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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/166,376	01/28/2014	Ping Wang	TTC-69904/08	8968
63796	7590	04/27/2015	EXAMINER	
GIFFORD, KRASS, SPRINKLE, ANDERSON & CITKOWSKI, P.C. P.O. BOX 7021 TROY, MI 48007-7021			ARIANI, KADE	
			ART UNIT	PAPER NUMBER
			1651	
			NOTIFICATION DATE	DELIVERY MODE
			04/27/2015	ELECTRONIC

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

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Art Unit: 1651

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

DETAILED ACTION

The amendments filed on April 14, 2015 have been received.

Claims 1-5 are pending in this application and were examined on their merits.

Answer to Arguments

The objection to claim 2 is withdrawn due to the amendments filed on 04/14/2015.

The rejection of claims 1-5 under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite is withdrawn due to the amendments filed on 04/14/2015.

In response to applicant's argument, with respect to the rejection of claims 1-5 under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Russell et al. in view of Studer et al., that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. type of solvent) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant further argues that a person of ordinary skill in the art would not be motivated to apply the teachings of Russell which requires water-borne systems, and would not be motivated to modify the teachings of Russell to provide the claimed composite material. These arguments are considered but are not found persuasive because Russell et al. teach that enzyme activity depend on the type of solvent, and further teach enzymes prefer hydrophobic environment (see for example column 8 lines 37-42). Therefore, the solvent in the method and composition taught by Russell would have been optimized. In addition at the time the invention was made it was known in the art that hydroxyl functionalized acrylate react with polyisocyanate cross-linker when dissolved in a suitable solvent and form two-component polymer material (see, for example, p. 83 "Summary" and p. 84 last paragraph of Keyes et al., available online on 2006). The rejection is maintained for the reasons mentioned immediately- above and in the absence of evidence to the contrary.

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In response to applicant's argument, with respect to the rejection of claims 1-5 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over at least claims 1-4, 7, 22 and 23 of US patent No 8,252,571 B2., that the claims fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e. percent activity retention, etc.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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 negated by the manner in which the invention was made.

Claims 1-5 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Russell et al. (US patent No. 6,905,733 B2) and Studer et al. (European Polymer Journal, 2005, Vol. 41, p. 157-167).

Russell et al. teach a protein-polymer composite material (DFPase/enzyme-containing coating or "ECC") comprising two-component solvent-borne polymer resin (two-component solvent-borne polyurethane), polyisocyanate cross-linker, and additives (see for example column 1 lines 65-Continued on column 2 lines 1-8, and column 3 lines "ECC Synthesis"), and the enzyme is homogenously distributed within the material (column 8 lines 8-15, and Figures 2A and 2B), and further teach the thickness of the coating is at 10 μm (particle size of 10 μm or less) (column 5 lines 64). Russell et al. teach a wide variety of enzymes can be used in the material (column 3 lines 1-4). Russell et al. teach that enzyme activity depends on the type of solvent and enzyme prefer hydrophobic environment (see for example column 8 lines 37-42).

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Moreover, Studer et al. teach using hydroxyl functionalized acrylate resin (and isocyanate crosslinker) to generate crosslinked polymer material (coating) (see for example p. 159 1st column 2nd paragraph). Therefore, a person of ordinary skill in the art at the time the invention was made knowing that would have been motivated to substitute the enzyme/protein for amylase and hydroxyl functionalized acrylate for in the material taught by Russell et al. would have been motivated to substitute hydroxyl functionalized acrylate and α -amylase in the method and the material taught by Russell et al. with a reasonable expectation of success to provide the claimed composite material.

Double Patenting Rejection

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer.

A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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