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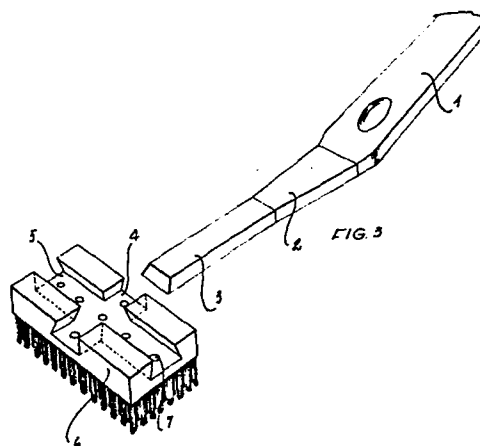
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(54) Toothbrush with two settling forms for the head adjustment to the different conditions of employ on the side and front parts of the dental arches.

(57) The invention permits to increase the cleaning action made with vertical, alternate motion, employing in succession on the different, front and side arch walls, two different brushing forms to obtain by changing the connexion of the two components with each other: a brushing head (6) and a bearing handle (1).

The head (6), with a rectangular base, employs a couple of orthogonal guides (4,5) for the alternate fitting of the handle (1). One brushing form employs the head with a longitudinal settling to operate the side wall cleaning after its introduction into the mouth cavity. The other form employs the head with a transversal position to allow cleaning with centering effect of the front walls, to obtain by holding the handle from below.



EP 0 077 869 A1

- 1 -

"Tooth brush with two settling forms for the head adjustment to the different conditions of employ on the side and front parts of the dental arches."

The invention refers to a cleaning brush for the teeth which substantially foresees two different parts consisting of: a brushing head, with a rectangular base, and a handle to be connected together in a solidarily operating way to give two different employ forms. In this way, the device form can be suited to the different conditions of employ that can occur to perform cleaning on either the side or the front walls of the dental arches.

The present techniques of employ for the tooth brushes foresee the cleaning action performed with alternate vertical movement and with action in depth: this to consent to the bristles to operate also in the interspaces and on the gums to remove residues, scratch the dental plate and perform a stimulating dynamic action on the gums. The present brushes have an essentially longitudinal conformation and foresee a handle supporting the brushing head. This shape turns out to be efficient for the operation on the side arch walls since the brush must penetrate into the mouth cavity between the arches and the cheek inside walls, but it is uneasy and irrational for carrying out cleaning of the arch front walls. Uneasy because the brush must be gripped sidewise and irrational since this gripping system do

es not allow to carry out the operation with a centering effect.

30 In fact, it must be noted that the compression action the mucous membrane of the cheek has to perform on the head during the cleaning phase of the arch side walls, in symbiosis with the movement action made by the operator, is failing in the cleaning phase of the front walls. On these parts, the depth action is related but to the force applied on the grip by the operator: as it is foreseen for a side operation, it does consent a centering effect.

The invention permits the solution of this problem by employing a device with changing geometry allowing to suit the form to the different employ conditions. In this way, it is possible to operate on the different arch parts with a permanent centering effect and uniform depth action. A brushing head is used with a rectangular base equipped with a pair of guides having an orthogonal disposition and a handle to fit alternatively into it to permit two employ forms: namely, one with the head in longitudinal position for operating in the mouth cavity for cleaning the arch side walls, to be gripped sidewise and operated with alternate, ideally horizontal movement, and the other, with transversal position of the head, to be gripped from below, operated with alternate, ideally vertical motion, to allow cleaning of the front walls with centering effect.

55 At first the operator starts with cleaning one arch part, then he connects the handle and the head according to the other employ form and accomplishes the cleaning action.

A not limiting execution version is illustrated by the dra

30 wings of Table 1, where Fig. 1 the view of the system with  
orthogonal crossed guides on the head, and Fig. 2 is the si  
de view of the same showing the kerf guide. Fig. 3 is the  
perspective view of the head and of the grip end in posi-  
tion preceding fitting. Fig. 4 is a view of the brush fitte  
35 d with head in transversal disposition. Fig. 5 is the view  
of the head in longitudinal position fitted on the brush.  
The form just described employs a handle with grip 1 with  
additional slanting tapering part 2 and 3 with axial kerf  
conformation suitable for fitting alternatively on the or  
thogonal kerf guides 4 and 5 of head 6. The bending of par  
70 ts 2 and 3 on grip 1 allows holding the handle from below  
without interfering with the chin. To allow employ forms sol  
idarily operating, blocking devices are foreseen on the ke  
rf components of different kinds, such as: mechanical, tying  
5 automatism and everything else for this purpose. An auto-  
matic execution form is illustrated by the drawings of Fig.  
1 and 6. The first one shows the spaces disposition on the  
axles of the excavation guides with spherical sector 7, act  
to keep in position the projecting corresponding parts of  
80 the small spheres 8 from bores 9, as illustrated in longitu  
dinal section in Fig. 6. The retention system foresees heli  
cal springs 12, fitted on base 10, in cylindrical seats 11,  
compressing spheres 8 on bores 9, bearing the relevant pro  
jecting parts to enter into excavations 7 with spherical  
85 sector.

It is well known that in order to obtain an efficient cle  
aning performing also the removal of dental plate, nylon  
brushes must be used and that these brushes have to be re  
90 placed every month at least since the bristles are defor-  
med and lose their efficiency.

The invention permits the employ of the handle as permanent part and the use of a set of heads that can be singularly replaced on account of wear. This new construction device allows the solution of two problems: spare and possibility of restoring the efficiency of the device using parts already supplied with it, which excludes the necessity of separate purchases. In an additional solution, the employ has been foreseen in a set one handle and some different heads, with a view to enabling the operator to use at wish sets of different brushing heads or, alternatively, to equip the family group with a set of head with a singular employ.

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The execution particulars such as the handle form, that of the head, of the brushing groups, the materials and everything else in this connection may be foreseen in different ways. Similarly, the solidarily operating connection of the handle to the head may be performed otherwise by using selfbinding parts, interposition parts, binding automatisms or anything else for this purpose.

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CLAIMS.

1)Tooth brush with two settling forms for the head adjust  
ment to the different conditions of employ on the side an  
d front parts of the dental arches,characterized by the .  
5 fact that a brushing head is used with a rectangular base  
equipped with a pair of guides having an orthogonal dispo  
sition and a handle to fit alternatively into it to perm-  
it two employ forms:namely,one with the head in longitudi  
10 nal position for operating in the mouth cavity for cleani  
ng the arch side walls,to be gripped sidewise and operated  
with alternate,ideally horizontal movement,and the other,  
with transversal position of the head,to be gripped from  
below,operated with alternate,ideally vertical motion,to  
allow cleaning of the front walls with centering effect.

15 2)Tooth brush with two settling forms for the head adjust  
ment to the different conditions of employ on the side an  
d front parts of the dental arches,according to the previ  
ous claim,characterized by the fact that,at first the ope  
20 rator starts with cleaning one arch part,then he connects  
the handle and the head according to the other employ fo-  
rm and accomplishes the cleaning action.

25 3)Tooth brush with two settling forms for the head adjust  
ment to the different conditions of employ on the side an  
d front parts of the dental arches,according to the previ  
ous claims,characterized by the fact that,the invention  
permits the employ of the handle as permanent part and the  
use of a set of heads that can be singularly replaced on  
30 account of wear.

4)Tooth brush with two settling forms for the head adjust

ment to the different conditions of employ on the side an  
d front parts of the dental arches, according to the previ  
35 ous claims, characterized by the fact that, the employ has  
be en foreseen in a set one handle and some different hea  
ds, with a view to enabling the operator to use at wish se  
ts of different brushing heads or, alternatively, to equip  
the family group with a set of head with a singular emplo  
40 y.

5) Tooth brush with two settling forms for the head adjust  
ment to the different conditions of employ on the side an  
d front parts of the dental arches, according to the previ  
45 ous claims, characterized by the fact that, the form just  
described employs a handle with grip 1 with additional sla  
nting tapering part 2 and 3 with axial kerf conformation  
suitable for fitting alternatively on the orthogonal kerf  
guides 4 and 5 of head 6. The bending of parts 2 and 3 on  
50 grip 1 allows holding the handle from below without infe  
ring with the chin.

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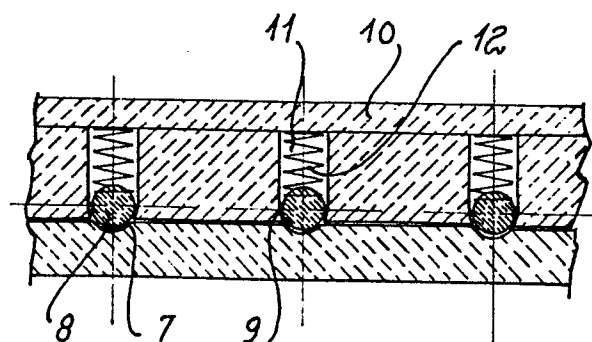
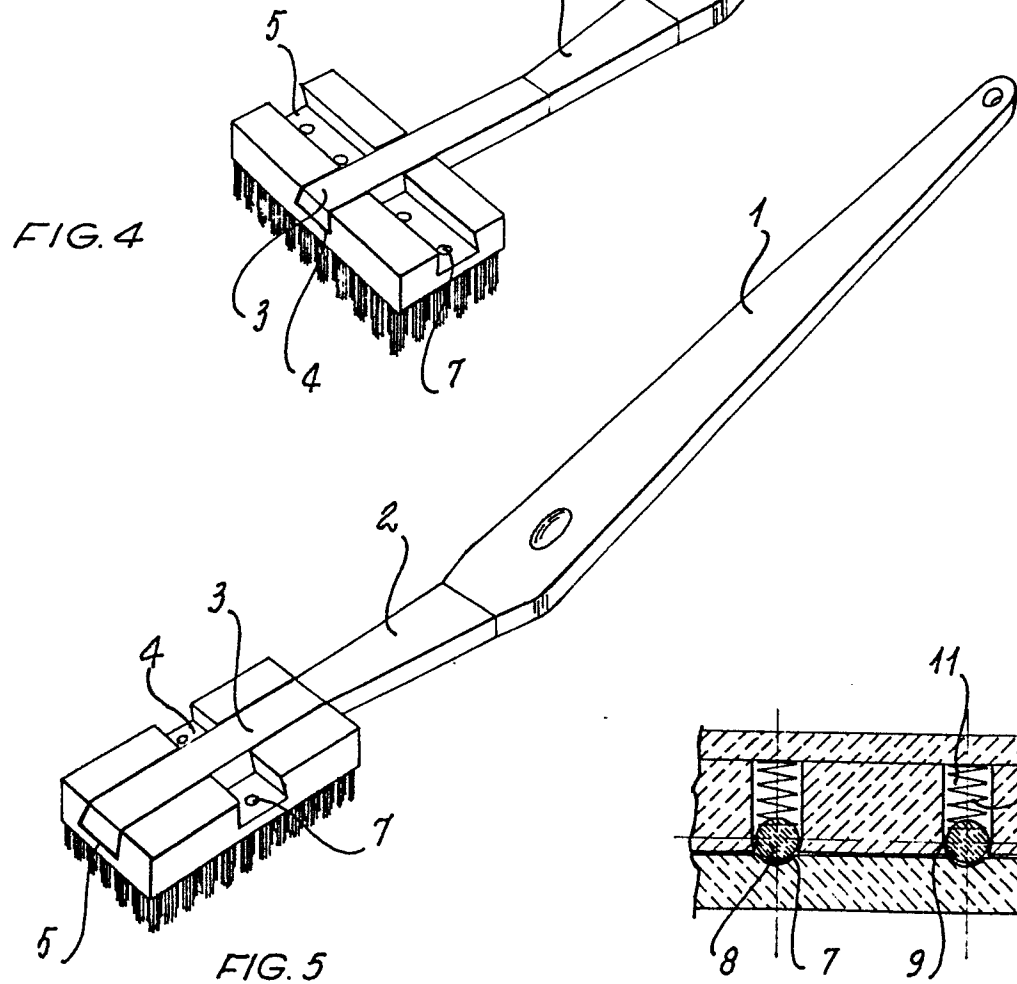
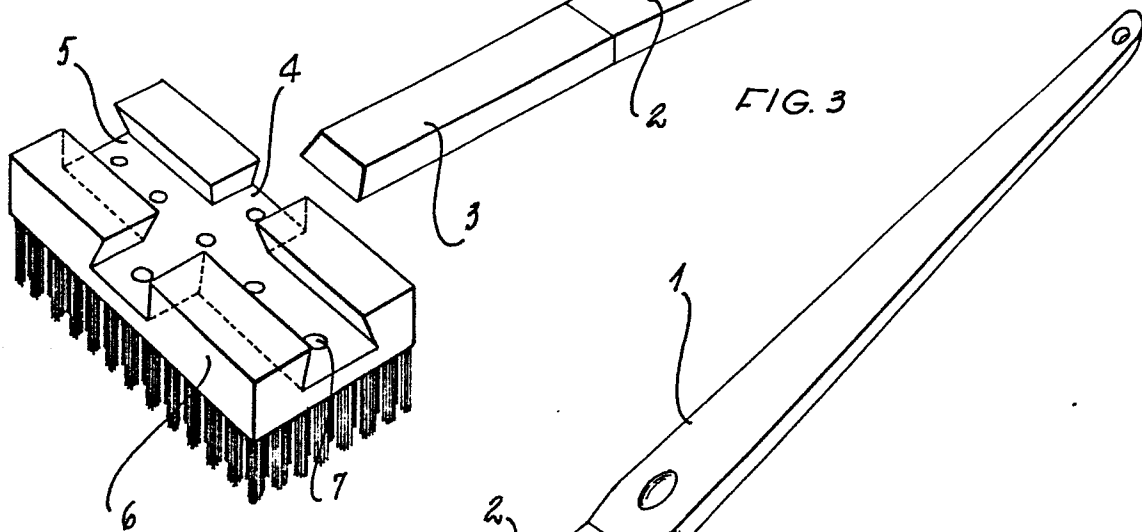
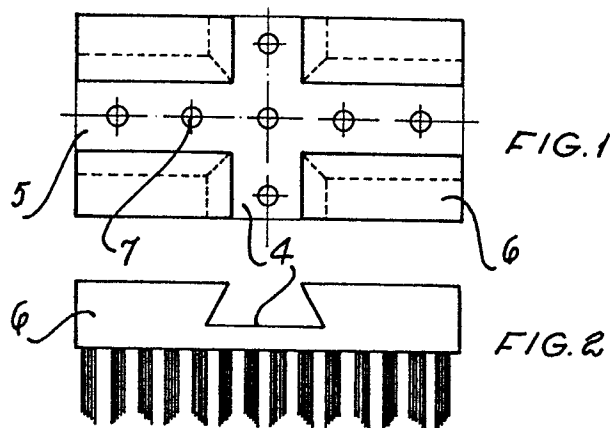


FIG. 6





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# EUROPEAN SEARCH REPORT

0077869

Application number

EP 81 83 0212

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
X	GB-A- 331 126 (MATZ) * the whole document *	1-5	A 46 B 7/02 A 46 B 7/04
X	--- GB-A- 258 056 (MATZ) * the whole document *	1-5	
X	--- GB-A- 202 424 (SAXE) * the whole document *	1-5	
A	--- GB-A- 237 077 (WILBON)		
A	--- DE-A-2 910 817 (LANG) * claim 14, figure 14 * -----	1,3-5	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
			A 46 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25-06-1982	Examiner BOURSEAU A.M.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			