



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.
17/251,873	12/14/2020	Bhaskar V. Velamakanni	80764US004	1553
196179	7590	10/22/2024	EXAMINER	
Solventum Intellectual Properties Company			GASPAR, KYLIE MARIE	
2510 Conway Ave E			ART UNIT	
3M Center, 275-6E-21			PAPER NUMBER	
St Paul, MN 55144			3772	
			NOTIFICATION DATE	
			DELIVERY MODE	
			10/22/2024	
			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):

IPDocketing@Solventum.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Arguments

1. **Applicant's arguments filed 06/24/2024 have been fully considered but they are not persuasive.**

It is noted that Applicant has not explicitly traversed Examiner's fact finding and reasons for modification of the prior art. That is, although Applicant disagrees with the combination, articulated arguments to the Examiner's position and rationale have not been provided.

Regarding applicant's arguments on page 8 that Zaltsman does not teach or suggest a layer of metal oxide on a shell as Zaltsman teaches that the metal oxide serves as a core, and the core can no longer be deemed a metal oxide post-functionalization. Functionalization is the addition of functional groups to a unit. The functionalization of metal oxides does not change the binary compound of oxygen and a metal chemical element (Liu et al. NPL) at the core of the unit of Zaltsman. As taught by Shabatina et al. (see NPL), metal oxide nanoparticles ordinarily include functionalized groups that can interact with the surface active centers of the metal oxide (pg. 2 "Introduction"). Note that the existence of metal oxides in the larger compound does not change because it is part of a larger compound (Shabatina et al. pg. 2; Zaltsman 0150, 0157 final three lines). Further, Zaltsman teaches that the (metal oxide) core may be attached to an

additional unit directly [Zaltsman 0157 final three lines]. It is noted that applicant has not claimed that a layer of metal oxide and nothing else is on the first major surface. Therefore, as Zaltsman teaches a layer of the coating including a metal oxide can be included on a dental appliance [Zaltsman 0221 lines 1-7], DeSimone as modified by Zaltsman above discloses the device as claimed.

Claim Rejections - 35 USC § 103

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis (i.e., changing from AIA to pre-AIA) for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. **Claims 1-4, 10, 50, 68, and 72-73 are rejected under 35 U.S.C. 103 as being unpatentable over DeSimone et al. (US 7,641,828 B2) in view of Zaltsman et al. (US 2019/0062528 A1) as reference by Dumé (NPL cited and mailed 10/02/2023).**

Claim 1, DeSimone discloses a dental appliance (Fig. 1) comprising:

a polymeric shell (10)[col. 4 lines 18-19] with a first major surface (the surface on the inside of the device adjacent to the teeth and the outside of the device away from the teeth have a surface) comprising a plurality of cavities for receiving one or more teeth (Fig. 1)[col. 4 lines 18-20]; and

a second transparent barrier layer on the first major surface (Fig. 4, 310)[col. 10 lines 25-27].

DeSimone is silent regarding the second transparent barrier layer is metal oxide.

Zaltsman discloses antimicrobial coatings for dental applications [0221 lines 1-7] including wherein a layer of metal oxide can be applied on a surface of a dental article [0221 lines 4-6 wherein the composition is that of 0154].

It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to cause the second layer of DeSimone to be a metal oxide as taught by Zaltsman as doing so would improve the device of DeSimone according to known methods.

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.