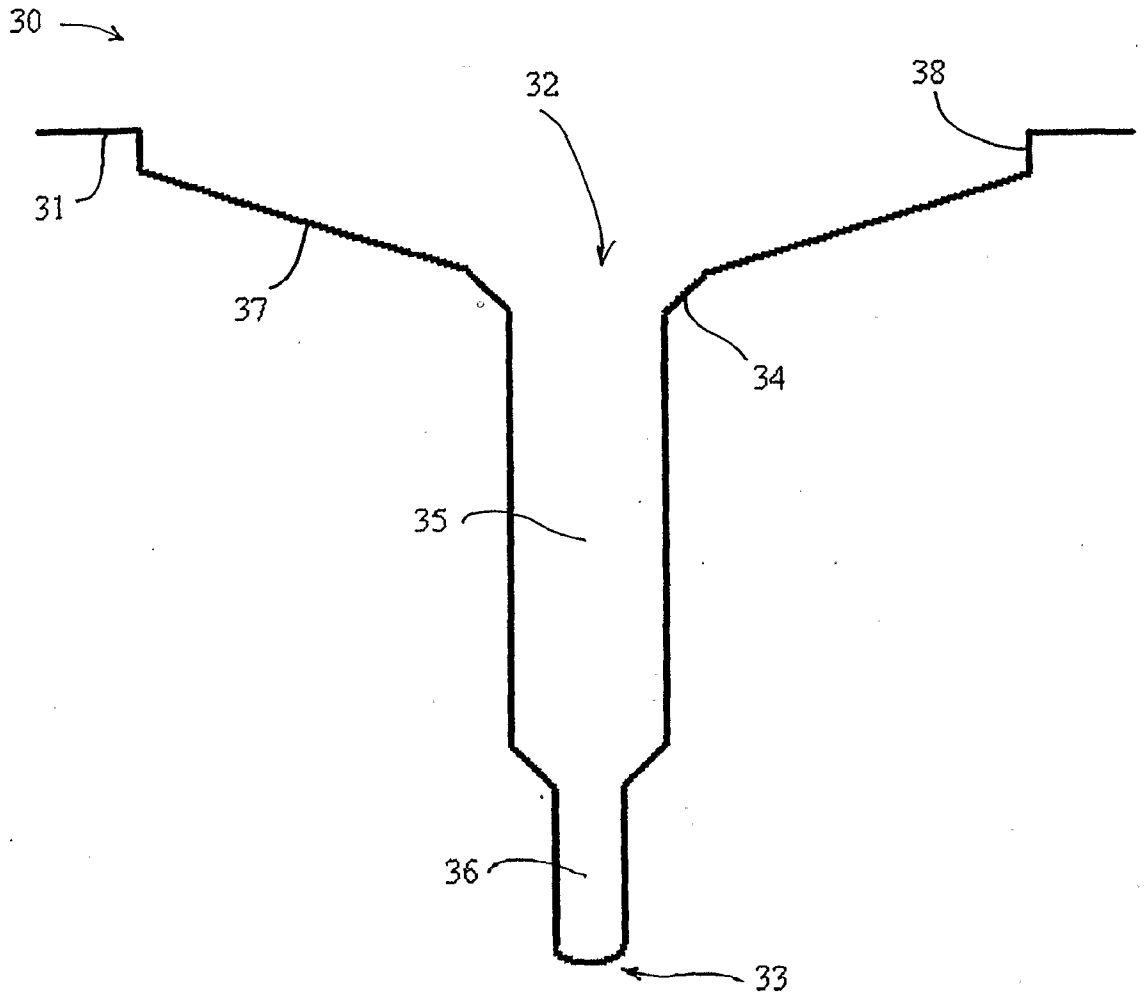


FIG. 8

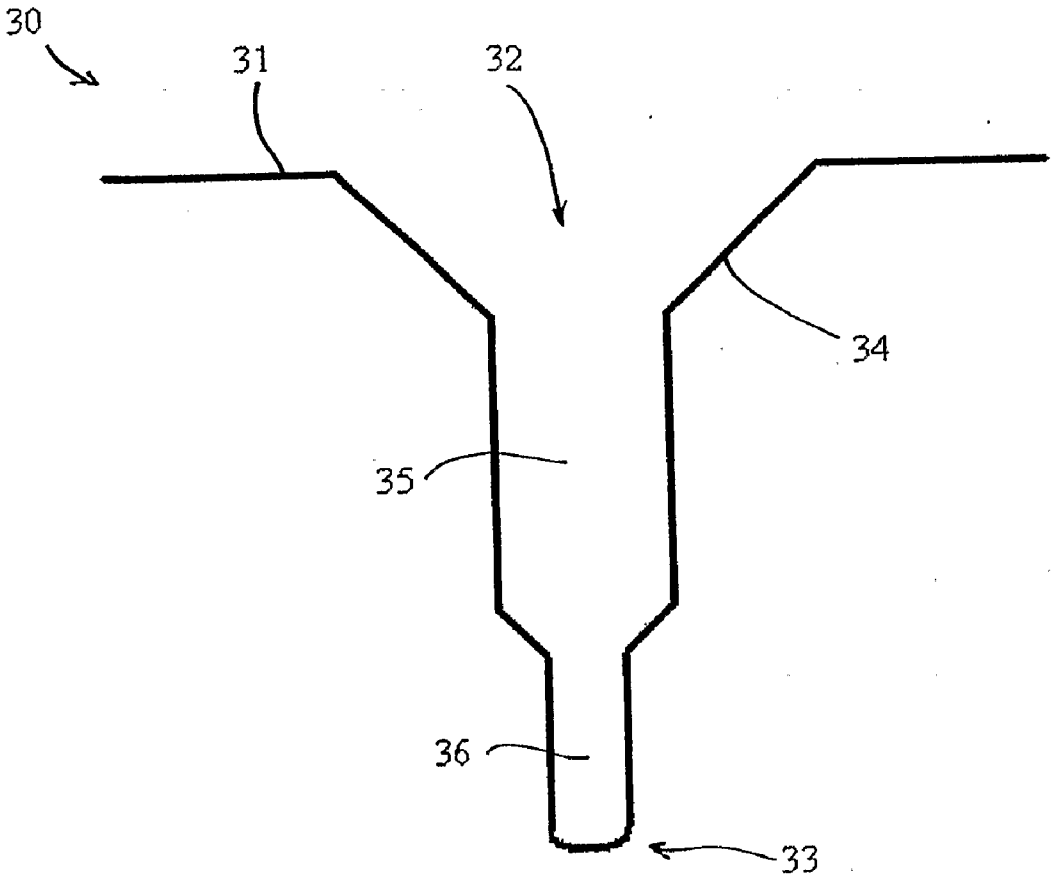


FIG. 9

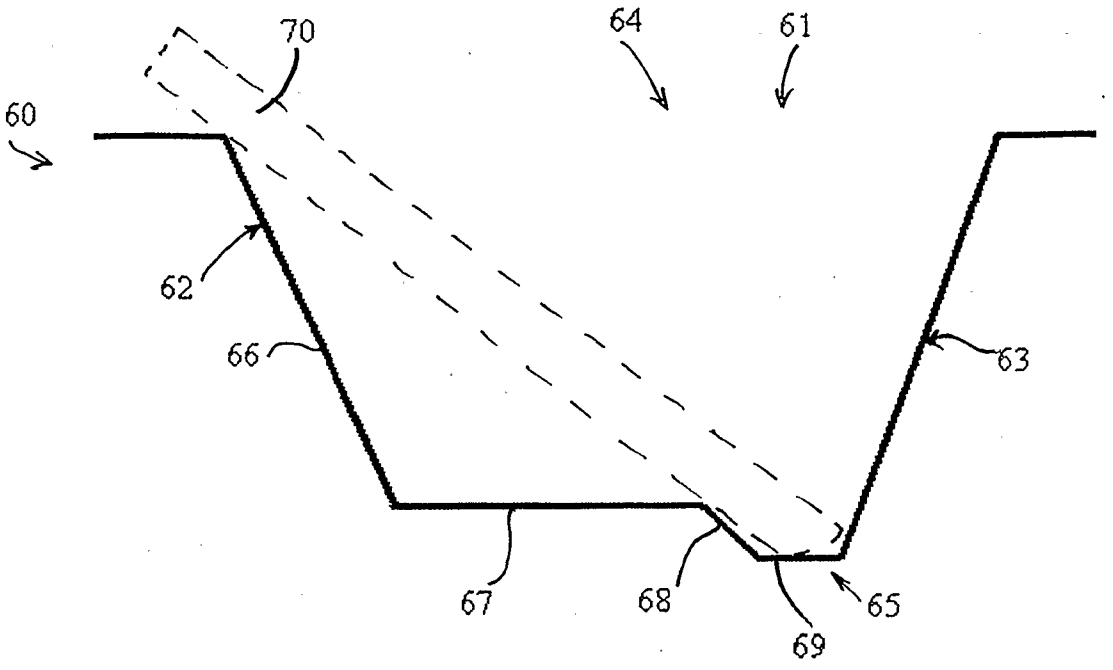


FIG. 10

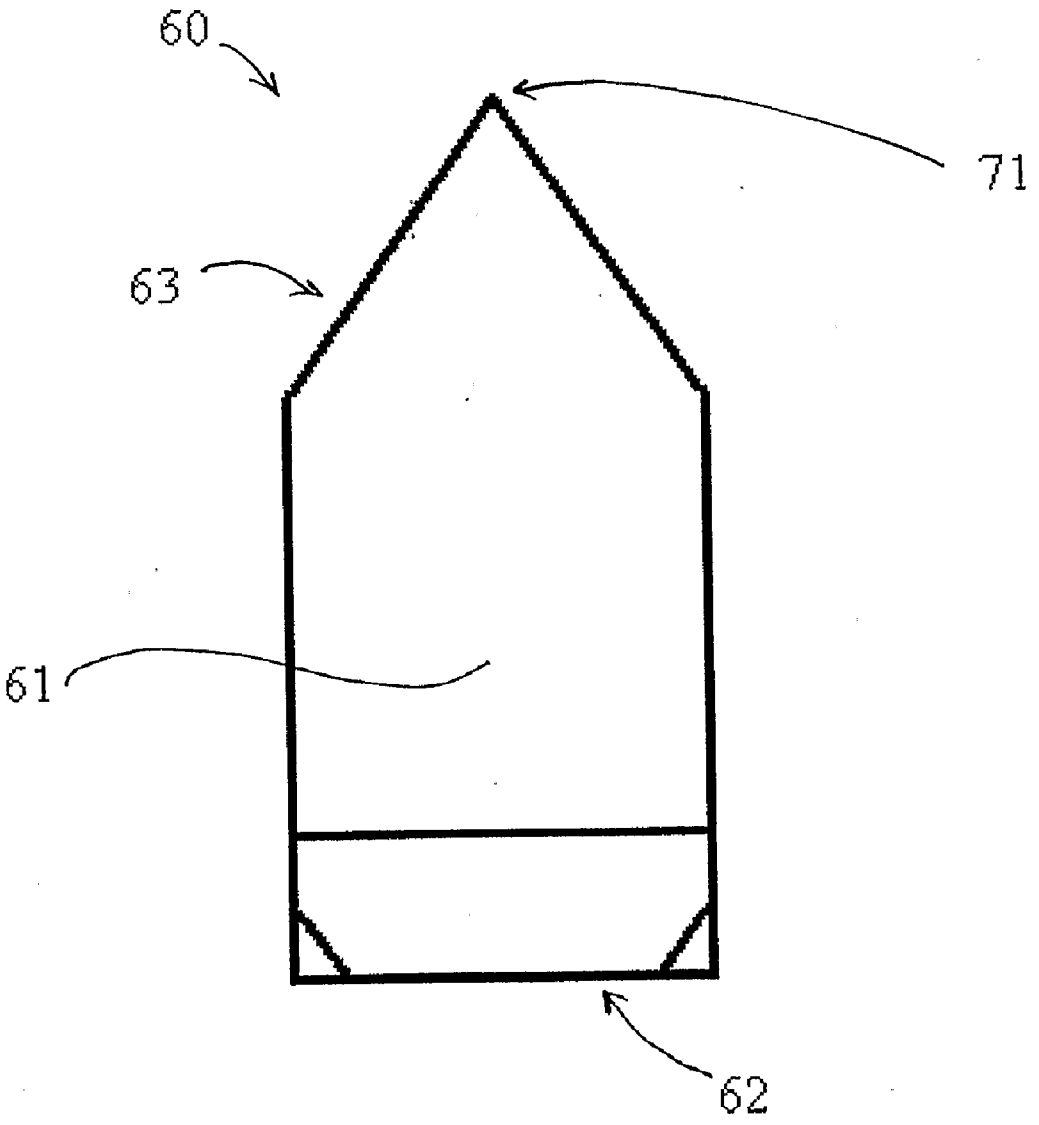


FIG. 11

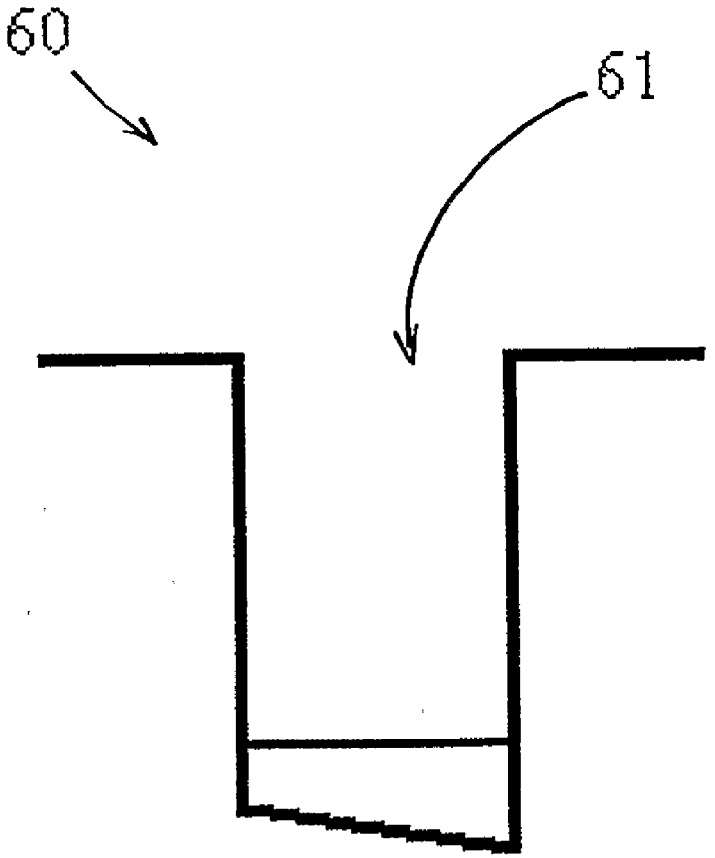


Fig. 12

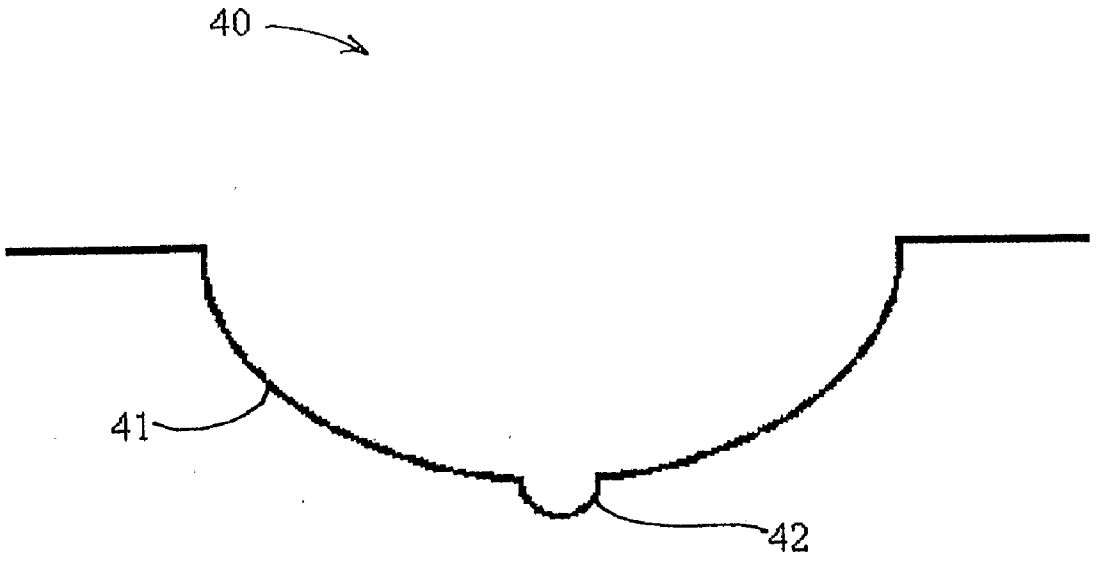


FIG. 13

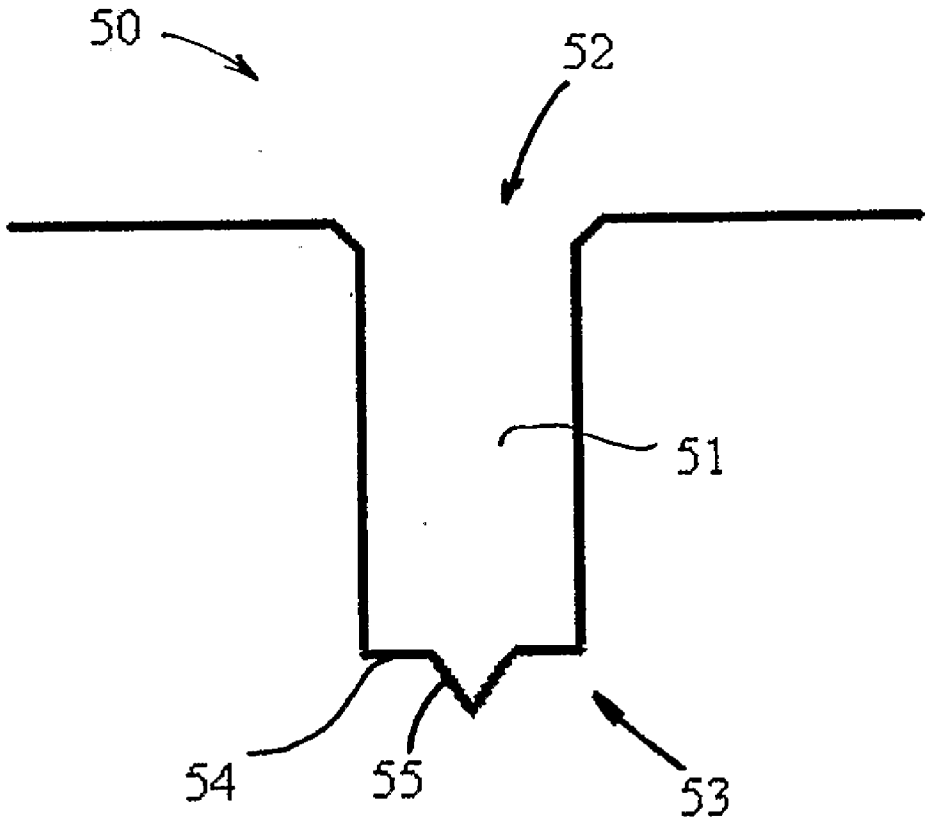


FIG. 14

DENTAL WELL AND DENTAL INSTRUMENT HOLDING DEVICE

FIELD OF THE INVENTION

[0001] The present invention relates to dental apparatus and, in particular, to dental instrument holding devices, dental instruments, and dental wells.

[0002] The invention has been developed primarily with respect to bristled dental brushes or flocked tips and will be described hereinafter with reference to this application. However, it will be appreciated that the invention is not limited to these particular dental instruments.

BACKGROUND ART

[0003] Dental brushes having handles extending between a claspable and a brush head end are well known. Often, the brushes are formed with a neck portion having a reduced diameter to allow the neck of the brush to be bent. This thereby allows an angular orientation of the brush head to be varied relative to the brush handle.

[0004] Unfortunately, once the brushes are bent from a relatively straight position or one in which there is substantially no angle between the brush head and the handle longitudinal axis, the neck of the brush adjacent the brush head and handle junction is weakened by the bending process. This typically results in the bent brush heads not being able to withstand applied transverse forces meaning that the brush head angle varies as pressure is applied by the user. The process of bending the brush heads provides some spring-back so that the final angle achieved can be difficult for the operator to predict, and is always less than the maximum angle which the brush head is bent relative to the handle.

[0005] It is also known to dispose dental implements close to a dental practitioner or technician and the patient. The dental implements are usually laid out on a tray or table having a clean or sterile surface. In these cases, the dental practitioner or technician will manually pick up a dental brush which has been laid on the flat surface. Unfortunately, this has the potential to expose the table or tray or brush, and hence a patient, to undesirable contamination from the contents of the brush head accidentally being transferred to other instruments.

[0006] Typically, it is welt known for dentists to lay most of their instruments out on a sterilised tray or table surface for use on a patient during a procedure. Unfortunately, it is not unknown for the dental instruments such as brushes bearing similar colours with clear liquids on the bristles to be confused with each other if care is not being taken. Furthermore, dental liquids such as bonding substances or acid agents are often disposed in vendor provided containers which are placed on the sterile tray or surface or thereabout for use by the dentist.

[0007] It is also known that conventional dental brushes, such as those manufactured by Microbrush International under the trade name ULTRABRUSH, for example, encounter difficulties on insertion into a hole or cavity because the edge of the cavity catches the horizontal ledge at the point where the bristles enter the brush head. In these cases, it is not unknown for the brush head to preclude access to the bristles of a desired site.

Genesis of the Invention

[0008] The genesis of the present invention is a dental brush which will overcome or substantially ameliorate one or more of the disadvantages of the prior art, or to provide a useful alternative. It is also an object of the present invention to provide a dental instrument holder and dental well which minimises the possibility of contamination and which allows the dental practitioner to organise the instruments in a spatially convenient and hygienic manner, or to provide a useful alternative.

SUMMARY OF THE INVENTION

[0009] According to a first aspect of the invention there is provided a dental instrument holding device including one or more spaced apart holding wells, each well extending between an open end configured for receiving a dental instrument and a closed end, each well including a pair of coaxial bores longitudinally spaced apart from each other and a stepped portion disposed intermediate said pair of coaxial bores, an upper of said coaxial bores having a minimum diameter of 2.3 mm to 2.6 mm and a lower of said coaxial bores having a minimum diameter of 1.6 mm to 1.9 mm wherein said upper and lower coaxial bores each extend a pre-determined depth.

[0010] According to a second aspect of the invention there is provided a dental brush holding device including one or more spaced apart holding wells configured to retain a dental brush head with bristles of said brush head projecting into a holding well, each said holding well extending between an open end and a closed end and including a tapered portion extending a predetermined depth into said well from said open end wherein said taper is disposed at an angle of between 5° to 50° relative to a longitudinal axis of said well, each said well including a brush head bore extending from said tapered portion about said upper end to or adjacent to said closed end wherein said brush head bore has a minimum diameter corresponding to a diameter being larger than the diameter of a dental brush head and a depth configured to retain said brush head inserted therein and provide a partial or total atmospheric and/or light seal between said brush head bore and said brush head

[0011] According to a third aspect of the invention there is provided a dental well holding device including a bulbous portion extending a pre-determined depth between 10 mm to 30 mm and having an upper diameter of between 10 mm and 30 mm, and a nipple disposed in a bottom of said bulbous portion extending a depth of between 1 mm to 9 mm with a diameter of between 2 mm to 9 mm wherein said holding device is configured to cause liquids disposed therein to collect in or about said nipple.

[0012] According to a fourth aspect of the invention there is provided a dental well configured for retaining a dental instrument, said well including a longitudinally extending substantially straight bore extending between a tapered opening and a closed end, said closed end including a ledge disposed thereabout wherein said ledge extends radially inwardly a pre-determined distance, and a nipple disposed a pre-determined depth into said closed end intermediate said ledge.

[0013] According to a fifth aspect of the invention there is provided a dental implement holder including an elongated slot extending a pre-determined length between first and second ends, said slot extending a width greater than the width of a dental implement handle and said slot extending a predetermined slot depth between an open end and a closed end, said slot including a first ramp portion extending across said slot width from said first end of said slot length downwardly a pre-determined depth at an angle of between 5° and 15°

relative to the direction of said slot depth, said first ramped portion terminating in a substantially flat step extending a pre-determined length towards said slot second end, a second ramped portion extending from said first flat step and terminating at said closed end of said slot at said slot length second end wherein said slot is configured to support a dental implement handle.

[0014] According to another aspect of the invention there is provided a dental brush including a manually claspable handle longitudinally extending between a head end and a distal end, a brush head having a longitudinal axis wherein said brush head is mounted to said head end of said handle such that said brush head longitudinal axis is disposed at an angle of between 35° to 80° to said handle longitudinal axis.

[0015] The dental brush of the invention advantageously allows access of the brush head into otherwise inaccessible areas due to the minimisation of the ledge at the point where the bristles enter the brush head. Furthermore, because the brush head is pre-bent at the preferred angle bending is typically not required in a majority of uses resulting in a sturdier and more durable neck portion which will not flex as significantly as the known art that has been bent when a pressure is applied and which also provides a known and reliably selectable brush head orientation angle due to the removal of the brush head spring back when it is bent. Yet further, it will be appreciated that the brush of the invention can be retained in a conventional low or high speed burr holder.

[0016] It can also be seen that there is advantageously provided a dental brush head holder and dental brush head well which are configured to retain the dental brush head in a head down configuration where the brush head forms a partial or substantially total atmospheric and/or light seal. In this way, evaporative dental liquids or other materials do not evaporate or become exposed to contaminants, the brush bristles are not exposed to the atmosphere and allowed to dry out or be contaminated and a practical storage device is provided in which the dental fluid can be stored together with the implement brush that is to apply it as a single unit thus reducing the need to pick up a brush and manually dip it into the liquids or materials applied thereby saving time and motion. Likewise when using light sensitive materials, the light tight or substantial light tight seal prevents curing or activation of the material whilst waiting to be used.

[0017] It can also be seen that the dental instrument holder having two or three coaxial bores advantageously allows a dental implement having any one of the three diameters to be received and retained thereby. This advantageously allows burs or other dental implements to be more easily accessed by the dental practitioner and allows the hole to be used at the operators discretion for high or low speed burs or conventional brush or instrument handles.

[0018] It will also be further appreciated that the angled dental implement handle holder advantageously allows a dental brush or cotton tip or elongate dental implement handle to be retained substantially vertically in a self-centred position. The extreme end of the dental implement handle distal a working end is retained in a bottom corner of the angled dental implement holder and an upper diagonal corner of the holder provides a second support point for the implement handle to allow it to be supported thereby. The angle of the implement handle when in the holder depends principally on the height of the first ramped portion and the length of the first flat step. If the step length is short, the brush will project more upwardly than outwardly (ie more upwardly or vertical) and the converse can be said to be true. The angled ends cause the instrument to automatically align in the centre of each end thus causing the instrument to stay in line and square to the edges of the product.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] Preferred embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings in which:

[0020] FIG. **1** is a side view of a dental brush according to a first aspect of the invention;

[0021] FIG. **2** is a cutaway side view of the brush of FIG. **1**;

[0022] FIG. **3** is an enlarged cutaway side view of the head portion of the brush of FIG. **2**;

[0023] FIG. **4** is a rear view of the brush of FIG. **1**;

[0024] FIG. **5** is a cross-sectional side view of a dental instrument holder according to a second preferred embodiment of the invention;

[0025] FIG. **6** is a cross-sectional side view of the holder of FIG. **5** with preferred dimensions;

[0026] FIG. **7** is a cross-sectional view of a dental implement holder according to another preferred embodiment;

[0027] FIG. **8** is a cross-sectional side view of a dental brush head holding device according to another preferred embodiment;

[0028] FIG. **9** is a cross-sectional side view of a dental brush head holding device according to another preferred embodiment;

[0029] FIG. **10** is a cross-sectional side view of a dental instrument holder according to another preferred embodiment of the invention;

[0030] FIG. **11** is a plan view of the holder of FIG. **10**;

[0031] FIG. **12** is an end elevation of the holder of FIG. **10**;

[0032] FIG. **13** is a cross-sectional side view of a dental well holding device according to another preferred embodiment; and

[0033] FIG. **14** is a cross-sectional side view of a dental well according to yet another preferred embodiment.

DETAILED DESCRIPTION

[0034] Referring to the drawings generally, it is noted that like reference numerals are used throughout to denote like components.

[0035] Turning firstly to FIGS. **1** to **4**, there is shown a dental brush **1** including a manually claspable handle **2** extending longitudinally between a head end **3** and a distal end **4**. The brush **1** includes a brush head **5** having a longitudinal axis wherein brush head **5** is mounted to the head end **3** of the handle **2** such that the longitudinal axis of the brush head **5** is disposed at an angle of 52° to the handle longitudinal axis.

[0036] It will be appreciated that the angle between the longitudinal axis and the brush head **5** and the longitudinal axis of the handle **2** can be in the range of 35° to 85° by manually bending the brush head relative to the handle. Further, the handle **2** and the brush head **5** are integrally formed from a plastics material using a moulding process.

[0037] The angle between the brush head longitudinal axis and the longitudinal axis of the handle **2** is selectively variable about a brush neck portion **6** to allow for manual bending. The neck portion **6** is disposed intermediate to brush head **5** and said handle head end **3**. The angle of longitudinal axis of the

brush head **5** is moveable within a range of angles of between 0° to 110° relative to the longitudinal axis of the handle **2**.

[0038] The brush head **5** extends longitudinally between a brush head mounting end **6** and a bristle end **7**. The bristle end **7** includes a conically tapered knife edge portion **8**. The knife edge portion **8** extends a pre-determined distance from the bristle end **7** toward the head mounting end **6**.

[0039] The conically tapered knife edged portion **8** is an angled taper of 15° relative to the longitudinal axis of the brush head **5**. It will be appreciated that the conically tapered knife edge portion **8** can have a taper angle in the range of 5° to 70°.

[0040] As shown in the drawings, the brush head **5** is right cylindrically shaped. It can be seen that where the brush head mounting end **6** mounts to the brush neck portion **10** the angles between the longitudinal axis of the brush head **5** and the neck portion **6** are offset such that the intersection of the longitudinal axis of the handle **2** and the longitudinal axis of the brush head **5** are offset transversely to the longitudinal axis of the handle **2**.

[0041] As best shown in FIG. **3**, the diameter of the brush head **5** is greater than the diameter of the head end **3** of the handle **2**. An edge of the brush head **5** is substantially longitudinally aligned with an edge of the head end **3** of the handle **2**. That is, an edge of the neck **10** aligns with an edge of the brush head **5**.

[0042] Also as best shown in FIG. **3**, the neck portion **10** is tapered from the head end **3** of the handle **2** toward the brush head **5** along a pre-determined neck taper distance **11**. Beyond the neck taper distance, the neck is un-tapered a further pre-determined distance that is less than the neck taper distance. In this way, the brush head advantageously provides a resilient mounting against applied pressure when in use.

[0043] In the embodiments shown, the brush head **5** extends a longitudinal distance of 5.5 mm and the brush head **5** diameter is 3.3 mm. It can be seen that the un-tapered neck length is about 1 mm and the tapered neck length is approximately 6 mm. Shown in FIG. **3** is a stand member **80** extending radially outwardly a pre-determined distance from the neck **10**. The stand **80** radially extends a distance such that the diameter of the neck **10** at the stand **80** is increased. In this way, if the brush head **5** is inserted into a holder element, the stand **80** engages with a lip of a holder or holding well (not illustrated) to prevent the brush from falling over when in the holder or holding well.

[0044] As best shown in FIGS. **1**, **2** and **4**, the dental brush handle **2** includes a first stepped length **13** wherein said handle **2** diameter is stepped down so as to have a diameter of 2.3 mm. A second step length **14** extends a further distance from said distal end of said handle where the second step length has a diameter of 1.6 mm. As shown in FIG. **1**, the diameter of the handle **2** is 3.4 mm and the diameter of a handle is preferably generally between 1.6 mm to 4.8 mm. It will be appreciated that the diameter of the first step portion can be between 2.1 mm to 2.5 mm, the second step portion having a diameter of between 1.4 mm and 1.7 mm and the diameter of the handle **2** can be between 3.1 mm and 3.8 mm.

[0045] Although no bristles or the like are shown extending from the brush head **5**, it will be appreciated that bristles or a flocked tip can be provided to extend therefrom. Furthermore, it will be appreciated that a rigid or flexible stem can be mounted to the brush head **5** and extend therefrom a predetermined distance where an end of the stem distal the brush head **5** is configured to support bristles extending therefrom or a flocked tip.

[0046] As shown in FIGS. **1**, **2** and **4**, the dental brush handle **2** includes transition shoulders **16** disposed intermediate the handle and first stepped diameter, and the first stepped diameter to the second stepped diameter. The transition shoulders most preferably are conical tapers having an angle of 45° to the longitudinal axis of the handle. However, it will be appreciated the transition shoulders can be inclined by between 5° to 50°.

[0047] Referring now to FIGS. **5** and **6**, there is shown a cross-sectional side view of a dental instrument holding device according to another preferred embodiment of the invention. The dental instrument holding device **20** includes a pair of spaced apart holding wells **21**, each holding **21** extending between an open end **22** configured for receiving a dental instrument and a closed end **23**.

[0048] Each well **21** further includes a pair of coaxial bores **24** and **25** longitudinally spaced apart from each other. Intermediate the coaxial bores **24** and **25**, there is disposed a stepped portion **26** in the form of a conical taper being angled at about 45° to the longitudinal axis of the co-axial bores **24** and **25**. The stepped portions allow an implement to be centred when inserted into a holding well **21** and that the taper angle is preferably within the range of 5° to 60°. Furthermore, use of an angled taper in this range advantageously prevent brush bristles curling back towards the handle upon insertion.

[0049] An upper of the coaxial bore **25** has a minimum diameter of between 2.3 to 2.6 mm, and a lower of said coaxial bores **24** has a minimum diameter of between 1.6 mm to 1.9 mm. The dimensions shown in FIG. **6** illustrate a particularly preferred embodiment of the invention.

[0050] The holding device **20** further includes a topmost coaxial bore **27** longitudinally spaced apart from the upper coaxial bore **25** and disposed intermediate the holding well open end **22** and the upper coaxial bore **25**. The topmost coaxial bore **27** has a minimum diameter of between 2.5 mm to 4.8 mm, 3.7 mm being shown in the embodiment of FIG. **6**. The holding wells **21** further include a stepped portion **28** disposed intermediate a lower end **29** of the topmost coaxial bore **27** and an upper end of the upper coaxial bore **25**.

[0051] Although the coaxial bores shown in FIGS. **5** to **7** are straight, it will be appreciated that they can be tapered. The closed end **23** of each holding well **21** is flat however, it will be appreciated that the closed end **23** can be conically shaped, hemispherical, V-shaped or any other preferred configuration.

[0052] In the embodiment shown in FIG. **4**, it can be seen that the topmost coaxial bore **27** extends a length of 5.7 mm, the upper coaxial **25** extends a length of 1 mm, and the lower coaxial bore **24** extends a depth of 2.2 mm. It will be appreciated that any preferred depths can be used to retain a preferred dental implement

[0053] As best shown in FIG. **6**, the open end **22** of each well **21** includes a conically tapered portion extended at an angle of 45° to the coaxial bores. The embodiment of FIG. **6** illustrates the dimensions of a particularly preferred embodiment.

[0054] It can therefore be seen that the lower coaxial bore is configured to retain a dental implement that includes a high speed dental burr shaft, the upper coaxial bore **25** is configured to retain a dental implement that includes a low speed contra-angle or straight handpiece burr shaft, and the topmost coaxial bore is configured to retain a dental brush handle **2** or

cotton tip or cotton tip handle (not illustrated). Furthermore, it will be appreciated that the depth of each coaxial bore can be configured to retain a plurality of dental instruments a pre-determined height above the open end **22** of each well **21**.

[0055] Turning to FIG. **7**, it can be seen that this is the same as the holding device of FIG. **5**, except that the topmost coaxial bore **27** is not included. In this embodiment, the upper bore **25** can be configured to receive a dental brush or cotton tip handle and a low or high speed burr shaft, or to receive a low and high speed burr shaft only.

[0056] Turning now to FIGS. **8** and **9**, there is shown two preferred embodiments of a dental holder having two or more dental brush holding devices **30**. Referring firstly to the embodiment of FIG. **8**, the holding device **30** includes one or more spaced apart holding wells **31** configured to contain a dental brush head such that the bristles or tip of the brush head project into the well **31**, or if the operator/practitioner prefers, the handle can be inserted into the well. Each well **31** extends between an open end **32** and a closed end **33**. The holding well open end **32** includes a tapered portion **34** extending a pre-determined depth into the well **31**. The tapered portion **34** is tapered at an angle of 60° relative to an axis transverse the longitudinal axis, however, it will be appreciated that the taper can be angled anywhere between 5° to 50° relative to a longitudinal axis of the well **31**.

[0057] Each well **31** includes a brush head bore **35** extending firm the tapered portion **34** to or adjacent to the closed end **32**. In this embodiment, the brush head bore **35** is configured to have a minimum diameter corresponding to a diameter that is larger than the diameter of a dental brush head (not illustrated). Furthermore, the brush head bore **35** is configured to have a length so as to retain the brush head therein. It will be appreciated that the brush head bore **35** engages with the brush head (not illustrated) so as to form a partial or substantially atmospheric and light seal between the brush head bore **35** and the brush head (not illustrated).

[0058] The closed end **33** of the wells **31** includes a reservoir **36** that is configured for receiving material applied to the bristles of a dental brush head and inserted therein, or contends to be applied to the brush upon insertion into the well **31**. The reservoir **36** shown in FIGS. **8** and **9** is substantially hemispherical, however, it can alternatively be flat, conical or V-shaped. Furthermore, the reservoir can include a reservoir bore extending coaxially with the brush head bore **35**.

[0059] The holding device **30** further includes a drain board **37** disposed about the tapered open end **32** of each well **31**. The drain board **37** preferably has a diameter not less than the diameter of the tapered open end **32**. In the embodiment shown in the drawings, the drain board **37** has a diameter that is at least 2 mm greater than the diameter of the tapered open end **32**. The drain board **37** is inclined at an angle relative to an axis perpendicular to a longitudinal axis of the brush head bore **35** by an angle of between 5° to 50°.

[0060] A drain board lip **38** is disposed around a circumference of the drain board **37**. The drain board lip **38** extends upwardly a distance of 0.5 mm to 3 mm and is substantially parallel to the longitudinal axis of the brush head bore **35**.

[0061] It can be shown that the preferred embodiment of FIG. **9** is similar to the embodiment of FIG. **8** except that the drain board **37** and lip **38** are not included.

[0062] Referring now to FIG. **13** there is shown a dental well holding device **40** including a bulbous portion **41** extending a pre-determined depth of between 10 mm to 30 mm. The bulbous portion **41** has an upper diameter of between 10 mm and 30 mm.

[0063] The dental well holding device **40** includes a nipple **42** disposed in a bottom of the bulbous portion **41**. The nipple extends a depth of between 1 mm to 9 mm and it has a diameter of between 2 mm to 9 mm. In this way, a preferred liquid depth can be facilitated to provide for relatively easier wetting of the brush with a liquid.

[0064] It will be appreciated that the holding device **40** is configured to cause liquids disposed therein to collect in or about the nipple **42**. The nipple is most preferably configured to have a holding capacity of between 1 ml to 5 ml. Further, the holding device **40** is configured to receive crowns, in-lays, teeth, or other like-sized dental objects. It will be appreciated that a brush holder disposed adjacent a holding device **40** allows the operator/practitioner to identify a brush and holder as associated with each other. This prevents any confusion as to the contents of which well are required and by using which brush. In this way, a plurality of brushes can be used with different materials that are respectively disposed in wells or holders adjacent brush holders so as so associate each brush and well/holder.

[0065] Turning to FIG. **14**, there is shown a dental well **50** configured for containing a dental instrument (not illustrated). The dental well **50** includes a longitudinally extending substantially straight bore **51**. The bore **51** extends between a tapered opening **52** and a closed end **53**. Closed end **53** includes a ledge **54** disposed thereabout and the ledge extends inwardly a pre-determined distance.

[0066] A nipple **55** is disposed a pre-determined depth into the closed end **53** intermediate the ledge **54**. It can be seen in FIG. **14** that the drainage nipple **55** is V-shaped, however, it will be appreciated that it could be conical or hemispherical.

[0067] The dental well **50** is configured to receive dental instruments including local anaesthetic needle caps, bonding resin packaging or part thereof and the nipple allows any fluids to drain to the bottom.

[0068] The tapered opening **52** is tapered by an angle of 45° relative to the longitudinal axis of the straight bore **51**. The nipple **54** has a diameter of between 5.2 mm to 1 mm and, in the case (not illustrated) where the nipple is substantially hemispherical, a nipple radius of curvature equal to or less than 0.6 mm is provided.

[0069] It can therefore be seen that the ledge **54** acts as a stop on a local anaesthetic cap, for example, and the nipple can be used to drain bonding resins, or other dental fluids.

[0070] Turning now to FIGS. **10** to **12**, there is shown another preferred embodiment of a dental implement holder **60**. The holder **60** includes an elongated slot **61** extending a pre-determined length between first and second ends **62** and **63**. The slot **61** extends a width greater than the width of a dental implement to be received and the slot extends a pre-determined slot depth between an open end **64** and a closed end **65**.

[0071] The slot **61** includes a first ramped portion **62** extending across the slot **61** from the first end **62** of the slot length downwardly a pre-determined depth at an angle of between 5° and 15° relative to the slot depth. The first ramped portion **66** terminates at a substantially flat step **67** extending a pre-determined length toward the slot second end **63**.

[0072] A second ramped portion **68** extends from the first flat step **67** and terminates at a second flat step **69** at the closed end **65**. The second flat step **69** extends to the slot length

second end **63**. The slot **61** is configured to support a dental implement handle **70** shown dotted in FIG. **10**. The dental implement handle **70** can be a dental brush handle, cotton tip handle or the like.

[0073] It can be seen from the views of FIGS. **10** to **12** that the first end **63** of the slot **61** includes a V-portion **71**. The V-portion extends across the slot width and is configured such that the tip of the V-portion is disposed approximately half way along the slot width. It will be appreciated that the V-portion **71** locates the handle there towards when in use and maintains the implement in a substantially square alignment.

[0074] It will be appreciated that the brush head can include a bore for receiving bristles therein, or can include a formwork on which to provide a flocked tip. So far as a flocked tip extends from the brush head, the knife edge portion of the brush head does not need to be employed. Furthermore, it will be appreciated that the brush head can be integral with the handle and is configured to simply retain bristles or a flocked tip.

[0075] It will be appreciated that the dental instrument holding device and dental wells can advantageously be nested with adjacent devices or wells due to the tapered nature of the holding devices. As such, the nestability of the devices or wells permits stacking so that shipping costs are minimised.

[0076] The foregoing describes only preferred embodiment(s) of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope of the present invention.

1-46. (canceled)

47. A dental applicator including a manually claspable handle longitudinally extending between a head end and a distal end, said dental applicator comprising an element selected from the group consisting of:

(i) an applicator head having a longitudinal axis extending between a handle mounting end and an application end wherein said applicator head is mounted to said head end of said handle such that said applicator head longitudinal axis is disposed at an angle of between 35° to 85° to said handle longitudinal axis;

(ii) said handle distal end including a first stepped down diameter portion extending from said distal end a predetermined distance, said handle adjacent said first stepped down portion having a diameter of between 3 mm to 4.8 mm and said first stepped down diameter portion having a diameter of 2.3 mm to 2.6 mm and wherein said handle and said first stepped down portion include substantially parallel sidewalls; and

(iii) a stand member extending radially outwardly from or adjacent said handle head end, said stand configured for engagement with a raised lip extending about the circumference of a dental well.

48. A dental applicator according to claim **47** wherein when selected from group (i) said applicator head is mounted to said handle head end such that said applicator head longitudinal axis is disposed at an angle of between 35° to less than 60° to said handle longitudinal axis.

49. A dental applicator according to claim **48** wherein when selected from group (i) said applicator head longitudinal axis is disposed at an angle relative to said handle longitudinal axis of 52.

50. A dental applicator according to claim **47** wherein when selected from group (i) said application end of said applicator head includes an applicator longitudinally outwardly extending from said application end of said applicator head.

51. A dental applicator according to claim **50** wherein when selected from group (i) said applicator head includes brush bristles, a flocked tip or a pick longitudinally outwardly extending from said applicator head.

52. A dental applicator according to claim **47** wherein when selected from group (i) said applicator head longitudinal axis relative to said handle longitudinal axis is selectively variable about an applicator neck portion disposed intermediate said applicator head and said handle head end such that said applicator head longitudinal axis is bendable within a range of angles 0 to 110 relative to said handle longitudinal axis.

53. A dental applicator according to claim **52** wherein when selected from group (i) said neck portion is tapered from said handle head end toward said applicator head a predetermined neck tapered distance and is untapered a further predetermined distance being less than said predetermined neck taper distance.

54. A dental applicator according to claim **52** wherein when selected from group (i) said neck portion is tapered from said head end of said handle toward said brush head a predetermined neck taper distance and is untapered a further predetermined distance being less than said predetermined neck taper distance.

55. A dental applicator according to claim **47** wherein when selected from group (i) said application end of said applicator head includes a conically tapered knife edge portion extending a predetermined distance from said application end toward said handle mounting end such that said knife edge angle is a taper in the range of 5 to 70 relative to said longitudinal axis of said applicator head wherein said application end thereof has a radius of less than 0.25 mm or has a thickness of 0.5 mm or less.

56. A dental applicator according to claim **47** wherein when selected from group (i) said applicator head is substantially right cylindrically shaped, and said handle mounting end thereof is mounted to said head end of said handle such that the intersection of said handle longitudinal axis and said applicator head longitudinal axis are offset transversely to said handle longitudinal axis.

57. A dental applicator according to claim **47** wherein when selected from group (i) said applicator head longitudinally extends a distance of 6 mm or less.

58. A dental applicator according to claim **47** when selected from group (ii) includes a second stepped down portion extending from a distal end of said first stepped down portion away from said handle head end a predetermined distance, said second stepped down diameter portion having a diameter of 1.6 mm to 1.9 mm.

59. A dental applicator according to claim **58** when selected from group (ii) includes a tapered portion disposed intermediate said first stepped portion and said handle, and intermediate said first and second stepped portions, said taper in the range of 5° to 6° relative to a longitudinal axis of said handle.

60. A dental applicator according to claim **59** wherein when selected from group (ii) said first and second stepped portions extend a distance of between 2 mm to 15 mm.

61. A dental applicator according to claim **47** wherein when selected from group (iii) said stand member is disposed on a neck at said head end of said handle.

62. A dental well and holding device including one or more spaced apart holding wells, said dental well and holding device comprising an element selected from the group consisting of:

(i) each well extending between an open end configured for receiving a dental instrument and a closed end, each well including a pair of coaxial bores longitudinally spaced apart from each other and a stepped portion disposed intermediate said pair of coaxial bores, an upper of said coaxial bores having a minimum diameter of 2.3 mm to 2.6 mm and a lower of said coaxial bores having a minimum diameter of 1.6 mm to 1.9 mm wherein said upper and lower coaxial bores each extend a predetermined depth and each include substantially parallel sidewalls;

(ii) each well configured to retain a dental applicator head with an applicator portion thereof projecting into each holding well, each said holding well extending between an open end and a closed end and including a tapered portion extending a predetermined depth into said well from said open end wherein said taper is disposed at an angle of between 5° to 50° relative to a longitudinal axis of said well, each said well including a brush head bore extending from said tapered portion about said upper end to or adjacent to said closed end wherein said brush head bore has a minimum diameter corresponding to a diameter being larger than the diameter of a dental brush head and a depth configured to retain said brush head inserted therein and provide a partial or total atmospheric and/or light seal between said brush head bore and said brush head;

(iii) each well having a bulbous portion extending a predetermined depth between 10 mm to 30 mm and having an upper diameter of between 10 mm and 30 mm, and a nipple disposed in a bottom of said bulbous portion extending a depth of between 1 mm to 9 mm with a diameter of between 2 mm to 9 mm wherein said holding device is configured to cause liquids disposed therein to collect in or about said nipple;

(iv) each said well including a longitudinally extending substantially straight bore extending between a tapered opening and a closed end, said closed end including a ledge disposed thereabout wherein said ledge extends radially inwardly a predetermined distance, and a nipple disposed a predetermined depth into said closed end intermediate said ledge; and

(v) each said well including an elongated slot extending a predetermined length between first and second ends, said slot extending a width greater than the width of a dental implement handle and said slot extending a predetermined slot depth between an open end and a closed end, said slot including a first ramp portion extending across said slot width from said first end of said slot length downwardly a predetermined depth at an angle of between 5° and 15° relative to the direction of said slot depth, said first ramped portion terminating in a substantially flat step extending a predetermined length towards said slot second end, a second ramped portion extending from said first flat step and terminating at said closed end of said slot at said slot length second end wherein said slot is configured to support a dental implement handle.

63. A dental well and holding device according to claim **62** wherein when selected from group (ii) said tapered portion about said open end is angled at 30° relative to said well longitudinal axis to provide a transition step to prevent bristle curling upon insertion of a brush head in said bore.

64. A dental well and holding device according to claim **62** wherein when selected from group (ii) said closed end of each said holding well includes a reservoir configured for receiving a material applied to bristles of a dental brush head inserted into said well, or to be applied to the reservoir upon insertion of said dental brush head into said holding well.

65. A dental welt and holding device according to claim **62** wherein when selected from group (ii) said reservoir is hemispherically shaped, flat or conical, or said reservoir includes a reservoir bore extending coaxially with said brush head bore.

66. A dental well and holding device according to claim **62** wherein when selected from group (ii) said tapered open end of each said well includes a drain board disposed thereabout, said drain board having a diameter being at least twice the diameter of said tapered open end and being inclined at an angle relative to an axis perpendicular to a longitudinal axis of said brush head bore by an angle of between 5° to 40°.

67. A dental well and holding device according to claim **66** wherein said drain board is inclined at an angle relative to an axis perpendicular to a longitudinal axis of said brush head bore by an angle of between 5° to 15°.

68. A dental well and holding device according to claim **62** wherein when selected from group (ii) said drain board includes and upwardly extending lip disposed around a circumference thereof.

69. A dental well and holding device according to claim **68** wherein said lip is disposed substantially parallel to said longitudinal axis of said brush head bore and extends a depth between 0.5 mm to 10 mm, and said drain board has a diameter of 4 mm to 30 mm.

70. A dental well and holding device according to claim **62** wherein when selected from group (iii) said nipple is configured to hold fluids having a volume of between 1 ml to 5 ml.

71. A dental well and holding device according to claim **62** wherein when selected from group (iii) being configured for retaining crowns, in-lays, teeth, sectional matrix bands, or like sized objects, and/or to retain liquids.

72. A dental well and holding device according to claim **62** wherein when selected from group (iv) said drainage nipple is conical or hemispherical.

73. A dental well and holding device according to claim **62** wherein when selected from group (iv) said dental instrument includes a local anaesthetic needle cap or a bonding resin package or part thereof, or other dental material or liquid.

74. A dental well and holding device according to claim **62** wherein when selected from group (iv) said opening is tapered by an angle of between 5° to 60° relative to said longitudinal axis of said bore.

75. A dental well and holding device according to claim **62** wherein when selected from group (iv) said nipple is substantially conical and having a diameter of between 0 mm to 10 mm and a depth of 0.2 mm to 6 mm.

76. A dental well and holding device according to claim **62** wherein when selected from group (v) said second ramped portion terminates at a second flat step at said closed end, said second flat step extending to said slot length second end.

77. A dental well and holding device according to claim **62** wherein when selected from group (v) said first or second end of said slot length includes a V-portion extending across said slot width and having the tip of said V-portion being disposed approximately half way along said slot width beyond said slot length second end.

78. A dental well and holding device according to claim **62** wherein when selected from group (v) said dental implement is a dental brush, or said dental implement is a cotton tip and said slot extends a width greater than the width of a cotton tip in a compressed state.

79. A dental well and holding device according to claim **62** wherein when selected from group (i) said device includes a topmost coaxial bore longitudinally spaced apart from said upper and lower bores and disposed intermediate said holding well open end and said upper coaxial bore, said topmost coaxial bore having a minimum diameter of 2.5 mm to 4.8 mm, each holding well further including a stepped portion disposed intermediate a lower end of said topmost coaxial bore and an upper end of said upper coaxial bore.

80. A dental well and holding device according to claim **62** wherein when selected from group (i) said open end of each said holding well is tapered by 45° relative to the longitudinal axis of said coaxial bores.

81. A dental well and holding device according to claim **62** wherein when selected from group (i) each said stepped portion is conically tapered at an angle of between 5° and 50° to the longitudinal axis of said coaxial bores.

82. A dental well and holding device according to claim **62** wherein when selected from group (i) said closed end of each said holding well is conically shaped, flat or hemispherical.

83. A dental well and holding device according to claim **62** wherein when selected from group (i) each said coaxial bore diameter extends a depth of between 2 mm to 15 mm.

84. A dental well and holding device according to claim **62** wherein when selected from group (i) said lower coaxial bore diameter corresponds to a high speed dental burr shaft, said upper coaxial bore having a diameter configured to retain a low speed burr shaft, and said topmost coaxial bore having an diameter configured to retain an elongate handle of a dental implement wherein said elongate handle has a diameter of between 1.6 mm and 4.8 mm.

85. A dental well and holding device according to claim **84** wherein said dental implement is a dental brush, cotton tip or a restorative dental instrument.

86. A dental well and holding device according to claim **62** wherein when selected from group (i) the length of each said coaxial bore is configured to retain a dental instrument such that it extends a predetermined height above said holding well.

* * * * *