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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte NING-CHENG LEE and RUNSHENG MAO

Appeal 2017-005766
Application 12/240,396
Technology Center 1700

Before: MICHAEL P. COLAIANNI, GEORGE C. BEST, and
N. WHITNEY WILSON, *Administrative Patent Judges*.

WILSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants¹ appeal under 35 U.S.C. § 134(a) from the Examiner's May 16, 2016 decision finally rejecting claims 1, 2, 4, 5, and 21–24 as unpatentable under 35 U.S.C. § 103(a). Claims 3, 6–20, and 25 are withdrawn from consideration; these claims are directed to a non-elected invention. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We REVERSE.

¹ Appellants identify Indium Corporation as the real party in interest (Appeal Br. 1).

CLAIMED SUBJECT MATTER

Appellants' invention is directed to materials having increased mobility after heating (Spec. 3:16). These materials are said to be useful in an industrial process, such as soldering, which requires material heating followed by material residue removal (*id.* at 1:18–25; 2:11–16, and 3:22–24). Claims 1 and 2 are representative and are reproduced below from the Claims Appendix of the Appeal Brief (*emphasis added*):

1. A material having increased mobility after heating, the material comprising:

two or more ingredients, wherein at least two of the ingredients have an association force within the material that, prior to heating, causes an increase in viscosity of the material after the at least two ingredients are combined in the material, *wherein at least one of the at least two ingredients has a lower boiling point than another of the at least two ingredients, wherein when the at least one ingredient having the lower boiling point is substantially evaporated from the material after heating the material, thereby substantially eliminating the association force within the material, and the material has an overall decrease in viscosity, and an overall increase in mobility, after heating.*

2. The material of claim 1, *wherein the material is a liquid solder flux that has reduced viscosity, and increased mobility, after heating in a reflow process.*

Appeal Br. 14 (Claims App.).

REJECTION²

Appellants appeal the rejection of claims 1, 2, 4, 5, and 21–24 as unpatentable under 35 U.S.C. § 103(a) over Schneider.³

Appellants' arguments focus on independent claim 1 and dependent claim 2 (*see generally* Reply Br. 3–10). Because Appellants argue the rejection of claims 1, 2, 4, 5, and 21–24 as a group, we select claims 1 and 2 as representative and decide this appeal on the basis of these claims alone. 37 C.F.R. § 41.37(c)(1)(iv).

DISCUSSION

The Examiner finds that Schneider teaches or suggests each limitation recited in claims 1 and 2 including

an activator material (for liquid solder flux) [], wherein the activator material (before added to water), would be a combination of individual activator components comprising butyric acid (lower boiling point) and triethanolamine. Since [Schneider's] activator material . . . contains the same ingredients as instant invention (example 2 of instant specification comprises identical components butyric acid and triethanolamine), the claimed increased in viscosity upon combination, the association force (temporary interaction force) is an acid-base interaction force and the material is a liquid

² The Examiner imposed new grounds of rejection in the Answer that were based on the same prior art as the original rejection, but limited Schneider's teachings from the disclosed liquid solder flux to the individual activator components thereof (*compare* Ans. 2 with Final Action 2–3). Accordingly, references to the rejection that we address in this decision will be to the new grounds of rejection set forth in the Examiner's Answer.

³ Schneider, et al., US 5,297,721, issued Mar. 29, 1994.

solder flux or an electronic industry solder flux, would be expected in Schneider.

(Ans. 2, citing Schneider 3:4–11). In the other words, the Examiner finds that if the activator components were mixed together before being added to water it would have rendered the claimed composition obvious. The Examiner also finds that “Schneider teaches the importance of using the appropriate proportions of the activators in order to ensure the flux is in solution form after thawing” (Ans. 3, citing Schneider 3:4–11, 3:65–68). The Examiner concluded that “it would have been within the skill of an ordinary artisan to combine the specific individual activator component amounts prior to adding to water in order to ensure the appropriate proportions of activators are added to the water” (Ans. 3).

In response, Appellants argue that “[n]owhere does Schneider teach or suggest ‘combining individual activator components prior to adding to water’” (Reply Br. 8). Appellants assert that findings regarding Schneider’s need for appropriate activator proportions fail to support the Examiner’s conclusion that individual activator components are combined prior to adding water (*id.* at 8–9).

The Examiner has the initial burden of establishing a *prima facie* case of obviousness based on an inherent or explicit disclosure of the claimed subject matter under 35 U.S.C. § 103. *In re Oetiker*, 977 F.2d 1443, 1445–47 (Fed. Cir. 1992) (“[T]he term ‘*prima facie* obvious’ relates to the burden on the [E]xaminer at the initial stage of the examination, while the conclusion of obviousness *vel non* is based on the preponderance of evidence and argument in the record.”).

Our review of Schneider finds that it is silent with respect to any teaching that the individual activator components are premixed before the

addition of the remaining soldering flux components. For example, Schneider discloses “the addition of appropriate proportions of the activator(s) and surfactant to the water at room temperature, and mixing to form an aqueous solution” (Schneider 3:8–11), which suggests that each component is added separately to the water.⁴

Moreover, the Examiner has not provided an adequate explanation as to why premixing of Schneider’s activators is required to ensure that the appropriate proportions of each activator is added to the water (*see* Ans. 3). The Examiner’s position implies that flux preparation without such activator-only premixing would have led to an unsatisfactory flux. However, the Examiner has not explained why adding each of Schneider’s activators separately to the water, followed by mixing, would not have provided a flux with appropriate proportions of each activator. Thus, we agree with Appellants that the Examiner’s reasoning is not persuasive in showing that Schneider would have motivated the ordinary skilled artisan to combine butyric acid and triethanolamine before adding water.⁵

⁴ Likewise, Schneider’s exemplification of flux preparation is similarly silent regarding any explicit activator premixing. (Schneider at 6:12–15 (describing flux preparation “by dissolving the activator(s) and surfactant in deionized (DI) water at room temperature to yield a homogeneous aqueous solution.”)).

⁵ Appellants further argue that the Examiner cannot show that Schneider teaches or suggests the same ingredients exemplified in the Specification because “Schneider describes over 30 different suitable activators, including butyric acid and triethanolamine” (Reply Br. 9). However, Appellants’ arguments are not persuasive because Schneider teaches that these compounds are suitable components in a soldering flux. *See Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (The fact that a reference “discloses a multitude of effective combinations does not render

Therefore, the preponderance of the evidence of record supports Appellants' argument that the facts and reasons relied on by the Examiner are insufficient to establish a prima facie case of obviousness as to claims 1 and 2. Accordingly, we reverse the rejection of claims 1, 2, 4, 5, and 21–24 for the reasons set forth above.

CONCLUSION

We REVERSE the rejection of claims 1, 2, 4, 5, and 21–24 under 35 U.S.C. § 103(a) as obvious over Schneider.

REVERSED

any particular formulation less obvious.”); *see also, In re Susi*, 440 F.2d 442, 445 (CCPA 1971) (Obviousness rejection affirmed where the disclosure of the prior art was “huge, but it undeniably include[d] at least some of the compounds recited in appellant’s generic claims and [was] of a class of chemicals to be used for the same purpose as appellant’s additives.”).