PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7672737

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
LISE W NOBLE	10/21/2022
PATRICK T NOBLE	10/21/2022
NOBLE INNOVATIONS LLC	10/21/2022

RECEIVING PARTY DATA

Name:	NOBLE INNOVATIONS NC LLC
Street Address:	523 EAST ROSEMARY STREET
City:	CHAPEL HILL
State/Country:	NORTH CAROLINA
Postal Code:	27514

PROPERTY NUMBERS Total: 2

Property Type	Number
Patent Number:	8881332
Patent Number:	9808077

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 202-466-3500
Email: jzito@dnlzito.com
Correspondent Name: JOSEPH J ZITO
Address Line 1: 1250 CONNECTICUT AVENUE, NW
Address Line 2: SUIE 700
Address Line 4: WASHINGTON, D.C. 20036

NAME OF SUBMITTER:	JOSEPH J. ZITO
SIGNATURE:	/s/Joseph J. Zito
DATE SIGNED:	12/01/2022
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 2
source=PATENT ASSIGNMENT Nobles to NC LLC#page1.tif
source=PATENT ASSIGNMENT LLC to NC LLC#page1.tif

PATENT ASSIGNMENT

We, Lise W. Noble and Patrick T. Noble ("Assignors"), own all right, title and interest in and to United States Patents 8,881,332 and 9,808,077 and any and all related applications, including the inventions described therein and the patents issued and reissued thereon (collectively, the "Patents"), the renewals therefor and all claims for past or future infringement thereof, as the original inventors, applicants and owners thereof and as the holders of all reversionary rights from the dissolution of prior assignee NOBLE INNOVATIONS L.L.C., a North Carolina Limited Liability Company, with an address at 523 East Rosemary Street, Chapel Hill, North Carolina, 27514 .

NOBLE INNOVATIONS NC L.L.C., a North Carolina Limited Liability Company, with an address at 523 East Rosemary Street, Chapel Hill, North Carolina, 27514 ("Assignee"), is desirous of acquiring the entire right, title and interest in and to said invention and in and to said "Patents" including the applications and renewals therefor and all claims for past or future infringement thereof.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignors do hereby sell, assign, convey and transfer unto Assignee, its successors and assigns, free and clear of any and all liens, restrictions, claims and encumbrances, Assignors' entire right, title, and interest in and to the Patents and any and all divisions, continuations or continuations-in-part thereof, together with all rights of registration, maintenance, and protection thereof in any form, all rights to income, royalties, damages and payments now due or hereafter due or payable in respect thereto, and all rights of recovery and of legal action for past or future infringements and of interference proceedings and reexaminations involving such Patents.

IN WITNESS WHEREOF, Assignor has duly executed this Assignment on this 21st day of October, 2022.

LISE W. NOBLE (Assignor)

By: _____
Name: Lise W. Noble

PATRICK T. NOBLE (Assignor)

By: _____
Name: Patrick T. Noble

NOBLE INNOVATIONS NC L.L.C. (Assignee)

By: _____
Name: Patrick T. Noble
Title: President

PATENT ASSIGNMENT

NOBLE INNOVATIONS L.L.C., a North Carolina Limited Liability Company, with an address at 523 East Rosemary Street, Chapel Hill, North Carolina, 27514 ("Assignor"), owned all right, title and interest in and to United States Patents 8,881,332 and 9,808,077 and any and all related applications, including the inventions described therein and the patents issued and reissued thereon (collectively, the "Patents"), the renewals therefor and all claims for past or future infringement thereof by assignment from the inventors, for a period of time. The rights reverted back to the inventors, upon the dissolution of Noble Innovations L.L.C. in 2018.

NOBLE INNOVATIONS NC L.L.C., a North Carolina Limited Liability Company, with an address at 523 East Rosemary Street, Chapel Hill, North Carolina, 27514 ("Assignee"), is desirous of acquiring the entire right, title and interest in and to said invention and in and to said "Patents" including the applications and renewals therefor and all claims for past or future infringement thereof.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor does hereby sell, assign, convey and transfer unto Assignee, its successors and assigns, free and clear of any and all liens, restrictions, claims and encumbrances, Assignor's entire right, title, and interest in and to the Patents to the extent that any such rights remain with Assignor and to any and all divisions, continuations or continuations-in-part thereof, together with all rights of registration, maintenance, and protection thereof in any form, all rights to income, royalties, damages and payments now due or hereafter due or payable in respect thereto, and all rights of recovery and of legal action for past or future infringements and of interference proceedings and reexaminations involving such Patents.

IN WITNESS WHEREOF, Assignor has duly executed this Assignment on this 21st day of October, 2022.

NOBLE INNOVATIONS L.L.C. (Assignor)

By: _____
Name: Lise W. Noble
Title: President

NOBLE INNOVATIONS NC L.L.C. (Assignee)

By: _____
Name: Patrick T. Noble
Title: President

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT7510071

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	CHANGE OF NAME

CONVEYING PARTY DATA

Name	Execution Date
NOBLE INNOVATIONS LLC	10/30/2014

RECEIVING PARTY DATA

Name:	PATRICK NOBLE
Street Address:	523 EAST ROSEMARY STREET
City:	CHAPEL HILL
State/Country:	NORTH CAROLINA
Postal Code:	27514
Name:	NOBLE INNOVATIONS NC LLC
Street Address:	523 EAST ROSEMARY STREET
City:	CHAPEL HILL
State/Country:	UNITED STATES
Postal Code:	27514

PROPERTY NUMBERS Total: 2

Property Type	Number
Patent Number:	9808077
Patent Number:	8881332

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 9194913940
Email: noble.patrick@gmail.com
Correspondent Name: PATRICK NOBLE
Address Line 1: 523 EAST ROSEMARY STREET
Address Line 4: CHAPEL HILL, NORTH CAROLINA 27514

NAME OF SUBMITTER:	PATRICK T. NOBLE
SIGNATURE:	/Patrick T Noble/
DATE SIGNED:	08/29/2022
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 1
source=North Carolina Secretary of State Search Results#page1.tif

Search

Search Results

Records Found: 1
Search Type: Starting Search Criteria: Noble Innovations NC
Search Time: 8/29/2022 08:41
File Search Again

Noble Innovations NC, L.L.C.

LEGAL NAME: NOBLE INNOVATIONS NC, L.L.C.
SOS ID: 1545578
TYPE: LIMITED LIABILITY COMPANY
STATUS: CURRENT-ACTIVE
DATE FORMED: 6/2/2020
File an Annual Report

Business Registration

- Basics of Launching a New Business
- Entity Forms
- Frequently Asked Questions
- Alerts
- Registry of Foreign Business in NC
- Starting, Buying, and Selling

Searches

Links

Online Filing

How can we make this report better for you?

Contact

[redacted]
Raleigh, NC 27603-5909
919-814-5400

Hours of Operation

M-F 8:00 - 5:00

Closed on Holidays and Weekends

Links of Interest

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www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2017	9808077	2076-002C	1451

27820 7590 10/18/2017

WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 85 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Lise W. Noble, Chapel Hill, NC;
NOBLE INNOVATIONS LLC, Chapel Hill, NC;
Patrick T. Noble, Chapel Hill, NC;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

Notice of References Cited	Application/Control No. 14/535,442	Applicant(s)/Patent Under Reexamination NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2,683,554 A	07-1954	MULHAUSER JR GEORGE C	B65D83/0409	221/152
*	B	US-5,616,299 A	04-1997	Walker; David W.	B01L99/00	221/197
*	C	US-6,131,765 A	10-2000	Barry; William Dean	A47F1/035	221/264
*	D	US-2004/0094564 A1	05-2004	Papp, Mary Anne	A61J7/0084	221/25
*	E	US-2006/0165473 A1	07-2006	Hohlbein; Douglas J.	A46B5/0062	401/132
*	F	US-2006/0245814 A1	11-2006	Papa; Alyce Johnson	A47K5/18	401/123
*	G	US-2007/0075100 A1	04-2007	Colman; Arne Benjamin	A47K5/18	222/372
*	H	US-7,748,565 B2	07-2010	Anvieh; Hannibal	A47K1/09	141/361
*	I	US-8,113,729 B2	02-2012	Solan; Wayne R.	A46B11/0065	401/132
*	J	US-8,357,114 B2	01-2013	Poutiatine; Andrew I.	A61J7/0038	604/59
*	K	US-8,579,163 B2	11-2013	Ellis; Charmine	A47K5/18	206/369
*	L	US-2004/0091431 A1	05-2004	Alexander, Carl Ernest	A46B11/00	424/49
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N	WO 2005110149 A2	11-2005	~~US~~ WO	MINTEL THOMAS E	A46B9/005
	O					
	P					
	Q					
	R					
	S					
	T					

Change(s) applied to document, /C.C.B/ 9/20/2017

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27820 7590 07/27/2017
WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2014	Lise W. Noble	2076-002C	1451

TITLE OF INVENTION: TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/27/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
KUMAR, RAKESH	3651	221-264000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Withrow & Terranova, P.L.L.C.
2 Vincent K. Gustafson
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Noble Innovations LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Chapel Hill, North Carolina

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☒ Payment by credit card. Form PTO-2038 is attached.
- ☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 50-1732 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /vincent k. gustafson/ Date October 5, 2017

Typed or printed name Vincent K. Gustafson Registration No. 46,182

PETITIONER - COLGATE, Exhibit 1004

Electronic Patent Application Fee Transmittal

Application Number:	14535442
Filing Date:	07-Nov-2014
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Filer:	Vincent Kayne Gustafson/Laura Tremont
Attorney Docket Number:	2076-002C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**480**

Electronic Acknowledgement Receipt

EFS ID:	30578504
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Laura Tremont
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	05-OCT-2017
Filing Date:	07-NOV-2014
Time Stamp:	16:01:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$480
RAM confirmation Number	100617INTEFSW16023700
Deposit Account	501732
Authorized User	Laura Tremont

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	2076-002C_Issue_Fee_Transmittal.pdf	111963 c642414168001ee9ccfff9ca521e387c8a635905	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30672 9f3ba2d98b7bd016d2c5fce6c244b2a0f2cd99a4	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	142635		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	**Art Unit**
	RAKESH KUMAR	3651

CPC							
Symbol						**Type**	**Version**
A46B		11	/	0003		F	2013-01-01
A46B		9	/	025		I	2013-01-01
A46B		11	/	0006		I	2013-01-01
A46B		11	/	0068		I	2013-01-01
A46B		15	/	0002		I	2013-01-01
A46B		15	/	0008		I	2013-01-01
A46B		15	/	0036		I	2013-01-01
A46B		17	/	06		I	2013-01-01
A46B		2200	/	1066		A	2013-01-01
A61C		19	/	063		I	2013-01-01
			/				
			/				
			/				
			/				
			/				

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/RAKESH KUMAR/ Primary Examiner.Art Unit 3651	07/22/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	5

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	**Art Unit**
	RAKESH KUMAR	3651

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
221	264	B	6	5	H	3 / 00 (2006.01.01)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
221	289	267	264		

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/RAKESH KUMAR/ Primary Examiner.Art Unit 3651	07/22/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	5

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	**Art Unit**
	RAKESH KUMAR	3651

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17												
2	2	18	18												
3	3	19	19												
4	4	20	20												
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	11														
12	12														
13	13														
14	14														
15	15														
16	16														

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/RAKESH KUMAR/ Primary Examiner.Art Unit 3651 (Primary Examiner)	07/22/2017 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 5

UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

27820 7590 07/27/2017

WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511

EXAMINER
KUMAR, RAKESH

ART UNIT	PAPER NUMBER
3651	

DATE MAILED: 07/27/2017

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2014	Lise W. Noble	2076-002C	1451

TITLE OF INVENTION: TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/27/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

27820 7590 07/27/2017
WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2014	Lise W. Noble	2076-002C	1451

TITLE OF INVENTION: TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/27/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
KUMAR, RAKESH	3651	221-264000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PETITIONER - COLGATE, Exhibit 1004

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2014	Lise W. Noble	2076-002C	1451

27820 7590 07/27/2017

WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511

EXAMINER	
KUMAR, RAKESH	

ART UNIT	PAPER NUMBER
3651	

DATE MAILED: 07/27/2017

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/535,442	Applicant(s) NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Amendment filed 06/21/2017*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-5,7-10 and 12-22*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

REASONS FOR ALLOWANCE

The present application is being examined under the pre-AIA first to invent provisions.

The following is an examiner's statement of reasons for allowance:

The claim 1 is allowable over the prior art of record because the teachings of the references taken as a whole do not show or render obvious the combination set forth, including:

A dispensing device configured for use with at least one toothbrush…

…a bristle spreading element including an aperture arranged to permit passage of the oral care capsule, the bristle spreading element arranged to spread apart at least some bristles of the brush head to prepare the brush head to receive the oral care capsule in the capsule receiving zone…

… push the oral care capsule through the aperture...

…in combination with the rest of the claim language is not taught or fairly suggested by the prior art.

The claim 9 is allowable over the prior art of record because the teachings of the references taken as a whole do not show or render obvious the combination set forth, including:

A dispensing device configured for use with at least one toothbrush…

a bristle spreading element configured to contact the brush head and spread apart at least some bristles of the brush head to promote passage of the oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone…

…deliver said oral care capsule through the bristle spreading element at least one toothbrush manipulation element into the capsule receiving zone…

…in combination with the rest of the claim language is not taught or fairly suggested by the prior art.

The claim 16 is allowable over the prior art of record because the teachings of the references taken as a whole do not show or render obvious the combination set forth, including:

An oral care capsule dispensing device…

…a bristle spreading element configured to contact a brush head and spread apart at least some bristles of the brush head to promote passage of at least one oral

care capsule of the plurality of oral care capsules through the bristle spreading element toothbrush manipulation element into a retention structure of the brush head...

…in combination with the rest of the claim language is not taught or fairly suggested by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH KUMAR whose telephone number is (571)272-8314. The examiner can normally be reached on M-F 8 AM to 4:30 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RAKESH KUMAR/
Primary Examiner, Art Unit 3651

Notice of References Cited	Application/Control No. 14/535,442	Applicant(s)/Patent Under Reexamination NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	Page 1 of 3

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-1,411,681 A	04-1922	BURLEW GILDEROY O	A61K8/02	15/104.94
*	B	US-RE19,006 E	11-1933	GRAVES	A46B11/0003	132/309
*	C	US-1,950,767 A	03-1934	HERMAN ABBOTT JAMES	A46B11/001	132/308
*	D	US-1,995,374 A	03-1935	YOUNG JAMES D	A46B11/00	206/540
*	E	US-2,262,982 A	11-1941	WOLCOTT FRANK E	A46B9/04	15/167.1
*	F	US-2,683,554 A	07-1954	MULHAUSER JR GEORGE C	B65D83/0409	221/152
*	G	US-3,191,803 A	06-1965	HAMILTON ROBERT S	A47K5/18	141/360
*	H	US-3,471,056 A	10-1969	KOVAC STEPHEN ROBERT	B65D83/0418	221/151
*	I	US-5,230,440 A	07-1993	Kurokawa; Takumi	B65D83/0418	221/198
*	J	US-5,616,299 A	04-1997	Walker; David W.	B01L99/00	221/197
*	K	US-6,131,765 A	10-2000	Barry; William Dean	A47F1/035	221/264
*	L	US-2004/0091431 A1	05-2004	Alexander, Carl Ernest	A46B11/00	424/49
*	M	US-2004/0094564 A1	05-2004	Papp, Mary Anne	A61J7/0084	221/25

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of References Cited	Application/Control No. 14/535,442	Applicant(s)/Patent Under Reexamination NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	Page 2 of 3

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2004/0185011 A1	09-2004	Alexander, Carl Ernest	A45D40/24	424/49
*	B	US-2006/0165473 A1	07-2006	Hohlbein; Douglas J.	A46B5/0062	401/132
*	C	US-2006/0245814 A1	11-2006	Papa; Alyce Johnson	A47K5/18	401/123
*	D	US-2006/0249419 A1	11-2006	Taylor; Anthony James	A61M15/0045	206/528
*	E	US-2007/0075100 A1	04-2007	Colman; Arne Benjamin	A47K5/18	222/372
*	F	US-7,651,012 B2	01-2010	Colman; Arne Benjamin	A47K5/18	222/105
*	G	US-7,748,565 B2	07-2010	Anvieh; Hannibal	A47K1/09	141/361
*	H	US-8,113,729 B2	02-2012	Solan; Wayne R.	A46B11/0065	401/132
*	I	US-2012/0054974 A1	03-2012	Hurwitz; Marni Markell	A46B9/04	15/167.1
*	J	US-8,357,114 B2	01-2013	Poutiatine; Andrew I.	A61J7/0038	604/59
*	K	US-8,579,163 B2	11-2013	Ellis; Charmine	A47K5/18	206/369
*	L	US-8,881,332 B2	11-2014	Noble; Lise W.	A46B9/025	15/167.1
*	M	US-2015/0083747 A1	03-2015	Noble; Lise W.	A46B9/025	221/279

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Notice of References Cited	Application/Control No. 14/535,442	Applicant(s)/Patent Under Reexamination NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	Page 3 of 3

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-9,332,827 B2	05-2016	Lee; David K.	A46B9/04	1/1
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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BIB DATA SHEET

CONFIRMATION NO. 1451

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/535,442	11/07/2014	221	3651	2076-002C

APPLICANTS
NOBLE INNOVATIONS LLC, Chapel Hill, NC;

INVENTORS
Lise W. Noble, Chapel Hill, NC;
Patrick T. Noble, Chapel Hill, NC;

**** CONTINUING DATA ***************************
This application is a CON of 12/101,446 04/11/2008 PAT 8881332
which is a CIP of 11/840,627 08/17/2007 ABN

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
11/21/2014

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /RAKESH KUMAR/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		NC	11	20	3

ADDRESS

WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511
UNITED STATES

TITLE

TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

FILING FEE RECEIVED		
770	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	Art Unit
	RAKESH KUMAR	3651

CPC- SEARCHED		
Symbol	Date	Examiner
A46B 11/0003; 9/025; 11/0006; 11/0068; 15/0002; 15/0008; 15/0036	7/22/2017	RK
A46B17/06; A61C19/063; A46B2200/1066	7/22/2017	RK

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
221	289,267,264,00	7/21/2017	RK

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
Special Feature Tech Search Performed in EAST	7/22/2017	RK
Reviewed IDS Forms	7/22/2017	RK
Performed Backward and Forward searches	7/22/2017	RK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
A46B	11/0003; 9/025; 11/0006; 11/0068; 15/0002; 15/0008; 15/0036	7/22/2017	RK

	/RAKESH KUMAR/ Primary Examiner.Art Unit 3651

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	**Art Unit**
	RAKESH KUMAR	3651

CPC							
Symbol						**Type**	**Version**
A46B		11	/	0003		F	2013-01-01
A46B		9	/	025		I	2013-01-01
A46B		11	/	0006		I	2013-01-01
A46B		11	/	0068		I	2013-01-01
A46B		15	/	0002		I	2013-01-01
A46B		15	/	0008		I	2013-01-01
A46B		15	/	0036		I	2013-01-01
A46B		17	/	06		I	2013-01-01
A46B		2200	/	1066		A	2013-01-01
A61C		19	/	063		I	2013-01-01
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CPC Combination Sets							
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NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/RAKESH KUMAR/ Primary Examiner.Art Unit 3651	07/22/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	5

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	14535442	NOBLE ET AL.
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	RAKESH KUMAR	3651

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
221	264	B	6	5	H	3 / 00 (2006.01.01)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
221	289	267	264		

NONE		Total Claims Allowed:	
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/RAKESH KUMAR/ Primary Examiner.Art Unit 3651	07/22/2017	O.G. Print Claim(s)	O.G. Print Figure
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	RAKESH KUMAR	3651

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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NONE		**Total Claims Allowed:**	
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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7/ 22/ 2017 9:55:47 PM
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PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/535,442	Filing Date 11/07/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **06/21/2017**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
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Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
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☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
BRENDA HARRISON

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Lise W. Noble et al.
Serial No. 14/535,442
Filed: 11/07/2014
Attorney Docket No. 2076-002C

Examiner: Rakesh Kumar
Art Unit: 3651

For: **TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE**

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION MAILED MARCH 21, 2017

Sir:

In response to the Office Action mailed March 21, 2017, Applicant offers the following amendments and remarks. The time for responding to the March 21, 2017 Office Action without extension fee payment was set at three months from the issuance thereof; accordingly, the initial response deadline is June 21, 2017. If any fees are required in association with this response, the Director is hereby authorized to charge them to Deposit Account 50-1732, and to consider this a petition for taking any appropriate action to obtain entry of this response.

Please amend the claims of the above-identified patent application as set out in **Section I (Amendments to the Claims)** beginning on page 2 of this Response.

Remarks concerning the amendments to the application, and addressing the substance of the March 21, 2017 Office Action, are set out in **Section II (Remarks)** hereof beginning on page 6 of this Response.

Electronic Acknowledgement Receipt

EFS ID:	29562093
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Laura Tremont
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	21-JUN-2017
Filing Date:	07-NOV-2014
Time Stamp:	12:39:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2076-002C_Response_to_OA_mailed_03-21-17.pdf	158427 5bf90b4f8923a39fa9ee3a113d9a105b92fabdaf	yes	16

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	6	16
	Claims	2	5
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	158427	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Section II (Remarks)

The Office Action mailed March 21, 2017 (hereinafter "Office Action") has been carefully reviewed, and Applicant respectfully requests reconsideration of the rejections of Applicant's claims, particularly in view of the above amendments and the following remarks.

A. Summary of Amendments

Claims 1-21 were previously pending. By the present submission, claims 1-3, 8, 9, and 14-20 have been amended, claims 6 and 11 have been cancelled, and claim 22 has been added.

Independent claim 1 has been amended to incorporate the subject matter of dependent claim 6 (now cancelled), among other amendments. Similar amendments were made to independent claims 9 and 16. Amendments to independent claims 1, 9, and 16 are supported by Applicant's specification, for example, ¶¶ 0045, 0049, 0053, and 0056.

Dependent claims 2 and 3 have been amended to recite that the oral care capsules are "of the plurality of oral care capsules".

Dependent claim 8 has been amended for consistency with the amendments to independent claim 1.

Dependent claims 15 and 17 have been amended to recite that "at least one oral care capsule" is "of the plurality of oral care capsules".

Claims 17-20 have been amended to replace "[t]he dispensing device" with "[t]he oral care capsule dispensing device" for consistency with claim 16 from which they depend.

New dependent claim 22 depends from independent claim 9 and recites "wherein the bristle spreading element comprises a reduced thickness portion configured to spread apart the at least some bristles of the brush head." Dependent claim 22 is supported by Applicant's specification, for example, at FIG. 7.

Minor amendments have also been made to claims 1, 9, and 14, to correct formalities, for reasons unrelated to patentability.

The amendments to Applicant's claims are fully supported by and consistent with the originally-filed specification. No new matter within the meaning of 35 U.S.C. § 132(a) and 37 C.F.R. § 1.121 has been introduced by the foregoing amendments.

B. Response to Objection to Claim 6

At page 11 of the Office Action, claim 6 was objected to as being dependent upon a rejected base claim. Applicant acknowledges with thanks the Examiner's indication that such claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In response to such objection, independent claim 1 has been amended to incorporate features consistent with dependent claim 6 (now cancelled). Similar amendments have been made to independent claims 9 and 16. Based on the amendments to independent claims 1, 9, and 16 to incorporate features consistent with claim 6, such claims are believed to be in condition for allowance.

C. Response to Rejection of Claim 1 Under (pre-AIA) 35 U.S.C. § 112, Second Paragraph

In the Office Action, previously presented claim 1 was rejected under pre-AIA 35 U.S.C. § 112 (second paragraph) as failing to point out and distinctly claim the subject matter which the inventor regards as the invention. Specifically, the Examiner noted that the limitation "aperture-defining element" in line 5 is unclear.

As noted previously, claim 1 has been amended herein to expedite prosecution of the application. In particular, independent claim 1 has been amended to recite "a bristle spreading element including an aperture arranged to permit passage of an oral care capsule." Such amendment is believed to fully address the rejection of claim 1 under pre-AIA 35 U.S.C. § 112 (second paragraph).

Withdrawal of the rejection of claim 1 under pre-AIA 35 U.S.C. § 112 (second paragraph) is respectfully requested.

D. Response to Claim Rejections Under (pre-AIA) 35 U.S.C. § 102(b)

In the Office Action at page 3, claims 1, 2, 4, 7, 9-12, and 14 (including independent claims 1 and 9) were rejected under (pre-AIA) 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 1,995,374 to Young (hereinafter, "Young").

In the Office Action at page 8, claims 16, 17, 19, and 20 (including independent claim 16) were rejected under (pre-AIA) 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,191,803 to Hamilton (hereinafter, "Hamilton").

Applicant respectfully disagrees with the foregoing rejections in application to the claims as amended herein for at least the reasons set out below.

1. Law Regarding Anticipation

As discussed in MPEP § 2131, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."[1] "The identical invention must be shown in as complete detail as is contained in the ... claim."[2] Because the hallmark of anticipation is prior invention, the prior art reference – in order to anticipate under 35 U.S.C. § 102 – must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements "arranged as in the claim."[3] An allegation that a prior art reference anticipates a patent claim cannot be based on sections of a reference taken in isolation; rather "the cited sections must be read in context."[4] This is consistent with the pronouncement of the Federal Circuit that "[t]he well established rule of law is that each prior art reference must be evaluated as an entirety, and that all of the prior art must be evaluated as a whole."[5]

2. Response to Rejection of Claim 1 and the Claims Depending Therefrom over Young

At page 3 of the Office Action, independent claim 1 was rejected as being anticipated by Young.

As noted above, page 11 of the Office Action indicated that "Claim 6 [is] objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." Without conceding the propriety of the rejection of claim 1 in its prior form, but to expedite prosecution,

[1] *Verdegaal Bros. v. Union Oil Co. of California,* 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).
[2] *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).
[3] *Net Moneyin, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983).
[4] *In re Chmiel and O'Leary*, 262 F.2d 81, 120 USPQ 188, 190 (C.C.P.A. 1958).
[5] *Panduit Corp. v. Dennison Mfg. Co.,* 774 F.2d 1082, 227 USPQ 337, 344 (Fed. Cir. 1985).

independent claim 1 has been amended to incorporate features consistent with dependent claim 6 (now cancelled).

For at least the foregoing reasons, Applicant's independent claim 1 is patentable over the cited reference, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending from claim 1 are patentably distinguished over Young for at least the same reasons articulated above in connection with claim 1. Accordingly, it is not necessary to address additional patentable features in Applicant's dependent claims at this time, but Applicant reserves the right to do so in the future, if necessary. Withdrawal of the rejection of claims 1, 2, 4, and 7 over Young is respectfully requested.

3. Response to Rejection of Claim 9 and the Claims Depending Therefrom over Young

At page 3 of the Office Action, independent claim 9 was rejected as being anticipated by Young.

As noted above, page 11 of the Office Action indicated that "Claim 6 [is] objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." As also noted above, to expedite prosecution and for reasons unrelated to patentability, independent claim 9 has been amended in a manner similar to independent claim 1 to incorporate features consistent with dependent claim 6 (now cancelled).

For at least the foregoing reasons, Applicant's independent claim 9 is patentable over the cited reference, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending from claim 9 are patentably distinguished over Young for at least the same reasons articulated above in connection with claim 9. Accordingly, it is not necessary to address additional patentable features in Applicant's dependent claims at this time, but Applicant reserves the right to do so in the future, if necessary. Claim 11 has been cancelled herein, and therefore the rejection of such claim is moot. Withdrawal of the rejection of claims 9, 10, 12 and 14 over Young is respectfully requested.

PETITIONER - COLGATE, Exhibit 1004
Page 54 of 385

4. Response to Rejection of Claim 16 and the Claims Depending Therefrom over Hamilton

At page 8 of the Office Action, independent claim 16 was rejected as being anticipated by Hamilton.

As noted above, page 11 of the Office Action indicated that "Claim 6 [is] objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." As also noted above, to expedite prosecution and for reasons unrelated to patentability, independent claim 16 has been amended in a manner similar to independent claim 1 to incorporate features consistent with dependent claim 6 (now cancelled).

Hamilton does not appear to disclose a bristle spreading element, as illustrated in Figure 9 of Hamilton (reproduced below).

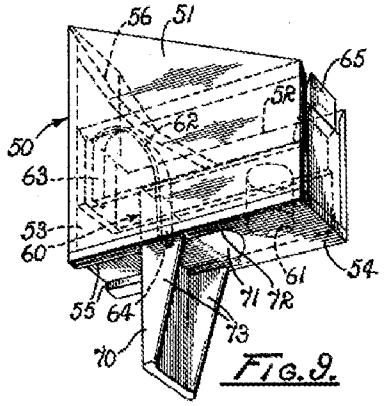


FIG. 9.

For at least the foregoing reasons, Applicant's independent claim 16 is patentable over the cited reference, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending from claim 16 are patentably distinguished over Hamilton for at least the same reasons articulated above in connection with claim 16. Accordingly, it is not necessary to address additional patentable features in Applicant's dependent claims at this time, but Applicant reserves the right to do so in the future, if necessary. Withdrawal of the rejection of claims 16, 17, 19, and 20 over Hamilton is respectfully requested.

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E. Response to Claim Rejections Under 35 U.S.C. § 103(a)

The Office Action contained numerous rejections under (pre-AIA) 35 U.S.C. 103(a), namely:

- a rejection of claim 3 as being unpatentable for obviousness over Young in view of U.S. Patent No. 5,230,440 to Kurokawa (hereinafter, "Kurokawa");
- a rejection of claims 5 and 13 as being unpatentable for obviousness over Young in view of U.S. Patent No. 5,616,299 to Walker et al. (hereinafter, "Walker");
- a rejection of claims 8 and 21 as being unpatentable for obviousness over Young in view of Hamilton;
- a rejection of claim 15 as being unpatentable for obviousness over Young; and
- a rejection of claim 18 as being unpatentable for obviousness over Hamilton in view of Walker.

Applicant respectfully disagrees with the foregoing rejections in application to the claims as amended herein for at least the reasons set out below.

1. Law Regarding Obviousness

According to the U.S. Supreme Court decision in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007), the Court did not disavow the previous "teaching, motivation or suggestion" or "TSM" test, but stated that such TSM text *should not be strictly applied* in determining obviousness. In connection with this point, the Court stated that:

> "A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. … [Rather], it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant art to combine the [prior art] elements in the manner claimed.[6]"

[6] See *KSR*, 82 USPQ2d at 1389.

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It is fundamental to a proper rejection of claims under 35 U.S.C. § 103 that an Examiner must present a convincing line of reasoning supporting the rejection.[7] The Court in *KSR* affirmed the validity of such approach, stating that "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."[8]

In *KSR*, the Court further confirmed that references that teach away from the invention are evidence of the non-obviousness of a claimed invention, and reaffirmed the principle that a fact finder judging patentability "should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning."[9]

Following *KSR*, the Federal Circuit held that although "rigid" application of the TSM test for obviousness is improper, application of a flexible TSM test remains the primary guarantee against improper "hindsight" analysis, because a flexibly applied TSM test ensures that the obviousness analysis proceeds on the basis of evidence in existence before time the application was filed, as required by 35 U.S.C. § 103.[10]

A suggestion to combine references cannot require substantial reconstruction or redesign of such references, or a change in basic operating principles of a construction of a reference, to arrive at the claimed invention.[11]

In considering a reference for its effect on patentability, the reference is required to be considered in its entirety, including portions that teach away from the invention under consideration. Simply stated, the prior art must be considered as a whole.[12] "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art."[13] The Federal Circuit and its predecessor court have repeatedly held that if references taken in

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[7] MPEP 2144 ("Sources of Rationale Supporting a Rejection Under 35 U.S.C. 103"), citing *Ex parte Clapp*, 227 USPQ 972 (Bd. Pat. App. & Inter. 1985).
[8] *KSR*, 82 USPQ2d at 1396.
[9] *KSR*, 82 USPQ2d at 1395, 1399.
[10] *Ortho-McNeil Pharm. Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 86 USPQ2d 1196, 1201-02 (Fed. Cir. 2008).
[11] *In re Ratti*, 270 F.2d 810, 123 USPQ 349, 352 (C.C.P.A. 1959). *See also* MPEP 2143.01 ("If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.')
[12] *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); MPEP § 2141.02.
[13] *Application of Wesslau*, 353 F.2d 238, 241 (C.C.P.A. 1965); *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve*, 796 F.2d 443, 448 (Fed. Cir. 1986), cert. denied, 484 U.S. 823 (1987).

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combination would produce a "seemingly inoperative" device, then such references teach away from the combination and cannot serve as predicates for a *prima facie* case of obviousness.[14]

The Federal Circuit has reaffirmed the necessity of avoiding hindsight bias when considering whether a claim may be obvious, noting specifically that a proper obviousness analysis "requires a form of amnesia that 'forgets' the invention and analyzes the prior art and understanding of the problem at the date of invention."[15]

2. Patentable Distinctions of Claim 3 over Young and Kurokawa

It has been previously demonstrated herein that independent claim 1 is patentably distinguished over Young. Kurokawa fails to remedy the deficiencies of Young in disclosing or providing any derivative basis for all the features recited in independent claim 1.

Claim 3 is patentably distinguished over the same references by virtue of its dependence from claim 1; accordingly, it is not necessary to address the specific features of claim 3, but Applicant reserves the right to do so in the future if necessary. Withdrawal of the rejection of claim 3 under 35 U.S.C. § 103(a) is respectfully requested.

3. Patentable Distinctions of Claims 5 and 13 over Young and Walker

It has been previously demonstrated herein that independent claims 1 and 9 are patentably distinguished over Young. Walker fails to remedy the deficiencies of Young in disclosing or providing any derivative basis for all the features recited in independent claims 1 and 9.

Claims 5 and 13 are patentably distinguished over the same references by virtue of their dependence from claims 1 and 9 respectively; accordingly, it is not necessary to address the

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[14] *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 60 USPQ2d 1001, 1010 (Fed. Cir. 2001); *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999) (proposed combination of references that would be inoperable for intended purpose supports teaching away from combination); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (inoperable modification teaches away); *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (C.C.P.A. 1969) (references teach away from combination if combination produces seemingly inoperative device).

[15] See *Mintz v. Dietz & Watson*, 679 F.3d 1372, 1379 (Fed. Cir. 2012) ("Simply because the technology can be easily understood does not mean that it will satisfy the legal standard of obviousness. In fact, objective consideration of simple technology is often the most difficult because, once the problem and solution appear together in the patent disclosure, the advance seems self-evident. Instead, **the proper analysis requires a form of amnesia that 'forgets' the invention and analyzes the prior art and understanding of the problem at the date of invention.**") (Emphasis added.)

specific features of claims 5 and 13, but Applicant reserves the right to do so in the future if necessary. Withdrawal of the rejection of claims 5 and 13 under 35 U.S.C. § 103(a) is respectfully requested.

4. Patentable Distinctions of Claims 8 and 21 over Young and Hamilton

It has been previously demonstrated herein that independent claims 1 and 9 are patentably distinguished over Young. Hamilton fails to remedy the deficiencies of Young in disclosing or providing any derivative basis for all the features recited in independent claims 1 and 9.

Claims 8 and 21 are patentably distinguished over the same references by virtue of their dependence from claims 1 and 9 respectively; accordingly, it is not necessary to address the specific features of claims 8 and 21, but Applicant reserves the right to do so in the future if necessary. Withdrawal of the rejection of claims 8 and 21 under 35 U.S.C. § 103(a) is respectfully requested.

5. Patentable Distinctions of Claim 15 over Young

It has been previously demonstrated herein that independent claim 9 is patentably distinguished over Young. Claim 15 is patentably distinguished over the same reference by virtue of its dependence from claim 9; accordingly, it is not necessary to address the specific features of claim 15, but Applicant reserves the right to do so in the future if necessary. Withdrawal of the rejection of claim 15 under 35 U.S.C. § 103(a) is respectfully requested.

6. Patentable Distinctions of Claim 18 over Hamilton and Walker

It has been previously demonstrated herein that independent claim 16 is patentably distinguished over Hamilton. Walker fails to remedy the deficiencies of Hamilton in disclosing or providing any derivative basis for all the features recited in independent claim 16.

Claim 18 is patentably distinguished over the same references by virtue of its dependence from claim 16; accordingly, it is not necessary to address the specific features of claim 18, but Applicant reserves the right to do so in the future if necessary. Withdrawal of the rejection of claim 18 under 35 U.S.C. § 103(a) is respectfully requested.

7. New Dependent Claim 22

It has been previously demonstrated herein that independent claim 9 is patentably distinguished over the references cited herein. Claim 22 is patentably distinguished over the same references by virtue of its dependence from claim 9; accordingly, it is not necessary to address the specific features of claim 22, but Applicant reserves the right to do so in the future if necessary.

Conclusion

Based on the foregoing, pending claims 1-5, 7-10, and 12-22 are patentably distinguished over the art, and in form and condition for allowance. The Examiner is requested to favorably consider the foregoing, and to responsively issue a Notice of Allowance.

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application.

The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-1732, to the extent that such fees are not paid by other means (e.g., via credit card).

If any issues require further resolution, the Examiner is requested to contact the undersigned attorney at (919) 238-2300 to discuss same.

Respectfully submitted,

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Date: June 21, 2017
Attorney Docket: 2076-002C

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Section I (Amendments to the Claims)

Please amend claims 1-3, 8, 9, and 14-20; cancel claims 6 and 11; and add new claim 22, as set out in the following complete listing of the claims of the application.

1. (Currently Amended) A dispensing device configured for use with at least one toothbrush including a brush head having a capsule receiving zone configured to receive an oral care capsule, the dispensing device comprising:

a container including an interior arranged to contain a plurality of oral care capsules including the oral care capsule;

~~an aperture defining element~~ a bristle spreading element including an aperture arranged to permit passage of [[an]] the oral care capsule, the bristle spreading element arranged to spread apart at least some bristles of the brush head to prepare the brush head to receive the oral care capsule in the capsule receiving zone; and

a moveable dispensation element arranged to contact and push [[an]] the oral care capsule through the aperture to be received by the capsule receiving zone of the brush head.

2. (Currently Amended) The dispensing device of claim 1, wherein the container comprises a ramp arranged to guide oral care capsules of the plurality of oral care capsules toward the moveable dispensation element.

3. (Currently Amended) The dispensing device of claim 1, further comprising at least one moveable sealing element arranged to reduce infiltration of moisture into the container between cycles of dispensing oral care capsules of the plurality of oral care capsules from the dispensing device.

4. (Previously Presented) The dispensing device of claim 1, further comprising a selectively closable dispensing orifice configured to permit dispensation of at least one oral care capsule of the plurality of oral care capsules from the container.

5. (Original) The dispensing device of claim 1, further comprising a desiccant material arranged in moisture receiving relationship with the interior of the container.

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6. (Cancelled).

7. (Previously Presented) The dispensing device of claim 1, wherein the moveable dispensation element comprises at least one of a push bar, an arm, a lever, or a spring.

8. (Currently Amended) The dispensing device of claim 1, further comprising a guide tube arranged to receive the brush head, wherein the ~~aperture defining element~~ bristle spreading element bounds a portion of the guide tube.

9. (Currently Amended) A dispensing device configured for use with at least one toothbrush including a brush head having a capsule receiving zone sized to receive an oral care capsule, the dispensing device comprising:

~~at least one toothbrush manipulation element~~ a bristle spreading element configured to contact the brush head and spread apart at least some bristles of the brush head to promote passage of [[an]] the oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone; and

at least one dispensation element configured to deliver said oral care capsule through the bristle spreading element ~~at least one toothbrush manipulation element~~ into the capsule receiving zone.

10. (Original) The dispensing device of claim 9, further comprising a container containing a plurality of oral care capsules.

11. (Cancelled).

12. (Previously Presented) The dispensing device of claim 9, further comprising:

a container having an interior configured to contain a plurality of oral care capsules, and

at least one selectively closable dispensing orifice configured to permit dispensation of at least one oral care capsule of the purality of oral care capsules from the container.

13. (Original) The dispensing device of claim 12, further comprising a desiccant material disposed to receive moisture from the interior.

14. (Currently Amended) The dispensing device of claim 12, wherein said container comprises at least one ramp configured to guide said plurality of oral care capsules toward said at least one selectively closable dispensing orifice for dispensation of the at least one oral care capsule of the plurality of oral care capsules through the at least one selectively closable dispensing orifice.

15. (Currently Amended) The dispensing device of claim 12, configured to effectuate automatic dispensation of at least one oral care capsule of the plurality of oral care capsules from the container through the at least one selectively closable dispensing orifice.

16. (Currently Amended) An oral care capsule dispensing device, comprising:

a container having an interior configured to contain a plurality of oral care capsules;

~~a toothbrush manipulation element~~ a bristle spreading element configured to contact a brush head and spread apart at least some bristles of the brush head to promote passage of at least one oral care capsule of the plurality of oral care capsules through the bristle spreading element ~~toothbrush manipulation element~~ into a retention structure of the brush head; and

at least one selectively closable dispensing orifice configured to permit dispensation of the at least one oral care capsule from the container.

17. (Currently Amended) The oral care capsule dispensing device of claim 16, being configured for use with at least one toothbrush including a brush head having a capsule receiving zone sized to receive an oral care capsule of the plurality of oral care capsules, the dispensing device further comprising at least one dispensation element configured to deliver said oral care capsule into the capsule receiving zone.

18. (Currently Amended) The oral care capsule dispensing device of claim 16, further comprising a desiccant material disposed to receive moisture from the interior.

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19. (Currently Amended) The oral care capsule dispensing device of claim 16, wherein said container comprises at least one ramp configured to guide said plurality of oral care capsules toward said at least one selectively closable dispensing orifice for dispensation of the at least one oral care capsule through the at least one selectively closable dispensing orifice.

20. (Currently Amended) The oral care capsule dispensing device of claim 16, configured to effectuate automatic dispensation of the at least one oral care capsule from the container through the at least one selectively closable dispensing orifice.

21. (Previously Presented) The dispensing device of claim 9, further comprising a guide tube configured to receive and guide the brush head into position for loading the oral care capsule therein.

22. (New) The dispensing device of claim 9, wherein the bristle spreading element comprises a reduced thickness portion configured to spread apart the at least some bristles of the brush head.

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@wt-ip.com

Office Action Summary	Application No. 14/535,442	Applicant(s) NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01/06/2017*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-21* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-5 and 7-21* is/are rejected.

8)☒ Claim(s) *6* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *06/30/2016* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

******Note this is a Non-Final action after consideration of the Notice of Appeal dated 01/06/2017.**

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 1 recites the limitations “aperture-defining element" in line 5. It is unclear as to what specifically is the aperture-defining element. As best construed the specifications disclose an aperture-defining bristle spreading element 119. It is unclear to whether the aperture-defining element is the bristle spreading element or an another undisclosed member. Appropriate clarification is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,4,7,9-12 and 14 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Young (US 1,995,374).

Referring to claims 1 and 7. Young discloses a dispensing device (Figure 4) configured for use with at least one toothbrush (10) including a brush head (13) having a capsule receiving zone (15) configured to receive an oral care capsule (16), the dispensing device (Figure 4) comprising:

a container (19) including an interior arranged to contain a plurality of oral care capsules (16; Figure 4); an aperture-defining element (portion of the cap defining an aperture 21) including an aperture (21)arranged to permit passage of an oral care capsule (16); and

a moveable dispensation element (24; regarding claim 7; member 28 is a lever/pushbar) arranged to contact and push an oral care capsule (16) through the aperture (21) to be received by the capsule receiving zone (15) of the brush head (13).

Referring to claim 2. Young discloses a dispensing device (Figure 4) wherein the container (19) comprises a ramp (20) arranged to guide oral care capsules (16) toward the moveable dispensation element (24).

Referring to claims 4 and 12. Young discloses a dispensing device (Figure 4) wherein further comprising a selectively closable dispensing orifice (opening 16 is selectively obstructed by flexible members 22 to close the dispensing aperture) configured to permit dispensation of at least one oral care capsule (16) of the plurality of oral care capsules from the container (19).

Referring to claims 9 and 10. Young discloses a dispensing device (Figure 4) configured for use with at least one toothbrush (10) including a brush head (13) having a capsule receiving zone (15) sized to receive an oral care capsule (16), the dispensing device comprising:

at least one toothbrush manipulation element (base of 21 onto which a user initiates contact of the brush head) configured to contact the brush head (13) to promote passage (through 21) of an oral care capsule (16) into a retention structure (15) associated with the brush head (13) to enable receipt of said oral care capsule (16) into the capsule receiving zone (zone 15); and

at least one dispensation element (24) configured to deliver said oral care capsule (16) through the at least one toothbrush manipulation element (base of 21 onto which a user initiates contact of the brush head) into the capsule receiving zone (15).

Referring to claim 11. Young discloses a dispensing device (Figure 4) wherein the oral care capsule (16) is spheroidal in shape (see Figure 3).

Regarding claim 14, see claim 2 and 4 rejections above.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Young (US 1,995,374) in view of Kurokawa (US 5,230,440).

Referring to claim 3. Young discloses all claimed limitations of claim 3 however Young does not specifically disclose at least one moveable sealing element arranged to reduce infiltration of moisture.

Kurokawa discloses a tablet dispenser (Figure 31) wherein the dispenser comprises at least one moveable sealing element (6; Figure 31) arranged to reduce infiltration of moisture into the container between cycles of dispensing oral care capsules from the dispensing device.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Young to have included a sealing

element arranged to reduce infiltration of moisture as taught by Kurokawa because the sealing element would extend the life and freshness of the articles stored in the dispenser.

Claims 5 and 13 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Young (US 1,995,374) in view of Walker (US 5,616,299).

Referring to claims 5 and 13. Young discloses all claimed limitations of claim 5 however Young does not disclose a desiccant material arranged in the interior of the container.

Walker discloses a dispenser for dried reagent spheres (10; Figure 2) wherein the container comprising a desiccant material (67; Figure 2) arranged in moisture receiving relationship with the interior of the container to inhibit moisture within the container.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Young to have include a desiccant material arranged in the interior of the container as taught by Walker because the desiccant material would inhibit moisture collection within the dispenser thus extending the life of the stored capsules.

Claims 8 and 21 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Young (US 1,995,374) in view of Hamilton (US 3,191,803).

Referring to claims 8 and 21. Young discloses all claimed limitations of claim 8 however Young does not disclose a guide tube arranged to receive the brush head.

Hamilton discloses a dentifrice dispenser (Figure 11) wherein the dispenser comprising a guide tube (see bottom portion of dispenser for receiving the brush head) arranged to receive the brush head (192), wherein the aperture-defining element bounds a portion of the guide tube (bounds the top portion of the guide tube).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Young to have include a guide tube arranged to receive the brush head as taught by Hamilton because the guide tube would provide a user a designated area for aligning the brush head with the dispensing aperture such that the oral care capsule is assured to be captured by the brush head thus eliminating waste.

Claim 15 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Young (US 1,995,374) (alone).

Referring to claim 15. Young does not specifically disclose the dispenser as being configured to effectuate automatic dispensation of articles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Young to effectuate automatic dispensation of at least one oral care capsule from the container through the at least one selectively closable dispensing orifice because automating the dispensing of the capsules would provide for a hands-free operation of the dispenser and thus further improve the sanitary conditions of the dispensed capsules.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16,17,19 and 20 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Hamilton (US 3,191,803).

Referring to claim 16. Hamilton discloses a oral care capsule (36) dispensing device (10; Figure 1), comprising:

a container (34) having an interior configured to contain a plurality of oral care capsules (36; Figure 4); a toothbrush manipulation element (70,73,60 and 61); assure

the brush head is positioned in the correct position for receiving an oral care capsule) configured to contact a brush head (82) to promote passage of at least one oral care capsule (36) of the plurality of oral care capsules (in storage cavity) through the toothbrush manipulation element (70,73,60 and 61; specifically through cavity 61) into a retention structure of the brush head (83); and

at least one selectively closable dispensing orifice (opening between member 57 and tip of 49; as seen in Figure 4 and in closable configuration in Figure 5) configured to permit dispensation of the at least one oral care capsule (36) from the container (34).

Referring to claim 17. Hamilton discloses a oral care capsule (36) dispensing device (10; Figure 1), being configured for use with at least one toothbrush (23) including a brush head (82) having a capsule receiving zone (85) sized to receive an oral care capsule (36), the dispensing device (10) further comprising at least one dispensation element (72) configured to deliver said oral care capsule (36) into the capsule receiving zone (85).

Referring to claims 19. Hamilton discloses a oral care capsule (36) dispensing device (10; Figure 1), wherein said container (34) comprises at least one ramp (56; Figure 4) configured to guide said plurality of oral care capsules (36) toward said at least one selectively closable dispensing orifice (opening between member 57 and tip of 49; as seen in Figure 4 and in closable configuration in Figure 5) for dispensation of the

at least one oral care capsule (36) through the at least one selectively closable dispensing orifice.

Referring to claims 20. Hamilton does not specifically disclose the dispenser as being configured to effectuate automatic dispensation of articles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Hamilton to effectuate automatic dispensation of at least one oral care capsule from the container through the at least one selectively closable dispensing orifice because automating the dispensing of the capsules would provide for a hands-free operation of the dispenser and thus further improve the sanitary conditions of the dispensed capsules.

Claim 18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Hamilton (US 3,191,803) in view of Walker (US 5,616,299).

Referring to claim 18. Hamilton discloses all claimed limitations of claim 18 however Hamilton does not disclose a desiccant material arranged in the interior of the container.

Walker discloses a dispenser for dried reagent spheres (10; Figure 2) wherein the container comprising a desiccant material (67; Figure 2) arranged in moisture

receiving relationship with the interior of the container to inhibit moisture within the container.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Hamilton to have include a desiccant material arranged in the interior of the container as taught by Walker because the desiccant material would inhibit moisture collection within the dispenser thus extending the life of the stored capsules.

Allowable Subject Matter

Claim 6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH KUMAR whose telephone number is (571)272-8314. The examiner can normally be reached on M-F 8 AM to 4:30 PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an

interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RAKESH KUMAR/
Primary Examiner, Art Unit 3651

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	RAKESH KUMAR	3651

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/25/2016	09/30/2016	03/14/2017						
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EAST Search History

EAST Search History (Prior Art)

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	Art Unit
	RAKESH KUMAR	3651

CPC- SEARCHED		
Symbol	Date	Examiner
A46B1 11/0003	3/25/2016	RK

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
222	372	3/25/2016	RK

SEARCH NOTES		
Search Notes	Date	Examiner
Performed Special Feature Tech search in EAST	3/25/2016	RK
Performed Backward and Forward searches in EAST	3/25/2016	RK
Reviewed App. 12/101,446/ IDS forms	3/25/2016	RK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2014	Lise W. Noble	2076-002C	1451

27820 7590 03/02/2017
WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511

EXAMINER
KUMAR, RAKESH

ART UNIT	PAPER NUMBER
3651	

NOTIFICATION DATE	DELIVERY MODE
03/02/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@wt-ip.com

Notice of Panel Decision from Pre-Appeal Brief Review	Application No. 14/535,442	Applicant(s) NOBLE ET AL.
	Examiner RAKESH KUMAR	Art Unit 3651

This is in response to the Pre-Appeal Brief Request for Review filed 06 January, 2017.

1. ☐ **Improper Request** – The Request is improper and a conference will not be held for the following reason(s):

☐ The Notice of Appeal has not been filed concurrent with the Pre-Appeal Brief Request.
☐ The request does not include reasons why a review is appropriate.
☐ A proposed amendment is included with the Pre-Appeal Brief request.
☐ Other: .

The time period for filing a response continues to run from the receipt date of the Notice of Appeal or from the mail date of the last Office communication, if no Notice of Appeal has been received.

2. ☐ **Proceed to Board of Patent Appeals and Interferences** – A Pre-Appeal Brief conference has been held. The application remains under appeal because there is at least one actual issue for appeal. Applicant is required to submit an appeal brief in accordance with 37 CFR 41.37. The time period for filing an appeal brief will be reset to be one month from mailing this decision, or the balance of the two-month time period running from the receipt of the notice of appeal, whichever is greater. Further, the time period for filing of the appeal brief is extendible under 37 CFR 1.136 based upon the mail date of this decision or the receipt date of the notice of appeal, as applicable.

☐ The panel has determined the status of the claim(s) is as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: _____.
Claim(s) withdrawn from consideration: _____.

3. ☐ **Allowable application** – A conference has been held. The rejection is withdrawn and a Notice of Allowance will be mailed. Prosecution on the merits remains closed. No further action is required by applicant at this time.

4. ☒ **Reopen Prosecution** – A conference has been held. The rejection is withdrawn and a new Office action will be mailed. No further action is required by applicant at this time.

All participants:

(1) *RAKESH KUMAR*.	(3) *SUE LAO*.
(2) *GENE CRAWFORD*.	(4)_____.

/RAKESH KUMAR/ Primary Examiner, Art Unit 3651	/SUE LAO/ Primary Examiner	/GENE CRAWFORD/ Supervisory Patent Examiner, Art Unit 3651

Doc Code: AP.PRE.REQ

PTO/AIA/33 (03-13)
Approved for use through 07/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): 2076-002C

I hereby certify that this correspondence is being facsimile transmitted to the USPTO, EFS-Web transmitted to the USPTO, or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]
on January 6, 2017

Signature /vincent k. gustafson/

Typed or printed name Vincent K. Gustafson

Application Number	Filed
14/535,442	11/07/2014

First Named Inventor: Lise W. Noble

Art Unit	Examiner
3651	Rakesh Kumar

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 46,182.

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

/vincent k. gustafson/
Signature

Vincent K. Gustafson
Typed or printed name

919-238-2339
Telephone number

January 6, 2017
Date

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 1 forms are submitted.

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Lise W. Noble et al.
Serial No. 14/535,442
Filed: 11/07/2014
Attorney Docket No. 2076-002C

Examiner: Rakesh Kumar
Art Unit: 3651

For: **TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE**

Mail Stop AF
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

REMARKS WITH PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

In connection with the Notice of Appeal filed herewith, enclosed is a Pre-Appeal Brief Request for Review. Claims 1-21 (including independent claims 1, 9, and 16) are the subject of this appeal. Claims 1-4, 7-12, and 14-21 stand rejected under pre-AIA 35 U.S.C. § 103(a) over U.S. Patent Application Publication No. 2006/0165473 to Hohlbein (hereinafter, "Hohlbein") in view of U.S. Patent Application Publication No. 2004/0091431 to Alexander (hereinafter, "Alexander"), and dependent claims 5, 13, and 18 stand rejected under pre-AIA 35 U.S.C. § 103(a) over Hohlbein in view of Alexander and further in view of U.S. Patent No. 5,616,299 to Walker et al. (hereinafter, "Walker"), as indicated in the October 6, 2016 Final Office Action (hereinafter, "Office Action"). For at least the reasons set out below, such rejections are clearly improper based upon errors in fact and/or omission of essential elements required to establish *prima facie* rejections of Applicant's claims.

A. Rejection of Claim 1 Over Hohlbein and Alexander

The Office Action concedes at pages 3-4 that Hohlbein does not disclose every feature recited in independent claim 1, but relies upon Alexander for disclosing such features. A more detailed discussion of Hohlbein with respect to independent claim 1 is provided at pages 9-10 of Appellant's Response dated December 6, 2016. As explained in more detail below, the rejection of claim 1 is premised on a factual error, since Alexander fails to disclose "a moveable dispensation element arranged to **contact and push** an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head," as recited in independent claim 1.

For a more detailed discussion of patentable distinctions independent claim 1 over the cited art, see, e.g., pages 8-9 of Appellant's Response of December 6, 2016.

Alexander notes that to use the disclosed apparatus "[o]ne or perhaps more beads are selected for use, removed from a container or dispenser and broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.) Alexander further discloses dispensers for such capsules, and particularly discloses a "conventional dispenser with a lid 302," where "[a] spring-loaded lever 303 when pressed aligns two holes so that a **capsule** or bead previously stored within the mass 301 **emerges through hole 305 within a plunger assembly** on to a collection plate 304." See Alexander, ¶ 0083 (emphasis added) and, FIG. 3 (reproduced below and edited to conserve space). Accordingly, Alexander discloses **pushing on a spring-loaded lever** as illustrated below to align two holes to allow a capsule to emerge through the aligned holes **onto a collection plate** 304. The capsule can then be removed from the collection plate 304 and "broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.)

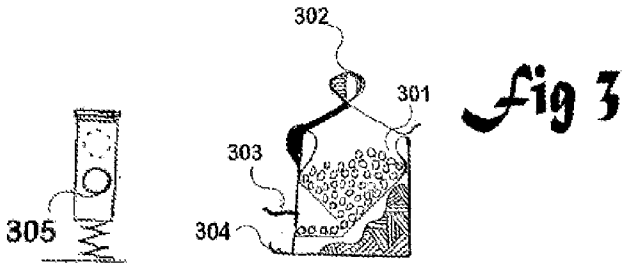


Fig 3

The Office Action alleges that Alexander's plunger assembly (e.g., as illustrated above) discloses "a moveable dispensation element arranged to contact and push . . . an oral capsule through the aperture." (Office Action, page 4.) However, Alexander does **not** disclose a moveable dispensation element **pushing an oral care capsule** through an aperture. Instead, Alexander discloses that the alignment of two holes motivated by pushing on a spring-loaded lever allows a capsule to emerge onto a collection plate – with passage of the capsule presumably **motivated by gravity**. Alexander discloses that a capsule "emerges through hole 305 within a plunger assembly on to a collection plate 304," wherein the collection plate 304 does **not** embody a capsule receiving zone of a brush head. (Alexander, ¶ 0083.) It is therefore clear that Alexander does **not** disclose "**a moveable dispensation element arranged to contact and push**

PETITIONER - COLGATE, Exhibit 1004
Page 99 of 385

an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head," as recited in independent claim 1. (Emphasis added.)

For at least the foregoing reasons, Appellant respectfully requests reversal of the rejection of claim 1. Since dependent claims inherently include the features of the claims on which they depend, reversal of the rejections of all claims depending from claim 1 is further requested.

B. Rejection of Claim 9 Over Hohlbein and Alexander

The Office Action appears to concede at pages 3-4 that Hohlbein does not disclose every feature recited in independent claim 9 by relying upon Alexander for disclosing such features. For a more detailed discussion of Hohlbein with respect to independent claim 9, see, e.g., pages 14-16 of Appellant's Response of December 6, 2016. As explained in more detail below, the rejection of claim 9 is premised on a factual error, since Alexander fails to disclose "**at least one toothbrush manipulation element configured to contact the brush head to promote passage** of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone," and "at least one dispensation element configured to deliver said oral care capsule **through the at least one toothbrush manipulation element**," as recited in independent claim 9. For a more detailed discussion of Appellant's invention with respect to independent claim 9, see, e.g., pages 13-14 of Appellant's Response of December 6, 2016.

The rejection of independent claim 9 also omits essential elements required to establish a *prima facie* rejection. In particular, the Office Action fails to provide a clear articulation of reasons why it would be obvious to modify the alleged dispensing device of Hohlbein in view of the alleged toothbrush **manipulation element** and the **dispensation element** of Alexander to arrive at the subject matter of independent claim 9. (See, e.g., Office Action, page 6.)

Consistent with the preceding discussion of the reference, Alexander discloses dispensers for capsules or beads containing a toothpaste composition, and in particular, discloses a "conventional dispenser with a lid 302," where "**[a] spring-loaded lever 303** when pressed aligns two holes so that a capsule or bead previously stored within the mass 301 emerges through **hole 305** within a plunger assembly on to a collection plate 304." See Alexander, ¶ 0083 (emphasis added) and FIG. 3 (reproduced previously herein). Alexander therefore discloses pushing on a spring-loaded lever to align two holes to allow a capsule to emerge (presumably motivated by gravity) through the aligned **holes onto a collection plate**. The capsule can then

PETITIONER - COLGATE, Exhibit 1004
Page 100 of 385

be removed from the collection plate and be "broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Id., ¶ 0080.)

The Office Action alleges that Alexander discloses "at least one toothbrush manipulation element (303) configured to contact the brush head to promote passage . . . of an oral care capsule (capsule through member 306 onto 304)," and "at least one dispensation element (306)." (Office Action, page 6.) Appellant notes that Alexander fails to disclose any member "306" in the specification or the drawings, and assumes that the Office Action is referring to hole 305. Thus, the Office Action appears to allege that the "spring-loaded lever 303" is a toothbrush manipulation element configured to **contact** the brush head. However, any such hypothetical action would not "promote passage of an oral care capsule into a retention structure associated with the brush head," as recited in independent claim 9. As noted previously, Alexander discloses that a capsule "emerges through hole 305 within a plunger assembly on to a collection plate 304" (Alexander, ¶ 0083.), wherein the collection plate 304 is **not** a retention structure associated with a brush head. Accordingly, Alexander does **not** disclose "at least one toothbrush manipulation element configured **to contact the brush head to promote passage** of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone," as recited in independent claim 9. (Emphasis added.)

Further, the Office Action alleges that Alexander discloses "at least one dispensation element (306) configured to deliver said oral care capsule through the at least one toothbrush manipulation element." (Office Action, page 6.) Thus, the Office Action appears to allege that the oral care capsules are delivered **through** the "spring-loaded lever 303." However, Alexander's oral capsules are not delivered through the "spring-loaded lever 303," but rather are delivered through "hole 305 within a plunger assembly." (Alexander, ¶ 0083.) Accordingly, Alexander does **not** disclose "at least one dispensation element configured to deliver said oral care capsule through the at least one toothbrush manipulation element," as recited in claim 9.

For at least the foregoing reasons, Appellant respectfully requests reversal of the rejection of claim 9. Since dependent claims inherently include the features of the claims on which they depend, reversal of the rejections of all claims depending from claim 9 is further requested.

PETITIONER - COLGATE, Exhibit 1004
Page 101 of 385

C. Rejection of Claim 16 Over Hohlbein and Alexander

The Office Action rejects independent claim 16 at pages 3-4 as being obvious over Hohlbein in view of Alexander. The rejection of independent claim 16 omits essential elements required to establish a *prima facie* rejection, for at least the reason that the Office Action fails to provide any clear articulation of reasons why it would be obvious to modify the alleged dispensing device of Hohlbein in view of the alleged toothbrush manipulation element of Alexander to arrive at the claimed invention of independent claim 16. (See, e.g., Office Action, page 3.)

Further, it has been previously established herein that Hohlbein and Alexander, taken alone or in combination, fail to disclose a toothbrush manipulation element configured to contact a brush head to promote passage of an oral care capsule through the toothbrush manipulation element into a retention structure associated with the brush head. Accordingly, contrary to the Office Action, Alexander does not disclose "a toothbrush manipulation element configured **to contact a brush head to promote passage** of at least one oral care capsule of the plurality of oral care capsules **through the toothbrush manipulation element** into a retention structure of the brush head," as recited in independent claim 16.

For at least the foregoing reasons, Appellant respectfully requests reversal of the rejection of claim 16. Since dependent claims inherently include the features of the claims on which they depend, reversal of the rejections of all claims depending from claim 16 is further requested.

CONCLUSION

For the above reasons, Appellant respectfully requests reversal of the rejections of independent claims 1, 9, and 16, and 2-5, 7, 8, 10-15, and 17-21 depending therefrom.

If any issues require further resolution, the Examiner is requested to contact the undersigned attorney by phone at (919)238-2339.

Respectfully submitted,

Dated: January 6, 2017

/vincent k. gustafson/

Vincent K. Gustafson
Registration No. 46,182

Customer No. 27820
Withrow + Terranova, P.L.L.C.
106 Pinedale Springs Way, Cary, NC 27511
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PETITIONER - COLGATE, Exhibit 1004
Page 102 of 385

Electronic Patent Application Fee Transmittal

Application Number:	14535442
Filing Date:	07-Nov-2014
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Filer:	Vincent Kayne Gustafson/Laura Woodrum
Attorney Docket Number:	2076-002C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
NOTICE OF APPEAL	2401	1	400	400
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**400**

Electronic Acknowledgement Receipt

EFS ID:	27996941
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Laura Woodrum
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	06-JAN-2017
Filing Date:	07-NOV-2014
Time Stamp:	16:05:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$400
RAM confirmation Number	010917INTEFSW16061700
Deposit Account	501732
Authorized User	Laura Woodrum

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notice of Appeal Filed	2076-002C_Notice_of_Appeal.pdf	237651 acf476138ebc608fc5d4bdf72232d88c0da4b3dc	no	2
Warnings:					
Information:					
2	Pre-Brief Conference request	2076-002C_PABR_Form_signed.pdf	190197 3fb99183928bc0bc4a7c341033f9ccd1a5e8f453	no	2
Warnings:					
Information:					
3	Pre-Brief Conference request	2076-002C_PABR_Remarks.pdf	55840 c17daa29f43f682a502a2cb654c72075f567aa4a	no	5
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30414 981b0faf6df463201ef5e289ca33eb0d9c6e3fd1	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	514102		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/31 (03-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

NOTICE OF APPEAL FROM THE EXAMINER TO THE PATENT TRIAL AND APPEAL BOARD

Docket Number (Optional): 2076-002C

I hereby certify that this correspondence is being facsimile transmitted to the USPTO, EFS-Web transmitted to the USPTO, or deposited with the United States Postal Service with sufficient postage in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, on Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on January 6, 2017.

Signature: /vincent k. gustafson/

Typed or printed name: Vincent K. Gustafson

In re Application of: Lise W. Noble

Application Number	Filed
14/535,442	11/07/2014

For: TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

Art Unit	Examiner
3651	Rakesh Kumar

Applicant hereby **appeals** to the Patent Trial and Appeal Board from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 800.00

☑ Applicant asserts small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by 50%, and the resulting fee is: $ 400.00

☐ Applicant certifies micro entity status. See 37 CFR 1.29. Therefore, the fee shown above is reduced by 75%, and the resulting fee is: $ _____
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 50-1732.

☑ Payment made via EFS-Web.

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/AIA/22 or equivalent) is enclosed.
For extensions of time in reexamination proceedings, see 37 CFR 1.550.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant

☑ attorney or agent of record
Registration number 46,182

☐ attorney or agent acting under 37 CFR 1.34
Registration number _____

Signature: /vincent k. gustafson/

Typed or printed name: Vincent K. Gustafson

Telephone Number: 919-238-2339

Date: January 6, 2017

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 41.20(b)(1) and 41.31. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2014	Lise W. Noble	2076-002C	1451

27820 7590 12/14/2016
WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511

EXAMINER
KUMAR, RAKESH

ART UNIT	PAPER NUMBER
3651	

NOTIFICATION DATE	DELIVERY MODE
12/14/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@wt-ip.com

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 14/535,442	**Applicant(s)** NOBLE ET AL.	
	Examiner RAKESH KUMAR	**Art Unit** 3651	**AIA (First Inventor to File) Status** No

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 06 December 2016 14535442

NO NOTICE OF APPEAL FILED

1. ☒ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance;

(2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:

a) ☐ The period for reply expires _____months from the mailing date of the final rejection.

b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT'S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☒ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because

a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);

b) ☐ They raise the issue of new matter (see NOTE below);

c) ☒ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicant's reply has overcome the following rejection(s): _____.

6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☒ For purposes of appeal, the proposed amendment(s): (a) ☐ will not be entered, or (b) ☒ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
Applicants amendment includes no changes to the presented claims as filed prior to the Final Action dated 10/06/2016. As recited in the Final Action, Applicants claim 6 was indicated to be allowable if the complete structure of claim 6 is rewritten in an independent form. It is again suggested the applicant include the critical structure pertaining to the bristle spreader and/or the actuation arm which deposits the capsule into the receiving zone for the claim to be viewed favorably.

13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____

14. ☐ Other: _____.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: .

Claim(s) objected to: 6

/RAKESH KUMAR/
Primary Examiner, Art Unit 3651

OK TO ENTER: /R.K/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Lise W. Noble et al.
Serial No. 14/535,442
Filed: 11/07/2014
Attorney Docket No. 2076-002C

Examiner: Rakesh Kumar
Art Unit: 3651

For: **TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE**

Mail Stop AF
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE TO FINAL OFFICE ACTION MAILED OCTOBER 6, 2016

Sir:

In response to the Final Office Action mailed October 6, 2016, Applicant offers the following remarks. The time for responding to the October 6, 2016 Final Office Action without extension fee payment was set at three months from the issuance thereof; accordingly, the initial response deadline is January 6, 2017. If any fees are required in association with this response, the Director is hereby authorized to charge them to Deposit Account 50-1732, and to consider this a petition for taking any appropriate action to obtain entry of this response.

The pending claims of the application, which are not amended herein, are set out in **Section I (Statement of the Claims)** beginning on page 2 of this Response.

Remarks addressing the substance of the October 6, 2016 Final Office Action are set out in **Section II (Remarks)** hereof beginning on page 6 of this Response.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Lise W. Noble et al.
Serial No. 14/535,442
Filed: 11/07/2014
Attorney Docket No. 2076-002C

Examiner: Rakesh Kumar
Art Unit: 3651

For: **TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE**

Mail Stop AF
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE TO FINAL OFFICE ACTION MAILED OCTOBER 6, 2016

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Electronic Acknowledgement Receipt

EFS ID:	27707094
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Laura Woodrum
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	06-DEC-2016
Filing Date:	07-NOV-2014
Time Stamp:	13:55:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2076-002C_Response_to_10-06-16_OAF.pdf	407081 5b4443fce9ccf2867b81d7e5050efdaf83e57fe8	yes	20

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	6	20
	Claims	2	5
	Response After Final Action	1	1
Warnings:			
Information:			
	Total Files Size (in bytes):	407081	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Section II (Remarks)

The Final Office Action mailed October 6, 2016 (hereinafter "Office Action") has been carefully reviewed, and Applicant respectfully requests reconsideration of the rejections of Applicant's claims, particularly in view of the following remarks.

A. Claim Status

Claims 1-21, which are not amended herein, are pending in the application.

B. Response to Rejections of Claims Under 35 U.S.C. § 103(a)

At page 2 of the Office Action, claims 1-4, 7-12, and 14-21 (including independent claims 1, 9, and 16) were rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable for obviousness over U.S. Patent Application Publication No. 2006/0165473 to Hohlbein (hereinafter, "Hohlbein") in view of U.S. Patent Application Publication No. 2004/0091431 to Alexander (hereinafter, "Alexander"). At page 7 of the Office Action, claims 5, 13, and 18 were rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable for obviousness over Hohlbein in view of Alexander and further in view of U.S. Patent No. 5,616,299 to Walker et al. (hereinafter, "Walker"). Applicant respectfully disagrees with and traverses the foregoing rejections for at least the reasons set out below.

1. Law Regarding Obviousness

According to the U.S. Supreme Court decision in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007), the Court did not disavow the previous "teaching, motivation or suggestion" or "TSM" test, but stated that such TSM text *should not be strictly applied* in determining obviousness. In connection with this point, the Court stated that:

> "A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. … [Rather], it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant art to combine the [prior art] elements in the manner claimed.[1]"

[1] See *KSR*, 82 USPQ2d at 1389.

It is fundamental to a proper rejection of claims under 35 U.S.C. § 103 that an Examiner must present a convincing line of reasoning supporting the rejection.[2] The Court in *KSR* affirmed the validity of such approach, stating that "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."[3]

In *KSR*, the Court further confirmed that references that teach away from the invention are evidence of the non-obviousness of a claimed invention, and reaffirmed the principle that a fact finder judging patentability "should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning."[4]

Following *KSR*, the Federal Circuit held that although "rigid" application of the TSM test for obviousness is improper, application of a flexible TSM test remains the primary guarantee against improper "hindsight" analysis, because a flexibly applied TSM test ensures that the obviousness analysis proceeds on the basis of evidence in existence before time the application was filed, as required by 35 U.S.C. § 103.[5]

A suggestion to combine references cannot require substantial reconstruction or redesign of such references, or a change in basic operating principles of a construction of a reference, to arrive at the claimed invention.[6]

In considering a reference for its effect on patentability, the reference is required to be considered in its entirety, including portions that teach away from the invention under consideration. Simply stated, the prior art must be considered as a whole.[7] "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art."[8] The Federal Circuit and its predecessor court have repeatedly held that if references taken in

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[2] MPEP 2144 ("Sources of Rationale Supporting a Rejection Under 35 U.S.C. 103"), citing *Ex parte Clapp*, 227 USPQ 972 (Bd. Pat. App. & Inter. 1985).
[3] *KSR*, 82 USPQ2d at 1396.
[4] *KSR*, 82 USPQ2d at 1395, 1399.
[5] *Ortho-McNeil Pharm. Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 86 USPQ2d 1196, 1201-02 (Fed. Cir. 2008).
[6] *In re Ratti*, 270 F.2d 810, 123 USPQ 349, 352 (C.C.P.A. 1959). *See also* MPEP 2143.01 ("If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.')
[7] *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); MPEP § 2141.02.
[8] *Application of Wesslau*, 353 F.2d 238, 241 (C.C.P.A. 1965); *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve*, 796 F.2d 443, 448 (Fed. Cir. 1986), cert. denied, 484 U.S. 823 (1987).

combination would produce a "seemingly inoperative" device, then such references teach away from the combination and cannot serve as predicates for a *prima facie* case of obviousness.[9]

The Federal Circuit has reaffirmed the necessity of avoiding hindsight bias when considering whether a claim may be obvious, noting specifically that a proper obviousness analysis "requires a form of amnesia that 'forgets' the invention and analyzes the prior art and understanding of the problem at the date of invention."[10]

2. Patentable Distinctions of Claim 1 and the Claims Depending Therefrom Over Hohlbein and Alexander

At pages 3-4 of the Office Action, independent claim 1 was rejected as being obvious over Hohlbein in view of Alexander. Applicant respectfully disagrees with the foregoing rejection for at least the reason that the references, taken alone or in combination, fail to disclose or provide any derivative basis for "a moveable dispensation element arranged to **contact and push** an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head," as detailed below.

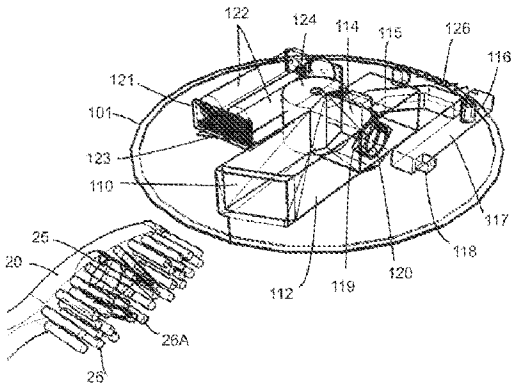
Applicant notes that the Office Action rejects independent claim 1 over the same references as relied upon in the previous Office Action mailed April 1, 2016 (hereinafter, "previous Office Action"). Although the current rejection has been revised to address the amendments presented in Applicant's Response to Office Action filed on June 30, 2016, the Office Action has not addressed the arguments presented in Applicant's June 30, 2016 Response as to why independent claim 1 is patentable over the same references. Instead, the Office Action merely states that "Applicant's arguments filed 06/30/2016 have been fully considered but they are not persuasive. See modified rejections including the amended limitations cited above." (Office Action, page 8.) Since the Office Action has not identified any deficiency in Applicant's

[9] *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 60 USPQ2d 1001, 1010 (Fed. Cir. 2001); *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999) (proposed combination of references that would be inoperable for intended purpose supports teaching away from combination); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (inoperable modification teaches away); *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (C.C.P.A. 1969) (references teach away from combination if combination produces seemingly inoperative device).

[10] See *Mintz v. Dietz & Watson*, 679 F.3d 1372, 1379 (Fed. Cir. 2012) ("Simply because the technology can be easily understood does not mean that it will satisfy the legal standard of obviousness. In fact, objective consideration of simple technology is often the most difficult because, once the problem and solution appear together in the patent disclosure, the advance seems self-evident. Instead, **the proper analysis requires a form of amnesia that 'forgets' the invention and analyzes the prior art and understanding of the problem at the date of invention.**") (Emphasis added.)

arguments and has not advanced any reasoning to rebut Applicant's arguments, Applicant maintains the same or similar arguments as those presented in the Response filed on June 30, 2016 and provides additional arguments directed to the revised rejection.

Applicant's specification discloses "a dispensing device adapted to supply at least one oral care capsule to . . . a toothbrush." (Specification, ¶ 0029.) One of the embodiments of such dispensing device is illustrated in FIGS. 4 and 5, and "[a]lthough the illustrated embodiment is directed to a specific mechanical oral care capsule loading mechanism, various other mechanically or electrically actuated means may be used . . . to provide automatic dispensing operation." (Specification, ¶ 0045; see also FIG. 5 (reproduced below).)



As shown in FIG. 5, "the brush head 20 is inserted into the guide tube 112 to contact a push bar 114 joined via arm 115" and "[u]pon depressing the push bar 114, the lever 117 is forced toward the guide tube 112 and the aperture-defining bristle spreader 119 disposed therein." (Specification, ¶ 0045.) Accordingly, "an oral care capsule 200 disposed between the lever 117 (e.g., opposite tab 118) may be **pushed** through the aperture 120 of the bristle spreader 119, past the spread-apart angled bristles 26A, and into the oral care capsule receiving zone 25 of the brush head 20 of the toothbrush 10." (Specification, ¶ 0045; emphasis added.)

Hohlbein discloses an oral care toothbrush having a "head 12, defining a bristle or cleaning element block 22 of head 12." (Hohlbein, ¶ 0034; see also Hohlbein, FIG. 4 (reproduced on the following page).) Hohlbein further discloses that "the cleaning block 22 may include one or more depressions 24 which are designed to receive and retain an oral care dispenser, such as a rupturable gel capsule 32 therein." (Hohlbein, ¶ 0036.)

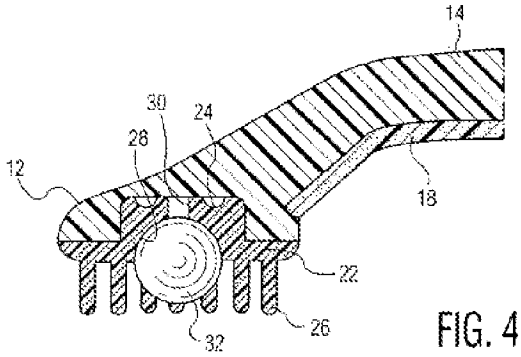


FIG. 4

Hohlbein also discloses "different manners of packaging toothbrushes," (Hohlbein, ¶ 0064) including "a variation wherein the package 54 includes one or more toothbrushes 10 and a plurality of other components 56 which could be accessories or dispensers or other components" (Hohlbein, ¶ 0065). See also Hohlbein, FIG. 13 (reproduced below).

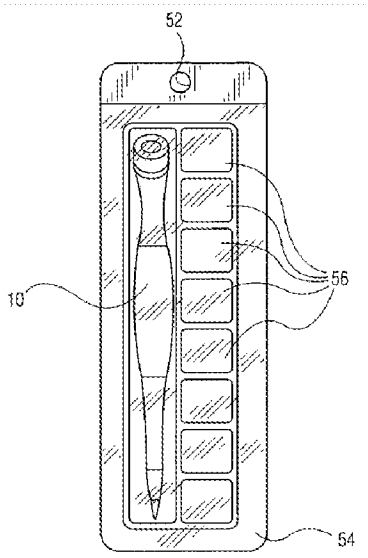


FIG. 13

The Office Action concedes that "Hohlbein does not disclose a container comprising aperture-defining element including an aperture arranged to permit passage of an oral care capsule and a moveable dispensation element arranged to contact and push an oral care capsule through the aperture." (Office Action, page 3.) However, the Office Action contends that Alexander discloses these features absent from Hohlbein. Applicant respectfully disagrees with such contention.

Alexander discloses "a form of dental hygiene preparation in which a composition broadly similar to that of conventional toothpaste as obtained from a tube is provided within a

plurality of individual portions." (Alexander, ¶ 0050.) Alexander notes that "each capsule or portion may be dimensioned so that it will hold about the right amount of toothpaste for an average tooth-cleaning procedure." (Alexander, ¶ 0050.) Alexander also notes that to use the invention "[o]ne or perhaps more beads are selected for use, removed from a container or dispenser and broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.) Alexander further discloses dispensers for such capsules, and in particular, discloses a "conventional dispenser with a lid 302," where "[a] spring-loaded lever 303 when pressed aligns two holes so that a **capsule** or bead previously stored within the mass 301 **emerges through hole 305 within a plunger assembly** on to a collection plate 304." (Alexander, ¶ 0083 (emphasis added); see also Alexander, FIG. 3 (reproduced below).)

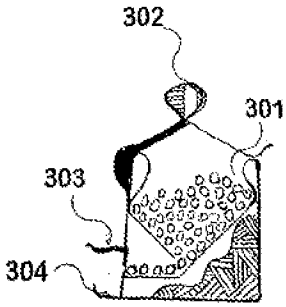


Fig 3

Accordingly, Alexander discloses **pushing on a plunger assembly** as illustrated above in the lower frame to align two holes to allow a capsule to emerge through the aligned holes **onto a collection plate** 304. The capsule can then be removed from the collection plate 304 and "broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.)

The Office Action alleges that the plunger assembly of Alexander (e.g., as illustrated above in the lower frame) discloses "a moveable dispensation element arranged to contact and push . . . an oral capsule through the aperture." (Office Action, page 4.) However, Alexander does **not** disclose a moveable dispensation element **pushing an oral care capsule** through an

aperture. Instead, Alexander discloses that alignment of two holes motivated by pushing on a plunger assembly allows a capsule to emerge onto a collection plate – with passage of the capsule presumably motivated by gravity. Nothing in Alexander discloses or provides any derivative basis for any "moveable dispensation element arranged to contact and push an oral care capsule through the aperture" as recited in independent claim 1. Nor does Alexander disclose that the dispenser is configured so that an oral care capsule is pushed through an aperture "to be received by the capsule receiving zone of [a] brush head." To the contrary, Alexander discloses that a capsule "emerges through hole 305 within a plunger assembly on to a collection plate 304," wherein the collection plate 304 does **not** embody a capsule receiving zone of a brush head. (Alexander, ¶ 0083.) It is therefore clear that Alexander does not disclose "**a moveable dispensation element arranged to contact and push an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head**," as recited in independent claim 1. (Emphasis added.)

For at least the foregoing reasons, Applicant's claim 1 is non-obvious over Hohlbein and Alexander, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending (either directly or indirectly) from claim 1 are patentably distinguished over the cited references for at least the same reasons articulated above in connection with claim 1. Accordingly, it is not necessary to address the additional features in dependent claims 2-4, 7, and 8 to overcome the rejections of such claims; however, Applicant reserves the right to do so in the future, if necessary. Withdrawal of the rejection of claims 1-4, 7, and 8 under 35 U.S.C. § 103(a) is respectfully requested.

3. Patentable Distinctions of Claim 9 and the Claims Depending Therefrom Over Hohlbein and Alexander

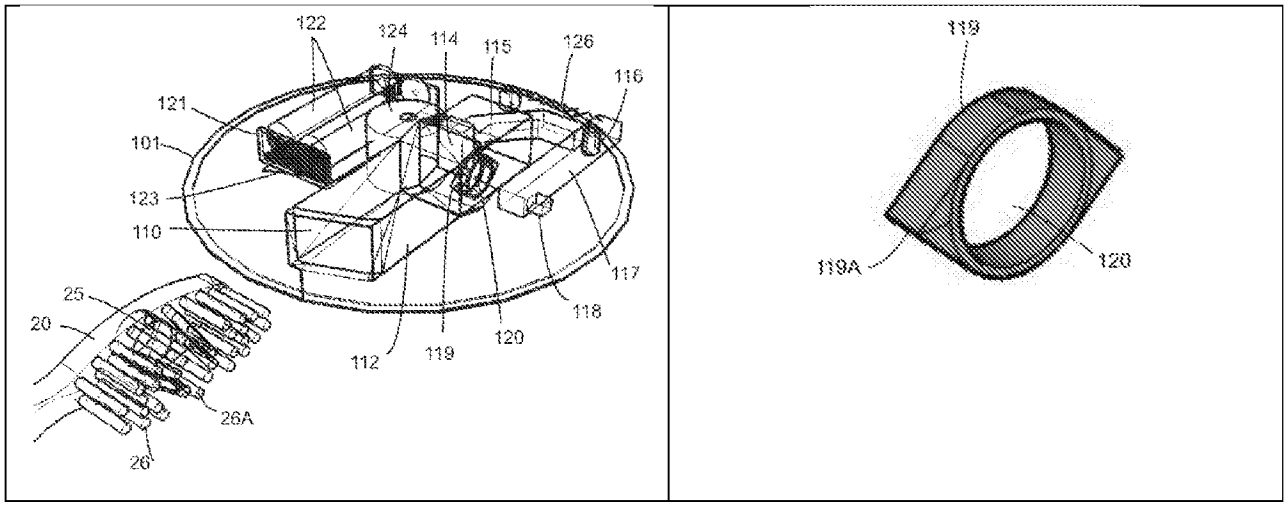
At page 6 of the Office Action, the rejection of independent claim 9 as being obvious over Hohlbein in view of Alexander was maintained. Applicant respectfully disagrees with the foregoing rejection, for at least the reason that the cited references, taken alone or in combination, fail to disclose or provide any derivative basis for "**at least one toothbrush manipulation element configured to contact the brush head to promote passage** of an oral care capsule into a retention structure associated with the brush head to enable receipt of said

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oral care capsule into the capsule receiving zone," and "at least one dispensation element configured to deliver said oral care capsule **through the at least one toothbrush manipulation element**," as detailed below.

Applicant notes that the Office Action rejects independent claim 9 over the same references as relied upon in the previous Office Action. Although the current rejection has been revised to address the amendments presented in Applicant's Response to Office Action filed on June 30, 2016, the Office Action has not addressed the arguments presented in Applicant's June 30, 2016 Response as to why independent claim 9 is patentable over the same references. Instead, the Office Action merely states that "Applicant's arguments filed 06/30/2016 have been fully considered but they are not persuasive. See modified rejections including the amended limitations cited above." (Office Action, page 8.) Since the Office Action has not identified any deficiency in Applicant's arguments and has not advanced any reasoning to rebut Applicant's arguments, Applicant maintains the same or similar arguments as those presented in the Response filed on June 30, 2016 and provides additional arguments directed to the revised rejection.

Applicant's specification discloses "a dispensing device adapted to supply at least one oral care capsule to . . . a toothbrush." (Specification, ¶ 0029.) One of the embodiments of such dispensing device is illustrated in FIGS. 4-7, and includes "a toothbrush manipulation element in the form of a bristle spreader 119 defining an aperture 120 and having a wedge-shaped leading edge 119A," where "[s]uch leading edge 119A may be configured as a wedge or block adapted to provide the desired spreading functionality." (Specification, ¶ 0045; see also FIGS. 5 and 7 (reproduced below).)



As shown in FIG. 5, "[a]s the brush head 20 is inserted past the bristle spreader 119, the wedge-shaped leading edge 119 A of the bristle spreader 119 **spreads apart the angled bristles 26A to prepare the brush head 20 to receive an oral care capsule**." (Specification, ¶ 0045; emphasis added.) Accordingly, "an oral care capsule 200 . . . may be pushed through the aperture 120 of the bristle spreader 119, past the spread-apart angled bristles 26A, and into the oral care capsule receiving zone 25 of the brush head 20 of the toothbrush 10." (Specification, ¶ 0045.)

In another embodiment, "[e]ach guide tube 212A-212C has an associated bristle spreading element 219A-219C adapted to **spread apart bristles of a toothbrush . . . to permit an oral care capsule to be supplied <u>to the toothbrush</u> through an aperture** 220A-220C associated with the respective guide tube 212A-212C." (Specification, ¶ 0053; emphasis added.) More specifically, "a first user inserts a portion of a toothbrush . . . into a toothbrush insertion aperture (e.g. insertion aperture 210A) to contact a bristle spreader (e.g., bristle spreader 219A) disposed therein," where "[a]n oral care capsule (not shown) is directed through an oral care capsule loading aperture (e.g., aperture 220A) **past spread-apart angled bristles 26A, and into an oral care capsule receiving zone 25 of the brush head** 20 of the tooth brush 10." (Specification, ¶ 0056 (emphasis added); see also FIG. 11 (reproduced below).)

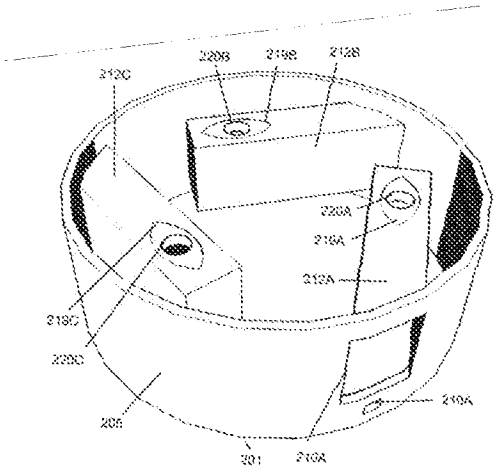


FIG. 11

Hohlbein discloses an oral care toothbrush having a "head 12, defining a bristle or cleaning element block 22 of head 12." (Hohlbein, ¶ 0034; see also Hohlbein, FIG. 4

(reproduced below).) Hohlbein further discloses that "the cleaning block 22 may include one or more depressions 24 which are designed to receive and retain an oral care dispenser, such as a rupturable gel capsule 32 therein." (Hohlbein, ¶ 0036.)

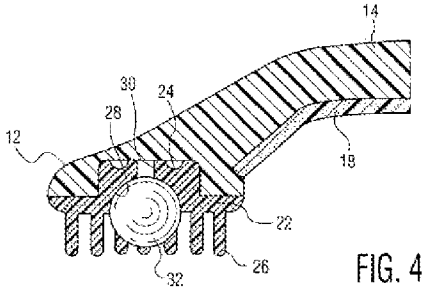


FIG. 4

Hohlbein also discloses "different manners of packaging toothbrushes," (Hohlbein, ¶ 0064) including "a variation wherein the package 54 includes one or more toothbrushes 10 and a plurality of other components 56 which could be accessories or dispensers or other components" (Hohlbein, ¶ 0065). See also Hohlbein, FIG. 13 (reproduced below).

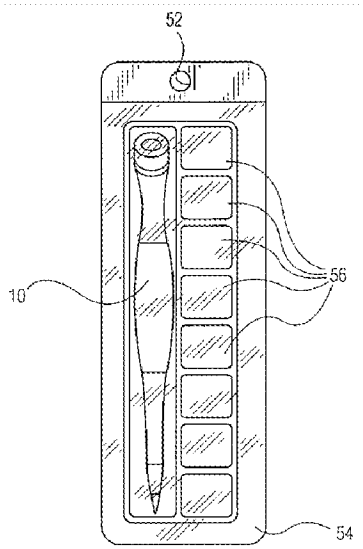


FIG. 13

Hohlbein does not disclose "at least one toothbrush manipulation element configured to contact the brush head to promote passage of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone," as recited in claim 9. This is consistent with the Office Action's reliance upon Alexander for disclosure of such features. (See Office Action, page 6.) However, Applicant respectfully disagrees with any suggestion that Alexander remedies the deficiency of Hohlbein in

disclosing all of the features of claim 9.

The disclosure of Alexander has been summarized previously herein. As noted previously, Alexander further discloses dispensers for capsules or beads containing a toothpaste composition, and in particular, discloses a "conventional dispenser with a lid 302," where "**[a] spring-loaded lever 303** when pressed aligns two holes so that a capsule or bead previously stored within the mass 301 emerges through **hole 305** within a plunger assembly on to a collection plate 304." (Alexander, ¶ 0083 (emphasis added); see also Alexander, FIG. 3 (reproduced previously herein).)

Alexander therefore discloses pushing on a plunger assembly to align two holes to allow a capsule to emerge through the aligned **holes onto a collection plate**. The capsule can then be removed from the collection plate and be "broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.)

The Office Action alleges that Alexander discloses "at least one toothbrush manipulation element (303) configured to contact the brush to promote passage . . . of an oral care capsule (capsule through member 306 onto 304)," and "at least one dispensation element (306)." (Office Action, page 6.) Applicant notes that Alexander fails to disclose any member "306" in the specification or the drawings, and assumes that the Office Action is referring to hole 305. Thus, the Office Action appears to allege that the "spring-loaded lever 303" is a toothbrush manipulation element configured to **contact** the brush. However, it is mere conjecture as to whether a user would contact a brush with a "spring-loaded lever 303" according to Alexander, but even if a user were to do so, such hypothetical action would **not** "promote passage of an oral care capsule into a retention structure associated with the brush head," as recited in independent claim 9. As noted previously, Alexander discloses that a capsule "emerges through hole 305 within a plunger assembly on to a collection plate 304," wherein the collection plate 304 is **not** a retention structure associated with a brush head. (Alexander, ¶ 0083.) Accordingly, Alexander does **not** disclose "at least one toothbrush manipulation element configured **to contact the brush head to promote passage** of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone," as recited in independent claim 9.

Further, the Office Action alleges that Alexander discloses "at least one dispensation element (306) configured to deliver said oral care capsule through the at least one toothbrush

manipulation element." (Office Action, page 6.) Thus, the Office Action appears to allege that the oral care capsules are delivered **through** the "spring-loaded lever 303." However, the oral capsules are not delivered through the "spring-loaded lever 303," but rather are delivered through "hole 305 within a plunger assembly." (Alexander, ¶ [0083].) Accordingly, Alexander does **not** disclose "at least one dispensation element configured to deliver said oral care capsule through the at least one toothbrush manipulation element," as recited in independent claim 9.

Alexander fails to embody or include any "toothbrush manipulation element" according to Applicant's claim 9, and the Examiner's rejection of claim 9 failed to allege that such an element is disclosed by Hohlbein. It is respectfully submitted that none of the cited references discloses or provides any derivative basis for "at least one toothbrush manipulation element configured to contact the brush head to promote passage of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone" or "at least one dispensation element configured to deliver said oral care capsule through the at least one toothbrush manipulation element," as recited in independent claim 9. (Emphasis added.)

For at least the foregoing reasons, Applicant's claim 9 is non-obvious over Hohlbein and Alexander, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending (either directly or indirectly) from claim 9 are patentably distinguished over the cited references for at least the same reasons articulated above in connection with claim 9. Accordingly, it is not necessary to address the additional features in dependent claims 10-12, 14, 15, and 21 to overcome the rejections of such claims; however, Applicant reserves the right to do so in the future, if necessary. Withdrawal of the rejection of claims 9-12, 14, 15, and 21 under 35 U.S.C. § 103(a) is respectfully requested.

4. Patentable Distinctions of Claim 16 and the Claims Depending Therefrom Over Hohlbein and Alexander

At pages 3-4 of the Office Action, the rejection of independent claim 16 as being obvious over Hohlbein in view of Alexander was maintained. Applicant respectfully disagrees with the foregoing rejection, for at least the reason that the cited references, taken alone or in combination, fail to disclose or provide any derivative basis for "**a toothbrush manipulation**

element configured to contact a brush head to promote passage of at least one oral care capsule of the plurality of oral care capsules **through the toothbrush manipulation element** into a retention structure of the brush head," as detailed below.

Applicant notes that the Office Action rejects independent claim 16 over the same references as relied upon in the previous Office Action. Although the current rejection has been revised to address the amendments presented in Applicant's Response to Office Action filed on June 30, 2016, the Office Action has not addressed the arguments presented in Applicant's June 30, 2016 Response as to why independent claim 16 is patentable over the same references. Instead, the Office Action merely states that "Applicant's arguments filed 06/30/2016 have been fully considered but they are not persuasive. See modified rejections including the amended limitations cited above." (Office Action, page 8.) Since the Office Action has not identified any deficiency in Applicant's arguments and has not advanced any reasoning to rebut Applicant's arguments, Applicant maintains the same or similar arguments as those presented in the Response filed on June 30, 2016 and provides additional arguments directed to the revised rejection.

Further, the rejection of independent claim 16 appears to be incomplete such that the Office Action has not made a *prima facie* rejection of this claim. In particular, the Office Action does not appear to have provided a clear articulation of reasons why it would be obvious to modify the alleged dispensing device of Hohlbein in view of the toothbrush **manipulation element** of Alexander to arrive at the claimed invention of independent claim 16. (See, e.g., Office Action, page 3.)

Additionally, it has been previously established herein that Hohlbein and Alexander, taken alone or in combination, fail to disclose a toothbrush manipulation element configured to contact a brush head to promote passage of an oral care capsule through the toothbrush manipulation element into a retention structure associated with the brush head. Alexander discloses a dispenser where "[a] spring-loaded lever 303 when pressed aligns two holes so that a capsule or bead previously stored within the mass 301 emerges through hole 305 within a plunger assembly on to a collection plate 304" (Alexander, ¶ 0083 (emphasis added)). Alexander further discloses that in use, "[o]ne or perhaps more beads are selected for use, removed from a container or dispenser and broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten" (Alexander, ¶ 0080).

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Accordingly, Hohlbein and Alexander, taken alone or in combination, do not disclose or provide any derivative basis for "a toothbrush manipulation element configured **to contact a brush head to promote passage** of at least one oral care capsule of the plurality of oral care capsules **through the toothbrush manipulation element** into a retention structure of the brush head," as recited in independent claim 16.

For at least the foregoing reasons, Applicant's claim 16 is non-obvious over Hohlbein and Alexander, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending (either directly or indirectly) from claim 16 are patentably distinguished over the cited references for at least the same reasons articulated above in connection with claim 16. Accordingly, it is not necessary to address the additional features in dependent claims 17-20 to overcome the rejections of such claims; however, Applicant reserves the right to do so in the future, if necessary. Withdrawal of the rejection of claims 16-20 under 35 U.S.C. § 103(a) is respectfully requested.

5. Patentable Distinctions of Claims 5, 13, and 18 Over Hohlbein, Alexander, and Walker

It has been previously demonstrated herein that independent claims 1, 9, and 16 are patentably distinguished over Hohlbein and Alexander. Walker fails to remedy the deficiencies of Hohlbein and Alexander in disclosing or providing any derivative basis for all the features recited in independent claims 1, 9, and 16.

Claims 5, 13, and 18 are patentably distinguished over the same references by virtue of their dependence from claims 1, 9, and 16 respectively; accordingly, it is not necessary to address the specific features of claims 5, 13, and 18, but Applicant reserves the right to do so in the future if necessary. Withdrawal of the rejection of claims 5, 13, and 18 under 35 U.S.C. § 103(a) is respectfully requested.

C. Response to Objection to Claim 6

At page 8 of the Office Action, claim 6 was objected to as being dependent upon a rejected base claim. Applicant acknowledges with thanks the Examiner's indication that such claim would be allowable if rewritten in independent form including all of the limitations of the

base claim and any intervening claims. Applicant respectfully declines to rewrite claim 6 in independent form at this time, in view of the arguments to claim 1 that are believed to place claim 1 in condition for allowance; however, Applicant reserves the right to do so in the future if necessary.

Conclusion

Based on the foregoing, pending claims 1-21 are patentably distinguished over the art, and in form and condition for allowance. The Examiner is requested to favorably consider the foregoing, and to responsively issue a Notice of Allowance.

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application.

The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-1732, to the extent that such fees are not paid by other means (e.g., via credit card).

If any issues require further resolution, the Examiner is requested to contact the undersigned attorney at (919) 238-2300 to discuss same.

Respectfully submitted,

WITHROW + TERRANOVA, P.L.L.C.

By: /vincent k. gustafson/

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Date: December 6, 2016
Attorney Docket: 2076-002C

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Section I (Statement of the Claims)

The pending claims, which are not amended herein, are set out in the following complete listing of the claims of the application.

1. (Previously Presented) A dispensing device configured for use with at least one toothbrush including a brush head having a capsule receiving zone configured to receive an oral care capsule, the dispensing device comprising:

a container including an interior arranged to contain a plurality of oral care capsules;

an aperture-defining element including an aperture arranged to permit passage of an oral care capsule; and

a moveable dispensation element arranged to contact and push an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head.

2. (Original) The dispensing device of claim 1, wherein the container comprises a ramp arranged to guide oral care capsules toward the moveable dispensation element.

3. (Original) The dispensing device of claim 1, further comprising at least one moveable sealing element arranged to reduce infiltration of moisture into the container between cycles of dispensing oral care capsules from the dispensing device.

4. (Previously Presented) The dispensing device of claim 1, further comprising a selectively closable dispensing orifice configured to permit dispensation of at least one oral care capsule of the plurality of oral care capsules from the container.

5. (Original) The dispensing device of claim 1, further comprising a desiccant material arranged in moisture receiving relationship with the interior of the container.

6. (Original) The dispensing device of claim 1, wherein the aperture-defining element comprises a bristle spreader arranged to spread apart at least some bristles of the brush head to prepare the brush head to receive an oral care capsule in the capsule receiving zone.

7. (Previously Presented) The dispensing device of claim 1, wherein the moveable dispensation element comprises at least one of a push bar, an arm, a lever, or a spring.

8. (Original) The dispensing device of claim 1, further comprising a guide tube arranged to receive the brush head, wherein the aperture-defining element bounds a portion of the guide tube.

9. (Previously Presented) A dispensing device configured for use with at least one toothbrush including a brush head having a capsule receiving zone sized to receive an oral care capsule, the dispensing device comprising:

at least one toothbrush manipulation element configured to contact the brush head to promote passage of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone; and

at least one dispensation element configured to deliver said oral care capsule through the at least one toothbrush manipulation element into the capsule receiving zone.

10. (Original) The dispensing device of claim 9, further comprising a container containing a plurality of oral care capsules.

11. (Original) The dispensing device of claim 9, wherein the oral care capsule is spheroidal in shape.

12. (Previously Presented) The dispensing device of claim 9, further comprising:

a container having an interior configured to contain a plurality of oral care capsules, and

at least one selectively closable dispensing orifice configured to permit dispensation of at least one oral care capsule of the purality of oral care capsules from the container.

13. (Original) The dispensing device of claim 12, further comprising a desiccant material disposed to receive moisture from the interior.

14. (Previously Presented) The dispensing device of claim 12, wherein said container comprises at least one ramp configured to guide said plurality of oral care capsules toward said at

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least one selectively closable dispensing orifice for dispensation of at least one oral care capsule of the plurality of oral care capsules through the at least one selectively closable dispensing orifice.

15. (Original) The dispensing device of claim 12, configured to effectuate automatic dispensation of at least one oral care capsule from the container through the at least one selectively closable dispensing orifice.

16. (Previously Presented) An oral care capsule dispensing device, comprising:

a container having an interior configured to contain a plurality of oral care capsules;

a toothbrush manipulation element configured to contact a brush head to promote passage of at least one oral care capsule of the plurality of oral care capsules through the toothbrush manipulation element into a retention structure of the brush head; and

at least one selectively closable dispensing orifice configured to permit dispensation of the at least one oral care capsule from the container.

17. (Previously Presented) The dispensing device of claim 16, being configured for use with at least one toothbrush including a brush head having a capsule receiving zone sized to receive an oral care capsule, the dispensing device further comprising at least one dispensation element configured to deliver said oral care capsule into the capsule receiving zone.

18. (Original) The dispensing device of claim 16, further comprising a desiccant material disposed to receive moisture from the interior.

19. (Previously Presented) The dispensing device of claim 16, wherein said container comprises at least one ramp configured to guide said plurality of oral care capsules toward said at least one selectively closable dispensing orifice for dispensation of the at least one oral care capsule through the at least one selectively closable dispensing orifice.

20. (Previously Presented) The dispensing device of claim 16, configured to effectuate automatic dispensation of the at least one oral care capsule from the container through the at least one selectively closable dispensing orifice.

21. (Previously Presented) The dispensing device of claim 9, further comprising a guide tube configured to receive and guide the brush head into position for loading the oral care capsule therein.

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/535,442	Filing Date 11/07/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **12/06/2016**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 21	Minus	** 21	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
SIERRA RODGERS

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2014	Lise W. Noble	2076-002C	1451

27820 7590 10/06/2016

WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
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EXAMINER
KUMAR, RAKESH

ART UNIT	PAPER NUMBER
3651	

NOTIFICATION DATE	DELIVERY MODE
10/06/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@wt-ip.com

Office Action Summary	Application No. 14/535,442	Applicant(s) NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3*

14535442 - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06/30/2016*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-21* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-5 and 7-21* is/are rejected.

8)☒ Claim(s) *6* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on *06/30/2016* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Final Rejection

The present application is being examined under the pre-AIA first to invent provisions.

Drawings

The drawings were received on 06/30/2016. These drawings are acceptable.

Specification

The amended to the specification received on 06/30/2016. The amended to the specification is acceptable.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7-12 and 14-21 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Hohlbein (US 2006/0165473 A1) in view of Alexander (US 2004/0091431 A1).

Referring to claims 1 and 16. Hohlbein discloses a dispensing device (54; Figure13) configured for use with at least one toothbrush (10) including a brush head (12; Figure 4) having a capsule receiving zone (28) configured to receive an oral care capsule (32; Figure 4), the dispensing device (54) comprising:

a container (container 54) including an interior arranged to contain a plurality of oral care capsules (in pockets 56).

Hohlbein does not disclose a container comprising aperture-defining element including an aperture arranged to permit passage of an oral care capsule and a moveable dispensation element arranged to contact and push an oral care capsule through the aperture.

Regarding claim 16,…a toothbrush manipulation element (303) configured to contact a brush head to promote passage of at least one oral care capsule of the plurality of oral care capsules through the toothbrush manipulation element (by actuating member 303 to release a capsule) into a retention structure of the brush head (receiving zone on the head of the brush).

Alexander discloses a personal oral hygiene device (Figure 3) wherein a container (container of Figure 3) including an interior (301) arranged to contain a plurality of oral care capsules (see capsule beads in storage 301) an aperture-defining element (303) including an aperture arranged to permit passage of an oral care capsule (pressing member 303 aligns two holes for passage of a capsule); and

a moveable dispensation element arranged to contact and push (plunger assembly; Para. [0083] in line 14) an oral care capsule through the aperture (303) to be received by the capsule receiving zone of the brush head (capsule can be placed in the receiving zone of the brush head by a user).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Hohlbein to have include a container comprising an aperture arranged to permit passage of an oral care capsule and a moveable dispensation element arranged to push an oral care capsule through the aperture onto a receiving zone of the brush head as taught by Alexander because a container would be able to house a larger quantity of oral care capsule and selective release a capsule onto a receiving zone of the brush head thus allowing for a more sanitary dispensing of capsule in a controlled manner.

Referring to claims 2, 14 and 19. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) comprises a ramp (see funnel shaped interior of container) arranged to guide oral care capsules (capsules) toward the moveable dispensation element (303 and plunger).

Referring to claim 3. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) further comprising at least one moveable sealing element (spring loaded lever 303) arranged to reduce infiltration of moisture into the

container between cycles of dispensing oral care capsules from the dispensing device (see Figure 3).

Referring to claim 4. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) further comprising a selectively closable dispensing orifice (306) configured to permit dispensation of at least one oral care capsule of the plurality of oral care capsules (see capsules in 301) from the container (see Figure 3).

Referring to claim 7. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) wherein the moveable dispensation element (303) comprises at least one of a push bar (bar housing opening 306), an arm, a lever, and a spring (see Figure 3 member 306).

Referring to claim 8. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) comprising a guide tube (beneath the member 301 extending to member 303) arranged to receive the brush head (brush head can be placed near member 304), wherein the aperture-defining element (306) bounds a portion of the guide tube (opening and closed the opening 306).

Referring to claims 9, 11 and 17. Hohlbein discloses a dispensing device (54; Figure13) configured for use with at least one toothbrush (10) including a brush head (12; Figure 4) having a capsule receiving zone (28) configured to receive an oral care capsule (32; Figure 4), the dispensing device (54).

Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) comprises, at least one toothbrush manipulation element (303) configured to contact the brush head to promote passage (a brush head can be placed at the dispenser opening of the dispenser) of an oral care capsule (capsule through member 306 onto 304) into a retention structure associated with the brush head (capsule can be placed into member 28; Hohlbein) to enable receipt of said oral care capsule into the capsule receiving zone (into member 28; Hohlbein); and

at least one dispensation element (306) configured to deliver said oral care capsule through the at least one toothbrush manipulation element (member 303 is actuated to release capsule onto a brush head) into the capsule receiving zone (304, accessible to the brush head).

Referring to claim 10. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) comprising a container containing (Figure 3) a plurality of oral care capsules (capsules retained in cavity 301).

Referring to claim 12. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) having an interior configured to contain a plurality of oral care capsules (301), and

at least one selectively closable dispensing orifice (306) configured to permit dispensation of at least one oral care capsule o the plurality of oral care capsules (capsules retained in cavity 301) from the container (see Figure 3).

Referring to claims 15 and 20. Hohlbein in view of Alexander do not specifically disclose the dispenser as being configured to effectuate automatic dispensation of articles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Hohlbein in view of Alexander to effectuate automatic dispensation of at least one oral care capsule from the container through the at least one selectively closable dispensing orifice because automating the dispensing of the capsules would provide for a hands-free operation of the dispenser and thus further improve the sanitary conditions of the dispensed capsules.

Referring to claim 21. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) further comprising a guide tube (opening structure between member 303 and 304; Figure 3) configured to receive and guide (space between 303 and 304 guides a brush position) the brush head into position for loading the oral care capsule therein (see Figure 5).

Claims 5, 13 and 18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Hohlbein (US 2006/0165473 A1) in view of Alexander (US 2004/0091431 A1) and further in view of Walker (US 5,616,299).

Referring to claims 5, 13 and 18. Hohlbein in view of Alexander do not disclose a desiccant material arranged in the interior of the container.

Walker discloses a dispenser for dried reagent spheres (10; Figure 2) wherein the container comprising a desiccant material (67; Figure 2) arranged in moisture receiving relationship with the interior of the container to inhibit moisture within the container.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Hohlbein in view of Alexander to have include a desiccant material arranged in the interior of the container as taught by Walker because the desiccant material would inhibit moisture collection within the dispenser thus extending the life of the stored capsules.

Allowable Subject Matter

Claim 6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 06/30/2016 have been fully considered but they are not persuasive. See modified rejections including the amended limitations cited above.

It further suggested, the applicant include specific structure, pertaining to the bristle spreader and/or the actuation arm which deposits the capsule into the receiving zone for the claims to be viewed favorably.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH KUMAR whose telephone number is (571)272-8314. The examiner can normally be reached on M-F 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RAKESH KUMAR/
Primary Examiner, Art Unit 3651

Notice of References Cited	Application/Control No. 14/535,442	Applicant(s)/Patent Under Reexamination NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2006/0165473 A1	07-2006	Hohlbein; Douglas J.	A46B5/0062	401/132
*	B	US-2004/0091431 A1	05-2004	Alexander, Carl Ernest	A46B11/00	424/49
*	C	US-5,616,299 A	04-1997	Walker; David W.	B01L99/00	221/197
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	Art Unit
	RAKESH KUMAR	3651

CPC- SEARCHED		
Symbol	Date	Examiner
A46B1 11/0003	3/25/2016	RK

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
222	372	3/25/2016	RK

SEARCH NOTES		
Search Notes	Date	Examiner
Performed Special Feature Tech search in EAST	3/25/2016	RK
Performed Backward and Forward searches in EAST	3/25/2016	RK
Reviewed App. 12/101,446/ IDS forms	3/25/2016	RK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L9	4	"20040091431"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/10/01 18:08
S1	1	"14535442"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/03/26 18:52
S2	17	LISE WITH NOBLE	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/03/26 18:53
S3	5	"2003027455"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/03/26 18:57
S4	53	"2004021914"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/03/26 18:57
S5	26	"0226078"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/03/26 18:59
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	**Art Unit**
	RAKESH KUMAR	3651

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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	14	✓	✓							
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	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	✓	✓							
	20	✓	✓							
	21		✓							

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Lise W. Noble et al.
Serial No. 14/535,442
Filed: 11/07/2014
Attorney Docket No. 2076-002C

Examiner: Rakesh Kumar
Art Unit: 3651

For: **TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE**

Mail Stop Amendment
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE TO APRIL 1, 2016 OFFICE ACTION

Sir:

In response to the Office Action mailed April 1, 2016, Applicant offers the following amendments and remarks. The time for responding to the April 1, 2016 Office Action without extension fee payment was set at three months from the issuance thereof; accordingly, the initial response deadline is July 1, 2016. If any fees are required in association with this response, the Director is hereby authorized to charge them to Deposit Account 50-1732, and to consider this a petition for taking any appropriate action to obtain entry of this response.

Please amend the claims of the above-identified patent application as set out in **Section I (Amendments to the Claims)** beginning on page 2 of this Response.

Please amend the specification of the above-identified patent application as set out in **Section II (Amendments to the Specification)** beginning on page 6 of this Response.

Please amend the drawings of the above-identified patent application as set out in **Section III (Amendments to the Drawings)** beginning on page 7 of this Response.

Remarks concerning the amendments to the application, and addressing the substance of the April 1, 2016 Office Action, are set out in **Section IV (Remarks)** hereof beginning on page 8 of this Response.

Section I (Amendments to the Claims)

Please amend claims 1, 4, 7, 9, 12, 14, 16, 17, 19 and 20, and add new claim 21 as set out in the following complete listing of the claims of the application.

1. (Currently Amended) A dispensing device ~~adapted~~ configured for use with at least one toothbrush including a brush head having a capsule receiving zone configured to receive an oral care capsule, the dispensing device comprising:

a container including an interior arranged to contain a plurality of oral care capsules;

an aperture-defining element including an aperture arranged to permit passage of an oral care capsule; and

a moveable dispensation element arranged to contact and push an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head.

2. (Original) The dispensing device of claim 1, wherein the container comprises a ramp arranged to guide oral care capsules toward the moveable dispensation element.

3. (Original) The dispensing device of claim 1, further comprising at least one moveable sealing element arranged to reduce infiltration of moisture into the container between cycles of dispensing oral care capsules from the dispensing device.

4. (Currently Amended) The dispensing device of claim 1, further comprising a selectively closable dispensing orifice ~~adapted~~ configured to permit dispensation of at least one oral care capsule of the plurality of oral care capsules from the container.

5. (Original) The dispensing device of claim 1, further comprising a desiccant material arranged in moisture receiving relationship with the interior of the container.

6. (Original) The dispensing device of claim 1, wherein the aperture-defining element comprises a bristle spreader arranged to spread apart at least some bristles of the brush head to prepare the brush head to receive an oral care capsule in the capsule receiving zone.

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7. (Currently Amended) The dispensing device of claim 1, wherein the moveable dispensation element comprises at least one of a push bar, an arm, a lever, [[and]] or a spring.

8. (Original) The dispensing device of claim 1, further comprising a guide tube arranged to receive the brush head, wherein the aperture-defining element bounds a portion of the guide tube.

9. (Currently Amended) A dispensing device ~~adapted~~ configured for use with at least one toothbrush including a brush head having a capsule receiving zone sized to receive an oral care capsule, the dispensing device comprising:

at least one toothbrush manipulation element ~~adapted~~ configured to contact the brush head to promote passage of ~~to pass~~ an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone; and

at least one dispensation element ~~adapted~~ configured to deliver said oral care capsule through the at least one toothbrush manipulation element into the capsule receiving zone.

10. (Original) The dispensing device of claim 9, further comprising a container containing a plurality of oral care capsules.

11. (Original) The dispensing device of claim 9, wherein the oral care capsule is spheroidal in shape.

12. (Currently Amended) The dispensing device of claim 9, further comprising:

a container having an interior configured to contain a plurality of oral care capsules, and

at least one selectively closable dispensing orifice ~~adapted~~ configured to permit dispensation of at least one oral care capsule of the purality of oral care capsules from the container.

13. (Original) The dispensing device of claim 12, further comprising a desiccant material disposed to receive moisture from the interior.

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14. (Currently Amended) The dispensing device of claim 12, wherein said container comprises at least one ramp configured to guide said plurality of oral care capsules toward said at least one selectively closable dispensing orifice for dispensation of at least one oral care capsule of the plurality of oral care capsules through the at least one selectively closable dispensing orifice.

15. (Original) The dispensing device of claim 12, configured to effectuate automatic dispensation of at least one oral care capsule from the container through the at least one selectively closable dispensing orifice.

16. (Currently Amended) An oral care capsule dispensing device, comprising:

a container having an interior ~~adapted~~ configured to contain a plurality of oral care capsules;

a toothbrush manipulation element configured to contact a brush head to promote passage of at least one oral care capsule of the plurality of oral care capsules through the toothbrush manipulation element into a retention structure of the brush head; and

at least one selectively closable dispensing orifice ~~adapted~~ configured to permit dispensation of the at least one oral care capsule from the container.

17. (Currently Amended) The dispensing device of claim 16, being ~~adapted~~ configured for use with at least one toothbrush including a brush head having a capsule receiving zone sized to receive an oral care capsule, the dispensing device further comprising at least one dispensation element ~~adapted~~ configured to deliver said oral care capsule into the capsule receiving zone.

18. (Original) The dispensing device of claim 16, further comprising a desiccant material disposed to receive moisture from the interior.

19. (Currently Amended) The dispensing device of claim 16, wherein said container comprises at least one ramp configured to guide said plurality of oral care capsules toward said at least one selectively closable dispensing orifice for dispensation of [[a]] the at least one oral care capsule through the at least one selectively closable dispensing orifice.

20. (Currently Amended) The dispensing device of claim 16, configured to effectuate automatic dispensation of the at least one oral care capsule from the container through the at least one selectively closable dispensing orifice.

21. (New) The dispensing device of claim 9, further comprising a guide tube configured to receive and guide the brush head into position for loading the oral care capsule therein.

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Section II (Amendments to the Specification)

Please replace paragraph [0045] of the specification as originally filed with the following replacement paragraph [0045]:

[0045] **FIGS. 5-6** illustrate selected internal components of the base portion 105 as positioned relative to a brush head 20 positioned for insertion therein. The toothbrush insertion aperture 110 leads to a guide tube 112 that guides the ~~toothbrush~~ brush head 20 into position for loading of an oral care capsule therein. Disposed within the guide tube 112 is a toothbrush manipulation element in the form of a bristle spreader 119 defining an aperture 120 and having a wedge-shaped leading edge 119A. Such leading edge 119A may be configured as a wedge or block adapted to provide the desired spreading functionality. A close-up perspective view of the bristle spreader 119 is shown in **FIG. 7**. As the brush head 20 is inserted past the bristle spreader 119, the wedge-shaped leading edge 119A of the bristle spreader 119 spreads apart the angled bristles 26A to prepare the brush head 20 to receive an oral care capsule. Although the illustrated embodiment is directed to a specific mechanical oral care capsule loading mechanism, [[and]] various other mechanically or electrically actuated means may be used, as will be recognized by those skilled in the art, to provide automatic dispensing operation. In the illustrated embodiment, the brush head 20 is inserted into the guide tube 112 to contact a push bar 114 joined via arm 115, a lever 117 having an associated pivot 116, and return spring 126. Upon depressing the push bar 114, the lever 117 is forced toward the guide tube 112 and the aperture-defining bristle ~~spreading element~~ spreader 119 disposed therein. In this manner, an oral care capsule 200 disposed between the lever 117 (e.g., opposite tab 118) may be pushed through [[a]] the aperture 120 of the bristle spreader 119, past the spread-apart angled bristles 26A, and into the oral care capsule receiving zone 25 of the brush head 20 of the toothbrush 10. Upon removal of the brush head 20 from the bristle spreader 119, the angled bristles 26A return to their relaxed position to contract around an oral care capsule disposed within the capsule receiving zone 25.

Section III (Amendments to the Drawings)

Please replace drawing sheets 4-7 and 11 as originally filed with the enclosed Replacement Drawing Sheets 4-7 and 11.

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Section IV (Remarks)

The Office Action mailed April 1, 2016 (hereinafter "Office Action") has been carefully reviewed, and Applicant respectfully requests reconsideration of the rejections of Applicant's claims and the objections to Applicant's drawings, particularly in view of the above amendments and the following remarks.

A. Summary of Amendments to the Claims

Claims 1-20 were previously pending. By the present submission, claims 1, 4, 7, 9, 12, 14, 16, 17, 19 and 20 have been amended, and new claim 21 has been added.

Independent claim 1 was amended to recite (*inter alia*) "a moveable dispensation element arranged to contact and push an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head." The amendments to claim 1 are supported by Applicant's specification, for example, at ¶ 0045 and FIGS. 5-6.

Dependent claim 7 was amended to replace "and" with "or" in the recitation of "at least one of a push bar, an arm, a lever, or a spring."

Independent claim 9 was amended to recite (*inter alia*) "at least one toothbrush manipulation element configured to contact the brush head to promote passage of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone," and "at least one dispensation element configured to deliver said oral care capsule through the at least one toothbrush manipulation element into the capsule receiving zone." The amendments to claim 9 are supported by Applicant's specification, for example, at ¶ 0045 and FIGS. 5-7.

Dependent claims 12 and 14 were amended to recite that the at least one oral care capsule is "of the plurality of oral care capsules."

Independent claim 16 was amended to recite (*inter alia*) "a toothbrush manipulation element configured to contact a brush head to promote passage of at least one oral care capsule of the plurality of oral care capsules through the toothbrush manipulation element into a retention structure of the brush head." The amendments to claim 16 are supported by Applicant's specification, for example, at ¶ 0045 and FIGS. 5-7.

New dependent claim 21 recites "The dispensing device of claim 9, further comprising a guide tube configured to receive and guide the brush head into position for loading the oral care

capsule therein." Claim 21 is supported by Applicant's specification, for example, at ¶¶ 0045, 0049, 0053 and FIGS. 5, 6, and 11.

Minor amendments have also been made to claims 4, 12, 17, 19, and 20 for reasons unrelated to patentability.

The amendments to Applicant's claims are fully supported by and consistent with the originally-filed specification. No new matter within the meaning of 35 U.S.C. § 132(a) and 37 C.F.R. § 1.121 has been introduced by the foregoing amendments.

B. Summary of Amendments to the Specification

In the specification, amendments were made to paragraph 0045 to correct various errors, for reasons unrelated to patentability.

The foregoing amendments are fully supported by and consistent with the originally filed specification. No new matter within the meaning of 35 U.S.C. § 132(a) and 37 C.F.R. § 1.121 has been introduced by the foregoing amendments.

C. Summary of Amendments to the Drawings

In the drawings, replacement drawing sheets 4-7 and 11 have been submitted. As suggested by the Examiner, the replacement drawing sheets avoid use of grayscale shading. Further, Applicant notes that the drawings currently submitted are the same as those accepted in parent U.S. Patent Application No. 12/101,446, now issued as U.S. Patent No. 8,881,332.

The foregoing amendments are fully supported by and consistent with the originally filed specification. No new matter within the meaning of 35 U.S.C. § 132(a) and 37 C.F.R. § 1.121 has been introduced by the foregoing amendments.

D. Response to Objection to the Drawings

In the Office Action, the drawings were objected to because they comprise shaded Figures, "making visualization of the claimed structure difficult to discern and distinguish." The Examiner suggested Applicant "avoid using grayscale shading and present Figures as customary for examination." In response to such objections, Applicant submits replacement drawing sheets 4-7 and 11, as noted above.

In view of the submission of replacement drawings, withdrawal of the objection to the drawings is respectfully requested.

E. Response to Objection to Claim 6

In the Office Action at page 8, claim 6 was objected to as being dependent upon a rejected base claim. Applicant acknowledges with thanks the Examiner's indication that such claim would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicant respectfully declines to rewrite claim 6 in independent form at this time, in view of the amendments to claim 1 that are believed to place claim 1 in condition for allowance.

F. Response to Claim Rejections Under pre-AIA 35 U.S.C. § 103(a)

In the Office Action at page 3, claims 1-4, 7-12, and 14-20 (including independent claims 1, 9, and 16) were rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable for obviousness over U.S. Patent Application Publication No. 2006/0165473 A1 to Hohlbein (hereinafter, "Hohlbein") in view of U.S. Patent Application Publication No. 2004/0091431 A1 to Alexander (hereinafter, "Alexander").

In the Office Action at page 7, claims 5, 13, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable for obviousness over Hohlbein in view of Alexander, and further in view of U.S. Patent No. 5,616,299 to Walker et al. (hereinafter, "Walker").

Applicant respectfully disagrees with the foregoing rejections in application to the claims as amended herein for at least the reasons set out below.

1. Law Regarding Obviousness

According to the U.S. Supreme Court decision in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007), the Court did not disavow the previous "teaching, motivation or suggestion" or "TSM" test, but stated that such TSM text *should not be strictly applied* in determining obviousness. In connection with this point, the Court stated that:

> "A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. … [Rather], it can be important to identify a reason that would have

> prompted a person of ordinary skill in the relevant art to combine the [prior art] elements in the manner claimed.[1]"

It is fundamental to a proper rejection of claims under 35 U.S.C. § 103 that an Examiner must present a convincing line of reasoning supporting the rejection.[2] The Court in *KSR* affirmed the validity of such approach, stating that "there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."[3]

In *KSR*, the Court further confirmed that references that teach away from the invention are evidence of the non-obviousness of a claimed invention, and reaffirmed the principle that a fact finder judging patentability "should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning."[4]

Following *KSR*, the Federal Circuit held that although "rigid" application of the TSM test for obviousness is improper, application of a flexible TSM test remains the primary guarantee against improper "hindsight" analysis, because a flexibly applied TSM test ensures that the obviousness analysis proceeds on the basis of evidence in existence before time the application was filed, as required by 35 U.S.C. § 103.[5]

A suggestion to combine references cannot require substantial reconstruction or redesign of such references, or a change in basic operating principles of a construction of a reference, to arrive at the claimed invention.[6]

In considering a reference for its effect on patentability, the reference is required to be considered in its entirety, including portions that teach away from the invention under consideration. Simply stated, the prior art must be considered as a whole.[7] "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full

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[1] See *KSR*, 82 USPQ2d at 1389.
[2] MPEP 2144 ("Sources of Rationale Supporting a Rejection Under 35 U.S.C. 103"), citing *Ex parte Clapp*, 227 USPQ 972 (Bd. Pat. App. & Inter. 1985).
[3] *KSR*, 82 USPQ2d at 1396.
[4] *KSR*, 82 USPQ2d at 1395, 1399.
[5] *Ortho-McNeil Pharm. Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 86 USPQ2d 1196, 1201-02 (Fed. Cir. 2008).
[6] *In re Ratti*, 270 F.2d 810, 123 USPQ 349, 352 (C.C.P.A. 1959). *See also* MPEP 2143.01 ("If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.')
[7] *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); MPEP § 2141.02.

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appreciation of what such reference fairly suggests to one of ordinary skill in the art."[8] The Federal Circuit and its predecessor court have repeatedly held that if references taken in combination would produce a "seemingly inoperative" device, then such references teach away from the combination and cannot serve as predicates for a *prima facie* case of obviousness.[9]

The Federal Circuit has reaffirmed the necessity of avoiding hindsight bias when considering whether a claim may be obvious, noting specifically that a proper obviousness analysis "requires a form of amnesia that 'forgets' the invention and analyzes the prior art and understanding of the problem at the date of invention."[10]

2. Patentable Distinctions of Claim 1 and the Claims Depending Therefrom Over Hohlbein and Alexander

At pages 3-4 of the Office Action, independent claim 1 was rejected as obvious over Hohlbein in view of Alexander. Applicant respectfully disagrees with the foregoing rejection in application to claim 1 as amended herein, for at least the reason that the references, taken alone or in combination, fail to disclose or provide any derivative basis for "a moveable dispensation element arranged to contact and push an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head," as detailed below.

Applicant's specification discloses "a dispensing device adapted to supply at least one oral care capsule to . . . a toothbrush." (Specification, ¶ 0029.) One of the embodiments is illustrated in FIGS. 4-5, and "[a]lthough the illustrated embodiment is directed to a specific mechanical oral care capsule loading mechanism . . . various other mechanically or electrically actuated means may be used . . . to provide automatic dispensing operation." (Specification, ¶ 0045; see also FIG. 5 (reproduced on the following page).)

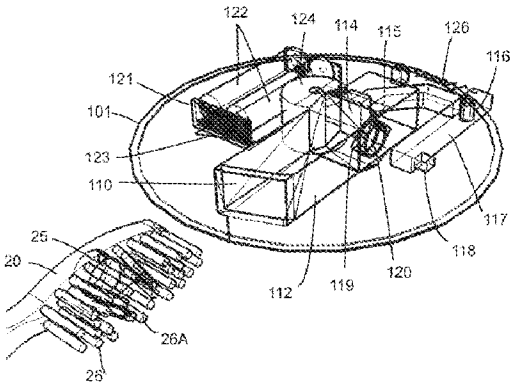
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[8] *Application of Wesslau*, 353 F.2d 238, 241 (C.C.P.A. 1965); *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve*, 796 F.2d 443, 448 (Fed. Cir. 1986), cert. denied, 484 U.S. 823 (1987).

[9] *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 60 USPQ2d 1001, 1010 (Fed. Cir. 2001); *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999) (proposed combination of references that would be inoperable for intended purpose supports teaching away from combination); *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (inoperable modification teaches away); *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (C.C.P.A. 1969) (references teach away from combination if combination produces seemingly inoperative device).

[10] See *Mintz v. Dietz & Watson*, 679 F.3d 1372, 1379 (Fed. Cir. 2012) ("Simply because the technology can be easily understood does not mean that it will satisfy the legal standard of obviousness. In fact, objective consideration of simple technology is often the most difficult because, once the problem and solution appear together in the patent disclosure, the advance seems self-evident. Instead, **the proper analysis requires a form of amnesia that 'forgets' the invention and analyzes the prior art and understanding of the problem at the date of invention.**") (Emphasis added.)

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As shown in FIG. 5, "the brush head 20 is inserted into the guide tube 112 to contact a push bar 114 joined via arm 115" and "[u]pon depressing the push bar 114, the lever 117 is forced toward the guide tube 112 and the aperture-defining bristle spreading element 119 disposed therein." (Specification, ¶ 0045.) Accordingly, "an oral care capsule 200 disposed between the lever 117 (e.g., opposite tab 118) may be **pushed** through the aperture 120 of the bristle spreader 119, past the spread-apart angled bristles 26A, and **into the oral care capsule receiving zone 25 of the brush head 20 of the toothbrush 10**." (Specification, ¶ 0045; emphasis added.)

Hohlbein, the primary reference, discloses an oral care toothbrush having a "head 12, defining a bristle or cleaning element block 22 of head 12." (Hohlbein, ¶ 0034; see also Hohlbein, FIG. 4 (reproduced below).) Hohlbein further discloses that "the cleaning block 22 may include one or more depressions 24 which are designed to receive and retain an oral care dispenser, such as a rupturable gel capsule 32 therein." (Hohlbein, ¶ 0036.)

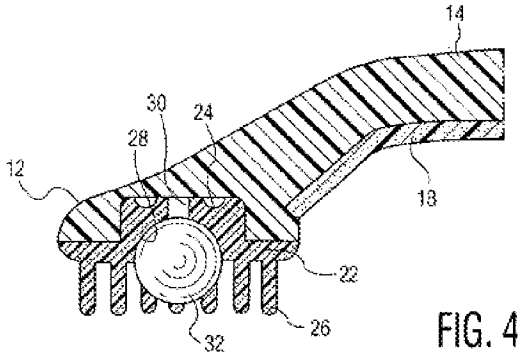


FIG. 4

Hohlbein also discloses "different manners of packaging toothbrushes," (Hohlbein, ¶ 0064) including "a variation wherein the package 54 includes one or more toothbrushes 10 and a plurality of other components 56 which could be accessories or dispensers or other components" (Hohlbein, ¶ 0065). See also Hohlbein, FIG. 13 (reproduced on the following page).

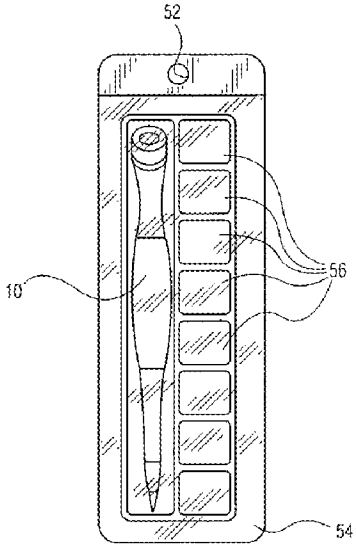


FIG. 13

The Office Action concedes that "Hohlbein does not disclose a container comprising aperture-defining element including an aperture arranged to permit passage of an oral care capsule and a moveable dispensation element arranged to push an oral care capsule through the aperture." Office Action, pages 3-4. However, the Office Action contends that Alexander discloses these features absent from Hohlbein.

Alexander discloses "a form of dental hygiene preparation in which a composition broadly similar to that of conventional toothpaste as obtained from a tube is provided within a plurality of individual portions." (Alexander, ¶ 0050.) Alexander notes that "each capsule or portion may be dimensioned so that it will hold about the right amount of toothpaste for an average tooth-cleaning procedure." (Alexander, ¶ 0050.) Alexander also notes that to use the invention "[o]ne or perhaps more beads are selected for use, removed from a container or dispenser and broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.) Alexander further discloses dispensers for such capsules, and in particular, discloses a "conventional dispenser with a lid 302," where "[a] spring-loaded lever 303 when pressed aligns two holes so that a **capsule** or bead previously stored within the mass 301 **emerges through hole 305 within a plunger assembly** on to a collection plate 304." (Alexander, ¶ 0083 (emphasis added); see also Alexander, FIG. 3 (reproduced on the following page).)

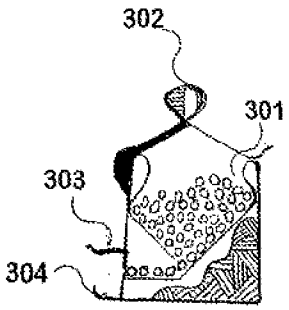
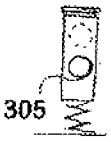


Fig 3



Accordingly, Alexander discloses **pushing on a plunger assembly** to align two holes to allow a capsule to emerge through the aligned holes **onto a collection plate**. The capsule can then be removed from the collection plate and "broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.) However, Alexander does **not** disclose a moveable element **pushing an oral care capsule** through an aperture. Instead, Alexander discloses that alignment of two holes motivated by pushing on a plunger assembly allows a capsule to emerge onto a collection plate – with passage of the capsule presumably motivated by gravity. Nothing in Alexander discloses or provides any derivative basis for any "movable dispensation element arranged to contact and push an oral care capsule through the aperture" as recited in Applicant's amended claim 1. Nor does Alexander disclose that the dispenser is configured so that an oral care capsule is pushed through an aperture "to be received by the capsule receiving zone of [a] brush head." It is therefore clear that Alexander does not disclose "**a moveable dispensation element arranged to contact and push an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head**," as recited in independent claim 1. (Emphasis added.)

For at least the foregoing reasons, Applicant's claim 1 is non-obvious over Hohlbein and Alexander, taken alone or in combination, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending (either directly or indirectly) from claim 1 are patentably distinguished over the cited references for at least the same reasons articulated above in

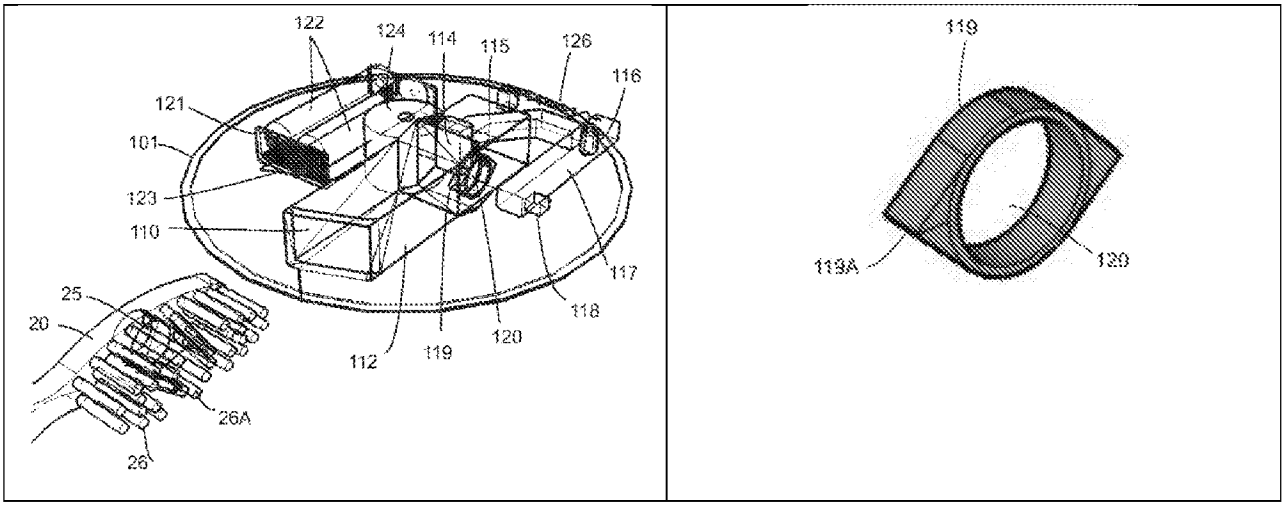
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connection with claim 1. Accordingly, it is not necessary to address the additional features in dependent claims 2-4, 7, and 8 to overcome the rejections of such claims; however, Applicant reserves the right to do so in the future, if necessary. Withdrawal of the rejection of claims 1-4, 7, and 8 under pre-AIA 35 U.S.C. § 103(a) is respectfully requested.

3. Patentable Distinctions of Claim 9 and the Claims Depending Therefrom Over Hohlbein and Alexander

At page 6 of the Office Action, independent claim 9 was rejected as obvious over Hohlbein in view of Alexander. Applicant respectfully disagrees with the foregoing rejection in application to claim 9 as amended herein, for at least the reason that the references, taken alone or in combination, fail to disclose or provide any derivative basis for "at least one toothbrush manipulation element configured to contact the brush head to promote passage of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone," as detailed below.

Applicant's specification discloses "a dispensing device adapted to supply at least one oral care capsule to . . . a toothbrush." (Specification, ¶ 0029.) One of the embodiments is illustrated in FIGS. 4-7, and includes "a toothbrush manipulation element in the form of a bristle spreader 119 defining an aperture 120 and having a wedge-shaped leading edge 119A," where "[s]uch leading edge 119A may be configured as a wedge or block adapted to provide the desired spreading functionality." (Specification, ¶ 0045; see also FIGS. 5 and 7 (reproduced below).)



As shown in FIG. 5, "[a]s the brush head 20 is inserted past the bristle spreader 119, the wedge-shaped leading edge 119 A of the spreader 119 **spreads apart the angled bristles 26A to prepare the brush head 20 to receive an oral care capsule**." (Specification, ¶ 0045; emphasis added.) Accordingly, "an oral care capsule 200 . . . may be pushed through the aperture 120 of the bristle spreader 119, past the spread-apart angled bristles 26A, and into the oral care capsule receiving zone 25 of the brush head 20 of the toothbrush 10." (Specification, ¶ 0045.)

In another embodiment, "[e]ach guide tube 212A-212C has an associated bristle spreading element 219A-219C adapted to **spread apart bristles of a toothbrush** as described hereinabove, **to permit an oral care capsule to be supplied to the toothbrush through an aperture** 220A-220C associated with the respective guide tube 212A-212C." (Specification, ¶ 0053; emphasis added.) More specifically, "a first user inserts a portion of a toothbrush . . . into a toothbrush insertion aperture (e.g. insertion aperture 210A) to contact a bristle spreader (e.g., bristle spreader 219A) disposed therein," where "[a]n oral care capsule (not shown) is directed through an oral care capsule loading aperture (e.g., aperture 220A) **past spread-apart angled bristles 26A, and into an oral care capsule receiving zone 25 of the brush head** 20 of the tooth brush 10." (Specification, ¶ 0056 (emphasis added); see also FIG. 11 (reproduced below).)

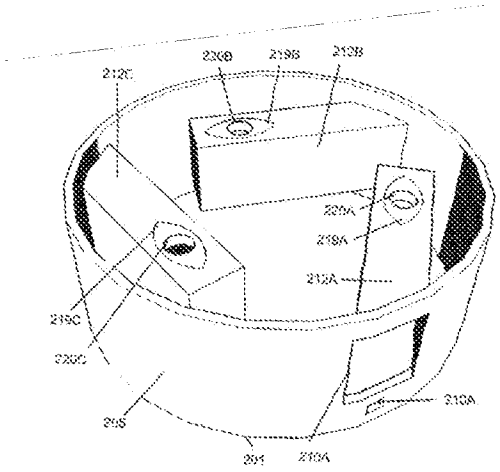


FIG. 11

Hohlbein, the primary reference, discloses an oral care toothbrush having a "head 12, defining a bristle or cleaning element block 22 of head 12." (Hohlbein, ¶ 0034; see also Hohlbein, FIG. 4 (reproduced on the following page).) Hohlbein further discloses that "the

cleaning block 22 may include one or more depressions 24 which are designed to receive and retain an oral care dispenser, such as a rupturable gel capsule 32 therein." (Hohlbein, ¶ 0036.)

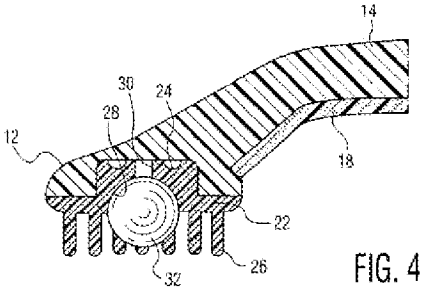


FIG. 4

Hohlbein also discloses "different manners of packaging toothbrushes," (Hohlbein, ¶ 0064) including "a variation wherein the package 54 includes one or more toothbrushes 10 and a plurality of other components 56 which could be accessories or dispensers or other components" (Hohlbein, ¶ 0065.) See also Hohlbein, FIG. 13 (reproduced below).

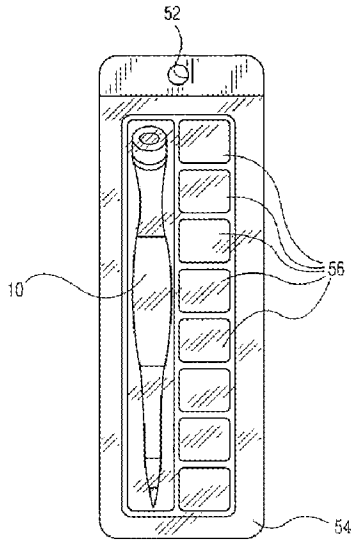
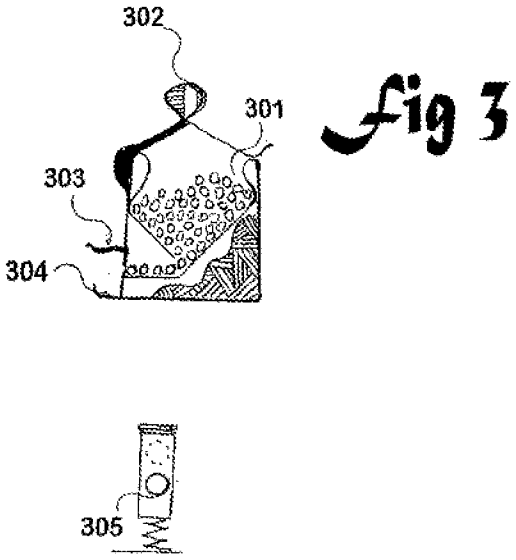


FIG. 13

Hohlbein does not disclose "at least one toothbrush manipulation element configured to contact the brush head to promote passage of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone," as recited in claim 9. This is consistent with the Office Action's reliance upon Alexander, the secondary reference, for disclosure of such features. (See Office Action, page 6.)

Alexander discloses "a form of dental hygiene preparation in which a composition broadly similar to that of conventional toothpaste as obtained from a tube is provided within a

plurality of individual portions." (Alexander, ¶ 0050.) Alexander notes that "each capsule or portion may be dimensioned so that it will hold about the right amount of toothpaste for an average tooth-cleaning procedure." (Alexander, ¶ 0050.) Alexander also notes that to use the invention "[o]ne or perhaps more beads are selected for use, removed from a container or dispenser and broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.) Alexander further discloses dispensers for such capsules, and in particular, discloses a "conventional dispenser with a lid 302," where "[a] spring-loaded lever 303 when pressed aligns two holes so that a capsule or bead previously stored within the mass 301 emerges through hole 305 within a plunger assembly **on to a collection plate 304**." (Alexander, ¶ 0083 (emphasis added); see also Alexander, FIG. 3 (reproduced below).)



Accordingly, Alexander discloses pushing on a plunger assembly to align two holes to allow a capsule to emerge through the aligned holes **onto a collection plate**. The capsule can then be removed from the collection plate and be "broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten." (Alexander, ¶ 0080.) However, Alexander does **not** disclose "at least one toothbrush manipulation element configured **to contact the brush head to promote passage** of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone," as recited in independent claim 9. Alexander fails to embody or include any "toothbrush manipulation element" according to Applicant's claim 9,

and the Examiner's rejection of claim 9 failed to allege that such an element is disclosed by Hohlbein. It is respectfully submitted that none of the cited references discloses or provides any derivative basis for "at least one toothbrush manipulation element configured to contact the brush head to promote passage of an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone" as recited in Applicant's amended claim 9.

For at least the foregoing reasons, Applicant's claim 9 is non-obvious over Hohlbein and Alexander, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending (either directly or indirectly) from claim 9 are patentably distinguished over the cited references for at least the same reasons articulated above in connection with claim 9. Accordingly, it is not necessary to address the additional features in dependent claims 10-12, 14, and 15 to overcome the rejections of such claims; however, Applicant reserves the right to do so in the future, if necessary. Withdrawal of the rejection of claims 9-12, 14, and 15 under pre-AIA 35 U.S.C. § 103(a) is respectfully requested.

4. Patentable Distinctions of Claim 16 and the Claims Depending Therefrom Over Hohlbein and Alexander

At pages 3-4 of the Office Action, independent claim 16 was rejected as obvious over Hohlbein in view of Alexander. Applicant respectfully disagrees with the foregoing rejection in application to claim 16 as amended herein, for at least the reason that the references, taken alone or in combination, fail to disclose or provide any derivative basis for "a toothbrush manipulation element configured to contact a brush head to promote passage of at least one oral care capsule of the plurality of oral care capsules through the toothbrush manipulation element into a retention structure of the brush head," as detailed below.

It has been previously established herein that Hohlbein and Alexander, taken alone or in combination, fail to disclose a toothbrush manipulation element configured to contact a brush head to promote passage of an oral care capsule into a retention structure associated with the brush head. Alexander discloses a dispenser where "[a] spring-loaded lever 303 when pressed aligns two holes so that a capsule or bead previously stored within the mass 301 emerges through hole 305 within a plunger assembly **on to a collection plate 304**" (Alexander, ¶ 0083 (emphasis

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added)). Alexander further discloses that in use, "[o]ne or perhaps more beads are selected for use, removed from a container or dispenser and broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten" (Alexander, ¶ 0080). Accordingly, Hohlbein and Alexander, taken alone or in combination, do not disclose or provide any derivative basis for "a toothbrush manipulation element configured **to contact a brush head to promote passage** of at least one oral care capsule of the plurality of oral care capsules through the toothbrush manipulation element into a retention structure of the brush head," as recited in independent claim 16.

For at least the foregoing reasons, Applicant's claim 16 is non-obvious over Hohlbein and Alexander, and the rejection of such claim should be withdrawn.

Since dependent claims inherently include the features of the claims on which they depend, all claims depending (either directly or indirectly) from claim 16 are patentably distinguished over the cited references for at least the same reasons articulated above in connection with claim 16. Accordingly, it is not necessary to address the additional features in dependent claims 17-20 to overcome the rejections of such claims; however, Applicant reserves the right to do so in the future, if necessary. Withdrawal of the rejection of claims 16-20 under pre-AIA 35 U.S.C. § 103(a) is respectfully requested.

5. Patentable Distinctions of Claims 5, 13, and 18 over Hohlbein, Alexander, and Walker

It has been previously demonstrated herein that independent claims 1, 9, and 16 are patentably distinguished over Hohlbein and Alexander. Walker fails to remedy the deficiencies of Hohlbein and Alexander in disclosing or providing any derivative basis for all the features recited in independent claims 1, 9, and 16.

Claims 5, 13, and 18 are patentably distinguished over the same references by virtue of their dependence from claims 1, 9, and 16, respectively; accordingly, it is not necessary to address the specific features of claims 5, 13, and 18, but Applicant reserves the right to do so in the future if necessary. Withdrawal of the rejection of claims 5, 13, and 18 under 35 U.S.C. § 103(a) is respectfully requested.

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G. Excess Claim Fees

Forty dollars ($40.00) is believed due in connection with this Reply for the addition of one (1) claim in excess of twenty at the small entity rate, payment for which is enclosed. The Office is authorized to charge any additional fees that may be necessitated by this Reply to Deposit Account No. 50-1732.

Conclusion

Based on the foregoing, pending claims 1-21 are patentably distinguished over the art, and in form and condition for allowance. The Examiner is requested to favorably consider the foregoing, and to responsively issue a Notice of Allowance.

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application.

The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-1732, to the extent that such fees are not paid by other means (e.g., via credit card).

If any issues require further resolution, the Examiner is requested to contact the undersigned attorney at (919) 238-2300 to discuss same.

Respectfully submitted,

WITHROW & TERRANOVA, P.L.L.C.

By: /vincent k. gustafson/

Vincent K. Gustafson
Registration No. 46,182
106 Pinedale Springs Way
Cary, NC 27511
Telephone: (919) 238-2300

Date: June 30, 2016
Attorney Docket: 2076-002C
Enclosure: Replacement Drawing Sheets 4-7 and 11

PETITIONER - COLGATE, Exhibit 1004
Page 180 of 385

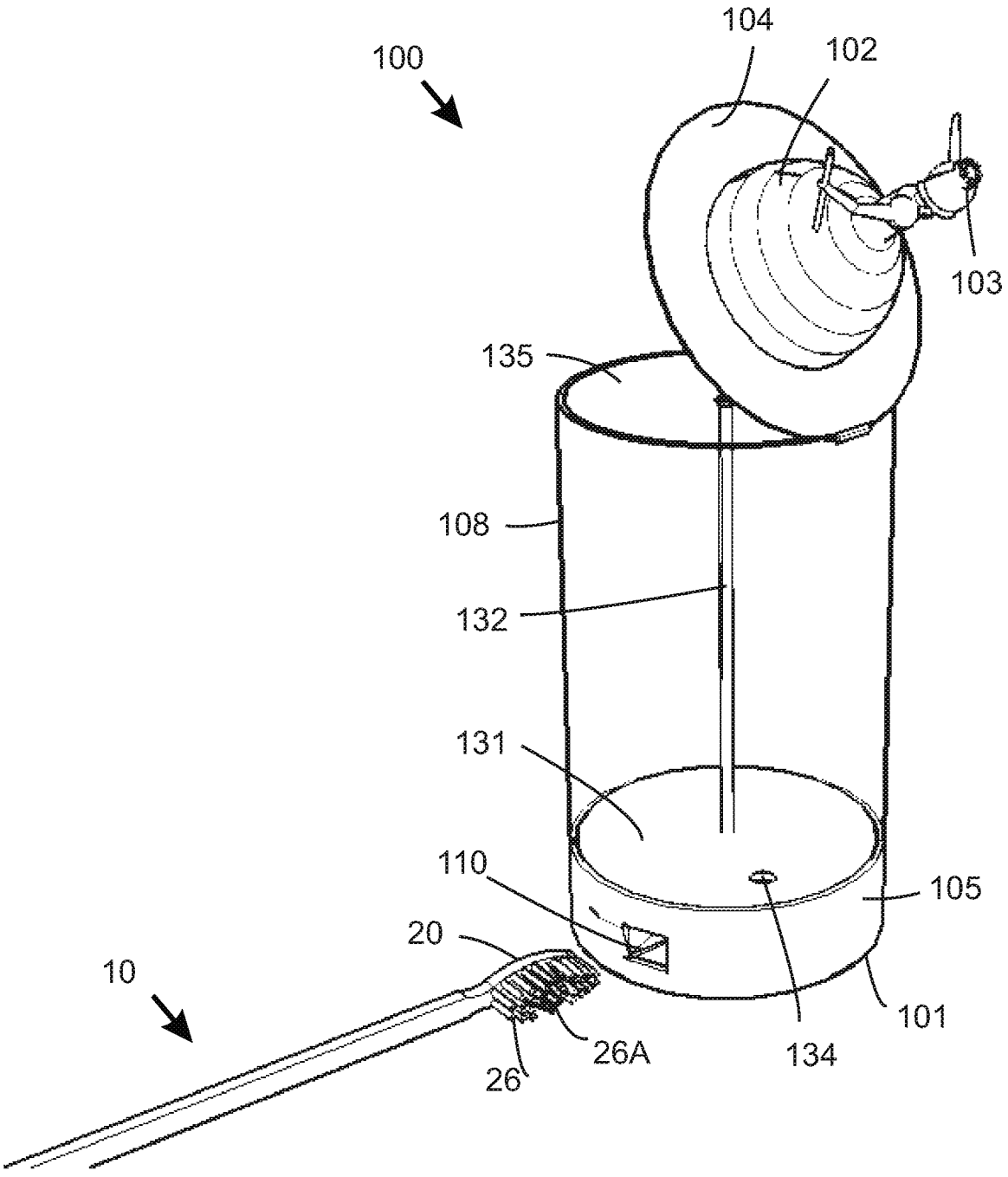


FIG. 4

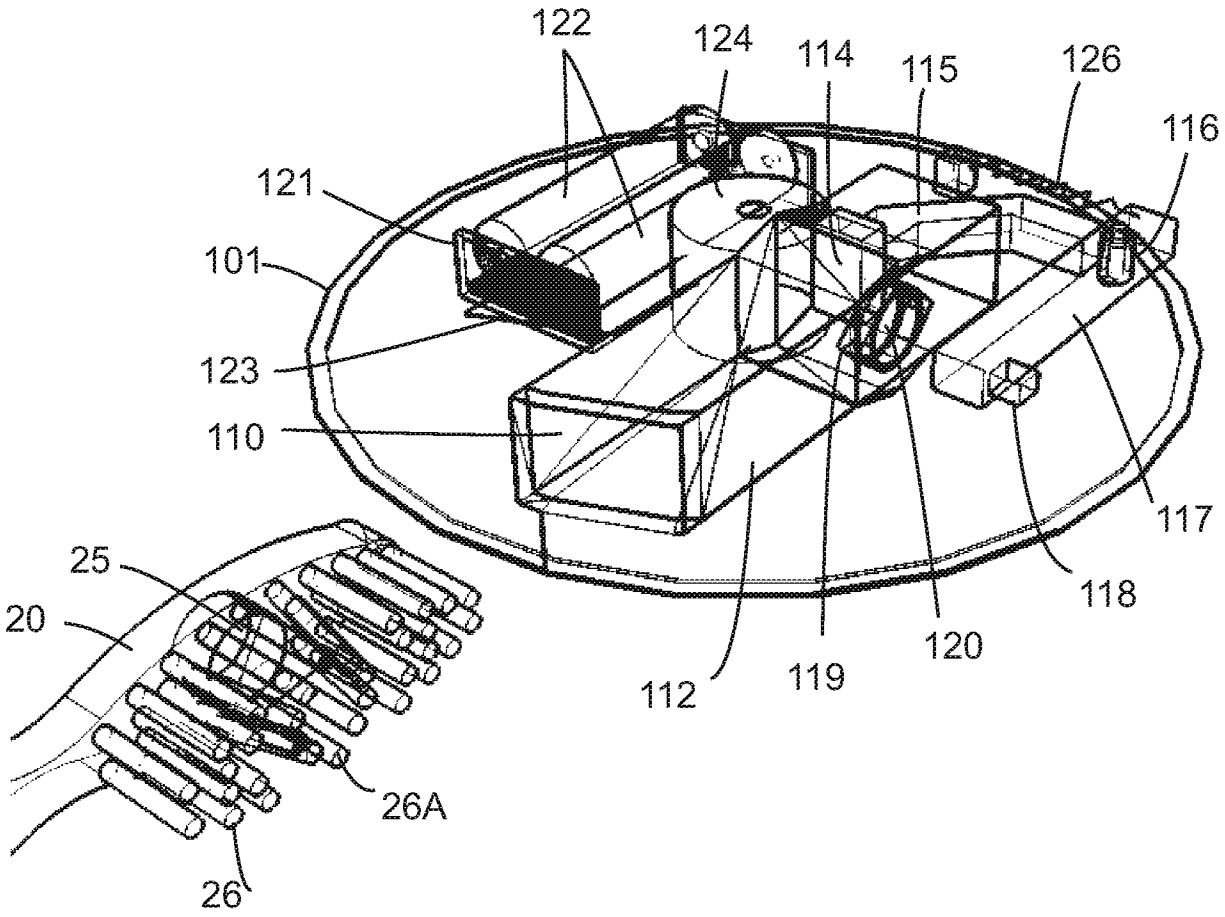

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FIG. 5

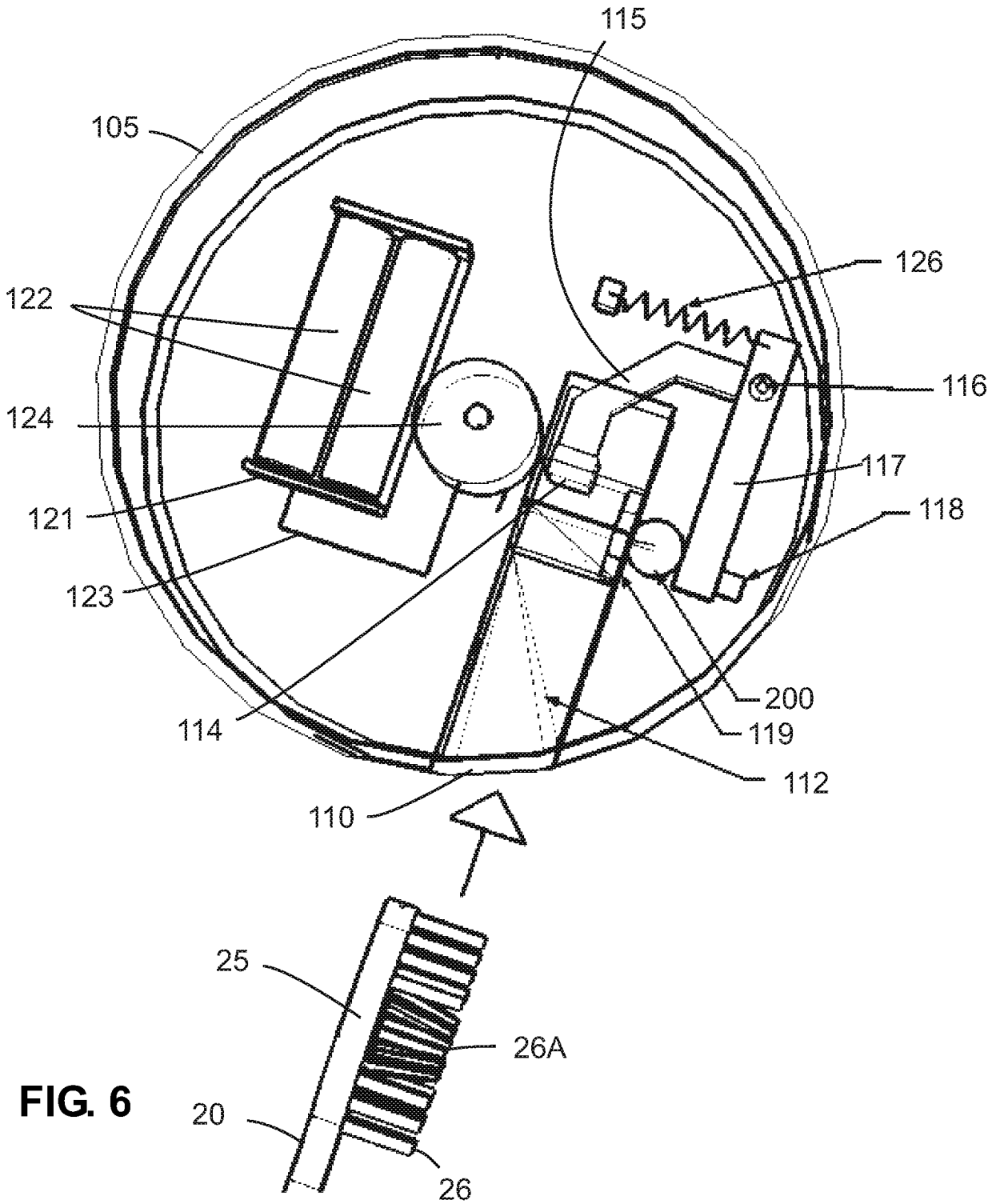

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FIG. 6

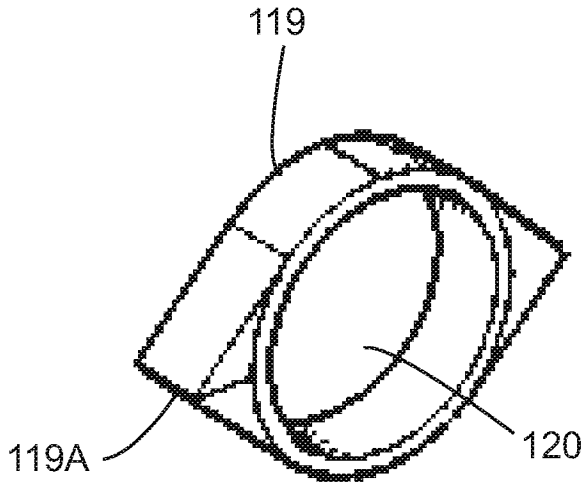


FIG. 7

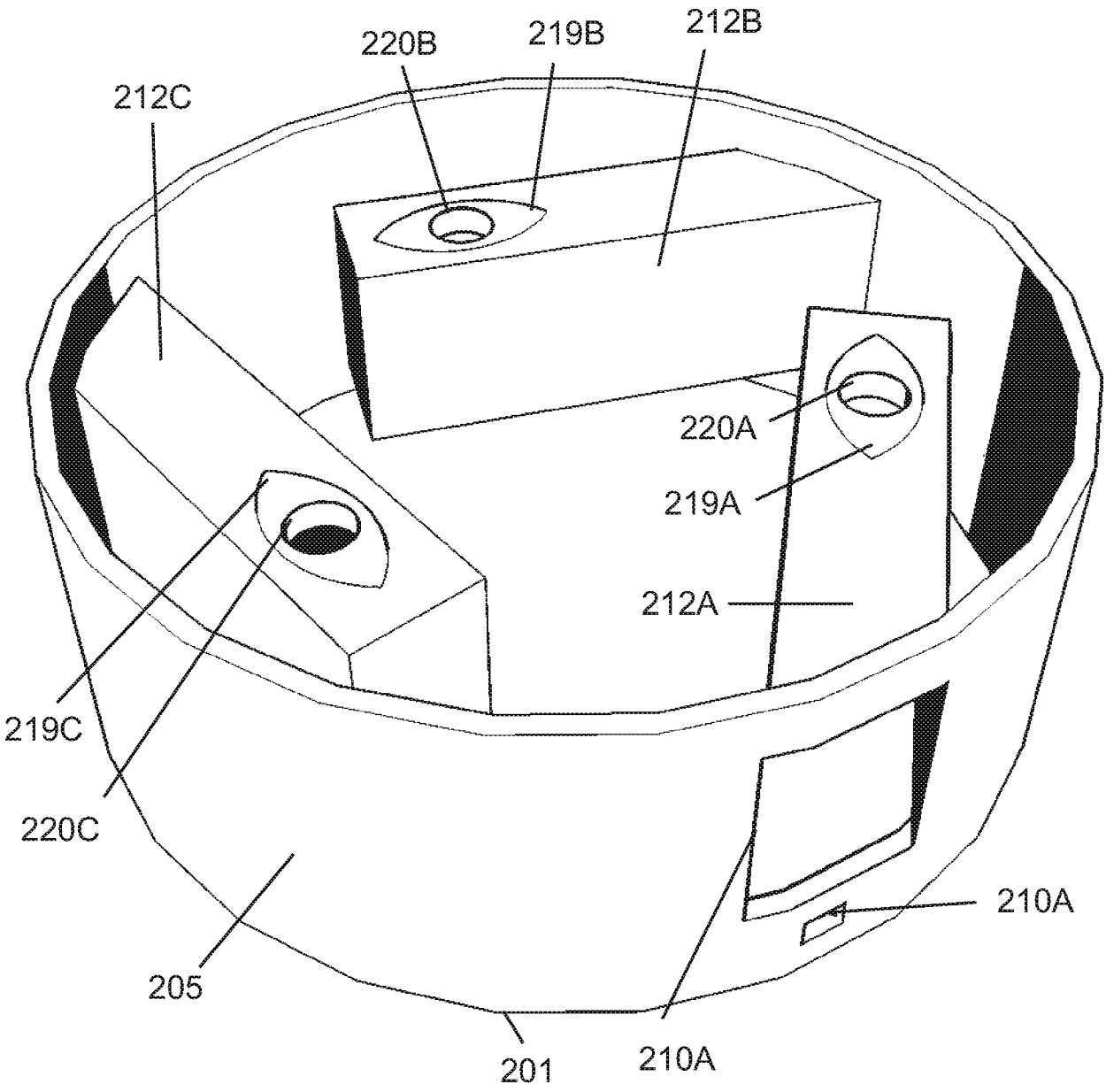

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FIG. 11

Electronic Patent Application Fee Transmittal

Application Number:	14535442
Filing Date:	07-Nov-2014
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Filer:	Vincent Kayne Gustafson/Laura Woodrum
Attorney Docket Number:	2076-002C

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	1	40	40
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**40**

Electronic Acknowledgement Receipt

EFS ID:	26224304
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Laura Woodrum
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	30-JUN-2016
Filing Date:	07-NOV-2014
Time Stamp:	13:27:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$40
RAM confirmation Number	14168
Deposit Account	501732
Authorized User	GUSTAFSON, VINCENT

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 CFR 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 CFR 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 CFR 1.19 (Document supply fees)

Charge any Additional Fees required under 37 CFR 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2076-002C_Response_to_OA_mailed_04-01-16.pdf	413334 732892d8113933e5a3586ea2ea2b9d9d299415c6	yes	22

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	5
Specification	6	7
Applicant Arguments/Remarks Made in an Amendment	8	22

Warnings:

Information:

2	Drawings-only black and white line drawings	2076-002C_Replacement_Sheets_4-7_and_11.pdf	566397 b8200b414c94b8d799614dfe2339717cff13a7a7	no	5

Warnings:

Information:

3	Fee Worksheet (SB06)	fee-info.pdf	30485 1ef3fc98206e19ceeb95bfb2f22ba417ac14b280	no	2

Warnings:

Information:

Total Files Size (in bytes):	1010216

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/535,442	Filing Date 11/07/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT

06/30/2016	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 21	Minus	** 20	= 1	X $40 =	40
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	40

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
ANTHONY WILLIAMS

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/535,442	11/07/2014	Lise W. Noble	2076-002C	1451

27820 7590 04/01/2016
WITHROW & TERRANOVA, P.L.L.C.
106 Pinedale Springs Way
Cary, NC 27511

EXAMINER
KUMAR, RAKESH

ART UNIT	PAPER NUMBER
3651	

NOTIFICATION DATE	DELIVERY MODE
04/01/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@wt-ip.com

Office Action Summary	Application No. 14/535,442	Applicant(s) NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/02/2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-5 and 7-20* is/are rejected.

8)☐ Claim(s) *6* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *12/03/2014* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *12/03/2014 and 01/23/2015*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Drawings

The drawings are objected to because Applicant's drawings comprise shaded Figures, making visualization of the claimed structure difficult to discern and distinguish. It is suggested the applicant avoid using grayscale shading and present Figures as customary for examination.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7-12 and 14-20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Hohlbein (US 2006/0165473 A1) in view of Alexander (US 2004/0091431 A1).

Referring to claims 1 and 16. Hohlbein discloses a dispensing device (54; Figure13) adapted for use with at least one toothbrush (10) including a brush head (12; Figure 4) having a capsule receiving zone (28) configured to receive an oral care capsule (32; Figure 4), the dispensing device (54) comprising:

a container (container 54) including an interior arranged to contain a plurality of oral care capsules (in pockets 56).

Hohlbein does not disclose a container comprising aperture-defining element including an aperture arranged to permit passage of an oral care capsule and a

moveable dispensation element arranged to push an oral care capsule through the aperture.

Alexander discloses a personal oral hygiene device (Figure 3) wherein a container (container of Figure 3) including an interior (301) arranged to contain a plurality of oral care capsules (see capsule beads in storage 301) an aperture-defining element (303) including an aperture arranged to permit passage of an oral care capsule (pressing member 303 aligns two holes for passage of a capsule); and
a moveable dispensation element arranged to push (plunger assembly; Para. [0083] in line 14) an oral care capsule through the aperture (303) to be received by the capsule receiving zone of the brush head (capsule can be placed in the receiving zone of the brush head by a user).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Hohlbein to have include a container comprising an aperture arranged to permit passage of an oral care capsule and a moveable dispensation element arranged to push an oral care capsule through the aperture onto a receiving zone of the brush head as taught by Alexander because a container would be able to house a larger quantity of oral care capsule and selective release a capsule onto a receiving zone of the brush head thus allowing for a more sanitary dispensing of capsule in a controlled manner.

Referring to claims 2, 14 and 19. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) comprises a ramp (see funnel shaped interior of container) arranged to guide oral care capsules (capsules) toward the moveable dispensation element (303 and plunger).

Referring to claim 3. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) further comprising at least one moveable sealing element (spring loaded lever 303) arranged to reduce infiltration of moisture into the container between cycles of dispensing oral care capsules from the dispensing device (see Figure 3).

Referring to claim 4. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) further comprising a selectively closable dispensing orifice (306) adapted to permit dispensation of at least one oral care capsule from the container (see Figure 3).

Referring to claim 7. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) wherein the moveable dispensation element (303) comprises at least one of a push bar (bar housing opening 306), an arm, a lever, and a spring (see Figure 3 member 306).

Referring to claim 8. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) comprising a guide tube (beneath the member 301

extending to member 303) arranged to receive the brush head (brush head can be placed near member 304), wherein the aperture-defining element (306) bounds a portion of the guide tube (opening and closed the opening 306).

Referring to claims 9, 11 and 17. Hohlbein discloses a dispensing device (54; Figure13) adapted for use with at least one toothbrush (10) including a brush head (12; Figure 4) having a capsule receiving zone (28) configured to receive an oral care capsule (32; Figure 4), the dispensing device (54).

Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) comprises, at least one toothbrush manipulation element (303) adapted to pass an oral care capsule (capsule through member 306 onto 304) into a retention structure associated with the brush head (capsule can be placed into member 28; Hohlbein) to enable receipt of said oral care capsule into the capsule receiving zone (into member 28; Hohlbein); and

at least one dispensation element (306) adapted to deliver said oral care capsule into the capsule receiving zone (304, accessible to the brush head).

Referring to claim 10. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) comprising a container containing (Figure 3) a plurality of oral care capsules (capsules retained in cavity 301).

Referring to claim 12. Alexander discloses a personal oral hygiene device (Figure 3) wherein the container (Figure 3) having an interior configured to contain a plurality of oral care capsules (301), and

at least one selectively closable dispensing orifice (306) adapted to permit dispensation of at least one oral care capsule from the container (see Figure 3).

Referring to claims 15 and 20. Hohlbein in view of Alexander do not specifically disclose the dispenser as being configured to effectuate automatic dispensation of articles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Hohlbein in view of Alexander to effectuate automatic dispensation of at least one oral care capsule from the container through the at least one selectively closable dispensing orifice because automating the dispensing of the capsules would provide for a hands-free operation of the dispenser and thus further improve the sanitary conditions of the dispensed capsules.

Claims 5, 13 and 18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Hohlbein (US 2006/0165473 A1) in view of Alexander (US 2004/0091431 A1) and further in view of Walker (US 5,616,299).

Referring to claims 5, 13 and 18. Hohlbein in view of Alexander do not disclose a desiccant material arranged in the interior of the container.

Walker discloses a dispenser for dried reagent spheres (10; Figure 2) wherein the container comprising a desiccant material (67; Figure 2) arranged in moisture receiving relationship with the interior of the container to inhibit moisture within the container.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Hohlbein in view of Alexander to have include a desiccant material arranged in the interior of the container as taught by Walker because the desiccant material would inhibit moisture collection within the dispenser thus extending the life of the stored capsules.

Allowable Subject Matter

Claim 6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RAKESH KUMAR whose telephone number is (571)272-8314. The examiner can normally be reached on M-F 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RAKESH KUMAR/
Primary Examiner, Art Unit 3651

Notice of References Cited	Application/Control No. 14/535,442	Applicant(s)/Patent Under Reexamination NOBLE ET AL.	
	Examiner RAKESH KUMAR	Art Unit 3651	Page 1 of 1

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	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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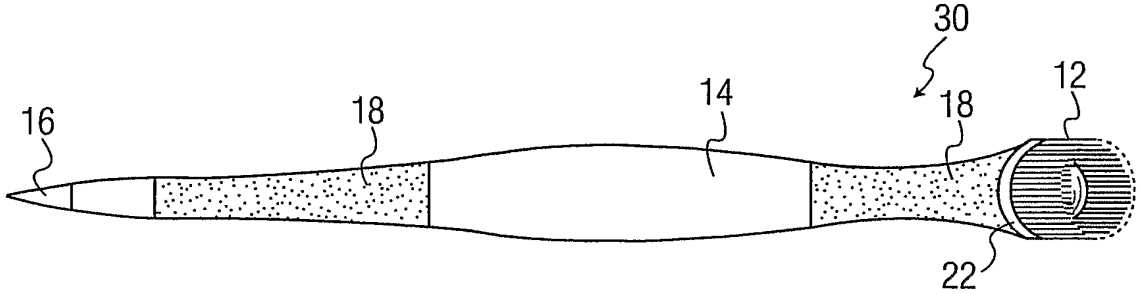
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Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

Published:
— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ORAL CARE TOOTHBRUSH



(57) Abstract: An oral care toothbrush includes a head mounted to one end of the handle containing a plurality of oral care elements. An oral care accessory is mounted to the opposite end of the handle. An oral care material dispenser is mounted in the head within the cleaning field defined by the oral care elements. The toothbrush is preferably made of small size and of lightweight so as to be readily portable for use away from the home.

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ORAL CARE TOOTHBRUSH

BACKGROUND OF THE INVENTION

A. Field of the Invention

The present invention relates generally to toothbrushes, and, more particularly, to a toothbrush which may have an oral care dispenser, such as a breath freshening, teeth cleaning gel capsule, and an oral care accessory, such as a toothpick.

B. Description of the Related Art

The advantages of good dental hygiene are well known. Often, however, toothbrushes are forgotten when one is traveling or away from home. Hotels, health care facilities, nursing homes, hospitals, daycare facilities, schools, airlines, etc. have a need for single use disposable or limited multiple use toothbrushes that may be economically supplied to and discarded by individuals without a toothbrush and/or a water supply. Such toothbrushes could be used in vending machines, or distributed in large quantities for simple, portable use from anywhere.

Various types of disposable, limited use, or portable toothbrushes are known in the art. For example, some toothbrush systems have attempted to meet some of these needs by providing toothpaste within the toothbrush itself, through an integrated channel, for distribution through the toothbrush and around the bristles. This approach can be less economical due to the added manufacturing costs of toothbrushes with integrated

channels. In addition, the toothpaste in some of these integrated channel toothbrushes, not being properly sealed, has a tendency to become dry, hard and stale.

U.S. Patent No. 6,135,274 shows an apparatus for brushing teeth that includes an outer bag, a toothbrush sealed within the outer bag, and a dispenser sealed within the outer bag and containing a mouth care solution. In use, the rupturable dispenser is squeezed or otherwise subjected to pressure while the toothbrush remains sealed within the outer bag. Unfortunately, the apparatus for brushing teeth requires an outer bag, increasing the cost of the apparatus, and fails to provide the rupturable dispenser and toothbrush as one complete, connected unit. The reference also fails to provide a toothpick mechanism for cleaning in between teeth, and which is also connected to the toothbrush.

U.S. Patent No. 6,397,860 discloses a disposable, waterless tooth brushing assembly that includes a toothbrush, a non-foaming, saliva-activated, teeth-cleaning agent pre-applied to the bristles of the toothbrush, a small moistened disposable towel for user after teeth cleaning, and a compact, lightweight, two-layer heat-sealed packaging container for pre-use sanitary storage of the toothbrush and towel. Like U.S. Patent No. 6,135,274, the assembly of U.S. Patent No. 6,397,860 requires a packaging container, increasing the cost of the assembly, and fails to provide a rupturable dispenser and toothbrush as one complete, connected unit. The reference also fails to provide a toothpick mechanism for cleaning in between teeth, and which is also connected to the toothbrush.

Published U.S. application 2002/0106234 discloses a chewable toothbrush made of a flexible shell with bristles coupled to the shell and a chewable centerpiece disposed

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within the shell interior. A burstable capsule is disposed adjacent to the chewable centerpiece within the shell interior and maintains a digestible fluid.

None of the toothbrush assemblies of the related art includes a rupturable dispenser containing a dentifrice, a toothpick, and a toothbrush as one complete, connected unit or the various other combination of oral care members and materials, later described. Thus, there is a need in the art for a waterless, toothbrush having a toothpick connected thereto to enable cleaning in between teeth or other accessory, and a dispenser containing a dentifrice or other oral care material and being connected in the bristle or cleaning element portion of the toothbrush for dispensing the dentifrice to the teeth to provide teeth cleaning and breath freshening or other oral care benefits.

SUMMARY OF THE INVENTION

The present invention solves the problems of the related art by providing in one embodiment a waterless toothbrush having a toothpick connected thereto to enable cleaning in between teeth, and a rupturable dispenser containing a dentifrice and being connected in the bristle portion of the toothbrush for dispensing the dentifrice to the teeth to provide teeth cleaning and breath freshening, all of which deliver a cleaning, polishing, whitening, between teeth cleaning, and breath freshening action in addition to enhancing the cleaning efficiency of a typical disposable or limited use toothbrush. The toothbrush of the present invention in this embodiment combines three benefits into one toothbrush: (1) tooth surface cleaning provided by the toothbrush bristles or other cleaning elements and the dentifrice in the rupturable dispenser;

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(2) between teeth cleaning provided by the toothpick; and (3) breath freshening provided by the dentifrice in the rupturable dispenser.

As embodied and broadly described herein, the present invention is broadly drawn to an oral care toothbrush, preferably comprising: a handle having an oral care head mounted to one end of the handle with an oral care accessory mounted to an opposite end of the handle. A plurality of oral care elements such as cleaning/massage elements, which could be bristles, extend outwardly from the outer surface of the head. The head also includes structure for dispensing oral care material in the oral care field of the head.

In a preferred practice of the invention the oral care toothbrush is characterized by its small size and light weight so that it is readily adaptable for travel use. The oral care toothbrush is preferably capable of having multiple functions by including an accessory as part of the toothbrush such as a toothpick, dental floss or tongue cleaner.

In one practice of this invention the oral care toothbrush includes a toothpick formed at one end of the handle; and a head connected at another end of said handle, said head having a bristle block that includes a plurality of bristles and retains a gel capsule therein, the gel capsule containing a mouth care solution. In further embodiments, the gel capsule can be replaced by a quantity of toothpowder, toothpaste or a tooth cleaning gel dentifrice, to provide the cleaning benefits of the dentifrice within the rupturable dispenser.

Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be

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understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description. It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention, as claimed.

Among the advantages of various practices of the invention are that the size and configuration of the toothbrush allows discreet hygienic use, such as no fingers in the mouth, adapting it to be readily used in public areas. Such uses could be done without the need for a sink or fountain or other source of water.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only, and thus are not limitative of the present invention, and wherein:

Fig. 1 is a front elevational view of an oral care toothbrush with a toothpick and a breath freshening, teeth cleaning gel capsule connected thereto in accordance with an embodiment of the present invention;

Fig. 2 is a side elevational view of the toothbrush shown in Fig. 1;

Fig. 3 is a rear elevational view of the toothbrush shown in Figs. 1-2;

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Fig. 4 is a fragmental, cross-sectional view of the head of an oral care toothbrush shown in accordance with this invention;

Figs. 5-6 are side elevational views of other forms of heads for an oral care toothbrush in accordance with this invention;

Fig. 7 is a fragmental side elevational view showing a head detachably mounted to the handle in accordance with a further practice of this invention;

Fig. 8 is a fragmental cross-sectional elevational view showing a vibrating toothbrush head in accordance with this invention;

Figs. 9-10 are fragmental front elevational views partly broken away of portions of a handle in accordance with yet another practice of this invention;

Fig. 11 is a side elevational view partly in section of yet another toothbrush in accordance with this invention; and

Figs. 12-13 are front elevational views showing various forms of toothbrushes in accordance with this invention in the packaged or display condition.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

The following detailed description of the invention refers to the accompanying drawings. The same reference numbers in different figures identify the same or similar elements. Also, the following detailed description does not limit the invention. Instead, the scope of the invention is defined by the appended claims and equivalents thereof.

Figs. 1-4 illustrate one practice of the present invention wherein an oral care toothbrush 10 includes a head 12 and a handle 14. Head 12 may be a refill head and

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thus be removably connected to handle 14, or head 12 may be permanently connected to head 12 within the practice of the present invention.

The majority of handle 14 and a portion of head 12 may be molded from a variety of rigid materials, including plastics, resins, etc., such as, for example, polypropylene. An end portion of handle 14, opposite the end head 12 is attached to an accessory, preferably a toothpick 16 formed of a resilient and soft thermoplastic elastomer. Toothpick 16 may be a refill and thus be removably connected to handle 14, or toothpick 16 may be permanently connected to handle 14 within the practice of the present invention. Toothpick 16 provides a mechanism for spot cleaning between teeth. Forming toothpick 16 of a soft elastomer provides more comfortable interproximal cleaning between teeth. Toothpick 16 could, however, be made of a stiff rigid material similar to the main portion of handle 14, or could simply be a rubber or elastomeric pick adhered or otherwise mounted to the end of handle 14.

Portions 18 of handle 14 may also be formed of a resilient and soft thermoplastic elastomer. The thermoplastic elastomer which forms toothpick 16 and handle portions 18 may be a thermoplastic vulcanate (TPV) consisting of a mixture of polypropylene and EPDM (ethylene propylene diene monomers) which is available as SANTOPRENE (brand), described in **U.S. Pat. No. 5,393,796**, or VYRAM (brand), another TPV consisting of a mixture of polypropylene and natural rubber. Both SANTOPRENE and VYRAM (brands) are elastomers marketed by Advanced Elastomer Systems. Other suitable elastomers include KRATON, a brand of styrene block copolymer (SBC) marketed by Shell, and DYNAFLEX G 2706 (brand), a thermoplastic elastomer marketed by GLS Corporation and which is made with KRATON (brand) polymer.

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Handle 14 may further include dimples, bumps, or ridges protruding from portions of its surface, and providing a decorative appearance to handle 14 and enhanced gripping of handle 14 during use of toothbrush 10. The dimples may be formed from the same material as soft elastomer portions 18 of handle 14 or from the same material as the majority of handle 14 (e.g., a rigid material such as polypropylene). All or part of handle 14 could be made of any suitable material, such as plastic, wood, metal or various natural materials which are biodegradable.

Preferably handle 14 is made of a generally flat or oval shape rather than cylindrical in its gripping portion which would be between the spaced elastomer portions 18,18 to facilitate the gripping of the handle.

As shown in Figure 4 another portion of head 12, defining a bristle or cleaning element block 22 of head 12, may also be formed of a resilient and soft thermoplastic elastomer, such as the thermoplastic elastomer used to form handle portions 18. Cleaning block 22 may include one or more depressions 24 provided in a surface 30 thereof with an opening 30 therein that provides a cushioning effect to a reputurable dispenser, preferably a gel capsule 32, contained therein, as described more fully below. Cleaning block 22 further includes a multitude of cleaning elements which could be conventional filament, preferably nylon, or elastomeric bristles or fingers 26 extending integrally outwardly from the outer surface of head 12. In the illustrated embodiment as best shown in Fig. 4, all of the cleaning elements 26 extend outwardly from the outer surface of block 22 the same distance so as to create a generally flat surface. Alternatively, however, some elements 26 may be shorter or longer than other elements 26.

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The term "cleaning elements" as used herein is intended to be used in a generic sense as cleaning elements or massage elements arranged in a circular cross-section shape or any type of desired shape, including straight portions or sinusoidal portions. It is to be understood that the specific illustration of the cleaning elements is merely for exemplary purposes. The invention can, however, be practiced with various combinations of the same or different configurations (such as stapled, in-mold tufting (IMT) bristle technology as disclosed in **U.S. Patent Nos. 5,609,890, 5,390,984, and 5,533,791**, the disclosures of which being incorporated by reference herein in their entirety, etc.) and/or with the same or different bristle materials (such as nylon bristles, spiral bristles, rubber bristles, etc.). Similarly, while Figs. 1-4 illustrate the cleaning elements 26 to be generally perpendicular to the outer surface of head 12, some or all of the cleaning elements 26 may be angled at various angles with respect to the outer surface of head 12. It is thereby possible to select the combination of configurations, materials and orientations to achieve specific intended results, such as enhanced cleaning, tooth polishing, breath freshening, tooth whitening and/or massaging of the gums.

As stated above, the cleaning block 22 may include one or more depressions 24 which are designed to receive and retain an oral care dispenser, such as a rupturable gel capsule 32 therein. The one or more depressions 24 can be varied in size so as to accommodate not only varying size dispensers 32, but varying quantities of toothpowder, a toothpaste or tooth cleaning gel dentifrice or other oral care material, for delivery to the dentiture as the elements 26 extending from the block 22 are applied thereto, during use of the present invention such that the

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oral care material enhances the cleaning of the dentiture by the cleaning elements. While the present invention can be manufactured containing a packed toothpowder, toothpaste or tooth cleaning gel dentifrice and used repeatedly by the user refilling the dispenser with toothpowder, toothpaste or tooth cleaning gel dentifrice, it is preferably used with one or more gel capsules 32 contained therein. Most preferably the present invention is used with a single gel capsule 32, supplied therewith, so as to be most easily transported, used, and subsequently disposed of; however, it may also be used repeatedly with replaceable gel capsules 32, and then disposed of.

It is preferred that the depression is in the form of a cushioned socket 28 sized and shaped to receive and retain the gel capsule 32, without premature rupture of the gel capsule 32 prior to use thereof during application of the bristle block 22 to the dentiture and brushing thereof. Cushioning socket 28 opening 30, and the material making up bristle block 22 provide a cushioning effect for gel capsule 32 to prevent gel capsule 32 from rupturing prior to use.

Gel capsule 32 holds and applies a mouth care solution onto bristles 26 of toothbrush head 12. The mouth care solution may be a toothpaste, a gel, a mouthwash, or similar dentifrice or oral hygiene product, or a combination of the same contained in the rupturable capsule 32. Preferably gel capsule 32 is a liquid-filled gel capsule having frangible, thin walls that easily rupture or burst when rubbed against the teeth, or dissolve when mixed with the saliva of a user. The materials making up gel capsule 32 and the oral or mouth care solution contained therein preferably are consumable by the user of toothbrush 10, eliminating the need for

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water, a sink, or a waste receptacle to expectorate the gel capsule 32 or its contents. The mouth care solution remains in gel capsule 32 until toothbrush 10 is ready for use. Preferably, gel capsule 32 is fully sealed, helping the mouth care solution to remain fresh until use.

In use, gel capsule 32 would be pressed against the teeth and burst or rupture or dissolve, applying the mouth care solution over cleaning elements 26. The user then may brush their teeth with toothbrush 10. The user may also use toothpick 16 to clean between teeth, either before or after brushing. After the user has used toothbrush 10, one may, but not necessarily, then easily and economically dispose of toothbrush 10.

In one preferred aspect of the present invention, the entire structure of toothbrush 10, including head 12, handle 14, and toothpick 16, is molded as one integral structure, using a conventional two-component injection molding operation typically used in the manufacture of toothbrushes. This enables toothbrush 10 to be economically and quickly manufactured. Although toothbrush 10 may have a variety of sizes and dimensions, it is preferred that toothbrush 10 have a small profile, with head 12 being small enough to cover one tooth at a time and handle being thinner than conventional, everyday toothbrush handles. Toothbrush 10 is thus readily portable or space saving.

The toothbrush 10 of the present invention provides many benefits, including the cosmetic benefits of brushing one's teeth in a form that can be used when one is away from home, and away from a water supply. The cosmetic benefits achieved by the toothbrush 10 of the present invention include the cleaning of debris between teeth with toothpick 16, broad tooth surface cleaning (particularly the front teeth) with cleaning elements 26

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and the mouth care solution of gel capsule 32, and breath freshening with the mouth care solution of gel capsule 32.

In addition to the cosmetic benefits, the toothbrush 10 of the present invention also provides economic benefits in the form of an inexpensive toothbrush that is both quickly and economically manufactured. Toothbrush 10 also provides a mechanism for maintaining oral health, without the need for toothpaste, water, mouth wash, and containers to hold the same. Thus, toothbrush 10 is also very convenient to use.

Although Figs. 1-4 illustrate a manually-operated, disposable toothbrush, the present invention may also be practiced where the head includes one or more power or electrically operated movable sections carrying cleaning elements. Such movable section may oscillate in a rotational manner or may oscillate linearly in a longitudinal direction with respect to the longitudinal axis of the head or may oscillate linearly in a lateral or transverse direction with respect to the longitudinal axis of the head. The movable section may oscillate in and out in a direction toward and away from the outer surface of the head. The movable section may rock back and forth with respect to the outer surface of the head. The movable section may rotate continuously in the same direction, rather than oscillate. Any suitable drive mechanism may be used for imparting the desired motion to the movable section. Where plural movable sections are used, all of the movable sections may have the same type and direction of movement, or combinations of different movements may be used.

In accordance with one aspect of this invention the cleaning elements may be in the form of bristles made from conventional materials, such as nylon, as well as from a combination of materials so as to provide the proper

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stiffness in an economical manner. For example, the cleaning elements could be made of a flexible resilient material, such as TPE and a lesser expensive material such as LLDPE (linear low density polyethylene) or EVA (ethylene vinyl acetate) or a TPE. The cleaning elements could be made of a blend of TPE and either LLDPE, EVA, or polypropylene. Preferably, the two materials are combined to provide a stiffness of less than 600 MPa. The blend of materials would give the properties of conventional nylon bristles, while offering reduced costs. For example, there would be lower manufacturing costs by injection molding instead of conventional bristle tufting. Alternatively the resilient material could be a single material, such as hard TPE (i.e. Shore A 80 hardness), straight LLDPE or straight EVA.

The cleaning elements may be of any desired shape. For example, the cleaning elements could be of cylindrical shape having a uniform diameter throughout their length. Alternatively, the cleaning elements could taper from the root of each cleaning element where it extends from head 22 to its outer cleaning end. Since a preferred practice of the invention is to provide a small lightweight toothbrush the dimensions of the various components of toothbrush 10 are preferably small. Thus, for example, each cleaning elements may extend outwardly from the outer surface of cleaning block 12 a distance no greater than 10mm and preferably no greater than 8mm and most preferably no greater than 6mm. Where tapered cleaning elements are used the root diameter should be no greater than 1.5mm, preferably no greater than 1mm, most preferably no greater than 0.7mm or no greater than 0.5mm or no greater than 03.mm. The diameter could then decrease in size to no greater than 0.2mm at a distance of no greater than 6mm from the base of the cleaning element.

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The taper relationship of diameter at a distance location above the root diameter could be a range of no greater than 1mm at a distance of no greater than 10mm, preferably no greater than 0.6mm at a distance of no greater than 8mm, most preferably no greater than 0.2mm at a distance of no greater than 6mm. Preferably, the length of the entire toothbrush 10 is no greater than 5 inches, preferably no greater than 4 inches, and more preferably no greater than 3.75 or 3 or 2.50 inches, and may be in the range of 2 to 4 inches.

As illustrated in Figures 1 and 4 the cleaning elements define a cleaning field in the head and the dispenser 32 is mounted within this cleaning field. The cleaning elements 26 preferably extend outwardly from the cleaning block 22 to be approximately flush with the outer surface of the gel bead or capsule 32, as shown in Figure 4. The invention, however, can also be practiced where the cleaning elements extend either a greater distance or a lesser distance than the dispenser 32. Since toothbrush 10 is intended to be both small and lightweight, it is preferred that toothbrush 10 weigh no more than 3 grams. The small size is such that it can be held completely within the palm of an adult user. Head 12 is of a size that it would correspond to the size of an individual tooth or an individual tooth and the interproximal areas. Head 12 could be made of any suitable shape and is preferably of circular or oval shape having a maximum lateral dimension or diameter of no greater than 13mm, preferably no greater than 12mm and most preferably no greater than 11mm. Where head 12 is of non-circular shape its maximum lateral dimension is 14mm.

As shown in Figure 2 head 12 is preferably at an angle between 0° and 90^{0} to the longitudinal axis of handle 14. The preferred angle is from 20^{0} to 70^{0} and more

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preferably from 30^0 to 60^0. The cleaning elements could be perpendicular to the outer surface of head 12 or could also be at an angle to the outer surface such as in the range of 60^0 to 90^0 or in the range of 75^0 to 90^0.

In one practice of the invention the cleaning elements could be hollow, such as hollow bristles, which are capable of absorbing a medicament by capillary action. Such practice of the invention would be particularly useful for children where a medicament or some form of flavor could be dispensed from the hollow cleaning elements. It is also possible to leach antibacterial material from the cleaning elements. In one practice of the invention where the cleaning elements are used to dispense oral care materials the cleaning elements themselves may be considered as the oral care dispensers without requiring additional dispensers such as capsule 32.

Where specific parameters and characteristics have been given for cleaning elements, the invention could be practiced where other cleaning elements do not include those parameters and characteristics.

Figures 5-6 show other variations in the practice of this invention wherein the cleaning elements are in the form of a single mass having an irregular outer surface. As shown in Figure 5 the mass 34 is similar to that of "steel wool" as used in household cleaning or could be part of Velcro® formations, such as hooks or loops.

Figure 6 shows a variation where the cleaning element 36 is of a single mass of foam for cotton which could be used as a swab for oral care material. The outer surface of the swab could be generally planar or could have surface irregularities. In such practice of the invention the cleaning element 36 could be impregnated with the oral care material or could be dipped into oral care material

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so as to absorb the material and thereby the cleaning element 36 would also function as the oral care dispenser. Such swab type cleaning elements are gentle for children, particularly infants.

The invention could be practiced where the various components of the toothbrush 10 are segmented for manufacturing and assembly purposes. Such segmented components could also be detachably connected together so as to permit the interchangeability of the components thereby providing the possibility for the substitution of different components in the combination. Thus, the head 12 could be detachably connected to the handle 14. Figure 7, for example, illustrates head 12 to be detachably mounted to handle 14 by a snap fitting 38 which may be of any suitable construction as is known to those of ordinary skill in the art.

The concept of a detachable interconnection may also be used wherein the dispenser 32 is detachably mounted in the head 12 or wherein the oral care accessory, such as toothpick 16, is detachably mounted to handle 14. Thus, as later described with respect to Figures 12 and 13 the toothbrush and its various components could be packaged wherein the same package includes a plurality of toothbrushes and/or a plurality of different components such as heads, dispensers or accessories.

Figure 8 shows a further practice of the invention wherein a piezoelectric crystal 40 is provided in the handle 14 at the junction with head 12 so as to cause the head 12 to vibrate during use. Alternatively the head 12 could be mounted to a rotatable shaft extending from the handle and having an eccentric weight on the shaft to cause the head to vibrate.

Although Figures 1-3 illustrate an oral care accessory 16 in the form of a toothpick, other types of

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accessories 42 could be used as schematically shown in Figure 9. As illustrated therein such accessory 42 would be mounted to the end of handle 14 similar to the mounting of toothpick 16. Such mounting could be detachable or of a permanent nature. Examples of such oral care accessories include tongue cleaners, floss holders or an interproximal brush. Similarly, the accessory could be of a swab or foam type similar to the cleaning element 36 of Figure 6 or could be of the single mass of roughened material such as the cleaning element 34 of Figure 5.

Figure 10 shows another variation of the invention wherein the toothbrush is particularly adapted for use by children. Such use is enhanced by providing any suitable ornament or caricature 44 on the toothbrush, such as on the handle or on any other suitable location including the backside of the head. Such ornament 44 could be detachably mounted so that it could be kept by the child after the rest of the toothbrush is thrown away. Other aspects of the invention which make it desirable for use by children include the possibilities of dispensing various types of oral care materials including materials having special flavors, tooth numbing materials, anti-sensitive materials or various medicaments.

The toothbrush could also be made of various colors for different parts of the toothbrush. For example, soft elastomer 18 could be made of a different, such as a contrasting, color with respect to the remainder of handle 14 which would be made of a rigid material. Similarly, the head 12 could be made of a different color than the rigid portion of the handle and/or the soft elastomer portions 18. The cleaning elements 26 could be made of distinct colors and the dispenser 32 could also be made of a distinct color. Along the same lines the accessory such as toothpick 16 or other accessory 42 could be made of a

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distinct color. These various colors could be contrasting or complementary with each other. Thus, for example, the various colors could differ only slightly in color or shade.

Figure 11 illustrates another practice of the invention wherein the handle 14 has a hollow chamber 46 in which the oral care material could be contained. Chamber 46 leads to a passageway 48 which extends to the head 12 such as terminating in a plurality of branches 49 at the outer surface of head 12 within the cleaning field. In order to dispense the oral care material located in the chamber or reservoir 46 handle 14 would have sufficient resiliency so that it can be squeezed thereby forcing the material from the handle to the head into a dispensing cavity or one or more dispensing openings.

Any suitable oral care products could be dispensed from the dispenser. Such products include, but are not limited to the gel capsule 32 as previously described and could contain toothpaste, tooth powder or could be a small vial of mouthwash having a gel, a powder or a liquid. Such a vial could be separately included in a package containing the toothbrush. The materials could be flavored and could be provided in sets of different flavors and/or different characteristics such as medicaments, numbing materials, etc.

Where the dispensers 32 are in the form of beads, different beads or capsules could be used with different colors/flavors to enhance consumer appeal. As described the capsule 32 could be an impregnated bead that burst. Suitable beads include those supplied by Mane Inc.

Any suitable methods may be used for forming toothbrush 10 and its various components. For example, multi-component injection molding could be used to integrally couple various components such as the cleaning

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elements and the head and/or the handle. This could be done in an automated or multiple step process. The handle could be rotocast blow molded to form a hollow squeeze handle that would be usable in the embodiment shown in Figure 11.

Figures 12-13 show different manners of packaging toothbrushes in accordance with this invention. As shown in Figure 12, for example, a single package 50 could contain a plurality of toothbrushes 10 all of which could be the same or could differ from each other. The package 50 could be of any conventional construction, such as a blister pack, which might include a hole 52 to permit the package to be hung for display purposes.

Figure 13 illustrates a variation wherein the package 54 includes one or more toothbrushes 10 and a plurality of other components 56 which could be accessories or dispensers or other components. The components could include a small vial of mouthwash. Preferably, the package 50 or 54 would be hermetically sealed to assure freshness. Such hermetic sealing is particularly desired to prevent moisture from reaching gel capsule 32 and causing the capsule to burst.

As is apparent the present invention provides an oral care toothbrush which is preferably small in size and portable and can be conveniently used away from home under circumstances, such as travel, where water is not readily available.

The invention could be practiced with a combination of various components which do not involve "toothbrush" usage. In that sense the invention is an oral care device or the like, rather than strictly being a toothbrush. Where used as a toothbrush or the like, the invention may have the advantages, because of the size and configuration, to allow discreet hygienic use, such as no

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fingers in the mouth, adapting it to be readily used in public areas.

Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

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WHAT IS CLAIMED IS:

1. An oral care toothbrush or the like comprising a handle and a head at one end of said handle, said head having an outer surface, a plurality of oral care elements in an oral care field extending outwardly from said outer surface, and an oral care material associated with at least one of said head and said handle.

2. The toothbrush of claim 1 further comprising a dispenser for said oral care material, said dispenser being located at least partially in a depression in said head.

3. The toothbrush of claim 1 further comprising an oral care accessory mounted to an end of said handle opposite to said oral care head.

4. The toothbrush of claim 3, wherein said accessory is selected from the group consisting of a toothpick, a rubber pick, a tongue cleaner, a floss holder, an interproximal brush and a swab.

5. The toothbrush of claim 1 wherein said oral care elements are integral with said head.

6. The toothbrush of claim 1 wherein at least some of said oral care elements has a length no greater than 6mm.

7. The toothbrush of claim 1 wherein at least some of said oral care elements has a length no greater than 10mm.

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8. The toothbrush of claim 1 wherein at least some of said oral care elements has a root diameter no greater than 1.5mm.

9. The toothbrush of claim 1 wherein at least some of said oral care elements has a root diameter no greater than 7mm.

10. The toothbrush of claim 8 wherein at least some of said oral care elements taper from their root diameter toward their outer end and have a diameter of no greater than 0.2mm at a distance of no greater than 6mm above said root diameter.

11. The toothbrush of claim 8 wherein at least some of said oral care elements taper from said root diameter, and the range of diameter at a distance above the root diameter is no greater than 1mm at a distance of no greater than 10mm.

12. The toothbrush of claim 11 wherein said range is no greater than 0.2mm at a distance of no greater than 6mm.

13. The toothbrush of claim 11 wherein said toothbrush has an overall length of no greater than 5 inches.

14. The toothbrush of claim 1 wherein said head has a maximum lateral dimension of no greater than 13mm, and said toothbrush has an overall weight no greater than 3 grams.

15. The toothbrush of claim 1 wherein at least some of said oral care elements have a stiffness of less than 600Mpa.

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16. The toothbrush of claim 1 wherein at least some of said oral care elements are hollow and are capable of absorbing oral care material.

17. The toothbrush of claim 1 wherein said oral care elements comprise a single mass of material having an irregular outer surface.

18. The toothbrush of claim 1 wherein said oral care elements comprise a single mass of absorbent material capable of absorbing said oral care material.

19. The toothbrush of claim 1 wherein at least some of said oral care elements comprise bristles made of a combination of a resilient and a more rigid material.

20. The toothbrush of claim 19 wherein said resilient material is TPE and said more rigid material is selected from the group consisting of LLDPE, EVA and polypropylene.

21. The toothbrush of claim 1 wherein at least some of said oral care elements comprise bristles made of a single material selected from the group consisting of TPE, LLDPE and EVA.

22. The toothbrush of claim 1 wherein said oral care elements comprise bristles containing an anti-bacterial material.

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23. The toothbrush of claim 2 wherein said dispenser is a capsule, and said oral care material is selected from the group consisting of a gel, mouthwash, toothpaste, tooth powder and flavored material.

24. The toothbrush of claim 23 wherein said capsule is at least partially surrounded by said oral care elements.

25. The toothbrush of claim 23 wherein said dispenser is detachably mounted to said head to permit replacement of said dispenser with another dispenser.

26. The toothbrush of claim 23 wherein said oral care material is a gel capsule, and said capsule being an impregnated bead which bursts upon exposure to moisture.

27. The toothbrush of claim 1 wherein said handle is hollow and contains a reservoir of said oral care material, a passageway leading from said reservoir to at least one depression in said outer surface of said head, and said oral care material being flowable from said reservoir to said at least one depression in said outer surface of said head.

28. The toothbrush of claim 27 wherein said passageway terminates in said at least one depression in said outer surface of said head, and said handle is made of a resilient material at said reservoir to permit said oral care material to be squeezed from said handle and through said passageway and out of said at least one opening.

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29. The toothbrush of claim 1 wherein said handle is made of a biodegradable material.

30. The toothbrush of claim 2 wherein at least two of said handle, said head and said dispenser are detachably connected together.

31. The toothbrush of claim 1 wherein said head is a vibrating head.

32. The toothbrush of claim 31 wherein said toothbrush includes a piezoelectric crystal or an eccentric weight on a rotating shaft mounted to said head to cause said head to be a vibrating head.

33. The toothbrush of claim 1 including an ornament mounted on said handle.

34. The toothbrush of claim 1 wherein said head is mounted at an angle of 0^0 to 90^0 with respect to the longitudinal axis of said handle.

35. The toothbrush of claim 1 wherein said head angle is in the range of 30^0 to 60^0.

36. The toothbrush of claim 1 wherein said cleaning elements are mounted at an angle of 60^0 to 90^0 with respect to said outer surface of said head.

37. The toothbrush of claim 34 wherein said cleaning element angle is 90^0.

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38. An oral care toothbrush or the like comprising a handle, a head attached to one end of said handle, said head having an outer surface, a plurality of oral care elements in an oral care field extending outwardly from said outer surface, said toothbrush having an overall length no greater than 5 inches, and said oral care elements extending outwardly from said outer surface of said head a distance no greater than 10mm.

39. The toothbrush of claim 38 wherein at least some of said oral care elements has a length no greater than 6mm.

40. The toothbrush of claim 38 wherein said oral care elements are integral with said head.

41. The toothbrush of claim 38 wherein at least some of said oral care elements has a root diameter no greater than 1.5mm.

42. The toothbrush of claim 38 wherein at least some of said oral care elements has a root diameter no greater than 7mm.

43. The toothbrush of claim 38 wherein at least some of said oral care elements taper from their root diameter toward their outer end and have a diameter of no greater than 0.2mm at a distance of no greater than 6mm above said root diameter.

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44. The toothbrush of claim 38 wherein at some of said oral care elements taper from said root diameter, and the range of diameter at a distance above the root diameter is no greater than 1mm at a distance of no greater than 10mm.

45. The toothbrush of claim 44 wherein said range is no greater than 0.2mm at a distance of no greater than 6mm.

46. The toothbrush of claim 38 wherein at least some of said oral care elements have a stiffness of less than 600MPa.

47. The toothbrush of claim 38 wherein said head has a maximum lateral dimension of no greater than 13mm, and said toothbrush has an overall weight no greater than 3 grams.

48. The toothbrush of claim 38 wherein at least some of said oral care elements are hollow and are capable of absorbing oral care material whereby said oral care elements also comprise an oral care dispenser.

49. The toothbrush of claim 38 wherein at least some of said oral care elements comprise bristles made of a combination of a resilient and a more rigid material.

50. The toothbrush of claim 49 wherein said resilient material is TPE and said more rigid material is selected from the group consisting of LLDPE, EVA and polypropylene.

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51. The toothbrush of claim 38 wherein at least some of said oral care elements comprise bristles made of a single material selected from the group consisting of TPE, LLDPE and EVA.

52. The toothbrush of claim 38 wherein said head has a maximum lateral dimension of no greater than 13mm.

53. The toothbrush of claim 38 wherein said head is mounted at an angle of 0^0 to 90^0 with respect to the longitudinal axis of said handle.

54. The toothbrush of claim 34 wherein said head angle is in the range of 30^0 to 60^0.

55. The toothbrush of claim 34 wherein said cleaning elements are mounted at an angle of 60^0 to 90^0 with respect to said outer surface of said head.

56. The toothbrush of claim 36 wherein said cleaning elements are mounted at an angle of 60^0 to 90^0 with respect to said outer surface of said head.

57. The toothbrush of claim 38 including a dispenser containing an oral care material in said head within said cleaning field.

58. The toothbrush of claim 38 wherein said oral care material is selected from the group consisting of a gel, mouthwash, toothpaste, tooth powder, and flavored material.

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59. The toothbrush of claim 58 wherein said dispenser is a capsule containing said oral care material, said capsule being at least partially surrounded by said oral care elements.

60. The toothbrush of claim 57 wherein said dispenser is detachably mounted to said head to permit replacement of said dispenser with another dispenser.

61. The toothbrush of claim 38 wherein said handle is hollow and contains a reservoir of an oral care material, a passageway leading from said reservoir to said outer surface of said head, and said oral care material being flowable from said reservoir to said outer surface of said head whereby said reservoir in combination with said passageway comprises said dispenser.

62. The toothbrush of claim 61 wherein said passageway terminates in at least one opening in said outer surface of said head, and said handle is made of a resilient material at said reservoir to permit said oral care material to be squeezed from said handle and through said passageway and out of said at least one opening.

63. The toothbrush of claim 57 wherein at least two of said handle and said head and said dispenser are detachably connected together.

64. The toothbrush of claim 38 wherein said handle is made of a biodegradable material.

65. The toothbrush of claim 38 wherein said head is a vibrating head.

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66. The toothbrush of claim 38 including an ornament mounted on said handle.

67. The toothbrush of claim 38, wherein the handle, head and oral care elements are molded as one integral structure.

68. The toothbrush of claim 38, wherein said oral care elements are impregnated with an oral care material.

69. The toothbrush of claim 38, wherein said oral care elements are pre-dipped in an oral care material.

70. A toothbrush comprising a handle, a head attached to one end of said handle, and at least one oral care cleaning element extending outwardly from said head, said at least one oral care cleaning element including an oral care material, and said at least one oral care cleaning element being integrally molded with said head.

71. The toothbrush of claim 70, wherein said at least oral care element is impregnated with the oral care material.

72. The toothbrush of claim 70, wherein said at least one oral care element is pre-dipped in an oral care material.

73. The toothbrush of claim 70, wherein the at least one oral care element extends outwardly from said head a distance no greater than 10mm.

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74. The toothbrush of claim 73, wherein the head has a round shape.

75. The toothbrush of claim 74, wherein the head has a maximum lateral dimension of no greater than 13mm, and said toothbrush has an overall weight no greater than 3 grams.

76. The toothbrush of claim 70, wherein the at least one oral care element further comprises a plurality of flexible bristle elements.

77. The toothbrush of claim 76, wherein at least some of the plurality of flexible bristle elements are hollow.

78. The toothbrush of claim 70, wherein the at least one oral care element further comprises a single mass of absorbent material.

79. The toothbrush of claim 70, further comprising a toothpick formed on said handle opposite said head.

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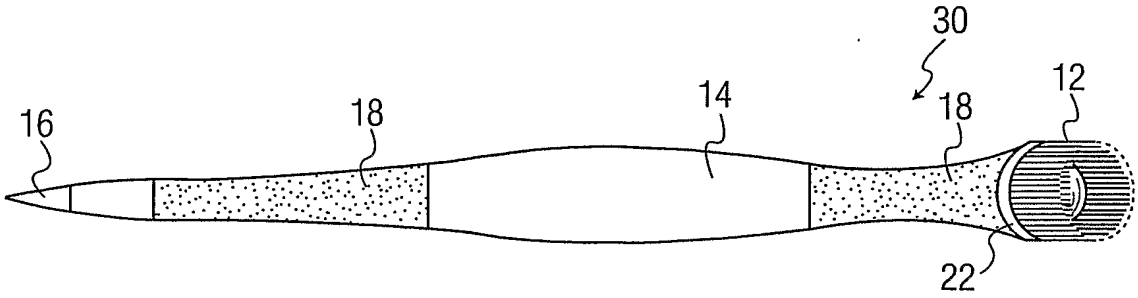


FIG. 1

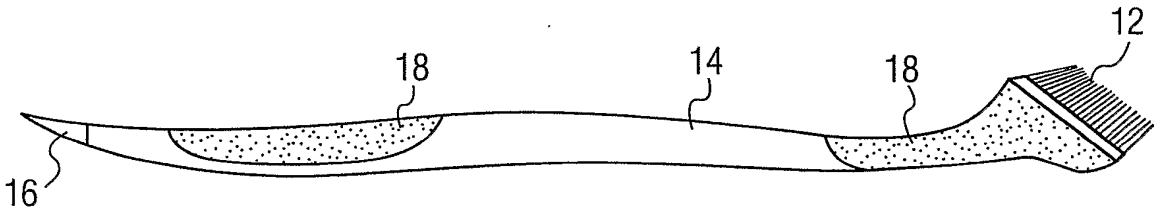


FIG. 2



FIG. 3

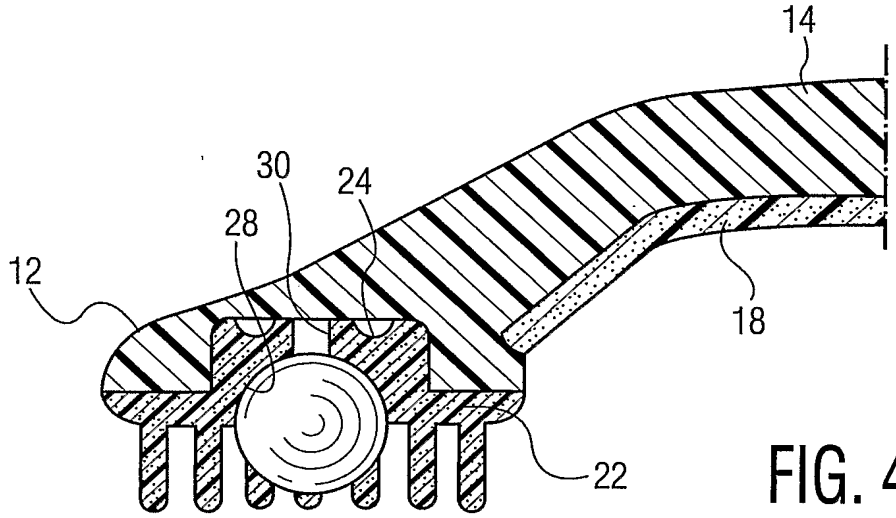


FIG. 4

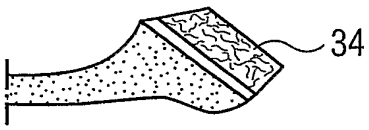


FIG. 5

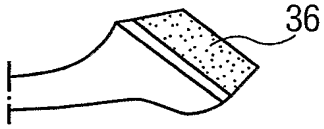


FIG. 6

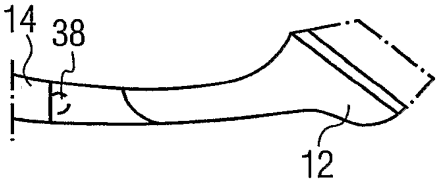


FIG. 7

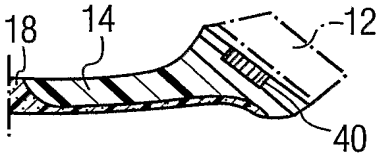


FIG. 8

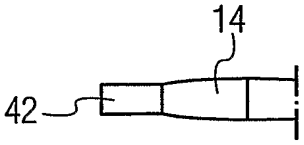


FIG. 9

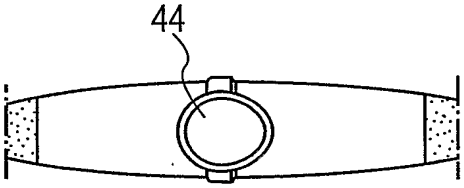


FIG. 10

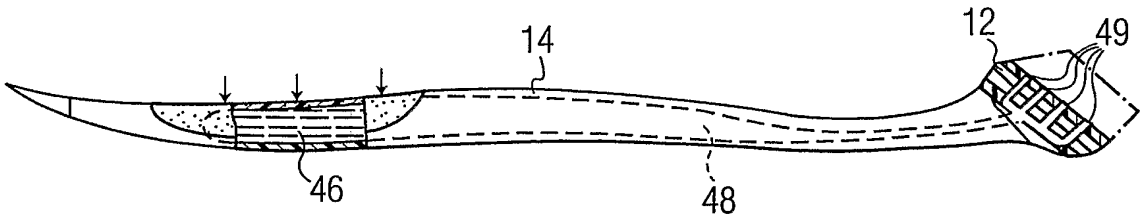


FIG. 11

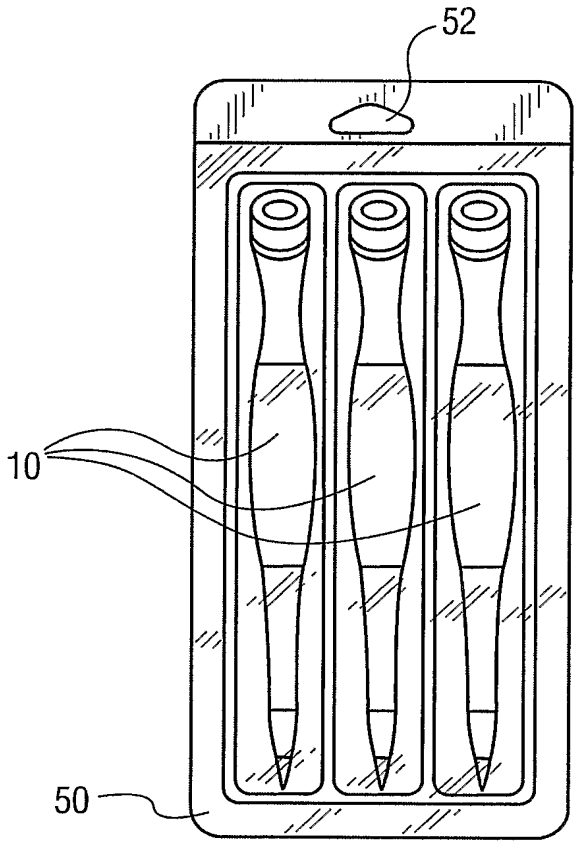


FIG. 12

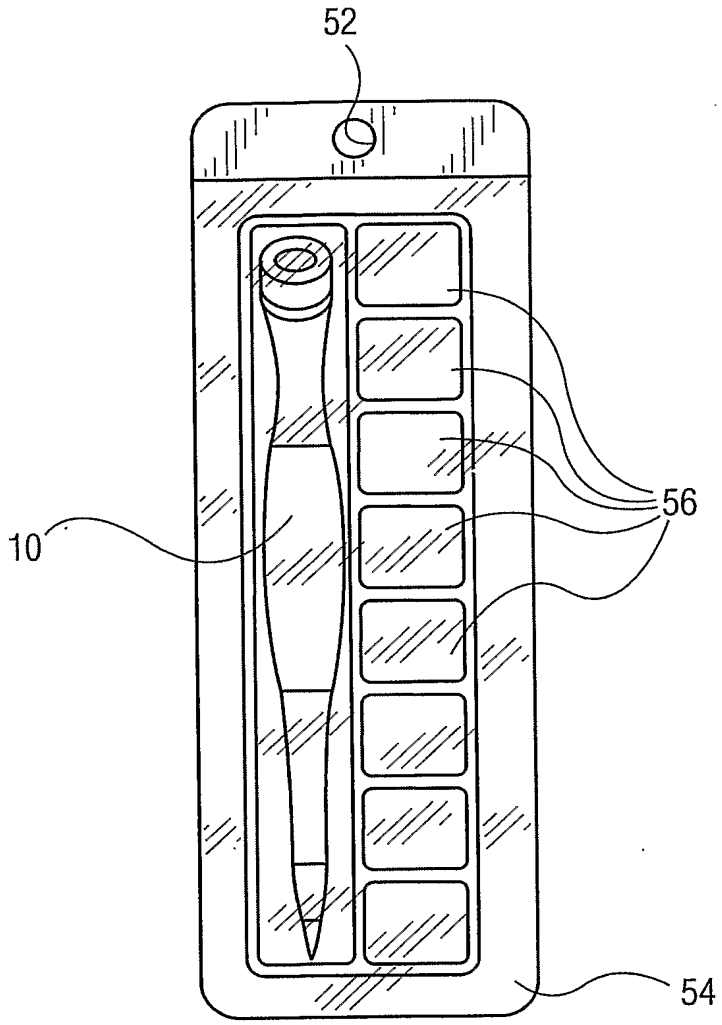


FIG. 13

PUB-NO: WO2005110149A2
DOCUMENT-IDENTIFIER: WO 2005110149 A2
TITLE: ORAL CARE TOOTHBRUSH
PUBN-DATE: November 24, 2005
PATENT-FAMILY-ID: 34969474

INVENTOR-INFORMATION:

NAME	COUNTRY
MINTEL THOMAS E	US
SORRENTINO ALAN V	US
KEMP JAMES	US
HOHLBEIN DOUGLAS J	US

APPLICANT:

NAME	COUNTRY
MINTEL THOMAS E	US
SORRENTINO ALAN V	US
KEMP JAMES	US
HOHLBEIN DOUGLAS J	US
COLGATE PALMOLIVE CO	US

APPL-NO: US 2005016510 W
APPL-DATE: May 11, 2005

PRIORITY-DATA:

PRIORITY-NO	PRIORITY-APPL-DATE
US 84313504 A	20040511

CPC-CURRENT:

TYPE	CPC/DATE
CPCI	A46B9/005 20130101
CPCI	A46B11/0003 20130101
CPCI	A46B11/0041 20130101
CPCI	A46B15/0055 20130101
CPCI	A46B15/0069 20130101
CPCI	A61C15/02 20130101
CPCA	A46B2200/01 20130101

CPCA	A46B2200/1066 20130101
CPCA	A61C17/02 20130101

INT-CL-CURRENT:

TYPE	**IPC/DATE**
IPCP	A46B9/04 20060101
IPCS	A61C15/02 20060101
IPCS	A46B15/00 20060101
IPCS	A46B11/00 20060101
IPCN	A61C17/02 20060101

REF-CITED:

PHASE-COUNTRY/NUMBER/KIND/DATE-NPL-INFO

APC US 5533791 A 19960709
APC US 5390984 A 19950221
APC US 5609890 A 19970311
ISR PATENT ABSTRACTS OF JAPAN vol. 2003, no. 12, 5 December 2003 (2003-12-05) & JP 2003 245133 A (TORAY MONOFILAMENT CO LTD), 2 September 2003 (2003-09-02) JP 2003245133 A
ISR WO 0234083 A1 20020502
ISR CH 664271 A5 19880229
ISR EP 0475314 A1 19920318
ISR FR 2654598 A1 19910524
ISR DE 4231817 A1 19940324
ISR WO 03037210 A1 20030508
ISR FR 2754436 A1 19980417
ISR US 6321407 B1 20011127
ISR WO 2004010821 A1 20040205
ISR US 5888002 A 19990330
ISR US 1796367 A 19310317
ISR US 2003188761 A1 20031009
ISR FR 2646068 A1 19901026
ISR GB 2394653 A 20040505
ISR WO 02058508 A2 20020801
ISR US 2002175101 A1 20021128
ISR FR 2822658 A1 20021004
ISR FR 2772569 A1 19990625
ISR WO 2004021914 A2 20040318

ABSTRACT:

An oral care toothbrush includes a head mounted to one end of the handle containing a plurality of oral care elements. An oral care accessory is mounted to the opposite end of the handle. An oral care material dispenser is mounted in the head within the cleaning field defined by the oral care elements. The toothbrush is preferably made of small size and of lightweight so as to be readily portable for use away from the home.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	**Art Unit**
	RAKESH KUMAR	3651

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	03/25/2016								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	O								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
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	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								

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(Not for submission under 37 CFR 1.99)

Application Number	14535442
Filing Date	2014-11-07
First Named Inventor	Lise W. Noble
Art Unit	3727
Examiner Name	TBD
Attorney Docket Number	2076-002C

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	1	1995374		1935-03-26	Young	

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	1	2004021914	WO	A2	2004-03-18	COLGATE-PALMOLIVE COMPANY		☐

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	1		☐

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Examiner Signature	/Rakesh Kumar/	Date Considered	03/27/2016

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

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	Art Unit	3727
	Examiner Name	TBD
	Attorney Docket Number	2076-002C

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☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/vincent k. gustafson/	Date (YYYY-MM-DD)	2015-01-23
Name/Print	Vincent K. Gustafson	Registration Number	46182

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	14535442
Filing Date	2014-11-07
First Named Inventor	Lise W. Noble
Art Unit	1615
Examiner Name	TBD
Attorney Docket Number	2076-002C

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	1	1411681		1922-04-04	Burlew	
	2	2004957		1935-06-18	Messner	
	3	2778045		1957-01-22	Bly et al.	
	4	3962417		1976-06-08	Howell	
	5	3991776		1976-11-16	Duffy	
	6	4253212		1981-03-03	Fujita	
	7	4427116		1984-01-24	Brown	
	8	4753792		1988-06-28	Aberg	

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	Application Number	14535442
	Filing Date	2014-11-07
	First Named Inventor	Lise W. Noble
	Art Unit	1615
	Examiner Name	TBD
	Attorney Docket Number	2076-002C

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	9	5178878		1993-01-12	Wehling et al.	
	10	5195659		1993-03-23	Eiskant	
	11	5864288		1999-01-26	Hogan	
	12	5894926		1999-04-20	Stafford	
	13	5960801		1999-10-05	Vermooten et al.	
	14	6027273		2000-02-22	Li	
	15	6106294		2000-08-22	Daniel	
	16	6154912		2000-12-05	Li	
	17	6524023	B2	2003-02-25	Andersen	
	18	6845883	B2	2005-01-25	Pieri	
	19	6988638	B2	2006-01-24	Zak	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Art Unit	1615
	Examiner Name	TBD
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.K./

	20	7074390	B2	2006-07-11	MacKinnon	
	21	7182542	B2	2007-02-27	Hohlbein	
	22	7273327	B2	2007-09-25	Hohlbein et al.	
	23	7575387	B2	2009-08-18	Atkin	
	24	8881332	B2	2014-11-11	Noble et al.	

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	1	20050069372	A1	2005-03-31	Hohlbein et al.	
	2	20050260141	A1	2005-11-24	Alexander	
	3	20060057078	A1	2006-03-16	Rau	
	4	20060115435	A1	2006-06-01	Wilkens	

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	Art Unit	1615
	Examiner Name	TBD
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	5	20060165473	A1	2006-07-27	Hohlbein	
	6	20060245814	A1	2006-11-02	Papa et al.	
	7	20070075100	A1	2007-04-05	Colman et al.	
	8	20070254260	A1	2007-11-01	Alden, IV et al.	
	9	20080014010	A1	2008-01-17	Bartschi et al.	
	10	20080008728	A1	2008-01-10	Atkin	
	11	20080120798	A1	2008-05-29	Sorrentino et al.	
	12	20090044356	A1	2009-02-19	Noble et al.	

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	1	0226078	WO	A2	2002-04-04	ALEXANDER, Carl, Ernest		☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	1	KALILI, T. et al., "Fluoride Absorption by Enamel from Toothpaste in Lowered pH Environment," J. Dent. Res. 83, Abstract #4033, 2004, 1 page.	☐
	2	Non-Final Office Action for US Patent Application 12/101,446 mailed July 5, 2012, 6 pages.	☐
	3	Final Office Action for US Patent Application 12/101,446 mailed February 15, 2013, 8 pages.	☐
	4	Advisory Action for US Patent Application 12/101,446 mailed May 16, 2013, 3 pages.	☐
	5	Non-Final Office Action for US Patent Application 12/101,446 mailed August 1, 2013, 7 pages.	☐
	6	Applicant-Initiated Interview Summary for US Patent Application 12/101,446 mailed September 23, 2013, 3 pages.	☐
	7	Final Office Action for US Patent Application 12/101,446 mailed December 19, 2013, 12 pages.	☐
	8	Advisory Action for US Patent Application 12/101,446 mailed April 18, 2014, 3 pages.	☐
	9	Notice of Allowance for US Patent Application 12/101,446 mailed September 17, 2014, 9 pages.	☐

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Signature	/vincent k. gustafson/	Date (YYYY-MM-DD)	2014-12-03
Name/Print	Vincent K. Gustafson	Registration Number	46182

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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CONFIRMATION NO. 1451

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/535,442	11/07/2014	221	3651	2076-002C

APPLICANTS
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INVENTORS
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Patrick T. Noble, Chapel Hill, NC;

**** CONTINUING DATA ***************************
This application is a CON of 12/101,446 04/11/2008 PAT 8881332
which is a CIP of 11/840,627 08/17/2007 ABN

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
11/21/2014

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /RAKESH KUMAR/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		NC	11	20	3

ADDRESS
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106 Pinedale Springs Way
Cary, NC 27511
UNITED STATES

TITLE
TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

FILING FEE RECEIVED		
730	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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S18	115	("0424180" | "0452635" | "0649072" | "0676798" | "0683053" | "0825078" | "1444863" | "1449864" | "1503277" | "1600158" | "1607014" | "1766298" | "1814955" | "1981135" | "2039282" | "2044441" | "2475738" | "2683554" | "2774470" | "2806633" | "2971675" | "3342373" | "4004719" | "4168019" | "4216878" | "4230237" | "4319700" | "4440322" | "4476997" | "4516701" | "4562941" | "4673111" | "4718578" | "4744492" | "4767023" | "4784291" | "4790451" | "4836424" | "4964546" | "4966305" | "4972802" | "5018644" | "5044350" | "5109799" | "5148944" | "5259531").PN. OR ("6131765").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/03/26 20:37
S19	115	("0424180" | "0452635" | "0649072" | "0676798" | "0683053" | "0825078" |	US-PGPUB; USPAT;	OR	OFF	2016/03/26 20:38

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14535442	NOBLE ET AL.
	Examiner	Art Unit
	RAKESH KUMAR	3651

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SEARCH NOTES		
Search Notes	Date	Examiner
Performed Special Feature Tech search in EAST	3/25/2016	RK
Performed Backward and Forward searches in EAST	3/25/2016	RK
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US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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WITHROW & TERRANOVA, P.L.L.C.
100 REGENCY FOREST DRIVE
SUITE 160
CARY, NC 27518

PUBLICATION NOTICE



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First Named Inventor	Lise W. Noble
Art Unit	3727
Examiner Name	TBD
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	First Named Inventor	Lise W. Noble
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	Examiner Name	TBD
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Signature	/vincent k. gustafson/	Date (YYYY-MM-DD)	2015-01-23
Name/Print	Vincent K. Gustafson	Registration Number	46182

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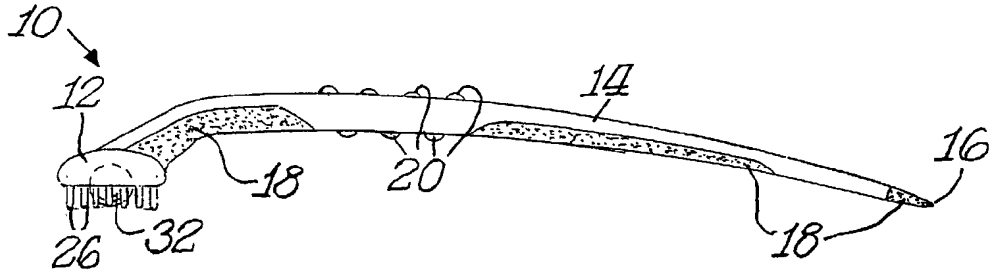
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(54) Title: DISPOSABLE TOOTHBRUSH



(57) Abstract: A waterless, disposable toothbrush is disclosed and includes a handle having a toothpick connected thereto to enable cleaning between teeth, and a rupturable dispenser containing a dentifrice and being connected in a bristle portion of the toothbrush head for dispensing the dentifrice to the teeth to provide teeth cleaning and breath freshening, all of which deliver a cleaning, polishing, whitening, between teeth cleaning, and beath freshening action. The disposable toothbrush of the present invention combines three benefits into one disposable toothbrush: (1) tooth surface cleaning with the toothbrush bristles and the dentifrice in the rupturable dispenser; (2) between teeth cleaning with the toothpick; and (3) breath freshening with the dentifrice in the rupturable dispenser.

WO 2004/021914 A2

DISPOSABLE TOOTHBRUSH

BACKGROUND OF THE INVENTION

A. Field of the Invention

The present invention relates generally to toothbrushes, and, more particularly, to a disposable toothbrush having a breath freshening, teeth cleaning gel capsule, and a toothpick.

B. Description of the Related Art

The advantages of good dental hygiene are well known. Often, however, toothbrushes are forgotten when one is traveling or away from home. Hotels, health care facilities, nursing homes, hospitals, daycare facilities, schools, airlines, etc. have a need for single use disposable toothbrushes that may be economically supplied to and discarded by individuals without a toothbrush and/or a water supply. Such toothbrushes could be used in vending machines, or distributed in large quantities for simple, portable use from anywhere.

Various types of disposable toothbrushes are known in the art. For example, some toothbrush systems have attempted to meet some of these needs by providing toothpaste within the toothbrush itself, through an integrated channel, for distribution through the toothbrush and around the bristles. This approach can be less economical due to the added manufacturing costs of toothbrushes with integrated channels. In addition, the toothpaste in some of these integrated channel toothbrushes, not being properly sealed, has a tendency to become dry, hard and stale.

U.S. Patent No. 6,135,274 shows an apparatus for brushing teeth that includes an outer bag, a toothbrush sealed within the outer bag, and a dispenser sealed within the outer bag and containing a mouth care solution. In use, the rupturable dispenser is squeezed or otherwise subjected to pressure while the toothbrush remains sealed within the outer bag. Unfortunately, the apparatus for brushing teeth requires an outer bag, increasing the cost of the apparatus, and

fails to provide the rupturable dispenser and toothbrush as one complete, connected unit. The reference also fails to provide a toothpick mechanism for cleaning in between teeth, and which is also connected to the toothbrush.

U.S. Patent No. 6,397,860 discloses a disposable, waterless tooth brushing assembly that includes a toothbrush, a non-foaming, saliva-activated, teeth-cleaning agent pre-applied to the bristles of the toothbrush, a small moistened disposable towel for user after teeth cleaning, and a compact, lightweight, two-layer heat-sealed packaging container for pre-use sanitary storage of the toothbrush and towel. Like U.S. Patent No. 6,135,274, the assembly of U.S. Patent No. 6,397,860 requires a packaging container, increasing the cost of the assembly, and fails to provide a rupturable dispenser and toothbrush as one complete, connected unit. The reference also fails to provide a toothpick mechanism for cleaning in between teeth, and which is also connected to the toothbrush.

None of the toothbrush assemblies of the related art includes a rupturable dispenser containing a dentifrice, a toothpick, and a toothbrush as one complete, connected unit. Thus, there is a need in the art for a waterless, disposable toothbrush having a toothpick connected thereto to enable cleaning in between teeth, and a rupturable dispenser containing a dentifrice and being connected in the bristle portion of the toothbrush for dispensing the dentifrice to the teeth to provide teeth cleaning and breath freshening.

SUMMARY OF THE INVENTION

The present invention solves the problems of the related art by providing a waterless, disposable toothbrush having a toothpick connected thereto to enable cleaning in between teeth, and a rupturable dispenser containing a dentifrice and being connected in the bristle portion of the toothbrush for dispensing the dentifrice to the teeth to provide teeth cleaning and breath freshening, all of which deliver a cleaning, polishing, whitening, between teeth cleaning, and

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breath freshening action in addition to enhancing the cleaning efficiency of a typical disposable toothbrush. The disposable toothbrush of the present invention combines three benefits into one disposable toothbrush: (1) tooth surface cleaning provided by the toothbrush bristles and the dentifrice in the rupturable dispenser; (2) between teeth cleaning provided by the toothpick; and (3) breath freshening provided by the dentifrice in the rupturable dispenser.

As embodied and broadly described herein, the present invention is broadly drawn to a disposable toothbrush, preferably comprising: a handle having a toothpick formed at one end thereof; and a head connected at another end of said handle, said head having a bristle block that includes a plurality of bristles and retains a gel capsule therein, the gel capsule containing a mouth care solution. In further embodiments, the gel capsule can be replaced by a quantity of toothpowder, toothpaste or a tooth cleaning gel dentifrice, to provide the cleaning benefits of the dentifrice within the rupturable dispenser.

Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description. It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention, as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only, and thus are not limitative of the present invention, and wherein:

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Fig. 1 is a side elevational view of a disposable toothbrush with a toothpick and a breath freshening, teeth cleaning gel capsule connected thereto in accordance with an embodiment of the present invention;

Fig. 2 is a top plan view of the disposable toothbrush shown in Fig. 1;

Fig. 3 is a bottom plan view of the disposable toothbrush shown in Figs. 1-2; and

Fig. 4 is a fragmental, cross-sectional view of the disposable toothbrush shown in Figs. 1-3, taken along line 4-4 of Fig. 2.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

The following detailed description of the invention refers to the accompanying drawings. The same reference numbers in different drawings identify the same or similar elements. Also, the following detailed description does not limit the invention. Instead, the scope of the invention is defined by the appended claims and equivalents thereof.

Figs. 1-4 illustrate one practice of the present invention wherein a disposable toothbrush 10 includes a head 12 and a handle 14. Head 12 may be a refill head and thus be removably connected to handle 14, or head 12 may be permanently connected to head 12 within the practice of the present invention.

The majority of handle 14 and a portion of head 12 may be molded from a variety of rigid materials, including plastics, resins, etc., such as, for example, polypropylene. An end portion of handle 14, opposite the end head 12 is attached to, preferably includes a toothpick 16 formed of a resilient and soft thermoplastic elastomer. Toothpick 16 may be a refill and thus be removably connected to handle 14, or toothpick 16 may be permanently connected to handle 14 within the practice of the present invention. Toothpick 16 provides a mechanism for spot cleaning between teeth. Forming toothpick 16 of a soft elastomer provides more comfortable interproximal cleaning between teeth.

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Portions 18 of handle 14 may also be formed of a resilient and soft thermoplastic elastomer. The thermoplastic elastomer which forms toothpick 16 and handle portions 18 may be a thermoplastic vulcanate (TPV) consisting of a mixture of polypropylene and EPDM (ethylene propylene diene monomers) which is available as SANTOPRENE (brand), described in **U.S. Pat. No. 5,393,796**, or VYRAM (brand), another TPV consisting of a mixture of polypropylene and natural rubber. Both SANTOPRENE and VYRAM (brands) are elastomers marketed by Advanced Elastomer Systems. Other suitable elastomers include KRATON, a brand of styrene block copolymer (SBC) marketed by Shell, and DYNAFLEX G 2706 (brand), a thermoplastic elastomer marketed by GLS Corporation and which is made with KRATON (brand) polymer.

Handle 14 may further include dimples, bumps, or ridges 20 protruding from portions of its surface, and providing a decorative appearance to handle 14 and enhanced gripping of handle 14 during use of toothbrush 10. Dimples 20 may be formed from the same material as soft elastomer portions 18 of handle 14 or from the same material as the majority of handle 14 (e.g., a rigid material such as polypropylene).

Another portion of head 12, defining a bristle block 22 of head 12, may also be formed of a resilient and soft thermoplastic elastomer, such as the thermoplastic elastomer used to form toothpick 16 and handle portions 18. Bristle block 22 may include depressions 24 provided in a surface thereof that provide a cushioning effect to a reputurable dispenser, preferably a gel capsule 32, contained therein, as described more fully below. Bristle block 22 further includes a multitude of conventional filament, preferably nylon, or elastomeric bristles or fingers 26 extending outwardly from head 12. In the illustrated embodiment as best shown in Fig. 4, bristles 26 extend outwardly from the outer surface of bristle block 22 the same distance so as to create a generally flat surface. Alternatively, however, some bristles 26 may be shorter or longer than other bristles 26.

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The term "bristles" as used herein is intended to be used in a generic sense as cleaning elements or massage elements arranged in a circular cross-section shape or any type of desired shape, including straight portions or sinusoidal portions. It is to be understood that the specific illustration of the bristles is merely for exemplary purposes. The invention can, however, be practiced with various combinations of the same or different bristle configurations (such as stapled, in-mold tufting (IMT) technology as disclosed in **U.S. Patent Nos. 5,609,890, 5,390,984, and 5,533,791**, the disclosures of which being incorporated by reference herein in their entirety, etc.) and/or with the same or different bristle materials (such as nylon bristles, spiral bristles, rubber bristles, etc.). Similarly, while Figs. 1-4 illustrate the bristles 26 to be generally perpendicular to the outer surface of head 12, some or all of the bristles 26 may be angled at various angles with respect to the outer surface of head 12. It is thereby possible to select the combination of bristle configurations, bristle materials and bristle orientations to achieve specific intended results, such as enhanced cleaning, tooth polishing, breath freshening, tooth whitening and/or massaging of the gums.

As stated above, the bristle block 22 may include one or more depressions 24 which are designed to receive and retain a rupturable dispenser, such as a gel capsule 32 therein. The one or more depressions 24 can be varied in size so as to accommodate not only varying size gel capsules 32, but varying quantities of toothpowder, a toothpaste or tooth cleaning gel dentifrice, for delivery to the dentiture as the bristles 26 extending from the bristle block 22 are applied thereto, during use of the present invention such that the toothpowder, toothpaste or tooth cleaning gel dentifrice enhance the cleaning of the dentiture by the bristles. While the present invention can be manufactured containing a packed toothpowder, toothpaste or tooth cleaning gel dentifrice and used repeatedly by the user refilling the dispenser with toothpowder, toothpaste paste or tooth cleaning gel dentifrice, it is preferably used with one or more gel capsules 32 contained therein. Most preferably the present invention is used with a single gel capsule 32,

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supplied therewith, so as to be most easily transported, used, and subsequently disposed of; however, it may also be used repeatedly with replaceable gel capsules 32, and then disposed of.

It is preferred that the depression is in the form of a cushioned socket 28 sized and shaped to receive and retain the gel capsule 32, without premature rupture of the gel capsule 32 prior to use thereof during application of the bristle block 22 to the dentiture and brushing thereof. Cushioning socket 28 opening 30, and the material making up bristle block 22 provide a cushioning effect for gel capsule 32 to prevent gel capsule 32 from rupturing prior to use.

Gel capsule 32 holds and applies a mouth care solution onto bristle 26 of toothbrush head 12. The mouth care solution may be a toothpaste, a gel, a mouthwash, or similar dentifrice or oral hygiene product, or a combination of the same. Preferably gel capsule 32 is a liquid-filled gel capsule having frangible, thin walls that easily rupture when rubbed against the teeth, or dissolve when mixed with the saliva of a user. The materials making up gel capsule 32 and the mouth care solution contained therein preferably are consumable by the user of toothbrush 10, eliminating the need for water, a sink, or a waste receptacle to expectorate the gel capsule 32 or its contents. The mouth care solution remains in gel capsule 32 until toothbrush 10 is ready for use. Preferably, gel capsule 32 is fully sealed, helping the mouth care solution to remain fresh until use.

In use, gel capsule 32 would be pressed against the teeth and rupture or dissolve, applying the mouth care solution over bristles 26. The user then may brush their teeth with toothbrush 10. The user may also use toothpick 16 to clean between teeth, either before or after brushing. After the user has used toothbrush 10, one may, but not necessarily, then easily and economically dispose of toothbrush 10.

In a preferred aspect of the present invention, the entire structure of toothbrush 10, including head 12, handle 14, and toothpick 16, is molded as one integral structure, using a conventional two-component injection molding operation typically used in the manufacture of

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toothbrushes. This enables toothbrush 10 to be economically and quickly manufactured. Although toothbrush 10 may have a variety of sizes and dimensions, it is preferred that toothbrush 10 have a small profile, with head 12 being small enough to cover one tooth at a time and handle being thinner than conventional, everyday toothbrush handles.

The disposable toothbrush 10 of the present invention provides many benefits, including the cosmetic benefits of brushing one's teeth in a form that can be used when one is away from home, and away from a water supply. The cosmetic benefits achieved by the disposable toothbrush 10 of the present invention include the cleaning of debris between teeth with toothpick 16, broad tooth surface cleaning (particularly the front teeth) with bristles 26 and the mouth care solution of gel capsule 32, and breath freshening with the mouth care solution of gel capsule 32.

In addition to the cosmetic benefits, the disposable toothbrush 10 of the present invention also provides economic benefits in the form of an inexpensive toothbrush that is both quickly and economically manufactured. Disposable toothbrush 10 also provides a mechanism for maintaining oral health, without the need for toothpaste, water, mouth wash, and containers to hold the same. Thus, disposable toothbrush 10 is also very convenient to use.

It will be apparent to those skilled in the art that various modifications and variations can be made in the powered toothbrush of the present invention and in construction of the toothbrush without departing from the scope or spirit of the invention, examples of which have been previously provided.

Although Figs. 1-4 illustrate a manually-operated, disposable toothbrush, the present invention may also be practiced where the head includes one or more power or electrically operated movable sections carrying cleaning elements. Such movable section may oscillate in a rotational manner or may oscillate linearly in a longitudinal direction with respect to the longitudinal axis of the head or may oscillate linearly in a lateral or transverse direction with

PETITIONER - COLGATE, Exhibit 1004
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respect to the longitudinal axis of the head. The movable section may oscillate in and out in a direction toward and away from the outer surface of the head. The movable section may rock back and forth with respect to the outer surface of the head. The movable section may rotate continuously in the same direction, rather than oscillate. Any suitable drive mechanism may be used for imparting the desired motion to the movable section. Where plural movable sections are used, all of the movable sections may have the same type and direction of movement, or combinations of different movements may be used.

Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

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WHAT IS CLAIMED IS:

1. A disposable toothbrush, comprising:

a handle having a toothpick formed at one end thereof; and

a head connected at another end of said handle, said head having a bristle block that includes a plurality of bristles and retains a gel capsule therein, the gel capsule containing a mouth care solution.

2. A disposable toothbrush as recited in claim 1, wherein the toothpick is formed of an elastomeric material.

3. A disposable toothbrush as recited in claim 1, wherein said handle is integrally formed with said head.

4. A disposable toothbrush as recited in claim 1, wherein said bristle block includes a cushioning socket for receiving and retaining the gel capsule therein.

5. A disposable toothbrush as recited in claim 4, wherein the bristle block is formed of an elastomeric material.

6. A disposable toothbrush as recited in claim 5, wherein the cushioning socket includes an opening provided therein to prevent trapping air in the cushioning socket when the gel capsule is inserted in the cushioning socket.

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7. A disposable toothbrush as recited in claim 6, wherein the cushioning socket provides a cushioning effect for the gel capsule to prevent the gel capsule from rupturing prior to use.

8. A disposable toothbrush as recited in claim 1, wherein the gel capsule comprises a liquid-filled gel capsule having frangible, thin walls that rupture when rubbed against the teeth or dissolve when mixed with saliva.

9. A disposable toothbrush as recited in claim 1, wherein the gel capsule and the mouth care solution contained therein are consumable.

10. A disposable toothbrush as recited in claim 4, wherein the gel capsule is spherical and the cushioning socket is sized and shaped to conform to the shape of the gel capsule.

11. A disposable toothbrush as recited in claim 1, wherein the gel capsule is located at a central portion of the bristle block.

12. A disposable toothbrush as recited in claim 1, wherein the bristle block is sized to cover at least one tooth.

13. A disposable toothbrush, comprising:

a handle having a toothpick formed at one end thereof; and

a head connected at one end of said handle, said head containing a bristle block that includes a plurality of bristles, said bristle block containing one or more depressions therein.

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14. A disposable toothbrush as recited in claim 13, wherein said depressions contain a packed toothpowder, toothpaste or tooth cleaning gel dentifrice.

15. A method of use of a disposable toothbrush comprising,

providing a toothbrush having a toothpick formed at one end thereof; and a head connected at one end of said handle, said head containing a bristle block that includes a plurality of bristles, said bristle block containing one or more depressions therein, which depressions contain a gel capsule containing a mouth care solution which as the bristles are applied to the dentiture ruptures, such that the mouth care solution is applied to the dentiture to provide enhanced cleaning thereof.

16. A method of use of a disposable toothbrush comprising,

providing a toothbrush having a toothpick formed at one end thereof; and a head connected at one end of said handle, said head containing a bristle block that includes a plurality of bristles, said bristle block containing one or more depressions therein, which depressions contain a toothpowder, or a toothpaste, or a tooth cleaning gel dentifrice which as the bristles are applied to the dentiture is disposed thereabout enhancing the action of the bristles in cleaning the dentiture.

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Fig. 2.

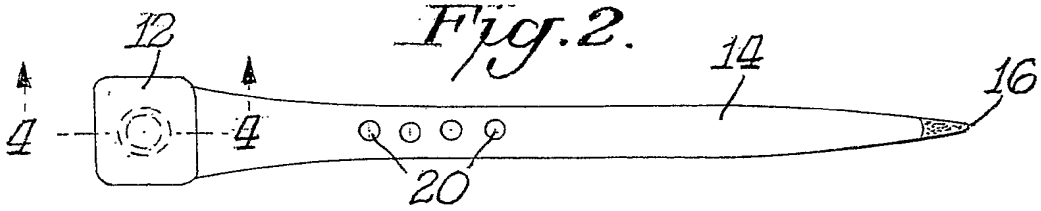


Fig. 1.

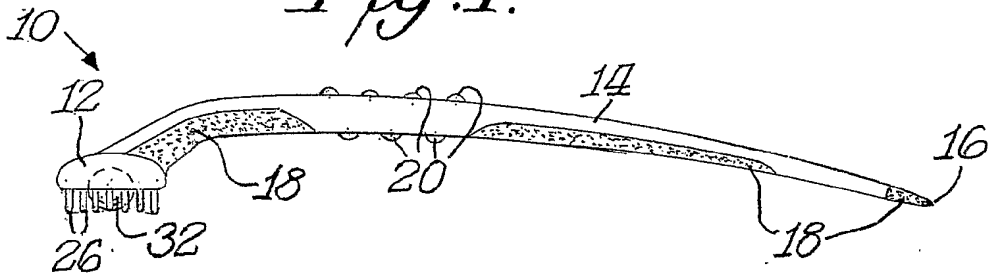


Fig. 3.

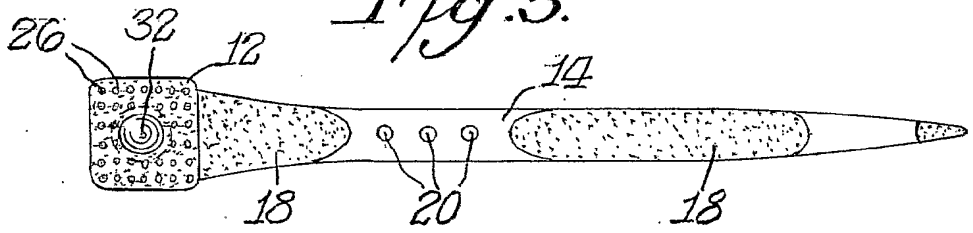
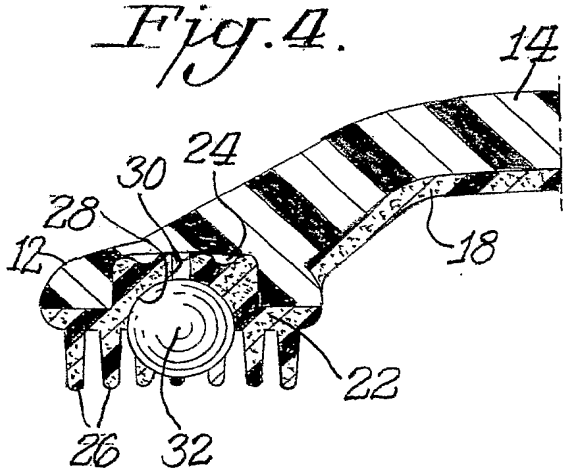


Fig. 4.



Electronic Acknowledgement Receipt

EFS ID:	21295394
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Rebecca Meier
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	23-JAN-2015
Filing Date:	07-NOV-2014
Time Stamp:	16:03:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	2076-002C_IDS_12-18-14.pdf	612214 35808957ed73a03619fd011a30e6b8b7573fb5bb	no	4

Warnings:	
Information:	

2	Foreign Reference	WO2004021914A2.pdf	618632 d2c451a1619a10e6b338810f7c12641afff84c9c	no	14

Warnings:	
Information:	
Total Files Size (in bytes):	1230846

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/535,442

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE($)	FEE($)		RATE($)	FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/535,442	11/07/2014	3727	730	2076-002C	20	3

CONFIRMATION NO. 1451

UPDATED FILING RECEIPT

27820
WITHROW & TERRANOVA, P.L.L.C.
100 REGENCY FOREST DRIVE
SUITE 160
CARY, NC 27518

OC00000072227121

Date Mailed: 12/15/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Lise W. Noble, Chapel Hill, NC;
Patrick T. Noble, Chapel Hill, NC;

Applicant(s)

NOBLE INNOVATIONS LLC, Chapel Hill, NC

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 12/101,446 04/11/2008 PAT 8881332
which is a CIP of 11/840,627 08/17/2007 ABN

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 11/21/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/535,442**

Projected Publication Date: 03/26/2015

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **

Title

TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

Preliminary Class

015

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/535,442

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
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*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/535,442	11/07/2014	1615	730	2076-002C	20	3

CONFIRMATION NO. 1451

UPDATED FILING RECEIPT

27820
WITHROW & TERRANOVA, P.L.L.C.
100 REGENCY FOREST DRIVE
SUITE 160
CARY, NC 27518



Date Mailed: 12/09/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Lise W. Noble, Chapel Hill, NC;
Patrick T. Noble, Chapel Hill, NC;

Applicant(s)

NOBLE INNOVATIONS LLC, Chapel Hill, NC

Power of Attorney: None

Domestic Priority data as claimed by applicant

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which is a CIP of 11/840,627 08/17/2007 ABN

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 11/21/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/535,442**

Projected Publication Date: Perfected

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **

Title

TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

Preliminary Class

424

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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(Not for submission under 37 CFR 1.99)

Application Number	14535442
Filing Date	2014-11-07
First Named Inventor	Lise W. Noble
Art Unit	1615
Examiner Name	TBD
Attorney Docket Number	2076-002C

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	1411681		1922-04-04	Burlew	
	2	2004957		1935-06-18	Messner	
	3	2778045		1957-01-22	Bly et al.	
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	1	0226078	WO	A2	2002-04-04	ALEXANDER, Carl, Ernest		☐

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	1	KALILI, T. et al., "Fluoride Absorption by Enamel from Toothpaste in Lowered pH Environment," J. Dent. Res. 83, Abstract #4033, 2004, 1 page.	☐
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	Examiner Name	TBD
	Attorney Docket Number	2076-002C

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(19) World Intellectual Property Organization
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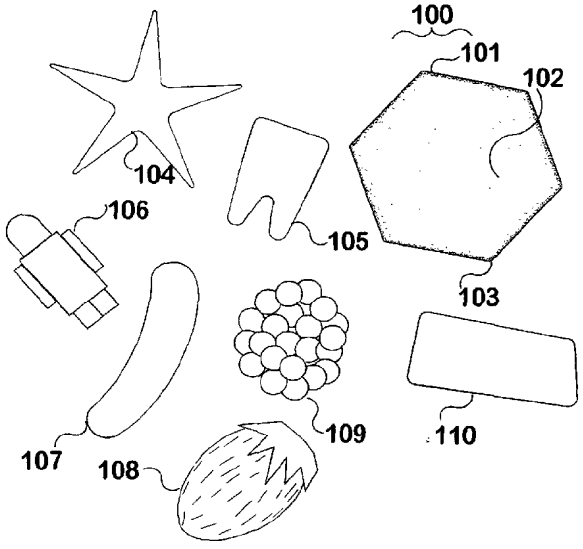
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PERSONAL ORAL HYGIENE COMPOSITION AND DEVICE



(57) Abstract: This invention provides a dental hygiene system, incidentally attractive to children, based on a free-flow "toothpaste" composition in the form of a plurality of beads each having substantially impervious walls; each portion or bead including about enough toothpaste for an average cleaning procedure. Bead consistency, flavour, colour, shape, or size, can be varied, for sale as mixtures or as single kinds. A toothbrush having a handle modified with one or more internal cavities (one holding oral hygiene tables; the other holding dental hygiene beads) is included in the system. Preferred bead manufacture involves formation in a mould and selective drying of the bead wall. The novel toothpaste makes a substantial contribution to reduction of environmental waste (no waste tubes) and allows the manufacture and distribution of single-unit kits for oral and especially dental hygiene.

WO 02/26078 A2

TITLE Personal oral hygiene composition and device

FIELD

This invention relates to a portable oral hygiene device and delivery systems and more particularly to toothpastes (or dentifrices) in an externally dry / free-flow form adapted for storage within a specially adapted toothbrush handle or a dispenser, for release and use as required.

BACKGROUND

Ordinary toothpaste (typically a suspension of abrasive, salts, flavours, saccharin, etc) as supplied within a deformable container is reasonably convenient, but messy if it escapes (as in one's luggage or handbag), and is hard to dispense in simple unit amounts. (There is a saying that you can't put the toothpaste back in the tube). The only suitable container appears to be an enclosed deformable toothpaste tube. There are a number of occasions when just a small amount of toothpaste may be needed for a short trip. A toothbrush including convenient, reliable storage of a few brushings worth of a tooth-paste equivalent would be useful for many of those people whose life takes them outside the home.

The problem to be solved might be described as "provision of a convenient, compact oral/dental hygiene device". Particular problems include "for travel or unpredictable possibly "social emergency" use by a person" and offering (for children) "raised attractiveness of the product". A social emergency might occur when about to meet a desirable person or a business contact but being aware that one's teeth are dirty and

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giving off offensive odours. A very large number of toothbrushes including inbuilt toothpaste dispensing apparatus are known in the patent literature but nevertheless few seem to have reached the market. No new toothpaste analogue has appeared for many years, apart from additives to conventional toothpaste such as fluoride, whiteners, or phosphates. Searches in even the trade mark databases (goods fields) and general Internet databases have failed to find any citations for a new form of toothpaste of the type to be described herein.

Environmental advantages exist in reducing the need for toothpaste tubes thereby reducing land fill problems and rubbish disposal. Less waste and less residue is likely if an alternative packaging process and appropriate delivery system can be developed that optimises the amount of a dental hygiene composition taken by a person at each occasion.

Spread of diseases by oral transmission at social encounters is becoming increasingly recognised; meningitis and tuberculosis for example - and there is a need to this oral hygiene problem to be addressed.

Another problem to be solved is that of encouraging children to brush their teeth on a regular basis (even when away from home). An alternative convenient and child-friendly preparation may be of considerable help in terms of paediatric dentistry and minimisation of public health problems in later life.

OBJECT

It is an object of this invention to provide an improved system for delivery of dental hygiene; based on a dental hygiene composition and with optional apparatus for supply thereof, or at least to provide the public with a useful choice.

STATEMENT OF INVENTION

In a first broad aspect the invention provides a system for facilitating the practice of oral and dental hygiene, wherein the system provides a dental hygiene composition for use when cleaning the teeth in the form of a plurality of unitary beads (alias capsules, tablets, lumps, etc); the dental hygiene composition within each bead comprising a

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paste, the paste being contained within a wall having a dry exterior, each bead has a wall strength sufficiently low to allow the contents to escape when the bead is caused to rupture by being pressed against the teeth or on to a toothbrush, and wherein the system also includes means for storing and dispensing said beads on demand, so that a person can practice dental hygiene more conveniently.

Preferably each bead contains about sufficient composition to supply a single procedure for brushing the teeth, so that a more convenient form of storage and dispensing of toothpaste is provided.

Preferably each bead wall is capable of maintaining a separation of the moist capsule interior from the dry environment surrounding the or each capsule.

Preferably the wall of each bead is made by a locally applied process (such as local heat) acting on the substance of the toothpaste.

Preferred locally applied processes include heating, drying, extrusion, dusting, moulding, varnishing, and coating treatment of the toothpaste.

Optionally the processes include admixture of additional materials hence optionally the or each capsule wall includes further materials capable of separating the moist capsule interior from the dry environment surrounding the or each capsule.

A further alternative is that the wall of each bead is made by by a process including application of a sealing substance over the exterior of a bead of the dental hygiene composition.

Preferably the wall of each bead is forced into a desired shape by a moulding process.

More preferably an amount of the composition is pressed into a die having a cavity of a desired shape, so that on subsequent ejection the or each bead has a specified shape.

Optionally, the method includes the prior step of coating the interior surface of the die with a wall forming agent or co-forming agent.

Alternatively, each bead is made by inserting a dental hygiene composition into a previously constructed container such as a starch or gelatine capsule.

Optionally the surfaces of the die are dusted prior to an extrusion moulding process using a dust of a material capable of assisting in the formation of a capsule wall.

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In another option the die is heated and the exterior of the bead is seared by contact with the walls of the cavity for a controlled period so that on ejection the or each bead has a specified shape and the skin is rendered effectively impervious to water.

Preferably the beads are capable of extended periods of storage prior to use.

In a further method the steps include the steps of formulating a paste from selected ingredients, extruding the paste into a space, chopping the extruded paste at intervals into a series of beads, and allowing the separated beads to fall against a current of hot gas of a controlled temperature for a controlled time, then collecting the beads and packing them for use.

Preferably the current of hot air has a flow rate and upwards component of direction sufficient to grade the beads by size (if the current of air can almost support the standard bead size, the resultant grading action may be used to reject under-sized and oversized beads).

Alternatively, the chopped-off paste may fall down a shaft filled with hot air, as for the manufacture of lead shot involving a long vertical drop.

In another related aspect the invention provides a complete kit for personal application of dental hygiene, including beads of a dental hygiene composition, dispensing means therefor, and, in addition, brush application means, which kit is provided for sale as a set of items or separately.

In a yet another related aspect the invention provides a method for making a bead of toothpaste, wherein a gelatin coating (or the like) is applied by dipping extruded beads of paste into a solution and then drying.

Alternatively a solution may be sprayed on to beads while they are suspended in a current of air or similar.

In a still further related aspect the invention provides a method for making a bead of toothpaste, wherein a starch may be applied for example by dipping the bead in starch powder.

In an even further related aspect the invention provides a method for making a bead of toothpaste, wherein an acceptable volatile solvent (either miscible with water and with wax, or miscible with wax and briefly dried outer coatings) carries a wax or the like into

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the outer surface of the bead to act as a water-repellent binder. Preferably not enough wax is used to form a detectable residue or "skin" in the user's mouth. Outer skins (if any) will be of a substance suitable, and safe, for rinsing away in the usual manner.

Preferably each bead is decoratively shaped in order to appeal in particular to a child, so that the child is more likely to make use of the bead for oral and dental hygiene.

Also, preferably each bead is coloured in order to appeal in particular to a child, so that the child is more likely to make use of the bead for oral and dental hygiene.

Further, each bead is preferably flavoured in order to appeal in particular to a child, so that the child is more likely to make use of the bead for oral and dental hygiene.

Optionally the capsules/beads may include an optionally encapsulated gas generating substance.

In a second broad aspect the invention provides means for storing and dispensing beads of a composition as previously described in this section, wherein the means comprises a toothbrush including at least one resealable cavity each capable of storing a plurality of discrete items, so that both the composition and brush application means for applying the composition to one's teeth are kept together.

In a related aspect, the toothbrush includes two resealable cavities, so that at least one cavity is available for storage of an oral hygiene commodity other than a dental hygiene composition.

Another means comprises a free-standing dispenser adapted for the storage and dispensing of said encapsulated beads or capsules.

An alternative means comprises a wall-mounted dispenser adapted for the storage and dispensing of said encapsulated beads or capsules.

In a third broad aspect the invention provides a system for delivery of dental hygiene, wherein a manufactured dental hygiene composition or toothpaste in the form of encapsulated beads or capsules is obtained by a consumer from a point of sale, stored prior to use within a dispenser adapted for the storage and presentation of said encapsu-

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lated beads or capsules, and is used from time to time by the or any consumer as individual encapsulated beads or capsules of toothpaste, so that the system employs the beads or capsules in order to facilitate the application of dental hygiene.

In a related aspect the system for delivery of dental hygiene (including encapsulated beads or capsules and application means (such as a toothbrush) is provided as a set of items at a point of sale, in a readily portable format for use anywhere, home, office, holiday etc or a dispensing system for domestic or similar use.

PREFERRED EMBODIMENT

The description of the invention to be provided herein is given purely by way of example and is not to be taken in any way as limiting the scope or extent of the invention.

DRAWINGS

Fig 1: shows in outline or surface view several embodiments of capsules of encapsulated toothpaste .

Fig 2: shows a basic dispenser for encapsulated toothpaste.

Fig 3: shows another version of a dispenser.

Fig 4: shows a novelty container for encapsulated toothpaste.

Fig 5: shows a wall-mounted container for encapsulated toothpaste.

Fig 6: shows an example retail pack of encapsulated toothpaste and a toothbrush.

Fig 7: shows an example toothbrush with a storage cavity within its handle according to the invention, ready for use.

Fig 7B: shows that example toothbrush according to the invention, packed away.

Fig 8: shows a toothbrush with two storage cavities within its handle.

Fig 9: shows another toothbrush according to the invention in an example retail pack, with spare encapsulated toothpaste supplies and several exchangeable heads.

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INTRODUCTION

This invention provides a form of dental hygiene preparation in which a composition broadly similar to that of conventional toothpaste as obtained from a tube is provided within a plurality of individual portions, which may be called "capsules", "globules", "tablets", "beads", "pellets", and "packets" to give a few examples of alternative terms. One point of this invention is convenience: each capsule or portion may be dimensioned so that it will hold about the right amount of toothpaste for an average tooth-cleaning procedure. Capsules can be made in almost any consistency, flavour, colour, shape, or size, and some examples are shown in Fig 1. Capsules of various sizes (capacities) may be made available for small children, larger children, or adults. Even the existence of a choice is likely to promote the frequency of cleaning of teeth (providing a choice being a well-known subterfuge when causing children to comply with their parents' requests). Capsules and their dispensers can be made far more attractive to children.

It will be appreciated by a reader skilled in the art that the scope of this invention extends to all forms of toothpaste when provided as individual portions suitable for single use.

Note that the composition is dry granules and/or free-flowing, no longer needing the special containment provided by a toothpaste tube, so that a person can decant some capsules from a large container into a small container as for example when travelling. (The "small container" may for example be within a toothbrush handle). A further point is that the waste disposal problem caused by discarded toothpaste tubes in particular is abolished. (There may be 24-36 million discarded tubes per year in even a small country such as New Zealand; population 3.8 million).

EXAMPLE 1 (Encapsulated toothpaste pellets)

STRUCTURE

Fig 1 includes a section through one bead or capsule 100, where the interior 102 is separated from the external environment by a manufactured wall 101. This section shows a hexagonal outline as a result of that profile being given to the extrusion nozzle

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so that resulting beads tend not to roll, having corners 103. Other outlines of capsules are illustrated in Fig 1, where 104 is a star (child's night-time cleaning), 105 is a tooth shape (for serious children), 106 is a tiny robot, 107 is a jelly-bean shape, 108 is a strawberry (that could be made in a two-colour form with a green cap and a pink/red body) 109 is a raspberry (having a different internal flavour from 108) and 110 is a straightforward cube for economy.

Capsule walls may for example be made of: (1) dried toothpaste substance itself, (2) gelatin, (3) a light crusty paste including extra material, perhaps similar in consistency to that of marzipan, (4) a starch, or (5) for example a waxy impregation. Ordinary toothpaste as made is quite thick and requires moisteners or lubricants in order to be packed in, and then extruded from, a tube.

The actual toothpaste held within each bead may be of a gel or of a paste consistency. The wall of the bead should be able to fully contain the contents during storage, and then preferably (though not essentially) be capable of dissolving within the mouth leaving no solid residue. For the first wall option, certain thickeners in particular have the property of being convertible into a relatively stable impervious material when heated and dried. Avoidance of coatings is preferred in order to avoid foreign bodies (shells and crusts) appearing within the user's mouth, and to minimise manufacturing costs and process complexity. Nevertheless we shall consider some.

One possible coating material is starch or the like, capable of being formed into a firm outer shell that can be burst by pressing onto the teeth, crushing between the teeth, or pressing on to the bristles of the brush. Sucrose and other sugar-based materials are best avoided in toothpastes, although addition of saccharin or other artificial sweeteners may be useful. Food-grade dyes may be used to make the beads more visually interesting and any one dye may be linked to a certain variant of flavour in the same manner that red jellybeans have a raspberry flavour, and so on.

The size of beads is preferably adjusted so that one bead is sufficient for one tooth brushing procedure; optionally half a "dose" (to allow children to mix flavours) but preferably not much more than that for a full procedure, because of consequent waste.

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The shape of beads can be altered to suit the market sector being catered to. For example children will be attracted by shapes such as stars, robots, flowers, television characters and the like. Adults may simply want the most compact shape possible. Shapes having a spherical section may be less desirable in that they can roll around, so triangular or hexagonal cross-sections may be preferred.

MANUFACTURE

1. Solely heat-dried exteriors.

Manufacture of capsules formed solely of heat-dried toothpaste substance itself may proceed as follows: a paste including a selection of the usual toothpaste components such as a mineral abrasive, a detergent, and a flavouring agent such as a peppermint or a colour - related flavour such as strawberry or raspberry, as are known in the art, is extruded through an orifice of controlled shape into an air-filled space, chopped off at intervals, and may then be allowed to fall against a current of hot air of a predetermined temperature, and predetermined dryness, for a predetermined time. The current may be strong enough to almost support the standard bead size, in which case the inherent and convenient grading action of the air current (if constant) may be used to reject under-sized and oversized beads. Alternatively, the chopped-off paste may fall down a shaft filled with hot air, using the principle of the manufacture of lead shot involving a long vertical drop. The desired drying process should be effective only on the outer skin or crust. Preferably the interior remains moist. Beads made in this process are likely to be of variable shapes.

Another manufacturing method may resemble the process of injection moulding for shapes in plastics, wherein the paste is extruded under pressure into a die having a cavity of a desired shape. In this case there is more latitude for a variety of flavouring, in accordance with the shape of the resulting bead(s). The resulting bead becomes fixed in a certain shape after moulding as a result of one or more of the following processes possibly used in combination:

(1) effects of the pressure alone, pushing the toothpaste against the walls of the mould,

(2) drying; the cavity had porous walls which drained off fluid from the exterior, so that the exterior surface became dried more quickly,

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(3) heat; the cavity was heated, and the heat seared the exterior surfaces of the capsule so that they were rendered effective as sealing walls,

(4) a coating; the cavity had been dusted with a powder before closing and extrusion. The powder may be a water-absorbing powder, a reactive powder capable of reacting to form a sealed surface (and might include at least one encapsulated material ruptured by the pressure of extrusion), or a meltable powder such as a wax.

Additional sealing may be employed, in particular where the product is to be stored in or shipped to humid areas.

2. Additional sealing materials.

The objective of drying is to moisture-seal the exterior of each bead. In some cases supplementary sealing, by the use of a gelatin coating (or the like) may involve dipping extruded beads of paste with a solution, or otherwise coating the beads (or spraying a solution on to beads while they are suspended in a current of air) and then drying. A coating may be preferred for beads of toothpaste intended for use in tropical or humid climates. Materials such as methyl cellulose, acacia (gum arabic), tragacanth, or the like may be useful. Other crusts such as starch may be applied in a similar way. Beeswax, a natural wax, or more preferably small amounts of higher melting point paraffin waxes may be used. An acceptable volatile solvent (miscible with water and with wax, or miscible with wax and briefly dried outer coatings) for carrying a wax or the like may be used to apply sufficient wax to the outer surface of the bead to act as a water-repellent binder, but not enough to form a detectable "skin" in the user's mouth. Critical-point liquefied carbon dioxide may be one acceptable solvent.

A water soluble (from the outside) yet water impermeable (from the inside) "disappearing-in-use" bead shell is ideal for this application. It may be that the presence of one or more insoluble remnants of a shell in one's mouth is more acceptable during a teeth cleaning operation than at other times. Generally, spitting into a receptacle is part of cleaning one's teeth. Nevertheless, it may be preferable to have the shell made of a material, such as one based on starch, capable of being attacked by salivary enzymes and so completely disappearing. Potato starch based capsules are a commercial product. It may even be acceptable to rely on other gut enzymes to complete the digestion process.

3. Taste-attractive crusts or skins.

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Although we have preferred to create "disappearing wall material" which in effect deletes itself from the perceptible environment there are precedents for instead creating an attractive wall, at least in terms of taste. Consider the skin of a deep-fried potato chip, or the exterior of a "Jaffa" (TM) orange-coated chocolate ball. The skin of each capsule could hold the majority of the flavour deposited in each capsule.

4. Fully dried interior contents.

Optionally each bead may hold a dry material including a health-compatible gas-producing effervescent material such as "sherbet" (sodium potassium tartrate with sodium bicarbonate) or grains of "Space Dust" (TM) in order to excite a child's interest and possibly also in order to aid in "breaking up" the dry material. Fully dried beads may be manufactured using the technology of and optionally additives well known to the pharmaceutical tablet-making industries; possibly preferring options leading to a low to medium hardness.

5. **Pressed or cut from a stiff paste.**

During manufacture, a toothpaste composition may be formed into a stiff mass having a consistency rather like rolled-out pastry. This paste may be rolled out into a sheet and then cut, stamped, or otherwise formed into individual portions, which are then optionally dried, and/or coated, and/or wrapped. Indicia may be pressed into the surface of each piece. The paste may be extruded and dried (as previously described) or it may be extruded, coated, and heat-treated.

USE

One or perhaps more beads are selected for use, removed from a container or dispenser and broken open either by finger pressure, or pressing the bead on to the bristles of a brush, or against the teeth, or may be bitten. Once the internally stored toothpaste is released into the mouth, a conventional toothbrush (which may be electric) is used in the normal manner.

EXAMPLE 2: Dispensers.

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Several convenient kinds of dispenser have been developed to serve as part of the invention as described herein (although the skilled reader should realise that a very large number of other dispensers may also be developed, but nevertheless fall within the scope of the invention). Representative examples of dispensers are shown in Figs 2 to 5.

One large dispenser (e.g. fig 2 or fig 5) in the bathroom may serve an entire family. The simple dispenser of fig 2 includes several components: a container body 202 and a threaded (screw) lid 201. On the side of the lid is a hole 204 capable of being matched with a hole 203 within the top of the container body, for shaking out one or more capsules. The filling of beads is indicated at 104 - with visible robots 106 for example. The dispenser may be refilled from time to time with a retail pack of capsules, such as a plastic bag or even a paper bag of capsules. Fig 3 shows another conventional dispenser with a lid 302. A spring-loaded lever 303 when pressed aligns two holes so that a capsule or bead previously stored within the mass 301 emerges through hole 305 within a plunger assembly on to a collection plate 304. In fig 5, the entire dispenser is mounted from a wall 500 by means of an arm 501 supporting a pivot 502, so that on tilting, one or more capsules emerge at the orifice 503. Alternative dispensers may resemble, and may even be used as, toys for greater appeal to children. Fig 4 shows a "jiggling fish" version 400 in which the body of the fish serves to hold a mass of capsules 405 for dispensing through the mouth 404 when that is pulled forward. On release the weight at the end of the cord 401, acting around pulleys 402 causes the fish to revert to an upward attitude as shown here. Smaller dispensers may be scaled down in order to fit into handbags or may even become part of toothbrushes - such as handles.

EXAMPLE 3

Distribution or retail sales of encapsulated toothpastes according to the invention may be in conventional form - as preferably paper or other biodegradable containers of capsules with the usual admixture of brands and information. Capsules may be sold in single or various shapes, colours, or flavours, and may be sold in various sizes. Variants better suited to humid (tropical) environments, military use, or other rough handling may be sold separately. Retail packs may be of separate items but can include a

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complete dental hygiene system displayed on a standard blister pack as shown in Fig 6. Here, 600 is the printed laminated card; 601 is an edge of the blister, 602 is a box of evidently blueberry flavoured (604) capsules or beads, 603 is the handle of an accompanying toothbrush including a bead storage container within the handle. The purchaser simply supplies a little water.

A very similar presentation may be used by businesses, airlines or hotels as "complimentary gifts". Ranges of flavours, ranges of capsule sizes, and ranges of toothbrush bristle characteristics may be offered (see Fig 8).

EXAMPLE 4

Fig 7 and fig 7B (in closed configuration) shows an example of a toothbrush 700 according to the invention; having a cavity 704, closed by a cap 705 and able to contain a plurality of solid items 106, such as beads of encapsulated toothpaste according to Example 1. The bristles 701 are supported on the usual toothbrush shaft 702, arising from one end of the exterior of the cavity, moulded so as to form a convenient handle 703. A cap 706 protects the bristles. as shown in Fig 7B. When the toothbrush is in use, the cap can serve as a convenient extension to the handle 703 as shown in Fig 7. Note that not all toothbrushes need to have covers; covers are mainly useful for (for example) travellers, or those who carry a toothbrush in the handbag.

The similar toothbrush of Fig 8 (handle portion 703 only shown, in section) includes a two-cavity storage area (cavities 801 and 803) so that different types of object (802 and 804 respectively) may be stored separately within the toothbrush handle, so providing the convenience of this oral hygiene system. The triangular objects 804 may for example be mouthwash, oral disinfectant, or further toothpaste beads 802. Again there is a cap, 705. Recent awareness of the heightened risk of orally transmitted diseases (including meningitis and recently (in the U K) tuberculosis) where kissing, or shared drinking vessels may be involved in transmission leads to the usefulness of a cache of medicated tablets as part of an oral hygiene system according to the invention. The two-container toothbrush (one cavity holding oral hygiene tables; the other holding dental hygiene beads) can be carried anywhere.

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Fig 9 shows another example toothbrush, with no cap 706, with spare heads, and spare toothpaste, in a pack ready for sale as a dental hygiene system which includes the toothpaste as encapsulated beads or portions according to the invention. Note that the indicia (e.g. 907, for identification of flavour) included in this figure is solely intended to signify possible advertising statements. In Fig 9, a card 900 includes a blister pack 901 which should ensure effective sterility of the contents prior to opening. 903 indicates a complete toothbrush assembly including some beads of toothpaste in the handle 905. Spare toothpaste beads are included in the box 904. 902 is one of three heads for the toothbrush. It will be appreciated that worn-out toothbrush heads contribute to poor dental hygiene in a population, hence increased availability of spare heads is useful. The spare heads may be of the same bristle stiffness, or may be in different colours or bristle shapes. Each head includes a reversible attachment means such as a bayonet lock 906 capable of interlocking with a corresponding socket in the handle 905. Other attachment means such as a screw thread on the brush head, capable of being fitted to a threaded hole in the top of the handle, are possible alternatives as will be appreciated by a person versed in the mechanical arts. The supply of spare heads reduces total plastics waste. A seal over the cavity within the handle is not shown in this illustration. Nor is access to an optional second cavity as for Fig 8.

Variations on the toothbrush design include those with more than one cavity (where one can be used for storing other items such as breath fresheners, floss, and the like). For electric toothbrushes, battery size is diminishing thanks to improvements in rechargable battery technology, providing space within the handle of an electric toothbrush for a cavity to hold some beads.

COMMERCIAL ADVANTAGES

As a dental hygiene system, the invention has the notable advantage that it provides an integrated combination of toothbrush and toothpaste, in a form likely to be attractive to users and especially to children. There have not been any significant changes in the presentation of compounds usable as toothpastes/dentifrices for some years. Dentifrices are supplied in powder form in a container. Toothpastes are supplied in paste form in a tube. Yet the dental health of children in particular remains under threat, especially with the availability of sweetened drinks and snack foods in the Western world.

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Advantages of the dental hygiene system of this invention include:

1. The portability of the oral hygiene system is convenient because a compact article provides all materials and tools required for cleaning the teeth but the water.
2. The oral hygiene system is convenient for travelling people and those undertaking outdoor pursuits such as scouts, climbers, military personnel or the like.
3. Apart from the emphasis on tooth hygiene, a rise in orally transmitted diseases (including meningits and recently tuberculosis) where kissing or shared drinking vessels may be involved i transmission leads to desirability of providing a cache of medicated tablets within an oral hygiene system according to the invention.
4. Touring cyclists, trampers and climbers (for example) find the weight and volume of an entire toothpaste tube a significant extra load and consumer of space; this invention minimises that.
5. Promotional toothbrushes as used by airlines and hotels for example are more conveniently manufactured and distributed together with this more easily handled toothpaste composition. Perhaps as few as 2 - 6 beads per pack need be supplied. Beads may be refilled from dispensers or convenient pocket packs.
6. The invention is compatible with, and likely to enhance existing programmes of tooth care and dental hygiene, especially those for children, where the variety of beads and the control of the amount in each is likely to assist in brushing the teeth.
7. Waste packaging materials such as toothpaste tubes are minimized, so reducing pollution and landfill.
8. Toothbrush design can be adapted for the storage of a number (perhaps only a small number) of beads/capsules within the handle, thereby resulting in a single object for a single function (cleaning the teeth).
9. Even the ubiquitous narrow plastic handled toothbrush can be made with a visible internal cavity and a removable, perhaps resilient resealable plug for accessing a capsule as required - perhaps only in emergency.
10. A toothbrush having a solid, well-made handle with a cavity for containing capsules can be made to use a replaceable brush end, and optionally also can be made with a cover for travelling. The cover may become part of the handle when in use, consequently reducing the bulk to be carried.

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Inherent advantages of the beads or capsules of this invention include:

1. Convenience in storage, handling, and use; the material behaves as dry portions until put into the mouth. The beads are easily stored, decanted, and dispensed.
2. Each member of a family may use the flavour and type of toothpaste that they prefer which is an advantage for those trying to encourage their children to clean their teeth voluntarily.
3. the beads may be presented in many forms or styles, particularly including visual attractiveness, varieties in shape and colour, and hence added appeal to children. Children can pick a flavour - like picking a flavoured jellybean from a mixed bag, or picking a shape, like a star for the evening.
4. There is an opportunity to mix flavours, especially for children, within the one pack.
5. A single dispenser may be shared, without hygiene / crossinfection problems, by groups of people (such as a family, or a school camp, scout camp, or military group).
6. Tablets of breath freshener, headache pills, or the like can be stored together with beads of encapsulated toothpaste. (This is particularly useful for a traveller).
7. environmentally friendly manifold reduction in waste plastics.

Finally, it will be understood that the scope of this invention as described and/or illustrated within this provisional specification is not limited to the preferred embodiments described herein for illustrative purposes. Those skilled in the art will appreciate that various modifications, additions, and substitutions are possible without departing from the scope and spirit of the invention as set forth in the following claims.

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I claim:

1. A system for facilitating the practice of oral and dental hygiene, characterised in that the system provides a dental hygiene composition in the form of a plurality of unitary beads; the dental hygiene composition within each bead comprising a paste, the paste being contained within a wall having a dry exterior, each bead has a wall strength sufficiently low to allow the contents to escape when the bead is caused to rupture by being pressed against the teeth or on to a toothbrush, and wherein the system also includes means for storing and dispensing said beads on demand, so that a person can practice dental hygiene more conveniently.

2. A composition for a system as claimed in claim 1, characterised in that each bead contains about sufficient composition to supply a single procedure for brushing the teeth, so that a more convenient form of storage and dispensing of toothpaste is provided.

3. A system for facilitating the practice of dental hygiene as claimed in claim 1, characterised in that a complete kit for personal application of dental hygiene, including beads of a dental hygiene composition, dispensing means therefor, and, in addition, brush application means therefor is provided for sale as a set of items.

4. A composition for a system as claimed in claim 1, characterised in that the wall of each bead is made by a process acting locally on the composition at the exterior of the bead.

5. A composition for a system as claimed in claim 1, characterised in that the wall of each bead is made by a process acting on a substance added, on to the exterior of the bead, to the dental hygiene composition.

6. A composition for a system as claimed in claim 1, characterised in that the wall of each bead is made by by a process including application of a sealing substance over the exterior of a bead of the dental hygiene composition.

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7. A composition for a system as claimed in claim 1, characterised in that the wall of each bead is forced into a desired shape by a moulding process.

8. A composition for a system as claimed in claim 1, characterised in that each bead is made by inserting a dental hygiene composition into a previously constructed container.

9. A composition for a system as claimed in any one of claims 4 to 8, characterised in that each bead is decoratively shaped in order to appeal in particular to a child, so that the child is more likely to make use of the bead for oral and dental hygiene.

10. A composition for a system as claimed in any one of claims 4 to 8, characterised in that each bead is coloured in order to appeal in particular to a child, so that the child is more likely to make use of the bead for oral and dental hygiene.

11. A composition for a system as claimed in any of claims 4 to 8, characterised in that each bead is flavoured in order to appeal in particular to a child, so that the child is more likely to make use of the bead for oral and dental hygiene.

12. Means for storing and dispensing beads of a composition as claimed in claim 1, characterised in that the means comprises a toothbrush including at least one resealable cavity each capable of storing a plurality of discrete items, so that both the composition and brush application means for applying the composition to one's teeth are kept together.

13. Means for storing and dispensing beads of a composition as claimed in claim 1, characterised in that the toothbrush includes two resealable cavities, so that at least one cavity is available for storage of an oral hygiene commodity other than a dental hygiene composition.

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14. Means for storing and dispensing beads of a composition as claimed in claim 1, characterised in that the means comprises a free-standing dispenser adapted for the storage and dispensing of said encapsulated beads or capsules.

15. Means for storing and dispensing beads of a composition as claimed in claim 1, characterised in that the means comprises a wall-mounted dispenser adapted for the storage and dispensing of said encapsulated beads or capsules.

16. A method for making a dental hygiene composition in the form of unitary beads as claimed in claim 1, characterised in that the method includes the step of forcing an amount of the composition into a die having a cavity of a desired shape, so that on ejection the or each bead has a specified shape.

17. A method for making a dental hygiene composition as claimed in claim 16, characterised in that the method includes the prior step of coating the interior surface of the die with a wall forming agent or co-forming agent.

18. A method for making a dental hygiene composition in the form of unitary beads as claimed in claim 1, characterised in that the method includes the steps of formulating a paste from selected ingredients, extruding the paste into a space, chopping the extruded paste at intervals into a series of beads, and allowing the separated beads to fall against a current of hot gas of a controlled temperature for a controlled time, then collecting the beads and packing them for use.

19. A method for making a dental hygiene composition as claimed in claim 18, characterised in that the current of hot air has a flow rate sufficient to grade the beads by size.

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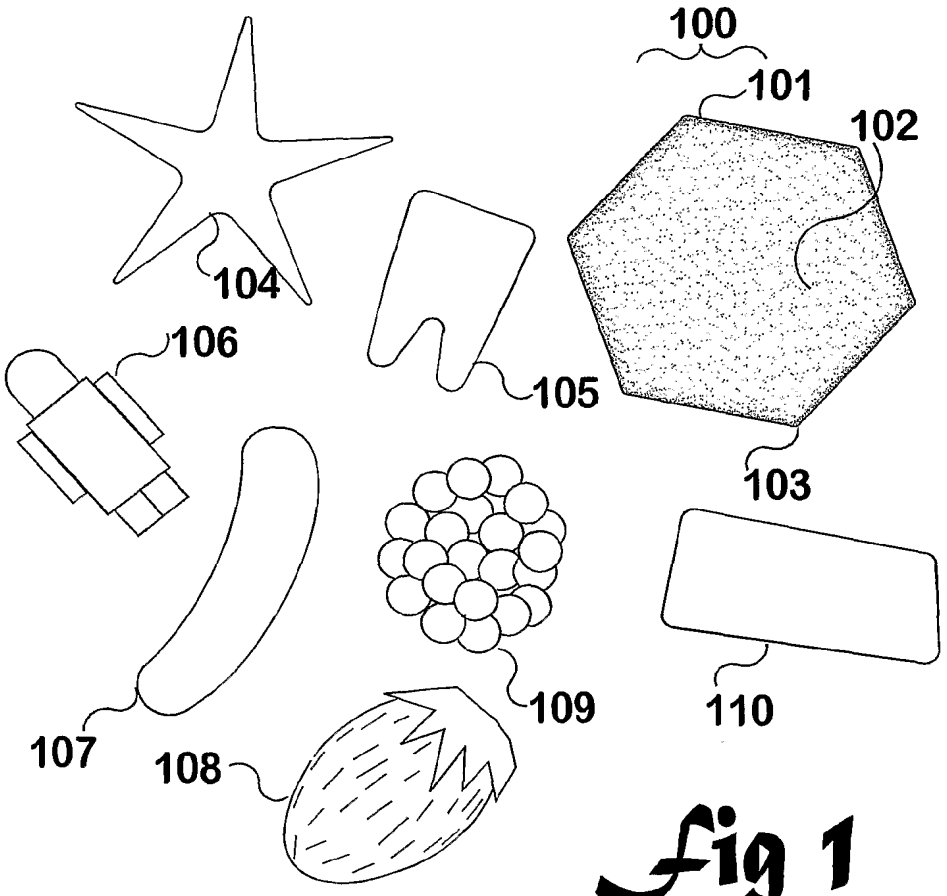

100
101
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110

Fig 1

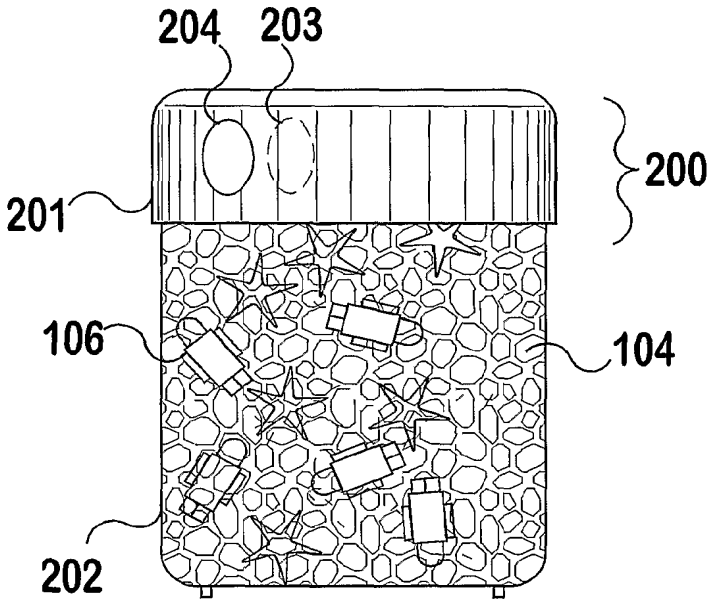

204
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202

Fig 2

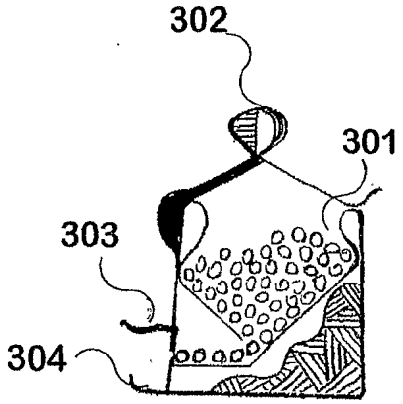
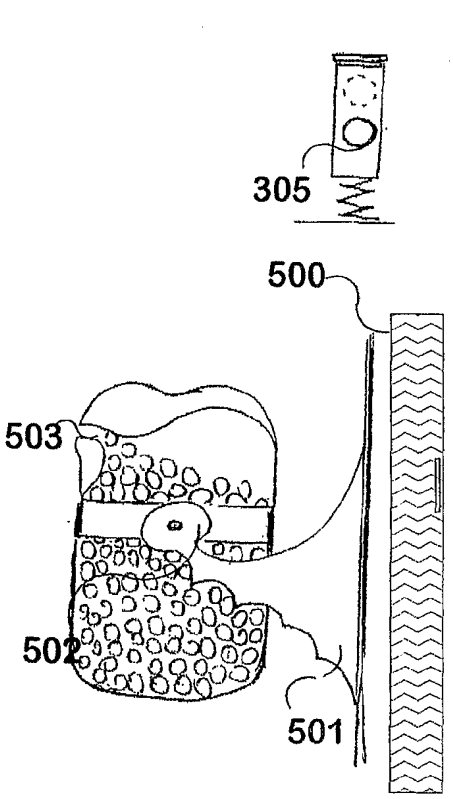


Fig 3



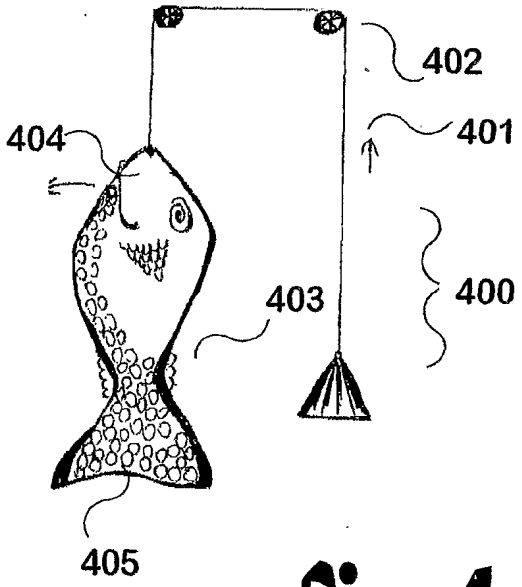


Fig 4

Fig 5

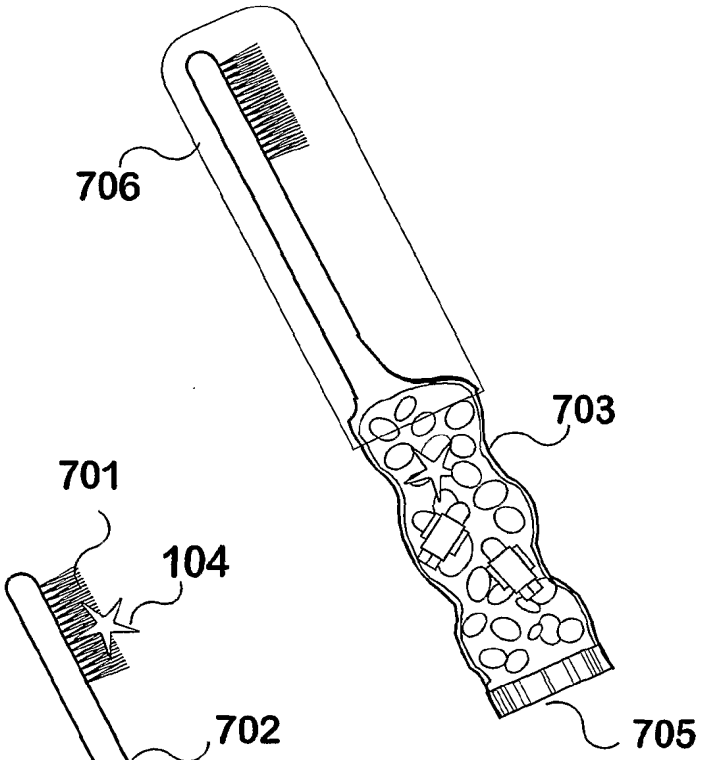


Fig 7B

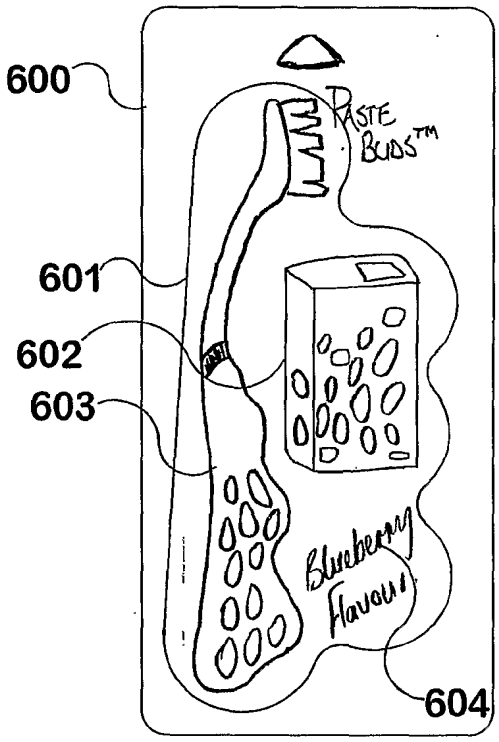


Fig 6

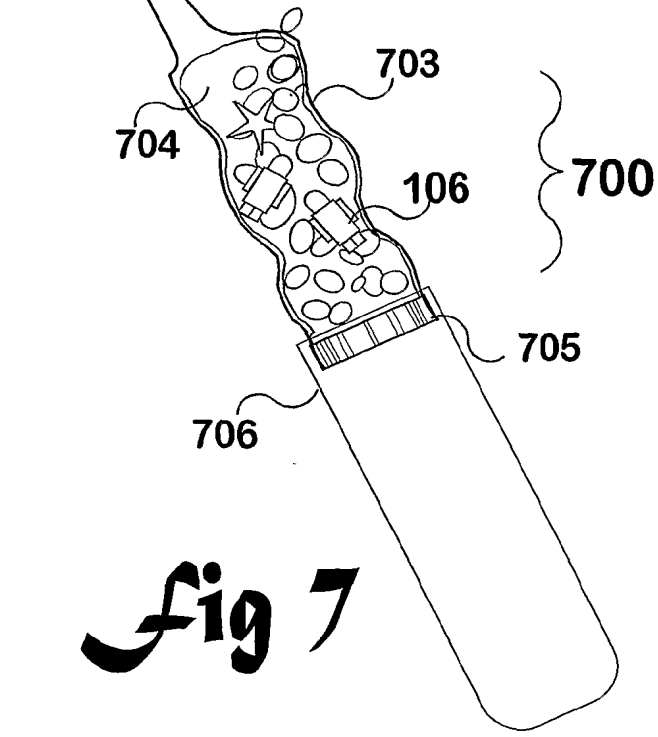


Fig 7

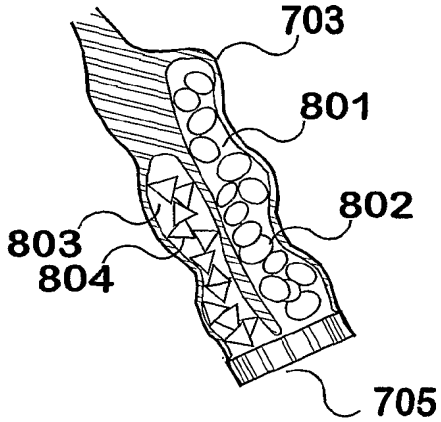


Fig 8

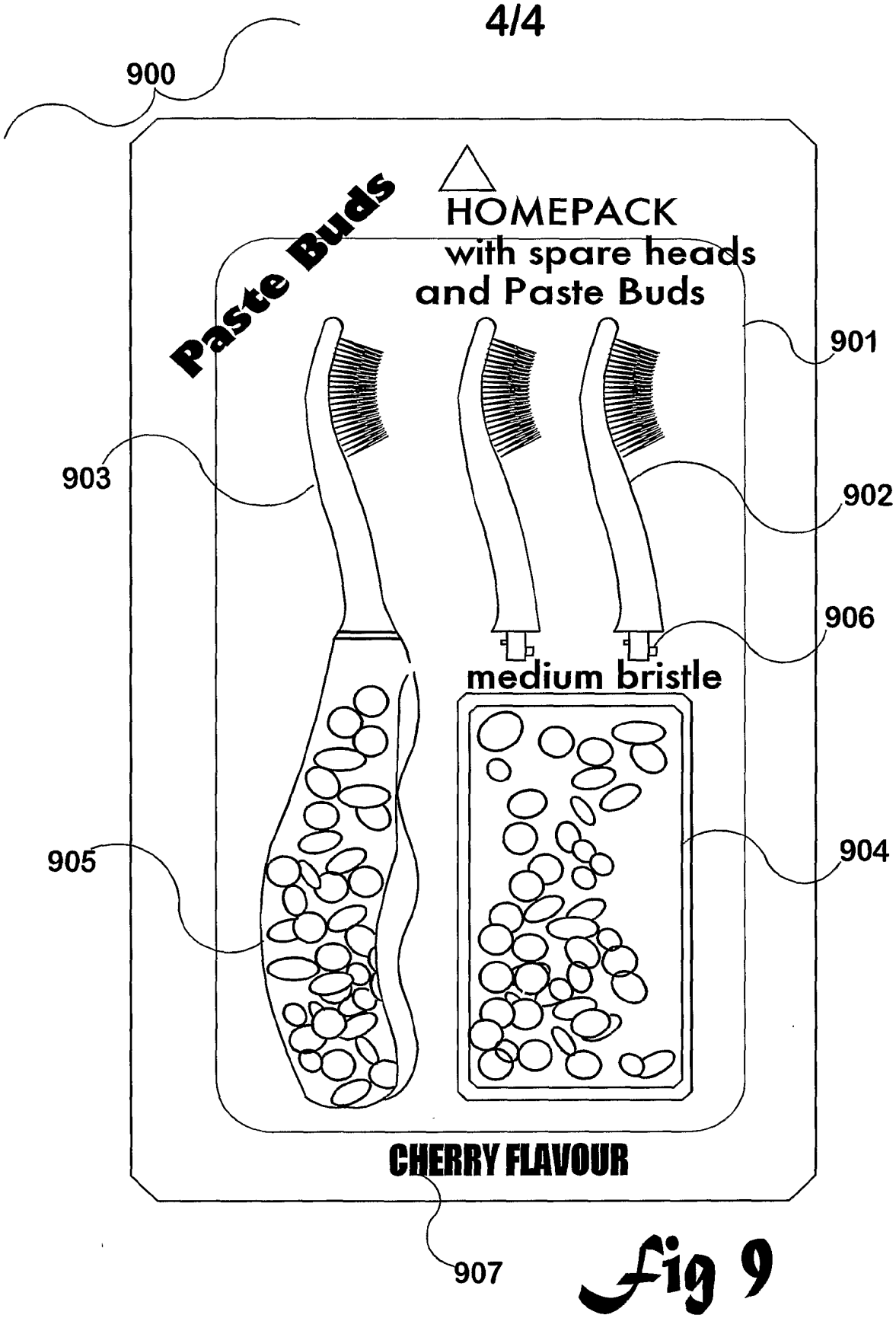

900
Paste Buds
HOMEPACK
with spare heads
and Paste Buds
901
903
902
906
medium bristle
905
904
CHERRY FLAVOUR
907

Fig 9

Electronic Acknowledgement Receipt

EFS ID:	20852298
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Rebecca Meier
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	03-DEC-2014
Filing Date:	07-NOV-2014
Time Stamp:	13:28:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	2076-002C_IDS_11-21-14.pdf	613749 e0908fbab4a45a28e9cf35f440387a71893e5260	no	8

Warnings:	
Information:	

2	Foreign Reference	WO0226078A2.pdf	1218721 99564df9bcedf0f34e4f3ba5babca082bec3d821	no	24
Warnings:					
Information:					
3	Non Patent Literature	KALILI.pdf	33329 5ac5264a7955ca4cfff9a9ac9bbf5f149a202efa	no	1
Warnings:					
Information:					
4	Other Reference-Patent/App/Search documents	12101446_OA_7-5-12.pdf	194471 ae16b72ad9a8d0d4184590655f59dca23db25e21	no	6
Warnings:					
Information:					
5	Other Reference-Patent/App/Search documents	12101446_OAF_2-15-13.pdf	301865 2a5d2fe4a92c3c43b12ef391a3f5f7ac3c28114b	no	8
Warnings:					
Information:					
6	Other Reference-Patent/App/Search documents	12101446_AA_5-16-13.pdf	117968 35d657f506876adb14247768d64277d8194324f0	no	3
Warnings:					
Information:					
7	Other Reference-Patent/App/Search documents	12101446_OA_8-1-13.pdf	346234 c8c79ccfeaf395fb30334ed08ba9adb10bed423b	no	7
Warnings:					
Information:					
8	Other Reference-Patent/App/Search documents	12101446_APP_Initiated_INT_SUMM_9-23-13.pdf	171028 4a39dc8885b10753f2ef6432e2c595b6e2970a5d	no	3
Warnings:					
Information:					
9	Other Reference-Patent/App/Search documents	12101446_OAF_12-19-13.pdf	511028 cd8347b41fe48c6ca7788f035be362724363d237	no	12
Warnings:					
Information:					
10	Other Reference-Patent/App/Search documents	12101446_AA_4-18-14.pdf	122076 8de571999eb4124a01aced1845ae0b474cdc48b3	no	3
Warnings:					
Information:					

11	Other Reference-Patent/App/Search documents	12101446_NoA_9-17-14.pdf	443586 6e6538d5eb45d6c1b29fbd358ee59a03568e7f13	no	9

Warnings:	
Information:	
Total Files Size (in bytes):	4074055

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Lise W. Noble et al.
Serial No. 14/535,442
Filed: 11/07/2014
Attorney Docket No. 2076-002C

Examiner: TBD
Art Unit: 1615

For: **TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE**

Mail Stop Missing Parts
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS MAILED NOVEMBER 24, 2014

Sir:

In response to the Notice to File Corrected Application Papers mailed November 24, 2014, Applicants hereby submit replacement sheets for Figures 1 and 2 as required by 37 C.F.R. § 1.84. If any fees are required in association with this response, the Director is hereby authorized to charge them to Deposit Account 50-1732, and consider this a petition for taking appropriate action for entry of this response.

REMARKS

The Notice to File Corrected Application Papers mailed on November 24, 2014 indicated that the drawings submitted on November 7, 2014 are not acceptable since "[t]he drawings submitted to the Office are not electrically reproducible because portions of figures 1-2 are missing and/or blurry."

Enclosed and submitted herewith are Replacement Sheets 1 and 2 of the drawings containing Figures 1 and 2, respectively. The Replacement Sheets contain the best quality drawings available, and are substantially similar to drawings filed in the parent application (U.S. Patent Application No.: 12/101,446, which issued as U.S. Patent No.: 8,881,332 on November 11, 2014). No new matter is being added with the submission of the Replacement Sheets. Additionally, the enclosed drawings neither embody missing portions nor blurry portions, and the drawings are amenable to electronic reproduction.

Entry of the Replacement Sheets 1 and 2 of the drawings is respectfully requested.

If any issues require further resolution, representatives of the USPTO are requested to contact the undersigned attorney at (919) 238-2300 to discuss same.

Respectfully submitted,

WITHROW & TERRANOVA, P.L.L.C.

By: /vincent k. gustafson/

Vincent K. Gustafson
Registration No. 46,182
100 Regency Forest Drive, Suite 160
Cary, NC 27518
Telephone: (919) 238-2300

Date: December 3, 2014
Attorney Docket: 14/535,442

Enclosure: Replacement Sheets 1 and 2

PETITIONER - COLGATE, Exhibit 1004
Page 331 of 385

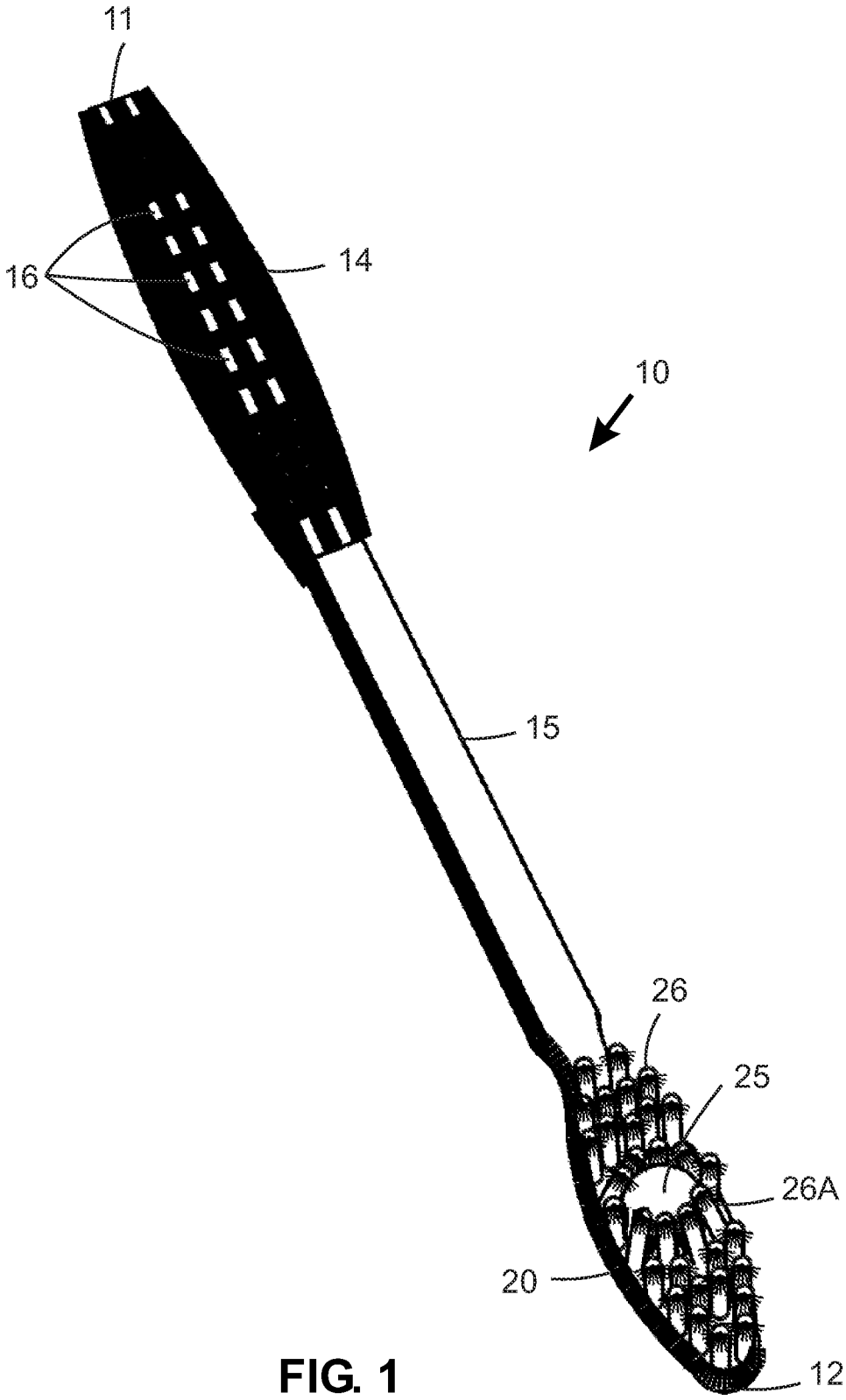


FIG. 1

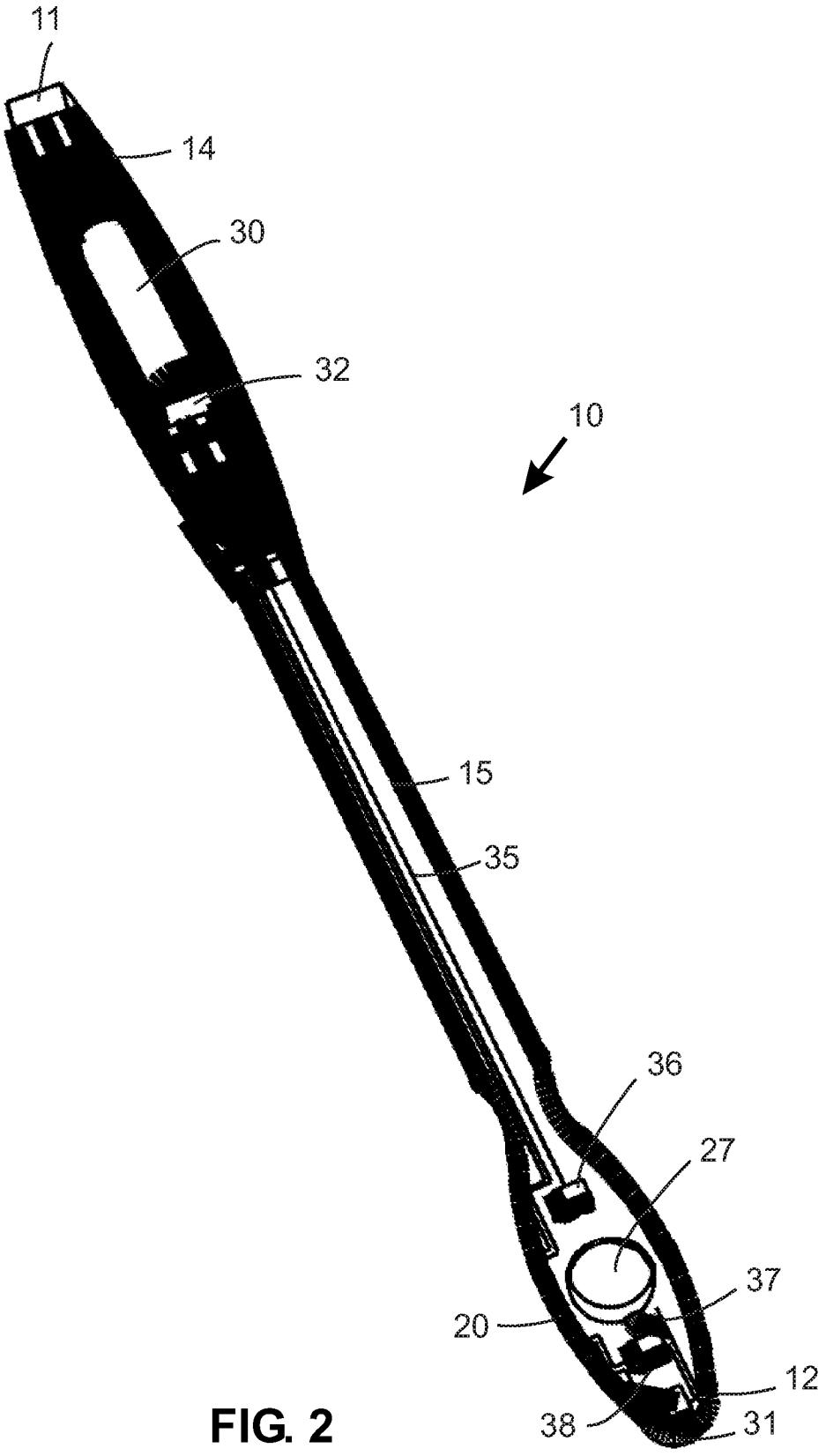


FIG. 2

Electronic Acknowledgement Receipt

EFS ID:	20852776
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Nina Honeycutt
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	03-DEC-2014
Filing Date:	07-NOV-2014
Time Stamp:	13:55:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	2076-002C_Response_to_Notice_to_File_Corrected_Application_Paper.pdf	20671 d9f160aeb267756e6945da34e72f4bdcd1db1c72	no	2

Warnings:	
Information:	

2	Drawings-only black and white line drawings	2076-002C_Replacement_Drawings-B.pdf	653250 cc70c61ab1e71cd9d9e8a682b2bf305fb743ae3f	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	673921

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/535,442	11/07/2014	Lise W. Noble	2076-002C

CONFIRMATION NO. 1451

27820
WITHROW & TERRANOVA, P.L.L.C.
100 REGENCY FOREST DRIVE
SUITE 160
CARY, NC 27518

FORMALITIES LETTER

OC000000071993636

Date Mailed: 11/24/2014

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  - The drawings submitted to the Office are not electronically reproducible because portions of figures 1-2 are missing and/or blurry.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice". https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/htnguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/535,442	11/07/2014	1615	730	2076-002C	20	3

CONFIRMATION NO. 1451

27820
WITHROW & TERRANOVA, P.L.L.C.
100 REGENCY FOREST DRIVE
SUITE 160
CARY, NC 27518

FILING RECEIPT

OC000000071993635

Date Mailed: 11/24/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Lise W. Noble, Chapel Hill, NC;
Patrick T. Noble, Chapel Hill, NC;

Applicant(s)

NOBLE INNOVATIONS LLC, Chapel Hill, NC

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 12/101,446 04/11/2008 PAT 8881332
which is a CIP of 11/840,627 08/17/2007 ABN

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 11/21/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/535,442**

Projected Publication Date: To Be Determined - pending completion of Corrected Papers

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **

Title

TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

Preliminary Class

424

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/535,442

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

SCORE Placeholder Sheet for IFW Content

Application Number: 14535442 Document Date: 11/07/2014

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via eDAN using the Supplemental Content tab, or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.

Form Revision Date: August 26, 2013

PTO/SB/05 (09-04)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office. U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	2076-002C
First Inventor	Lise W. Noble
Title	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
Express Mail Label No.	

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ **Fee Transmittal Form** (e.g., PTO/SB/17)
   (Submit an original and a duplicate for fee processing)
2. ☑ **Applicant claims small entity status.**
   See 37 CFR 1.27.
3. ☑ **Specification** [*Total Pages* 17]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01(a))
4. ☑ **Drawing(s)** (*35 U.S.C. 113*) [*Total Sheets* 11]
5. **Oath or Declaration** [*Total Sheets* 2]
   a. ☑ Newly executed (original or copy)
   b. ☐ A copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. ☐ DELETION OF INVENTOR(S)
   Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☑ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
   (if applicable, items a. – c. are required)
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ Paper
   c. ☐ Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents**
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee_____
10. ☐ **37 CFR 3.73(b) Statement** *(when there is an assignee)* ☐ **Power of Attorney**
11. ☐ **English Translation Document** *(if applicable)*
12. ☐ **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
13. ☐ **Preliminary Amendment**
14. ☐ **Return Receipt Postcard** (MPEP 503)
    (*Should be specifically itemized)*
15. ☐ **Certified Copy of Priority Document(s)**
    (if foreign priority is claimed)
16. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i).
    Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ Other:_____

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

☑ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 12/101,446

Prior application information: *Examiner* Stephanie R. Berry *Art Unit:* 3727

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 27820 ***OR*** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
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Name (Print/Type)	Vincent K. Gustafson			Registration No. (Attorney/Agent)	46182

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [x] The attached application, or
- [ ] United States application or PCT international application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: Lise W. Noble Date (Optional): 11/06/14

Signature: _____

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- [x] The attached application, or
- [ ] United States application or PCT international application number _____

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The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Patrick T. Noble Date (Optional): 11/06/2014

Signature: Patrick T. Noble

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE

STATEMENT OF RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application No. 12/101,446 filed on April 11, 2008 and issuing as U.S. Patent No. 8,881,332 on November 11, 2014, which is a continuation-in-part of U.S. Patent Application No. 11/840,627 filed on August 17, 2007, now abandoned. Benefit of the filing dates of such prior applications is claimed under 35 U.S.C. § 120, and the disclosures of such prior applications are hereby incorporated by reference herein.

FIELD OF THE INVENTION

[0002] The present invention relates to oral care, and more specifically, to toothbrushes and dispensing systems utilizing oral care capsules.

DESCRIPTION OF THE RELATED ART

[0003] Good oral hygiene requires regular and proper attention to tooth brushing and flossing. According to the American Academy of Periodontology, chronic gingivitis (causing gum tissue to swell, turn red, and bleed easily) is common in children, but can be prevented and treated with a regular routine of brushing, flossing, and professional dental care. Absent treatment, chronic gingivitis can lead to more serious forms of periodontal disease.

[0004] Proper oral care habits can be difficult to instill in young children. Common challenges for caregivers of children include motivating children to initiate oral hygiene tasks, and to execute such tasks properly without assistance.

[0005] Even if motivation barriers are overcome, children often have difficulty in using conventional oral hygiene products and performing conventional oral hygiene methods. For example, many young children have difficulty in manipulating a toothbrush and toothpaste tube in separate hands and dispensing a proper amount from such a tube to the toothbrush. Avoiding generation of messes due to transfer of toothpaste to skin, clothing, and other surfaces during or after such dispensation may also be difficult for young children at a stage of physiological development where muscle control and general coordination are limited. Thereafter, children desiring to engage in other activities may be inclined to rush the task of brushing teeth without devoting the recommended time of two minutes or more to the task.

[0006] Conventional toothpaste dispensing systems further provide opportunities for not only growth of pathogens such as bacteria and virus, but also transfer of such pathogens from one toothbrush (or user) to another.

[0007] Oral care capsules, which avoid some of the mess associated with conventional toothpaste, are known. Examples of various oral care capsules are disclosed in U.S. Patent Application Publication No. 2005/0260141 to Alexander (hereinafter "Alexander"), U.S. Patent No. 7,074,390 to MacKinnon (hereinafter "MacKinnon"), and U.S. Patent No. 4,427,116 to Brown (hereinafter "Brown"), each of which is hereby incorporated by reference. Alexander discloses formation of variously shaped discrete toothpaste beads each having a dry exterior formed by locally applied processes such as heating, drying, extrusion, dusting, molding, varnishing, and coating. One or more beads are selected for use, removed from the container or dispenser, and broken open either by finger pressure, by pressing the bead against a brush or the user's teeth, or it may be bitten; after the internally stored as toothpaste is released into the mouth, a conventional toothbrush is used in the normal manner. (Alexander, ¶ 0081.) MacKinnon discloses formation of a dentrifice or toothpaste capsule, (optionally including miswak fibers) having a shell of choline, albumin, or gelatin. In use, a capsule according to MacKinnon is put into the user's mouth, the coating is broken with the teeth, and the toothpaste released thereby is distributed throughout the mouth using the tongue or a toothbrush. (MacKinnon, col. 2.) Brown discloses a capsule including a predetermined amount of toothpaste that is encapsulated with a covering (e.g., gelatin) that is preferably water-soluble and breakable when bitten or chewed. (Brown, col. 2). Thus, each of the preceding references require manual manipulation of an oral care capsule by the user.

[0008] Furthermore, each of the preceding references rely upon insertion of a capsule into the user's mouth, and such capsules may not be desirable or appropriate for use by small children. A very young user may liken a dentrifice capsule to candy, and be inclined to swallow it rather than use it in combination with a brush. If a capsule is very small in size, then multiple capsules may be required to deliver an appropriate amount of toothpaste to the user, and opportunities may abound for inconsistent application or waste. Alternatively, if a large capsule is too large in size, then it may pose a choking hazard for a young user.

[0009] Moreover, ensuring that the shell or coating of an oral care capsule is easily dissolved in the mouth of a user may limit the ability to practically store multiple capsules in a typical high-moisture bathroom environment. That is, if capsules are stored in a tightly sealed container to prevent moisture infiltration that may degrade a dissolvable coating, such container may be unsuitable for use by a small child. Alternatively, if capsules are stored in a less well-sealed

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container suitable for manipulation by a small child, moisture infiltration may degrade water-dissolvable capsule coating materials that may lead to spoilage of stored capsules.

[0010] Different users having dedicated toothbrushes may store and use such toothbrushes in a single bathroom. Contact between toothbrushes for different users should be minimized to prevent spread of pathogens from one user to another. If an oral care capsule is subject to use with a toothbrush, it would be desirable to avoid contact between toothbrushes for different users and an interface for an oral care capsule.

[0011] Thus, it would be desirable to provide toothbrushes and dentrifice dispensing systems that motivate children to initiate and perform oral care tasks properly, while minimizing dangers to such users, minimizing mess creation, reducing opportunities for pathogen growth, promoting consistent dentrifice dispensing, and promoting reliable dentrifice storage.

SUMMARY OF THE INVENTION

[0012] The present invention relates to toothbrushes and oral care (dentrifice) capsules, and methods of dispensing and using same, that are suitable for use by small children, and that overcome various limitations associated with such capsules.

[0013] In one aspect, the invention relates to a toothbrush comprising a brush head having a capsule receiving zone sized to receive an oral care capsule, and having a plurality of angled bristles adapted to retain an oral care capsule in the capsule receiving zone.

[0014] In another aspect, the invention relates to a dispensing device adapted for use with a toothbrush including a brush head (i) having a capsule receiving zone sized to receive an oral care capsule, and (ii) having a plurality of angled bristles adapted to retain an oral care capsule in the capsule receiving zone, the dispensing device comprising: a toothbrush manipulation element adapted to move a retention structure associated with the brush head to enable receipt of said oral care capsule; and a dispensation element adapted to deliver said oral care capsule into the capsule receiving zone.

[0015] In a further aspect, the invention relates to an oral care capsule dispensing device, comprising: a container having an interior adapted to contain a plurality of oral care capsules; a desiccant material disposed to receive moisture from the interior; and a selectively closable dispensing orifice adapted to permit dispensation of at least one oral care capsule from the container.

[0016] In a further aspect, any of the foregoing aspects may be combined for additional advantage.

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[0017] Other aspects, features, and embodiments of the invention will be more fully apparent from the ensuing disclosure and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] **FIG. 1** is a perspective upper view of a toothbrush according to one embodiment of the present invention, the toothbrush having angled bristles adapted to receive and retain an oral care capsule for use in cleansing teeth and gums of a user.

[0019] **FIG. 2** is a perspective upper view of an internal portion of the toothbrush of **FIG. 1** according to one embodiment of the present invention.

[0020] **FIG. 3** is a perspective side view of the exterior of a dispenser for oral care capsules according to one embodiment of the present invention, the dispenser being adapted for use with the toothbrush of **FIGS. 1-2**.

[0021] **FIG. 4** is a perspective view of the toothbrush of **FIGS. 1-2** positioned for insertion into a side aperture of the dispenser of **FIG. 3** to permit the toothbrush to receive an oral care capsule.

[0022] **FIG. 5** is a side perspective view of a first internal loading portion of the dispenser of **FIGS. 3-4** having an integral bristle spreader, and a portion of the toothbrush of **FIGS. 1, 2**, and **4** positioned for insertion into a side aperture of the dispenser portion.

[0023] **FIG. 6** is a top perspective view of the dispenser portion and the toothbrush portion of **FIG. 5**.

[0024] **FIG. 7** is a perspective view of the bristle spreader of the dispenser portion of **FIGS. 5-6**.

[0025] **FIG. 8** is a side perspective assembly view of a second dispensing portion of the dispenser of **FIG. 3** and the first loading portion of **FIG. 5**, with the second dispensing portion including a rotatable distribution plate having multiple apertures adapted to receive oral care capsules, and a dispensation plate adapted to permit passage of a single capsule from the distribution plate to the first loading portion.

[0026] **FIG. 9** is an upper perspective view of the assembled first and second dispenser portions of **FIG. 8**, coupled to a vertically protruding shaft affixed to a container cover having a hinged decorative lid.

[0027] **FIG. 10** is a side perspective assembly view of a third portion of the dispenser of **FIG. 3**, including a cylindrical container adapted to store multiple oral care capsules, and a desiccant element insertable into the container.

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[0028] **FIG. 11** is a perspective view of a base portion of an oral care capsule dispenser including multiple toothbrush insertion apertures and guide tubes, each adapted to receive a toothbrush of a different user.

DETAILED DESCRIPTION OF THE INVENTION, AND PREFERRED EMBODIMENTS THEREOF

[0029] The present invention relates to a toothbrush adapted to receive and retain an oral care capsule, and to a dispensing device adapted to supply at least one oral care capsule to such a toothbrush.

[0030] As indicated previously, various types of oral care or dentrifice capsules, and methods of making same, are known. At least an exterior portion of each capsule includes a solid material, such as gelatin, that is dissolvable in water and/or saliva (e.g., in the mouth of a user). Use of such dentrifice capsules provides multiple advantages over conventional flowable toothpastes subject to dispensation by displacement from a flexible tube. A measured and reproducible quantity of dentrifice is included in each capsule. Potential for transfer of paste material to undesired surface following dispensation but prior to use is substantially eliminated. A capsule or portion thereof may include a dissolution time profile that may be used as a guide for desirable brushing duration.

[0031] A preferred capsule is spherical or spheroidal (approximately spherical) in shape, to provide volumetric efficiency and substantially uniform dissolution of at least an exterior portion thereof. The composition of a capsule can be varied with respect to radius, to provide any one or more of various functions. For example, an outer or near-outer layer may comprise an effervescent layer with micro-abrasives to assist in cleaning the teeth and gums. Various effervescent materials and related additives suitable for oral use and/or ingestion, and methods for making same, are disclosed in U.S. Patent No. 5,178,878, No. 4,753,792, and No. 3,962,417, which are hereby incorporated by reference. A plaque colorant layer may be provided to render plaque formed on teeth immediately visible to the naked eye of the user. A pH lowering layer may be provided to lower the pH environment in the user's mouth, as has been recently determined to promote absorption of fluoride into the user's teeth due to the lowered pH environment. (See, e.g., T. Kalili, et al., "Fluoride Absorption by Enamel from Toothpaste in Lowered pH Environment," J. Dent. Res. 83 (Spec Iss A) Abstract # 4033 (2004).) Such pH

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lowering layer may be time-released to maintain pH at a target value for a desired period of time. One or more neutralizing and/or decolorant agents may be provided to neutralize pH and/or attenuate or remote the plaque colorant material, such as to avoid lasting effect of the plaque colorant. An oral care tablet with a plaque color indicator and decolorizing agent is disclosed in U.S. Patent Application Publication No. 2006/0115435, which is hereby incorporated by reference. One or more flavoring layers may be provided. A dentrifice layer (e.g., in solid, gel, or paste form), including abrasive materials such as silica may be further provided within the capsule. Further possible layers include a whitening layer (e.g., containing a peroxide), an anticalculus (anti-tartar) layer, a whitening layer (e.g. including a peroxide material), an antibacterial layer (e.g., including triclosan), and a breath freshening layer. Any two or more of the foregoing layers may overlap or be combined as desirable for simultaneous effect, or may be separated (e.g., by an intermediate gel layer) as desirable or necessary, and any combination of the foregoing layers may be provided in a single capsule. In terms of external appearance, capsules may be provided in various colors or patters, and may further be printed with words or pictures such as corresponding to media characters.

[0032] A toothbrush 10 adapted to receive and retain an oral care capsule is illustrated in **FIGS. 1-2**. The toothbrush 10 includes a handle 14 disposed along a first end 11 optionally including a dial or switch 33, an intermediate shaft 15, and a brush head 20 disposed along a second end 12 optionally having an activation element 31. The brush head 20 includes a capsule receiving zone 25, such as may include a recess defined in the brush head 20, disposed within a plurality of angled bristles 26A. The angled bristles 26A are preferably canted away from vertical in a direction toward the center of the capsule receiving zone 25, so as to retain an oral care capsule (not shown) insertable into the capsule receiving zone 25. The size and shape of the capsule receiving zone 25, and the size, spacing, and angle of the angled bristles 26A, are selected to retain an oral care capsule of a predetermined size and shape. As shown in FIGS. 1, 4, and 5, ten angled bristles 26A are equally spaced around the perimeter of a circular recess (spanning 360 degrees) defining the capsule receiving zone 25. Conventional straight bristles 26 may be further provided apart from the capsule receiving zone 25.

[0033] In the present embodiment, an oral care capsule is loaded into the toothbrush 10 by spreading the angled bristles 26A apart, and then inserting the capsule past the spread bristles into the oral care capsule receiving zone 25. In another embodiment to be described in more detail hereinafter, a toothbrush may include a moveable retaining element bounding a capsule receiving zone (e.g., from behind) and permitting an oral care capsule to be loaded without spreading apart bristles of the toothbrush.

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[0034] One or more signalling elements 16 adapted to provide a user-perceptible signal may be disposed in or along the toothbrush handle 14. Such signal may be any of visible, auditory, and vibratory in nature. The one or more signaling elements 16 may provide a signal indicative of any of oral care cleansing cycle time and attainment of a threshold oral care cleansing cycle time, to ensure that the user engages in an oral cleansing operation of an optimally effective duration (e.g., two minutes or more). A threshold oral care cleansing time may be set or adjusted by the user with an input element, such as the dial or switch 33 or a separate interface element adapted to communicate with the toothbrush 10 for programming.

[0035] The handle 14 preferably includes a battery 30 or other charge storage element. The brush head 20 may include various signalling elements 36, 37, such as LEDs, sound generators, and/or vibration generators. One or more sensors 38 may be further provided to sense one or more conditions indicative of usage of said toothbrush 10 in an oral care cleansing cycle. For example, the one or more sensors 38 may sense any of motion, acceleration, vibration, and pressure. Signals generated by the one or more sensors 38 may be used, for example, in conjunction with a timer to determine time elapsed in an oral care cleaning cycle, or whether a minimum threshold oral care cleansing cycle has been satisfied. Alternatively, the activation element 31 may be depressed or otherwise activated at the beginning of an oral care cleansing cycle, and used to initiate a time for determining time elapsed in an oral care cleansing cycle or whether a minimum threshold time has been satisfied..

[0036] Circuitry 32 adapted to perform any of various desirable functions disclosed herein may be disposed in the handle 14. For example, the circuitry 32 may control signalling elements 16, 36, 37 provide timer functionality, store or allow adjustment of a threshold oral care cleansing cycle time, and the like. One or more conductors 35 may be disposed between the handle 14 and the brush head 20 to permit electrical communication between the battery 30 and/or circuitry 32 disposed in the handle 14, and the various electrically operable elements (e.g., signalling elements 36, 37, sensor 38, activation element 31) disposed in the brush head 20. In a preferred embodiment, the brush head 20 comprises a substantially optically transmissive material, such as to enable external transmission of light from one or more light emitting diodes or the like.

[0037] The capsule receiving zone 25 may include a recess formable by various means. In one embodiment, such a recess is defined by forming an aperture 27 through an intermediate portion of the brush head 14, and then closing the recess from behind with a cover (not shown). Alternatively, such a recess may be formed by conventional molding or other shaping techniques.

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[0038] While a manually operated toothbrush 10 is shown, an electrically operated toothbrush with the same features as described herein is specifically contemplated as encompassed by the present invention.

[0039] As indicated previously, a toothbrush may include a moveable retaining element bounding a capsule receiving zone and permitting an oral care capsule to be loaded without spreading apart bristles of the toothbrush. For example, a rear portion of a brush head may include a hinged or slidable portion (e.g., a cover) that may be moved to an open position to expose an oral care capsule loading aperture. Such cover may be moved through operation of a corresponding toothbrush manipulation element associated with an oral care capsule dispensing device. Upon movement of such moveable retaining element to an open position, the oral care capsule is loaded into the oral care capsule loading aperture that constitutes an oral care capsule receiving zone. Thereafter, the moveable retaining element is returned to a closed position, and the oral care capsule is retained from behind by the retaining element, and preferably also from above by a plurality of angled bristles. In this regard, the moveable cover functions to selectively cover or obstruct the oral care capsule loading aperture.

[0040] In another embodiment, a brush head of a toothbrush includes a flexural portion adapted to permit at least some bristles of a plurality of angled bristles to be spread apart so as to enable an oral care capsule to be loaded in a capsule receiving zone of such brush head. An associated dispensing device may include a corresponding structure adapted to automatically effectuate such flexure of the brush head to permit loading of at least one capsule into a capsule receiving zone defined therein. Following a loading operation, flexing force is released from the brush head to cause the brush head to return to a relaxed position with an oral care capsule retained in the capsule receiving zone by the angled bristles.

[0041] A dispenser 100 for oral care capsules, adapted for use with the toothbrush 10, is illustrated in **FIG. 3**, with various portions thereof illustrated in the ensuing **FIGS. 4-10**.

[0042] The dispensing device 100 includes a bottom surface 101, a base portion 105, a container 108, and an outer lid 104. The container 108 may be formed of a translucent or substantially optically transmissive material to permit viewing of the contents therein. The container 108 may include a ramp (not shown), such as may be configured in a helical or spiral shape, to guide oral care capsules to a desired location (such as toward a distribution plate 141, as illustrated in **FIGS. 8-9**). The outer lid 104, which may be pivotally coupled to the container portion 108, optionally includes a figurine 102 and one or more light elements 103, such as may be provided in view of a user for entertainment utility. A toothbrush insertion aperture 110, sized and shaped to receive at least a portion of a toothbrush, is defined in the base portion 105.

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[0043] Referring to **FIG. 4**, a toothbrush 10 may be oriented as shown for insertion into the toothbrush receiving aperture 110 of the dispensing device 100. The bottom surface 101 may be equipped with a non-skid material or a suction cup to prevent displacement of the dispensing device 100 upon insertion of a portion of a toothbrush 10 therein.

[0044] Disposed above the base portion 105 of the dispensing device 100 is a container 108 adapted to retain a plurality of oral care capsules (not shown) therein. A rotatable vertical shaft 132 may be provided along a vertical axis of the container 108 to mechanically couple the container 108, via inner lid 135 thereof, to a motor 124 (illustrated in **FIG. 5**). By way of such coupling, the outer lid 104 and figurine 102, along with distribution plate 141 (shown in **FIGS. 8-9**) may be caused to rotate through operation of the motor. If desired, the container 108 or a portion thereof may be coupled to rotate by operation of the motor 124 for user entertainment and/or dispensing utility. An orifice plate 131, defining an orifice 134 adapted to permit the passage of an oral care capsule in the base portion 105, is disposed below the container 108.

[0045] **FIGS. 5-6** illustrate selected internal components of the base portion 105 as positioned relative to a brush head 20 positioned for insertion therein. The toothbrush insertion aperture 110 leads to a guide tube 112 that guides the toothbrush head 20 into position for loading of an oral care capsule therein. Disposed within the guide tube is a toothbrush manipulation element in the form of a bristle spreader 119 defining an aperture 120 and having a wedge-shaped leading edge 119A. Such leading edge 119A may be configured as a wedge or block adapted to provide the desired spreading functionality. A close-up perspective view of the bristle spreader 119 is shown in **FIG. 7**. As the brush head 20 is inserted past the bristle spreader 119, the wedge-shaped leading edge 119A of the spreader 119 spreads apart the angled bristles 26A to prepare the brush head 20 to receive an oral care capsule. Although the illustrated embodiment is directed to a specific mechanical oral care capsule loading mechanism, and various other mechanically or electrically actuated means may be used, as will be recognized by those skilled in the art, to provide automatic dispensing operation. In the illustrated embodiment, the brush head 20 is inserted into the guide tube 112 to contact a push bar 114 joined via arm 115 a lever 117 having an associated pivot 116 and return spring 126. Upon depressing the push bar 114, the lever 117 is forced toward the guide tube 112 and the aperture-defining bristle spreading element 119 disposed therein. In this manner, an oral care capsule 200 disposed between the lever 117 (e.g., opposite tab 118) may be pushed through a the aperture 120 of the bristle spreader 119, past the spread-apart angled bristles 26A, and into the oral care capsule receiving zone 25 of the brush head 20 of the toothbrush 10. Upon removal of the brush head 20 from the bristle spreader 119,

the angled bristles 26A return to their relaxed position to contract around an oral care capsule disposed within the capsule receiving zone 25.

[0046] Although **FIG. 6** illustrates loading of an oral care capsule 200 laterally in a toothbrush head 20, a dispensing device may be configured for capsule loading in any desired direction. In one embodiment, a dispensing device is adapted to load an oral care capsule in an upward direction into a capsule receiving zone of a corresponding toothbrush head. In yet another embodiment, a dispensing device is adapted to load an oral care capsule in a downward direction into a capsule receiving zone of a corresponding toothbrush head.

[0047] **FIGS. 5-6** further illustrate a battery holder 121 including two batteries 122 and a motor 124 coupled to receive power from the batteries 122 via cable 123. Such motor 124 may be used to set in motion any desired portion of the dispensing device 100, such as the container 108, figurine 102, and/or distribution plate 141 (illustrated in **FIGS. 8-9**). As an alternative to batteries 122, the dispensing device may be operated via alternating current input with an appropriate internal AC/DC converter (not shown).

[0048] The dispensing device 100 may further include a sterilization element, such as an ultraviolet light or other element (not shown), disposed in, along, or proximate to the guide tube 112. Such sterilization element may be activated upon insertion of a brush head 20 into the guide tube 112 to effect sterilization of the brush head 20 and therefore avoid pathogen growth (e.g., along any of the brush head 20, the guide tube 112, the spreading element 119, and the push bar 114) and potential for transfer of pathogens from one surface (or toothbrush) to the next. Such sterilization element may be operated by the batteries 122 or another power source. Moreover, any surfaces subject to contacting a toothbrush insertable into the dispensing device 100, and even the toothbrush 10, may be coated or otherwise formed with an antibacterial substance such as 5-chloro-2phenol (2,4dichlorophenoxy) commonly sold under the trade name Microban®.

[0049] Referring to **FIGS. 8-9**, the dispensing device 100 preferably includes a rotatable distribution plate 141 including a plurality of apertures 144A-144H each sized to receive an oral care capsule, with the distribution plate 141 disposed above the orifice plate 131. The apertures 144A-144H of the distribution plate 141 are positioned to permit oral care capsules disposed therein to drop into the orifice 134, preferably one at a time, upon rotation of the distribution plate 141. The orifice 134 of the orifice plate 131 is disposed immediately above the oral care capsule 200 shown in **FIG. 6**, such that an oral care capsule 200 that falls through the orifice 134 is ready for loading through the aperture 120 of the bristle spreading element 119 into a brush head 20 inserted into the guide tube 112. The distribution plate 141 further includes a central aperture 145 that is keyed or otherwise shaped to receive a lower torque transfer element 133 associated with

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the shaft 132, to rotate the distribution plate 141 without slippage. Likewise, the outer lid 104 may include an aperture 136 that is keyed or otherwise shaped to receive an upper torque transfer element 134 associated with the shaft 132, to permit the outer lid 104 and optional figurine 102 to rotate as well. Electrical contacts may be further provided through the shaft 132, torque transfer elements 133, 134, and aperture 136 to supply electrical power to the signalling element 116 (e.g., LED) associated with the figurine 102.

[0050] The distribution plate 141 is preferably closely spaced relative to the orifice plate 131, and one or more seals (not shown) may be provided therebetween. Any of the distribution plate 141 and orifice plate 131 may be formed or coated with a friction-reducing material, such as polytetrafluoroethylene (PTFE) to minimize wear or possible binding therebetween. Between dispensing cycles, the distribution plate 141 preferably rests in a position wherein none of the apertures 144A-144H are aligned with the orifice 131 of the orifice plate 134. This promotes sealing of the container 108, so as to minimize infiltration of moisture into the container 108 that might otherwise degrade water-dissolvable capsule shell or coating materials.

[0051] As toothbrushes are conventionally utilized in bathroom environments that may be quite moist, and oral care capsules may have water-dissolvable outer shell or coating materials, it is desirable to minimize presence of moisture in a container 108 having a plurality of oral care capsules disposed therein. Referring to **FIG. 10**, in one embodiment a desiccant material 160 may be disposed to receive moisture from the container 108. Such desiccant material 160 may be provided at a central portion of the container 108 or in any other desired location. Such desiccant material 160 may include a moisture absorbing board, silica gel, clay, or a molecular sieve, whether disposed loosely or packed, in a (e.g., mesh) pouch or other permeable retainer, disposed in moisture receiving relationship relative to the interior of the container 108. A cover 170 defining an aperture 172 may be provided over the desiccant 160 and the container 108. Such cover 170 may be permanently sealed to the container 108, or may be removable to permit replacement of the desiccant material 160.

[0052] The container 108 preferably comprises a cartridge that may be removed from the dispensing apparatus and replaced by the user. Such container may alternatively be refilled by the user through a capsule insertion port (not shown).

[0053] In another embodiment, a dispensing device includes a plurality of toothbrush insertion apertures each adapted to receive a portion of a different toothbrush, so as to enable multiple users each having different toothbrushes to use the same dispenser without requiring contact between multiple brushes and single capsule interface surface of the dispenser. Such dispenser may resemble the dispensing device 100 described hereinabove with reference to

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FIGS. 3-4, but modified to include multiple toothbrush insertion apertures and guide tubes each intended to receive a different toothbrush. Referring to **FIG. 11**, a base portion 205 of a dispensing device has a bottom surface 201 and includes three guide tubes 212A-212C. Each guide tube 212A-212C has an associated toothbrush insertion aperture (e.g., toothbrush insertion aperture 210A for guide tube 212A is shown; it is to be understood that corresponding toothbrush insertion apertures are provided for guide tubes 212B, 212C) adapted to receive a portion of a different toothbrush. Each guide tube 212A-212C has an associated bristle spreading element 219A-219C adapted to spread apart bristles of a toothbrush as described hereinabove, to permit an oral care capsule to be supplied to the toothbrush through an aperture 220A-220C associated with the respective guide tube 212A-212C.

[0054] Each toothbrush insertion aperture (e.g., 210A) and/or guide tube 212A-212C preferably has an associated marking element (e.g., marking element 211A) providing visible differentiation between the different toothbrush insertion apertures of the device. Such marking elements (e.g., marking element 211A) may differ in terms of color, size, shape, texture, or any combination of the foregoing parameters. Each marking element (e.g., 211A) may be provided in any suitable location proximate to an associated toothbrush aperture (e.g., 210A), such as along outer surface of the base 205, within a guide tube 212A-212C, or both.

[0055] The base 205 shown in **FIG. 11** is preferably stationary in character, with the bottom surface 201 disposed on or just above an underlying surface such as a countertop. Various methods may be employed to supply oral care capsules to each aperture 220A-220C. In one embodiment, separate ramps (not shown) may be provided to guide oral care capsules from a container (e.g., container 108 shown in **FIG. 4**) to each aperture 220A-220C, with an optional interposing distribution plate (e.g., distribution plate 141 shown in **FIGS. 8**-9, optionally modified to include multiple apertures) for regulating passage of oral care capsules. In another embodiment, a single ramp or guide may be employed and selectively moved (e.g., in conjunction with movement of a container 108) into position to supply an oral care capsule to an aperture 220A, 220B, 220C. Such movement may include manual operation by a user, or automated movement with an electric motor (not shown).

[0056] In operation of a dispenser including the base portion 205, a first user inserts a portion of a toothbrush (e.g., toothbrush 10 as described hereinabove) into a toothbrush insertion aperture (e.g. insertion aperture 210A) to contact a bristle spreader (e.g., bristle spreader 219A) disposed therein. Each toothbrush insertion aperture shown in FIG. 11 is arranged to receive a toothbrush 10 (as described hereinabove) with bristles facing upward. The bristle spreader (e.g., 219A) has a wedge-shaped leading edge adapted to spread apart angled bristles of the toothbrush

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10 to prepare the brush head 20 to receive an oral care capsule. An oral care capsule (not shown) is directed through an oral care capsule loading aperture (e.g., aperture 220A) past spread-apart angled bristles 26A, and into an oral care capsule receiving zone 25 of the brush head 20 of the tooth brush 10. Any various loading mechanism (e.g., mechanically and/or electrically actuated) within the knowledge of one skilled in the art may be used to load a toothbrush with an oral care capsule as described herein. Upon removal of the brush head 20 from the bristle spreader 219A, the angled bristles 26A return to their relaxed position to contract around an oral care capsule disposed within the capsule receiving zone 25. The toothbrush 10 is then removed from the toothbrush insertion aperture 210A, and utilized by the user for oral cleaning.

[0057] Second and third users with a different toothbrushes may repeat the foregoing procedure, but each utilizing dedicated toothbrush insertion apertures and guide tubes 210A, 210B, 210C, to prevent contact between different brushes and any single interface surface of the dispenser.

[0058] While the invention has been has been described herein in reference to specific aspects, features, and illustrative embodiments of the invention, it will be appreciated that the utility of the invention is not thus limited, but rather extends to and encompasses numerous other variations, modifications, and alternative embodiments, as will suggest themselves to those of ordinary skill in the field of the present invention, based on the disclosure herein. Correspondingly, the invention as hereinafter claimed is intended to be broadly construed and interpreted, as including all such variations, modifications and alternative embodiments, within its spirit and scope.

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THE CLAIMS

What is claimed is:

1. A dispensing device adapted for use with at least one toothbrush including a brush head having a capsule receiving zone configured to receive an oral care capsule, the dispensing device comprising:

a container including an interior arranged to contain a plurality of oral care capsules;

an aperture-defining element including an aperture arranged to permit passage of an oral care capsule; and

a moveable dispensation element arranged to push an oral care capsule through the aperture to be received by the capsule receiving zone of the brush head.

2. The dispensing device of claim 1, wherein the container comprises a ramp arranged to guide oral care capsules toward the moveable dispensation element.

3. The dispensing device of claim 1, further comprising at least one moveable sealing element arranged to reduce infiltration of moisture into the container between cycles of dispensing oral care capsules from the dispensing device.

4. The dispensing device of claim 1, further comprising a selectively closable dispensing orifice adapted to permit dispensation of at least one oral care capsule from the container.

5. The dispensing device of claim 1, further comprising a desiccant material arranged in moisture receiving relationship with the interior of the container.

6. The dispensing device of claim 1, wherein the aperture-defining element comprises a bristle spreader arranged to spread apart at least some bristles of the brush head to prepare the brush head to receive an oral care capsule in the capsule receiving zone.

7. The dispensing device of claim 1, wherein the moveable dispensation element comprises at least one of a push bar, an arm, a lever, and a spring.

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8. The dispensing device of claim 1, further comprising a guide tube arranged to receive the brush head, wherein the aperture-defining element bounds a portion of the guide tube.

9. A dispensing device adapted for use with at least one toothbrush including a brush head having a capsule receiving zone sized to receive an oral care capsule, the dispensing device comprising:

at least one toothbrush manipulation element adapted to pass an oral care capsule into a retention structure associated with the brush head to enable receipt of said oral care capsule into the capsule receiving zone; and

at least one dispensation element adapted to deliver said oral care capsule into the capsule receiving zone.

10. The dispensing device of claim 9, further comprising a container containing a plurality of oral care capsules.

11. The dispensing device of claim 9, wherein the oral care capsule is spheroidal in shape.

12. The dispensing device of claim 9, further comprising:

a container having an interior configured to contain a plurality of oral care capsules, and

at least one selectively closable dispensing orifice adapted to permit dispensation of at least one oral care capsule from the container.

13. The dispensing device of claim 12, further comprising a desiccant material disposed to receive moisture from the interior.

14. The dispensing device of claim 12, wherein said container comprises at least one ramp configured to guide said plurality of oral care capsules toward said at least one selectively closable dispensing orifice for dispensation of at least one oral care capsule through the at least one selectively closable dispensing orifice.

15. The dispensing device of claim 12, configured to effectuate automatic dispensation of at least one oral care capsule from the container through the at least one selectively closable dispensing orifice.

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16. An oral care capsule dispensing device, comprising:

a container having an interior adapted to contain a plurality of oral care capsules;

at least one selectively closable dispensing orifice adapted to permit dispensation of at least one oral care capsule from the container.

17. The dispensing device of claim 16, being adapted for use with at least one toothbrush including a brush head having a capsule receiving zone sized to receive an oral care capsule, the dispensing device further comprising at least one dispensation element adapted to deliver said oral care capsule into the capsule receiving zone.

18. The dispensing device of claim 16, further comprising a desiccant material disposed to receive moisture from the interior.

19. The dispensing device of claim 16, wherein said container comprises at least one ramp configured to guide said plurality of oral care capsules toward said at least one selectively closable dispensing orifice for dispensation of a least one oral care capsule through the at least one selectively closable dispensing orifice.

20. The dispensing device of claim 16, configured to effectuate automatic dispensation of at least one oral care capsule from the container through the at least one selectively closable dispensing orifice.

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ABSTRACT OF THE DISCLOSURE

A toothbrush includes a brush head having a capsule receiving zone sized to receive a dentrifice capsule. A plurality angled bristles may retain the capsule in such zone. Loading of such toothbrush with a capsule may be performed with a dispenser including a toothbrush manipulation element adapted to move a retention structure associated with the brush head, and dispensation element adapted to deliver the capsule into the receiving zone. Such dispenser may include a desiccant material disposed to receive moisture from a capsule storage container. A dispenser may further include a plurality of toothbrush insertion apertures each adapted to receive a portion of a different toothbrush, so as to enable multiple users each having different toothbrushes to use the same dispenser without requiring contact between multiple brushes and single capsule interface surface of the dispenser.

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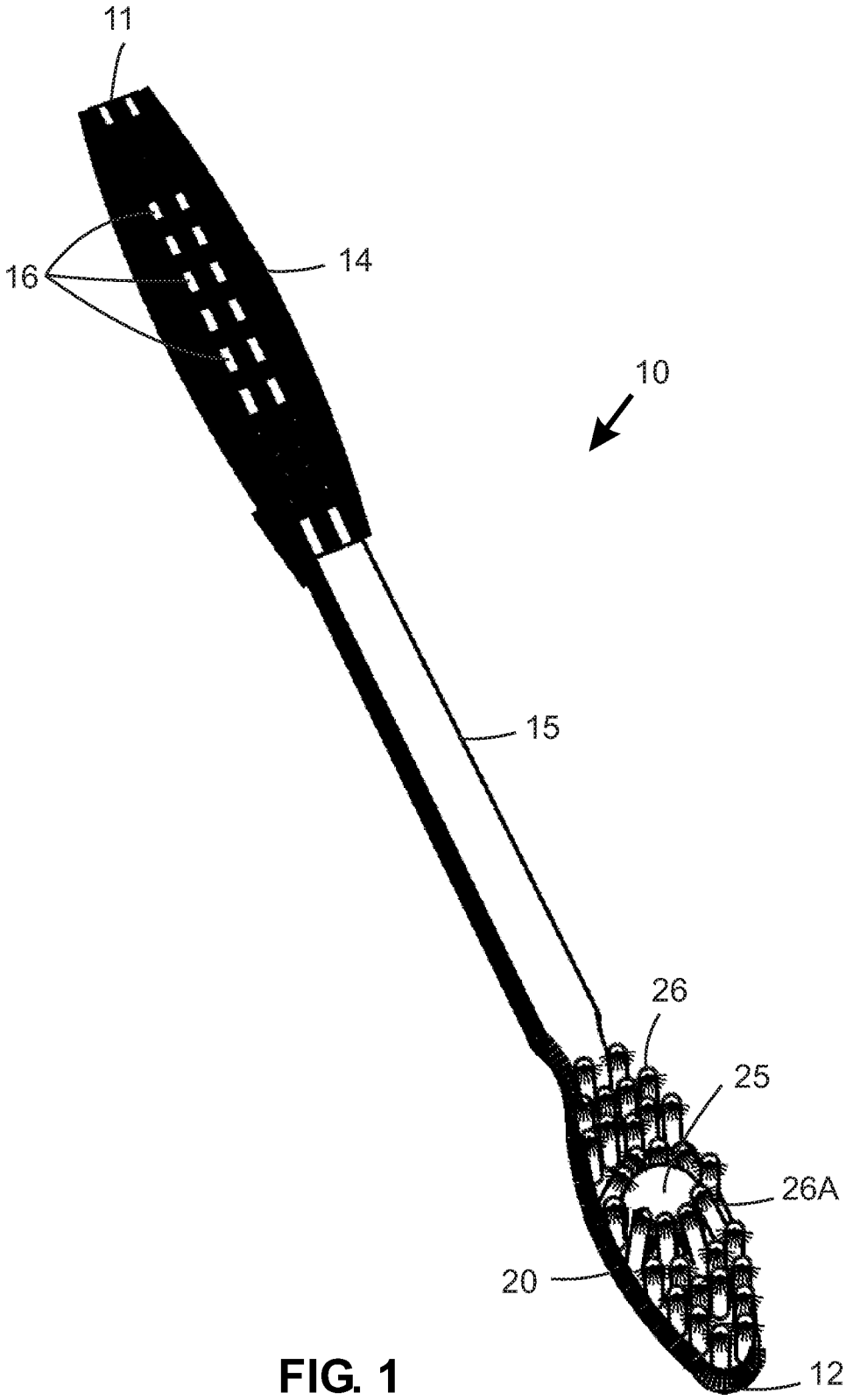


FIG. 1

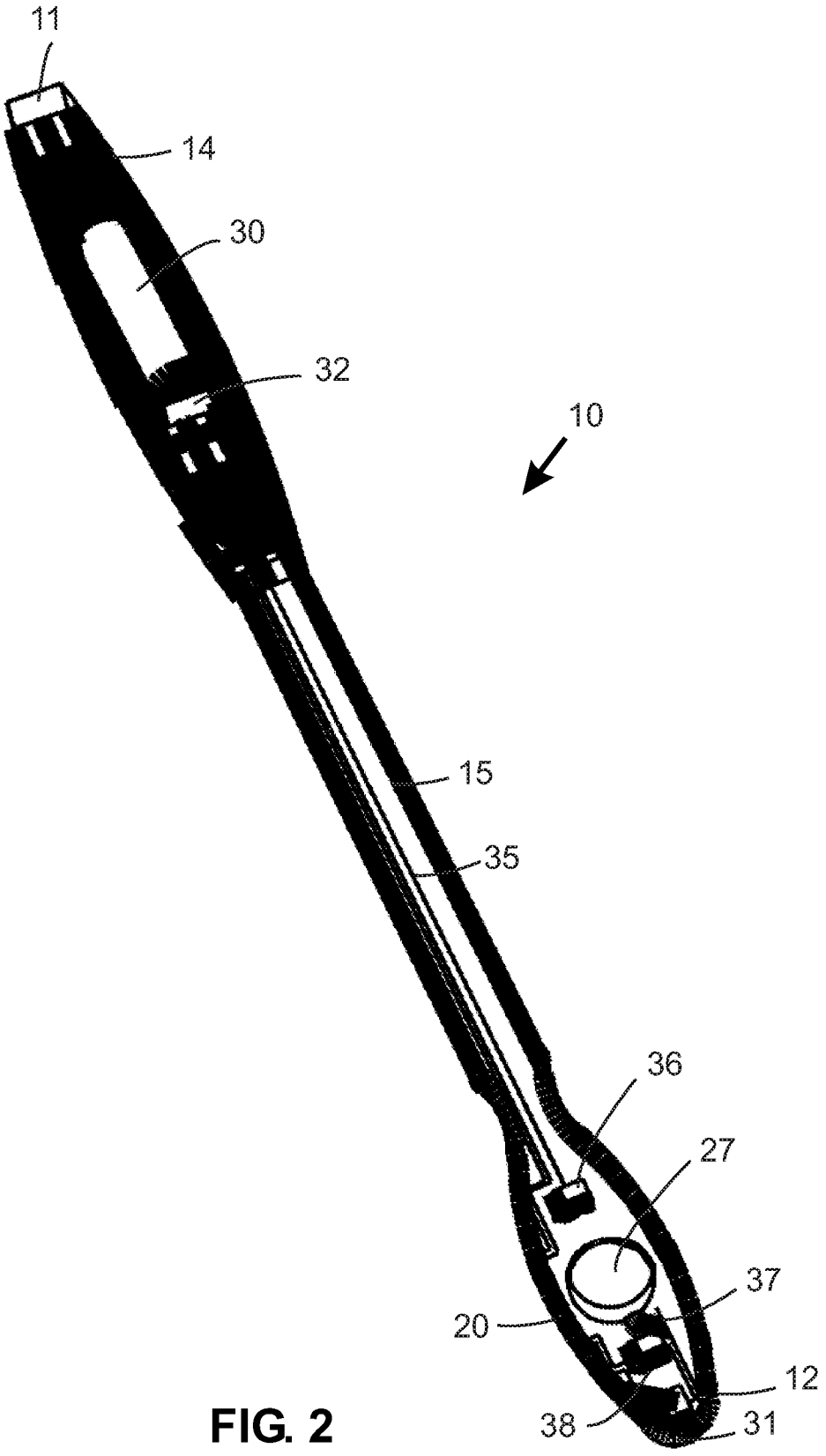


FIG. 2

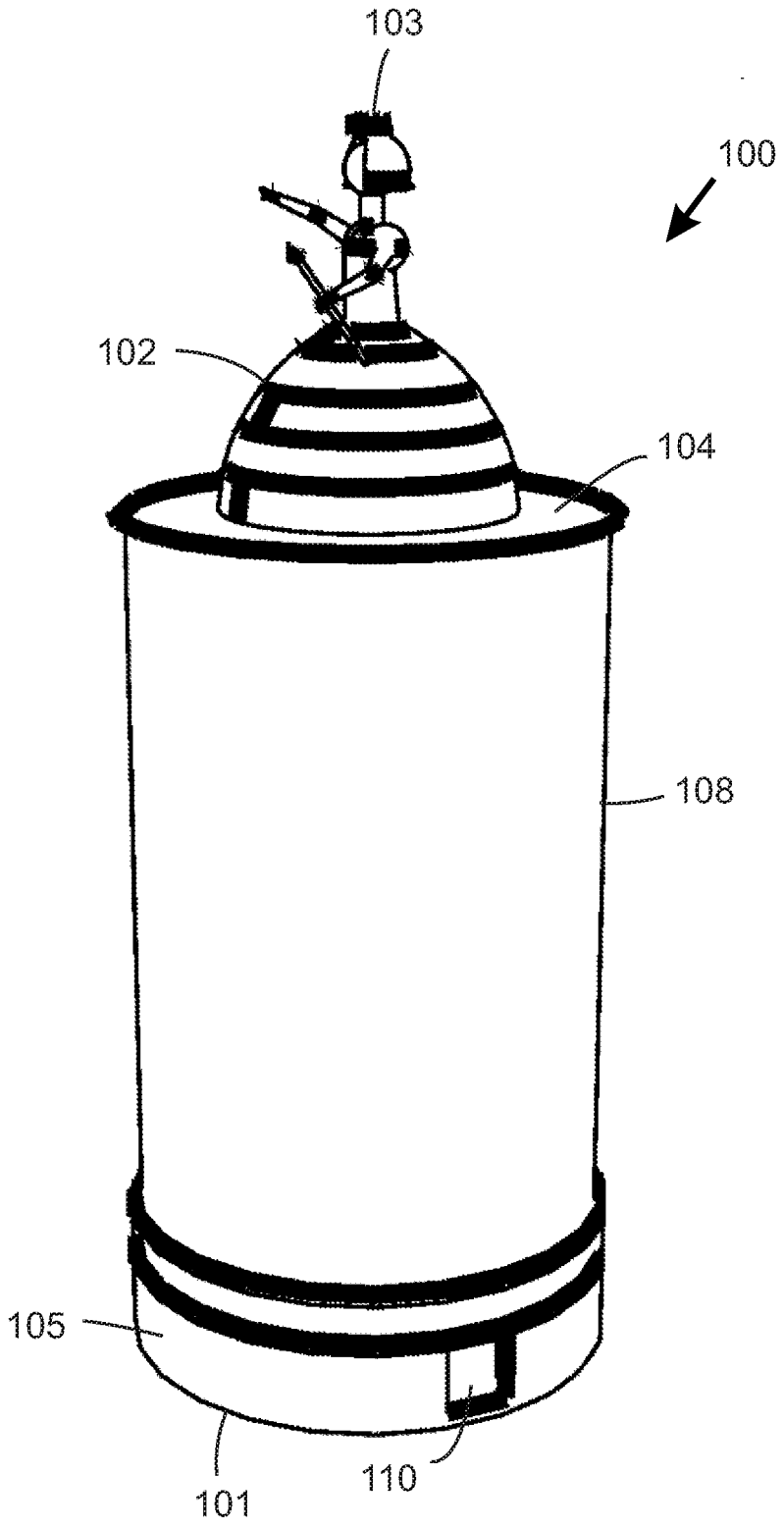


FIG. 3

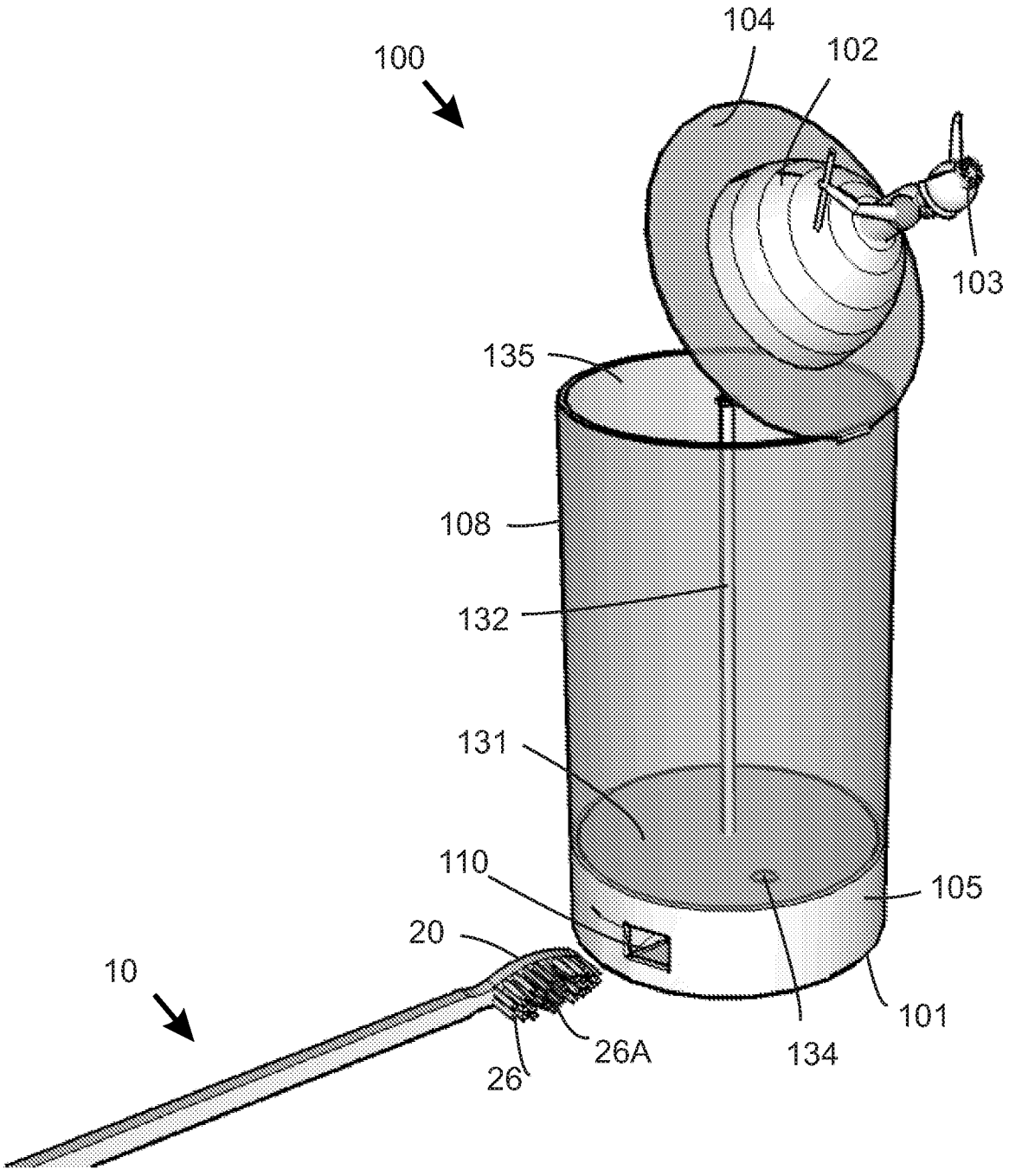


FIG. 4

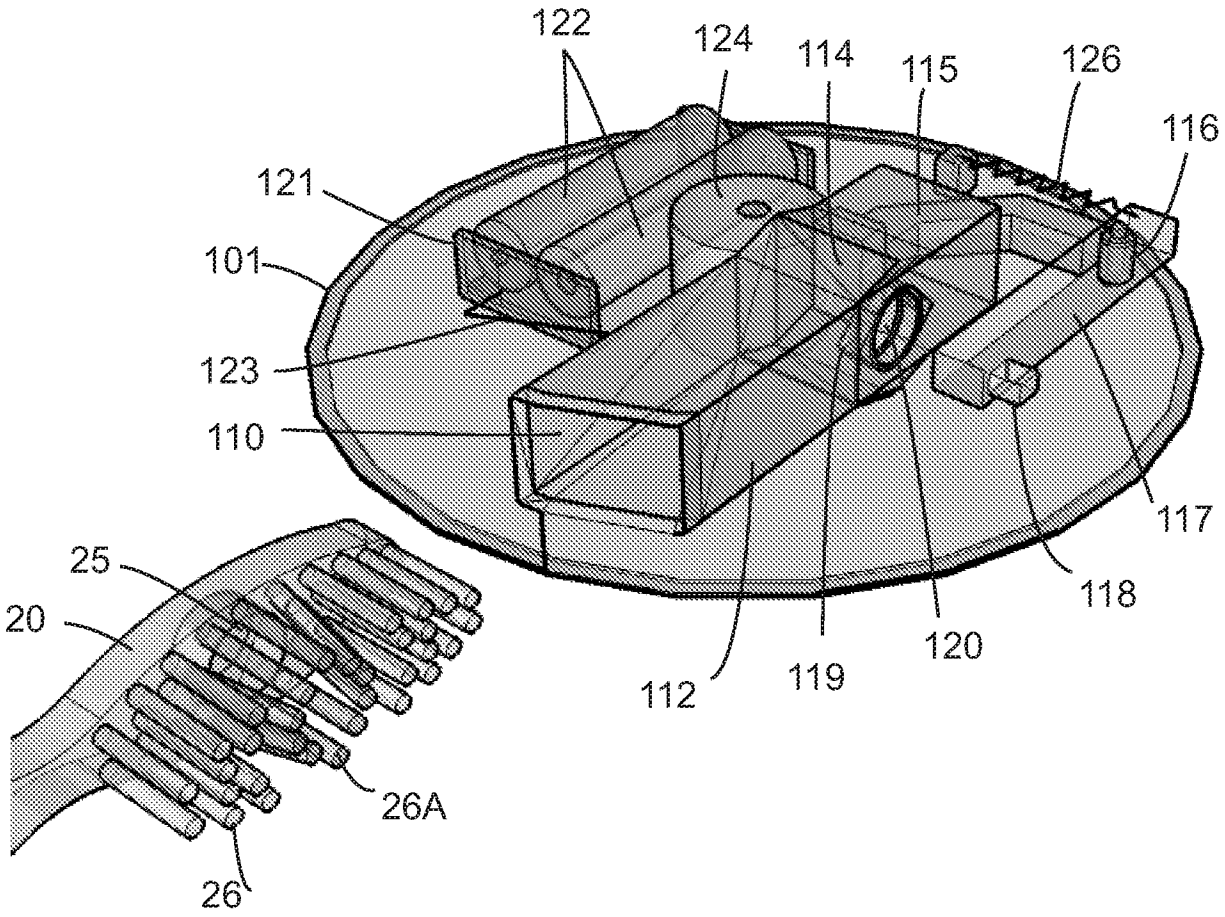

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FIG. 5

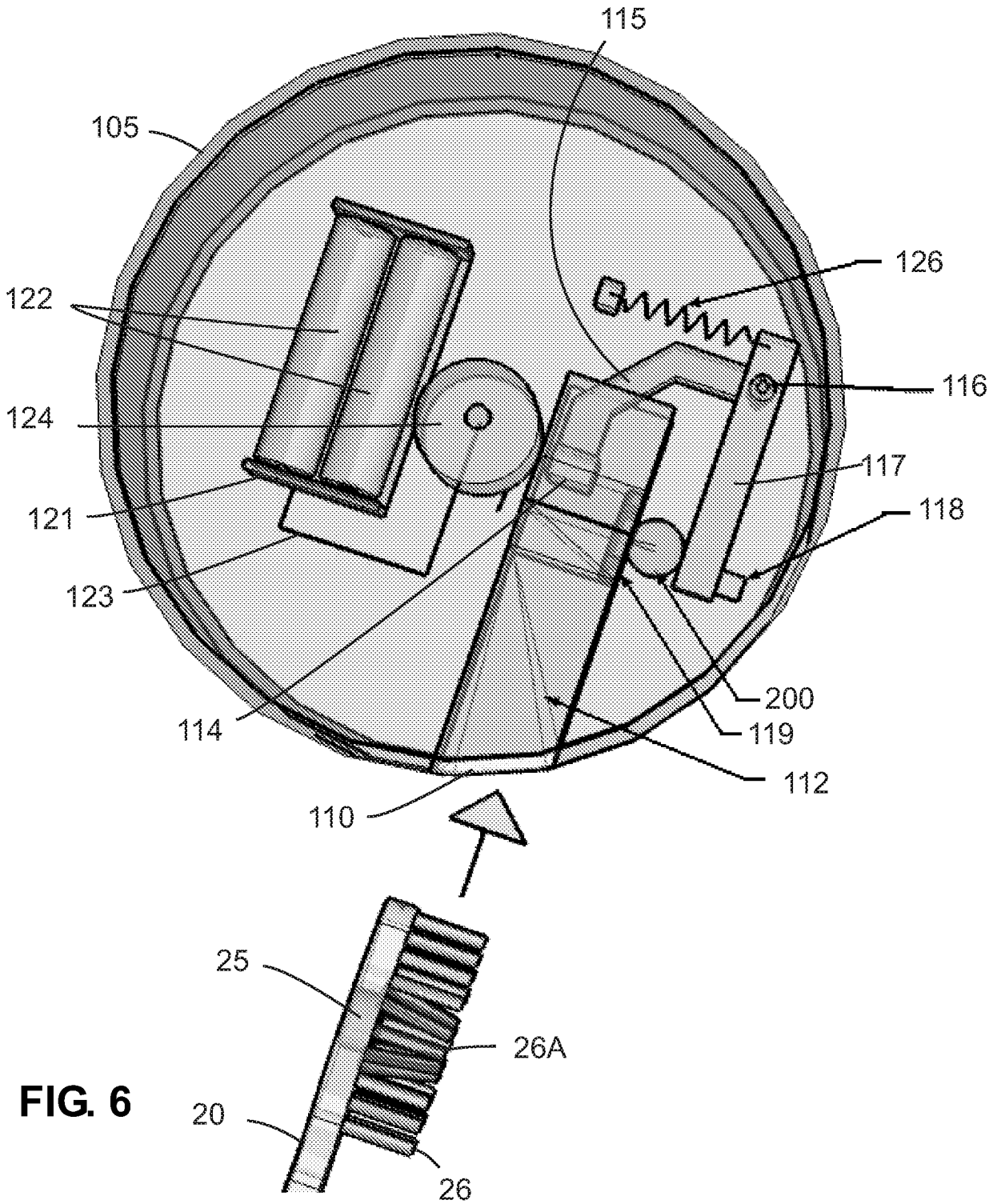

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FIG. 6

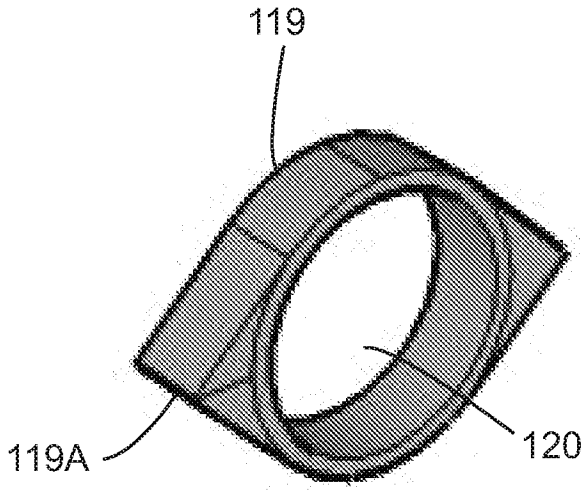
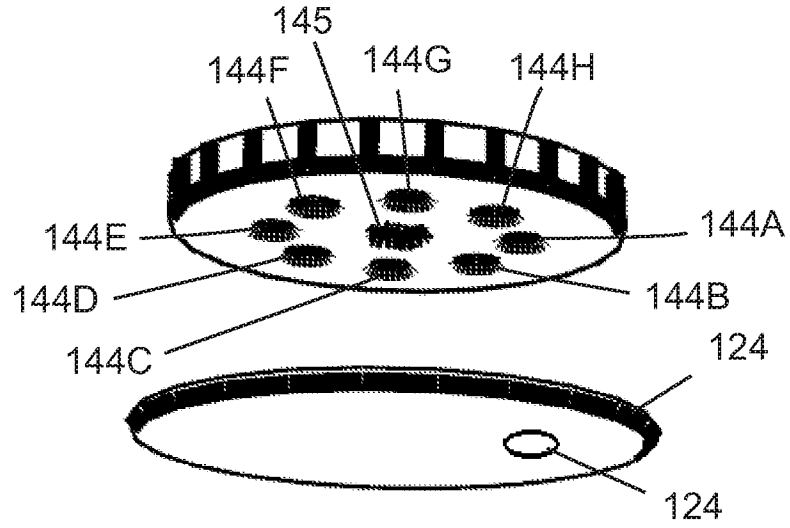


FIG. 7


145
144F
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144B
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124

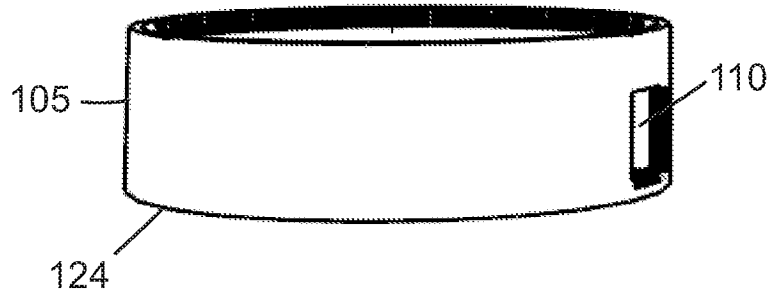

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FIG. 8

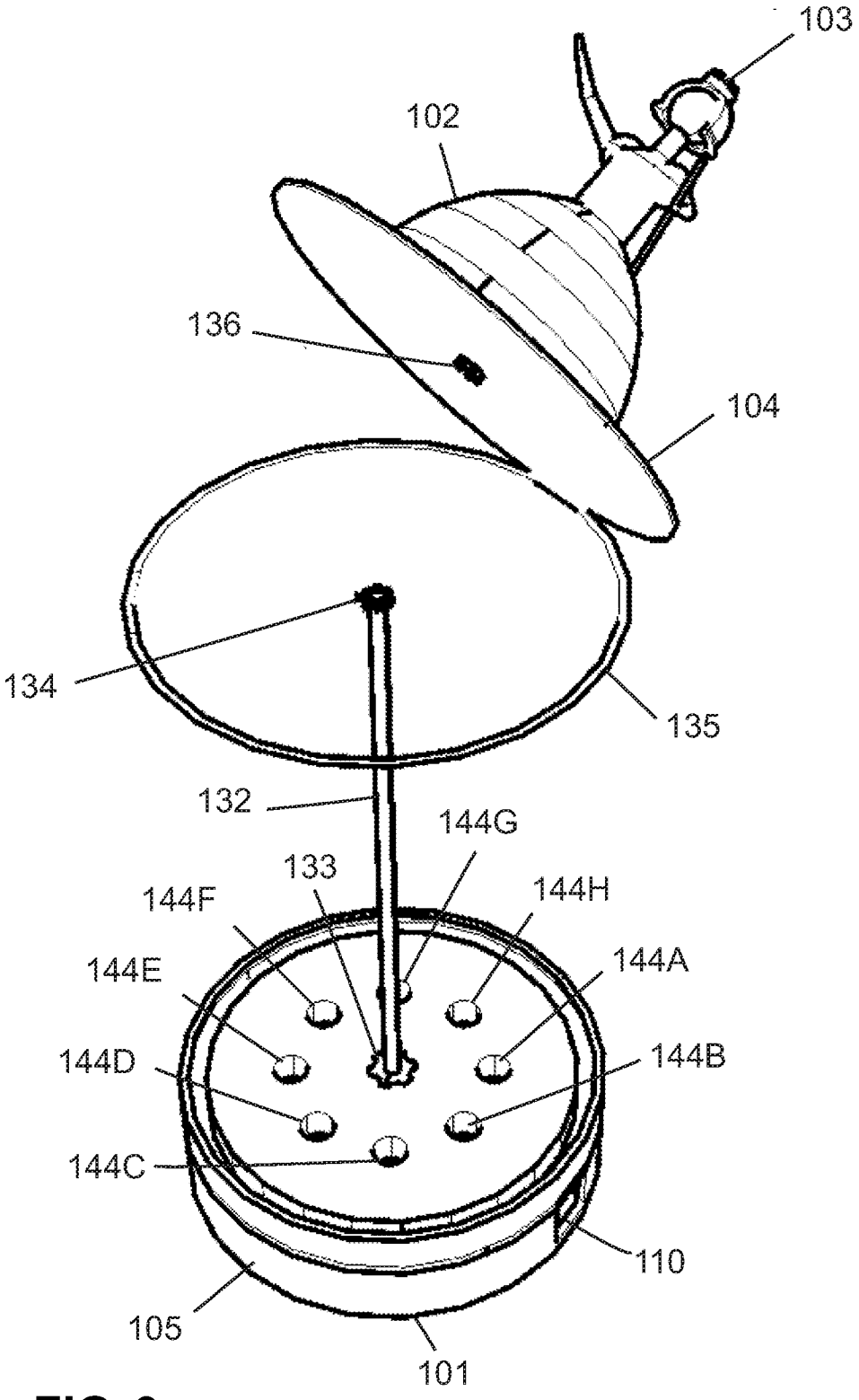

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FIG. 9

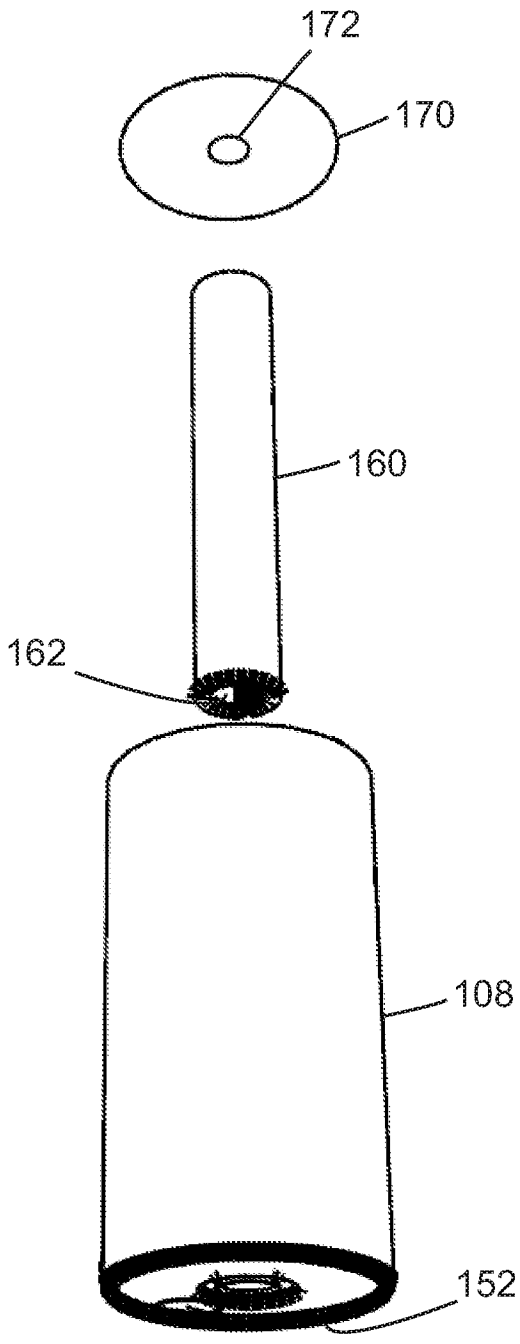


FIG. 10

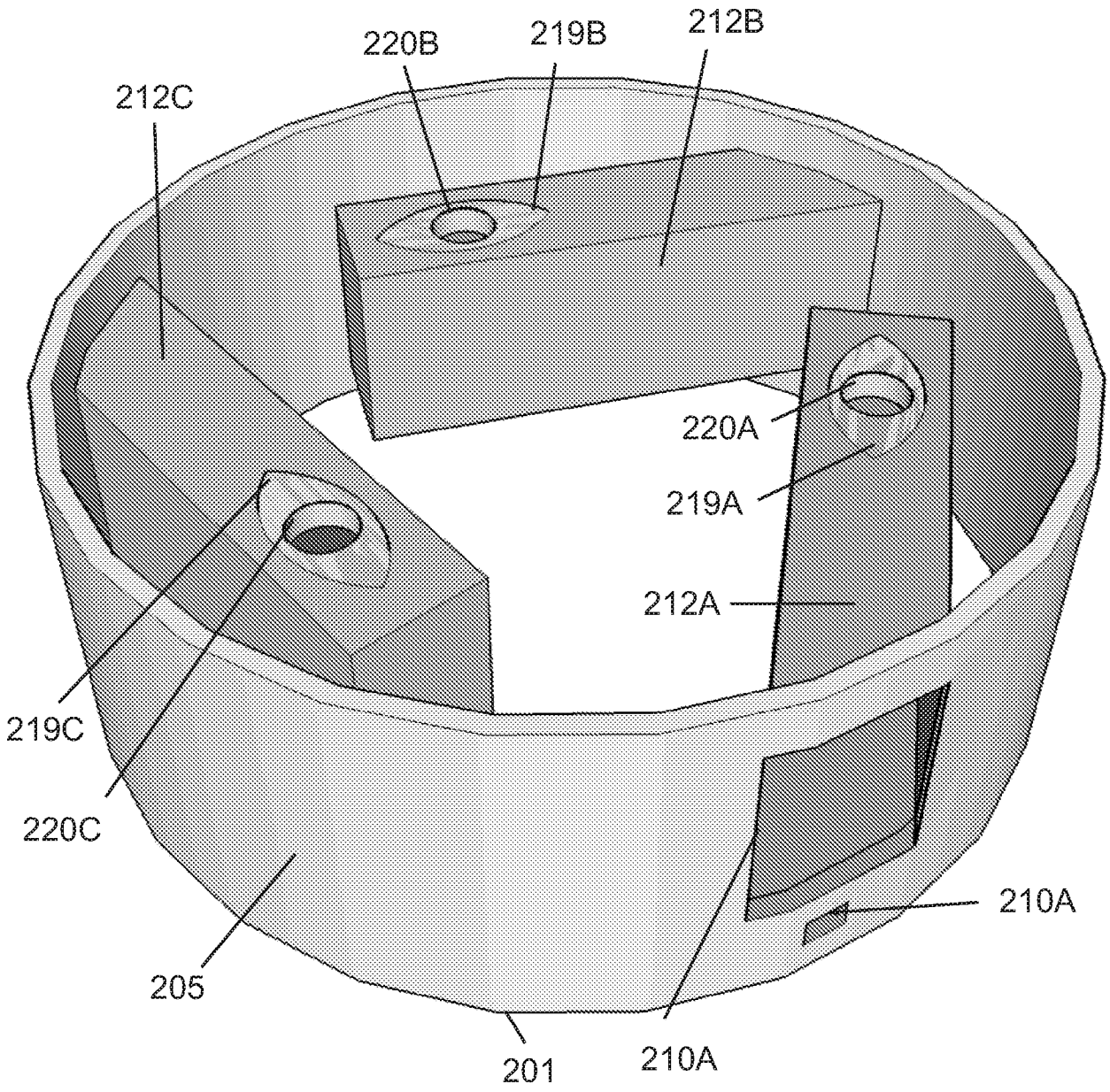

220B
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212C
220A
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212A
219C
220C
210A
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201
210A

FIG. 11

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Filer:	Vincent Kayne Gustafson/Nina Honeycutt
Attorney Docket Number:	2076-002C

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**730**

Electronic Acknowledgement Receipt

EFS ID:	20634268
Application Number:	14535442
International Application Number:	
Confirmation Number:	1451
Title of Invention:	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE
First Named Inventor/Applicant Name:	Lise W. Noble
Customer Number:	27820
Filer:	Vincent Kayne Gustafson/Nina Honeycutt
Filer Authorized By:	Vincent Kayne Gustafson
Attorney Docket Number:	2076-002C
Receipt Date:	07-NOV-2014
Filing Date:	
Time Stamp:	10:51:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$730
RAM confirmation Number	8695
Deposit Account	501732
Authorized User	GUSTAFSON, VINCENT

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	2076-002C_ADS.pdf	1561178 7b09ca2a7da1462220249c5d6721239772dc76d3	no	7
Warnings:					
Information:					
2	Transmittal of New Application	2076-002C_Transmittal.pdf	155291 cfcc26c99869f1d9ad9763f2f1096ea067ad7dc8	no	1
Warnings:					
Information:					
3	Oath or Declaration filed	2076-002C_Declaration_Lise_Noble_SIGNED.pdf	2466633 a8a01da6186ef7ff1a71b3c70f422aabfd978d4b	no	1
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5		2076-002C_Application_text.pdf	104995 74159b6950dceb1f9b658bfb8c158b9436d94117	yes	17

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	13
Claims	14	16
Abstract	17	17

Warnings:					
Information:					
6	Drawings-other than black and white line drawings	2076-002C_Drawings.pdf	1135500 89a5fdb362292e46e5980d6887992d82886154de	no	11
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Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	33090 815b3686d6beacd61941d58acdf65ae435a0604c	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	7728566	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/14 (12-13)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2076-002C
	Application Number	
Title of Invention	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Lise	W.	Noble	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

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Mailing Address of Inventor:

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Address 2			
City	Chapel Hill	State/Province	NC
Postal Code	27514	Country i	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Patrick	T.	Noble	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Chapel Hill	State/Province	NC	Country of Residence i	US

Mailing Address of Inventor:

Address 1	523 E. Rosemary Street		
Address 2			
City	Chapel Hill	State/Province	NC
Postal Code	27514	Country i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

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For further information see 37 CFR 1.33(a).

PTO/AIA/14 (12-13)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2076-002C
	Application Number	
Title of Invention	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE	

☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	27820		
Email Address	patents@wt-ip.com	Add Email	Remove Email

Application Information:

Title of the Invention	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE		
Attorney Docket Number	2076-002C	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	11	**Suggested Figure for Publication (if any)**	6

Filing By Reference :

Only compete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	27820		

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2076-002C
	Application Number	
Title of Invention	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	12101446	2008-04-11
Prior Application Status	Abandoned		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12101446	Continuation in part of	11840627	2007-08-17

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country	Filing Date (YYYY-MM-DD)	Access Code (if applicable)

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2076-002C
	Application Number	
Title of Invention	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE	

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2076-002C
	Application Number	
Title of Invention	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE	

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

(•) Assignee	( ) Legal Representative under 35 U.S.C. 117	( ) Joint Inventor
( ) Person to whom the inventor is obligated to assign.	( ) Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. [X]

Organization Name	NOBLE INNOVATIONS LLC		
Mailing Address Information:			
Address 1	523 East Rosemary St.		
Address 2			
City	Chapel Hill	**State/Province**	NC
Country [i]	US	Postal Code	27514
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2076-002C
	Application Number	
Title of Invention	TOOTHBRUSH SYSTEM UTILIZING ORAL CARE CAPSULE	

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications

Signature	/vincent k. gustafson/			Date (YYYY-MM-DD)	2014-11-07
First Name	Vincent K.	Last Name	Gustafson	Registration Number	46182

Additional Signature may be generated within this form by selecting the Add button. Add

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.