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To  
The controller of patents,  
The patent office,  
At Mumbai

APPLICATION FOR PATENT ALONG WITH COMPLETE SPECIFICATION

APPLICANT(S)

Name	Nationality	Address
Ingole Vijay Tulshiram	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Ashutosh Vijay	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Paritosh Vijay	Indian	104 Ganediwal layout, camp, Amravati-444602

Documents attached with the application:-

Number of Pages

Form 1	3
Form 2	11
Form 3	1
Form 26	1
<hr/>	
TOTAL	16 pages

Fee paid along with the application:-

1. Form 1 Rupees 1000(one thousand only)

TOTAL AMOUNT RUPEES 1000(ONE THOUSAND ONLY)

Mode of payment in Cash/Cheque/bank draft bearing no

**FORM 1**

(FOR OFFICE USE ONLY)

THE PATENT ACT 1970  
(39 OF 1970)And  
The patent rules, 2003Application number:  
Filing date:  
amount of fee paid:  
CBR NO:

APPLICATION FOR GRANT OF PATENT

[See sec 7, 54,135 and rule20 (1)]

**1 APPLICANT(S)**

Name	Nationality	Address
Ingole Vijay Tulshiram	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Ashutosh Vijay	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Paritosh Vijay	Indian	104 Ganediwal layout, camp, Amravati-444602

**2 Inventor(s)**

Name	Nationality	Address
Ingole Vijay Tulshiram	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Ashutosh Vijay	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Paritosh Vijay	Indian	104 Ganediwal layout, camp, Amravati-444602

**2. TITLE OF INVENTION****Tooth brush with elliptical bristles****4. ADDRESS FOR CORRESPONDANCE OF AUTHORISED PATENT AGENT IN INDIA:-**R 9 Harshnil, Eknath puram  
Near yogakshem coloney,  
Amravati, MaharashtraPh: 0721-2566861  
Mob: 9890333567  
E-mail:-sjgawande@gmail.com

5. DECLARATION:

(i) Declaration by the inventors

We the above named inventors are the true and first inventors for this invention

Dated this 13<sup>th</sup> day of September 2010

Signature of the inventors

Name: (1) Ingole Vijay Tulshiram

(2) Ingole Ashutosh Vijay

(3) Ingole Paritosh Vijay

(ii) Declaration by the applicants

We the applicants hereby declare that:-

We are in possession of above mentioned invention.

The complete specification relating to the invention is filed with the application

There is no lawful ground of objection to the grant of patent to us.

Signature of the applicants

Name: (1) Ingole Vijay Tulshiram

(2) Ingole Ashutosh Vijay

(3) Ingole Paritosh Vijay

6. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

- (a) Complete specification in duplicate
- (b) Drawings in duplicate
- (c) Statement and undertaking on form 3 in duplicate
- (d) Abstract in duplicate
- (e) Form number 26 Power of authorization to patent agent.
- (f) Form number 9.
- (g) Form number 18.

Fee Rs                      in Cash/Cheque/bank draft bearing no

Date                      on                                      Bank.

We hereby declare that to the best of our knowledge, information and belief the facts and the matter stated herein are correct and we request that the patent may be granted to us for the said invention.

Dated this 13<sup>th</sup> day of September 2010

Signature:

Name : ( 1) Ingole Vijay Tulshiram

(2) Ingole Ashutosh Vijay

(3) Ingole Paritosh Vijay

**FORM 2**

THE PATENT ACT 1970  
(39 OF 1970)  
AND  
The patent rules, 2003

COMPLETE SPECIFICATION  
(See section 10: rule 13)

1. TITLE OF INVENTION

**Tooth Brush with Elliptical Bristles**

2 APPLICANTS(S)

Name	Nationality	Address
Ingole Vijay Tulshiram	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Ashutosh Vijay	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Paritosh Vijay	Indian	104 Ganediwal layout, camp, Amravati-444602

3. PREAMBLE TO THE DESCRIPTION

COMPLETE

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

#### 4. DESCRIPTION.

##### Technical field of invention:

The present invention relates to tooth brushes and more particularly to tooth brushes with elliptical bristle instead of round bristle.

##### Prior art:

The present invention relates to tooth brushes and in particular to tooth brushes with bristle having elliptical cross section which are oriented in such a manner to offer different stiffness means flexibility in different direction of brush motion.

Scientifically gums requires massaging for better circulation of blood whereas tooth requires scrubbing to remove the deposited tartar which is deposited on teeth and between the junctions of teeth and gums means tooth brush is desired to massage the gums, remove the tartar on the teeth and dislodge the food particles lodged between the teeth as well as on gum junction means the bristles of the tooth brush should reach such places. Anatomically teeth and gums have radically different hardness means the teeth are the hardest whereas the gums are made of soft tissue means tooth requires different hardness, gum massaging requires softness and removal of lodged food particles requires hardness. Tooth brushing involves three types of motion namely to and fro motion means longitudinal means along the lines of teeth that is to massage the gums, up and down motion means along the lines of teeth junction means to remove the tartar on teeth and further to remove food particles lodged between them means cleaning operation and circular motion partially involves both of above actions. It means the bristles should be soft in to and fro motion and hard in up and down motion.

In conventional tooth brush construction the bristle are having round cross section thus offering same stiffness means flexibility in all direction of motion. In certain designs the stiffness is varied by varying the length of the bristle to impart varying stiffness. In other tooth brush designs the bristles with different stiffness are arranged in rows and columns of the tooth brush head to render varying stiffness means flexibility as per the motion of brush. In certain prior art bristles are not fixed perpendicular means normal to the brush head but are oriented in different angles. In other prior art tooth brushes are provided with different profiles to the brush top surface means bristle tips to achieve the aforesaid purposes.

Therefore a need is felt to provide a type of bristle which shall render all desired functions of scientifically cleaning and massaging teeth-gums with simplicity in

manufacturing. The present invention provides tooth brush with novel bristle to achieve the aforesaid scientific brushing and other advantages.

Problems to be solved:

The present invention provides brush with plurality of bristles which provides different stiffness means flexibility in different direction to suit scientific cleaning without varying the length of the bristles and furthers the orientation of the plurality of bristles normal to the brush head be such that it suit varying purposes and simplify manufacturing. A novel bristles with elliptical cross section to be provided normal to brush head where its minor axis is aligned with to and fro means longitudinal motion of brush such that it offers lesser stiffness means softer means more flexible means for gum massaging and more stiffness means harder means less flexible in perpendicular direction means up and down motion means for tarter and food particle removal thereby eliminating complex manufacturing of tooth brushes in prior art and providing a simple scientific and manufacturing solutions.

These and other advantages will be more readily understood by referring to the following detailed description for a novel tooth brush with elliptical cross section bristles disclosed hereinafter with reference to the accompanying drawings and which are generally applicable to other types tooth brushes to fulfill particular application illustrated hereinafter.

Object:

1. Primary object of the present invention is to provide tooth brush with plurality of bristles with elliptical cross section which confirms to scientific cleaning and massaging of teeth and gums respectively;
2. Another object of the present invention to provide different orientation to the major and minor axis of plurality of bristles on specific the rows and columns, and fixed normal to the tooth brush head to suit particular requirements;
3. Further objective of the present invention is to provide different profile to the top of tooth brush means tips of plurality of bristles to suit specific requirements;
4. Yet another object of the present invention is to provide smooth surface to the tip of individual bristle to eliminate sharp edges.

Further object features and advantages will be readily understood by the person skilled in the art by referring detail description and appended claims given hereafter.

### STATEMENT:

Following specification provides tooth brush with novel bristles with elliptical cross section hitherto referred to as bristles. Each plurality of bunch comprising plurality of such bristles and so formed plurality of bunches are fitted normal to the tooth brush head so as to form number of rows and columns. Thus formed brush head is attached along the longitudinal axis to a suitable brush handle to form a tooth brush assembly. It is known that the flexural modulus means rigidity of round section is same in direction whereas in the case of elliptical section it is maximum in the direction of major axis and it is minimum in the direction of minor axis. Such structural variation of flexural rigidity of elliptical section is taken advantage of in the present invention. In the first embodiment all the plurality of bristles are arranged and fitted normal to the brush head such that their minor axis is parallel to the longitudinal axis means it is soft means more flexible in longitudinal motion whereas stiffer means less flexible in perpendicular direction. In second embodiment the plurality of bunches with different orientation of minor axis are distributed to achieve a combination of cleaning operation and massaging. In the third embodiment the brush top profile is made to suit curvature of teeth for simultaneously cleaning many teeth and massaging gums. In the fourth embodiment the plurality of bristle tip is rounded to avoid any injury to gum due to otherwise sharp edges.

These and other features and advantages will be more readily understood by referring to the following detailed illustrations for a novel tooth brush with elliptical plurality of bristles and forming plurality of bunches disclosed hereinafter with reference to the accompanying drawings and which are generally applicable to other brushes to fulfill particular application illustrated hereinafter.

### BRIEF DESCRIPTION OF DRAWING:

The invention is described by way of example with reference to the following drawings

Sheet 1 of 2 comprises Figure-1 showing the drawing of plurality of bristle having elliptical cross section;

Figure-2 showing rounded tips of plurality of bristles of Figure-1;

Figure-3 showing plurality of bunch having plurality of bristles as shown in Figure-1

Sheet 2 of 2 comprises Figure-4 showing the arrangement of plurality of bunches having plurality of bristle anchored normal to the head of tooth brush arranged as per first preferred embodiment;

Figure-5 showing the arrangement of plurality of bunches anchored normal to the head of tooth brush arranged as per second preferred embodiment;

Figure-6 showing the top profile of plurality of bunches normal to the head of tooth brush arranged as per third preferred embodiment.

Detailed description:

Figure-1 shows plurality of bristle 10 with elliptical cross section in elevation 11 and plan 15 and side elevation 14 and plan 16. Major axis 12 and minor axis 13 of plurality of bristles 10 is shown in the plan 15 and 16. The stiffness of plurality of bristle is more means less flexible along major axis 12 and more flexible along minor axis 13.

Figure-2 shows plurality of bristles with rounded tip 20 with elliptical cross section in elevation 21 and plan 25 and side elevation 22 and plan 26. The plurality of rounded bristles minimizes injuries to gums.

Figure-3 shows in elevation 30 plurality of bristles 10 forming a plurality of bunch 35 anchored normal to brush head 40. Plan 36 of plurality of bunch 35 shows the arrangement and orientation of plurality of bristles 10. Plurality of bristle 10 are arranged in such a way that its major axis 12 (Figure-1) is aligned parallel to arrow 32 and minor axis 13 (Figure-1) is aligned parallel to arrow 31. The plurality of bunch 35 is shown in the plan 36 to be elliptical 37 and its major axis and minor axis are aligned parallel to arrows 32, 31 respectively so that the plurality of bunch 35 has more stiffness means less flexible along the arrow 32 whereas lesser stiffness means more flexibility along the arrow 31.

Figure-4 shows a normal arrangement of rows and column of plurality of bunches 30a and 30b normal to the brush head 40 wherein plurality of bunches 35 having plurality of bristles 10 are arranged accordingly and anchored normal to the brush head 40. Tooth brush handle 41 is shown. The major axis 32 of plurality of bunch 35 as well as the major axis of plurality of bristles 10 is aligned parallel to arrow 17 means in accordance with to and fro direction of tooth brush so that plurality of bunch 35, plurality of bristle 10 have more stiffness means less flexibility for aforesaid motion means in the direction of arrow 17 of tooth brush while brushing whereas the minor axis 31 of plurality of plurality of bunch 35 as well as the minor axis of plurality of bristles 10 is aligned parallel to arrow 18 means according to up

and down motion of tooth brush means longitudinal direction so that plurality of bunch 35, plurality of bristle 10 have lesser stiffness means more flexibility for aforesaid motion means in the direction of arrow 18 of tooth brush while brushing.

Figure-5 shows mixed orientation the plurality of bunch 35 normal to the brush head 40. Major axis of plurality of bunches 30a are aligned along arrow direction 17 whereas major axes of plurality of bunches 30b are aligned along the arrow direction 18. This type of mixed orientation offers composite stiffness means flexibility to the tooth brush as a whole while brushing.

Figure-6 shows a typical curves profile 30c to the tips of the plurality of bunch 30d and plurality of bristles therein anchored normal to brush head 40 to match the tooth profile in the mouth so that there is a surface contact of the brush tips with teeth as well as gums to enhance effective cleaning operation of teeth as well as gum massaging.

## CLAIMS

### We claim:-

1 A device means tooth brush comprising plurality of bunches and each bunch comprising plurality of bristles and each bristle having elliptical cross section to provide different stiffness means flexibility in different direction and anchored normally to the brush head and aligns in such a novel manner to render scientific cleaning of teeth and massaging of gums.

2 First of the preferred embodiments of the device as claimed in claim 1 comprising:

- a. A bristle having elliptical cross section means having a major and minor axis wherein the major axis is more than minor axis and having two tips means ends of which one end is meant for anchoring to the base means head of the tooth brush and other end be free;
- b. A bunch means bundle means comprising plurality of bristles packed together in such a manner that the major axes of plurality of bristles are parallel to each other to form by default a major axis of bunch and similarly composite minor axes of each bunch parallel to minor axes of the plurality of bristles is formed by default and one end of the said bunch meant for anchoring to the base means head of the tooth brush and other end be left free;
- c. The tooth brush comprises a handle to hold and operate the brush and attached to the brush head on a longitudinal axis; a head meant for holding the bristles means bunches of plurality of bristles;
- d. To and fro motion means along the longitudinal axis and up and down motion means normal to the longitudinal axis and rotational motion means circular around the longitudinal axis;
- e. The plurality of bunches comprising plurality of bristles are anchored normal to the head of the tooth brush generally in regular matrix pattern;
- f. Plurality of bunches comprising plurality of bristles are anchored to the head of tooth brush generally to form column means parallel to the longitudinal axis and rows means normal to the longitudinal

axis so as to form a flat surface profile comprising tips of the plurality of bristles;

g. Minor axis of all plurality of bunches comprising plurality of bristles on all columns are aligned with the longitudinal axis of the tooth brush means major axis of the plurality of bunches comprising plurality of bristles on all rows are normal to the longitudinal axis of the tooth brush;

3. The device as claimed in claim 2 wherein part of the plurality of bunches comprising plurality of bristles oriented and anchored to the head such that the major axes are parallel to the longitudinal axis;
4. The device as claimed in claim 3 wherein the surface profile formed by the tips of plurality of bristle provided with other surface profile;
5. The device claimed in claim 4 wherein the bristle tip be rounded so as to provide required smoothness for the purpose of brushing ;
6. The device as recited in claim 5 and as described and illustrated in preferred embodiments and ascertain the nature of this invention and the manner in which it is to be performed and revealed in diagrams of Sheet 1 of 2 comprising Figure-1, Figure-2, and Figure-3; sheet 2 of 2 comprising Figure-4, Figure-5, and Figure-6.

## ABSTRACT

The present invention relates to tooth brushes and in particular to tooth brushes with bristle having elliptical cross section which are oriented in such a manner to offer different stiffness means flexibility in different direction of brush motion.

Scientifically gums requires massaging for better circulation of blood whereas tooth requires scrubbing to remove the deposited tartar which is deposited on teeth and between the junctions of teeth and gums means tooth brush is desired to massage the gums, remove the tartar on the teeth and dislodge the food particles lodged between the teeth as well as and gum junction means the bristles of the tooth brush should reach such places. Anatomically teeth and gums have radically different hardness means the teeth are the hardest whereas the gums are made of soft tissue means tooth requires different hardness, gum massaging requires softness and removal of lodged food particles requires hardness. Tooth brushing involves three types of motion namely to and fro motion means longitudinal means along the lines of teeth means to massage the gums, up and down motion means along the lines of teeth junction means to remove the tartar on teeth and further to remove food particles lodged between them means cleaning operation and circular motion partially involves both of above actions. It means the bristles should be soft in to and fro motion and hard in up and down motion.

In conventional tooth brush construction the bristle are having round cross section thus offering same stiffness means flexibility in all direction of motion. In certain designs the stiffness is varied by varying the length of the bristle to impart varying stiffness. In other tooth brush designs the bristles with different stiffness are arranged in rows and columns of the tooth brush head to render varying stiffness means flexibility as per the motion of brush. In certain prior art bristles are not fixed perpendicular means normal to the brush head but are oriented in different angles. In other prior art tooth brushes are provided with different profiles to the brush top surface means bristle tips to achieve the aforesaid purposes.

Therefore a need is felt to provide a type of bristle which shall render all desired functions of scientifically cleaning and massaging teeth-gums with simplicity in manufacturing. The present invention provides tooth brush with novel bristle to achieve the aforesaid scientific brushing and other advantages.

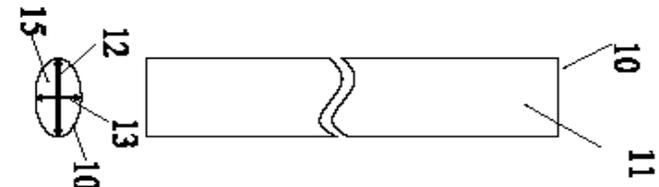


Figure-1

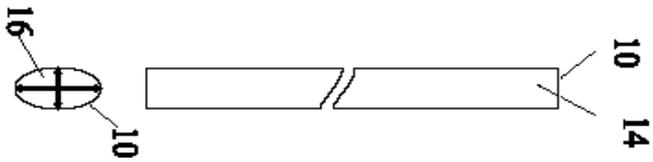


Figure-2

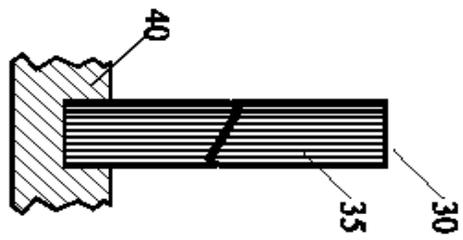
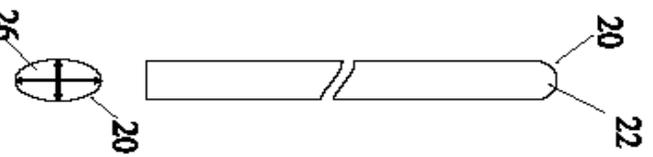
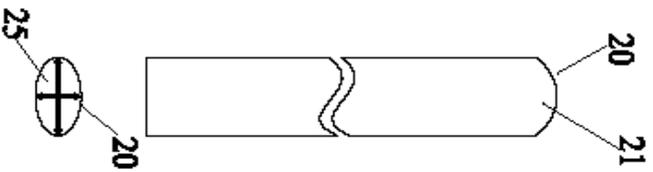
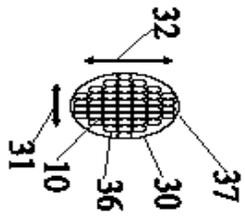


Figure-3



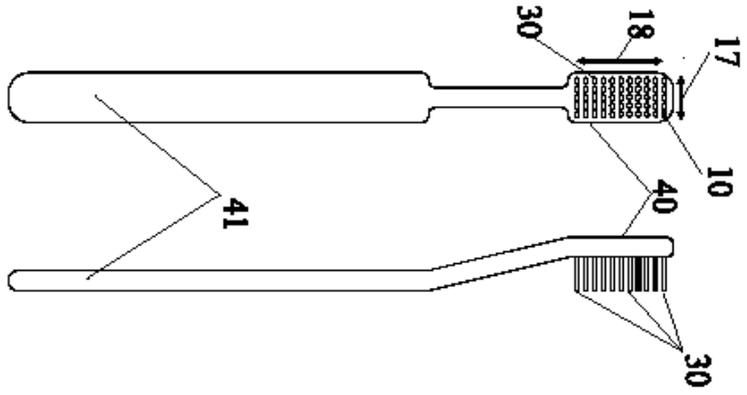


Figure-4

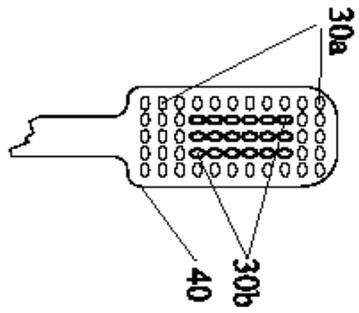


Figure-5

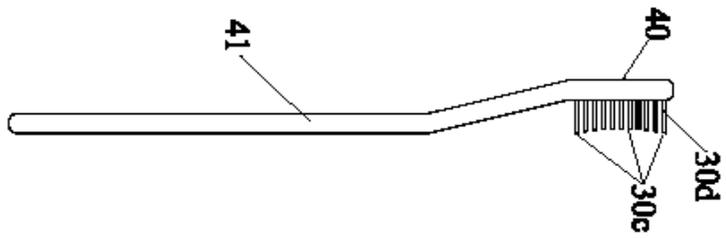


Figure-6

**FORM 3**  
THE PATENT ACT 1970  
(39 OF 1970)  
AND  
The patent rules, 2003  
STATEMENT AND UNDERTAKING UNDER SECTION 8  
(See section 8; rule 12)

We

Name	Nationality	Address
Ingole Vijay Tulshiram	Indian	104 Ganediwal layout, camp, Amravati-444602
Ingole Ashutosh Vijay	Indian	104 Ganediwal layout,camp,Amravati- 444602
Ingole Paritosh Vijay	Indian	104 Ganediwal layout,camp,Amravati- 444602

Hereby declare:-

(i) That we have not made any this application for the same /substantially the same invention outside India.

Dated this 13<sup>th</sup> day of September 2010

Ingole Vijay Tulshiram

To  
The controller of patents,  
The patent office,  
At Mumbai

**FORM 26**  
THE PATENTS ACT, 1970  
(39 OF 1970)  
&  
THE PATENTS RULES, 2003

FORM OF AUTHORISATION OF A PATENT AGENT/ OR ANY PERSON IN A  
MATTER OR PROCEEDING UNDER THE ACT

[Section 127 and 132 and Rule 135]

We,

Name	Nationality	Address
Ingole Vijay Tulshiram	Indian	104 Ganediwal layout,camp,Amravati-444602
Ingole Ashutosh Vijay	Indian	104 Ganediwal layout,camp,Amravati-444602
Ingole Paritosh Vijay	Indian	104 Ganediwal layout,camp,Amravati-444602

hereby authorize Swapnil J Gawande, Advocate and Patent Agent No. IN/PA 1587.of R-9 Harshnil,Eknath puram, nr yogakshem colony Amravati-444607,India to act on my behalf in connection with our patents, assignments, oppositions, rectifications, renewals and request that all notices, requisition and communication relating thereto may be sent to such person unless otherwise specified.

I hereby revoke all previous authorization, if any made, in respect of same matter or proceeding.

I hereby assent to the action already taken by the said person in the above matter.

Dated this 15th day August 2010

Name: Ingole Vijay Tulshiram

Ingole Ashutosh Vijay

Ingole Paritosh Vijay

To,  
The Controller of Patents  
The Patent Office  
At Mumbai