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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KOSUKE FUJIWARA and AKIHIRO KOYAMA

Appeal 2015-002763
Application 12/993,074
Technology Center 1700

Before GEORGE C. BEST, N. WHITNEY WILSON, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

WILSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants¹ appeal under 35 U.S.C. § 134(a) from the Examiner's February 27, 2014 decision finally rejecting claims 1–7 (“Final Act”). We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We affirm.

¹ Appellants identify the real party in interest as Nippon Sheet Glass Company Limited (Appeal Br. 3).

CLAIMED SUBJECT MATTER

The claimed invention is generally directed to a scale-like glass which is described as having improved heat resistance and improved chemical durability (Abstract). The claimed glass has various components in specified amounts. Details of the claimed invention are set forth in independent claims 1, which is reproduced below from the Claims Appendix of the Appeal Brief:

1. A glass flake being characterized in that the glass flake is formed from a glass base material comprising, expressed in percent by mass:

$$65.06 \leq \text{SiO}_2 \leq 70,$$

$$5 \leq \text{Al}_2\text{O}_3 \leq 15,$$

$$1 \leq \text{MgO} \leq 10;$$

$$10 \leq \text{CaO} \leq 17.71,$$

$$0.1 \leq (\text{Li}_2\text{O} + \text{Na}_2\text{O} + \text{K}_2\text{O}) \leq 4,$$

$$0 \leq \text{ZrO}_2 \leq 2,$$

$$0 \leq \text{B}_2\text{O}_3 \leq 2,$$

$$0 \leq \text{SrO} \leq 2, \text{ and}$$

$$50 < (\text{SiO}_2 - \text{Al}_2\text{O}_3) \leq 60,$$

wherein SnO_2 is substantially not contained in the glass base material.

DISCUSSION

Claims 1–7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ino² in view of Sekine,³ Fujiwara,⁴ and Naka.⁵ Appellants direct their arguments to the rejections of independent claim 1 (see, e.g. Appeal Br. 9, 13, 18). Accordingly, our analysis will focus on the rejections of claim 1. The remaining claims, all of which ultimately depend from claim 1, will stand or fall with claim 1.

The Examiner finds that Ino teaches a glass filler for use in a resin composition which includes each of the components required by claim 1,⁶ in amounts which generally overlap the claimed ranges, except that CaO is present in an amount from 20–30% by mass, as opposed to the claimed amount of 10–17.1% (Final Act. 2, citing Ino, ¶ 15, Table 1). Ino is also not explicit in stating that “SnO₂ is substantially not contained” in the claimed composition as recited in claim 1.

² Ino et al., WO 2008/140059 A1, published November 20, 2008. Because Ino is in Japanese, we will refer to the machine translation of record, which both Appellants and the Examiner also appear to do.

³ Sekine, U.S. Patent Pub. 2007/0112123 A1, published May 17, 2007.

⁴ Fujiwara et al., WO 2007/148758 A1, published December 27, 2007. Because Fujiwara is in Japanese, we will refer to its U.S. counterpart, U.S. Patent Pub. 2010/0183737 A1, published July 22, 2010, which is also referred to by the Examiner and by Appellants.

⁵ Naka et al., U.S. Patent Pub. 2002/0011080 A1, published January 31, 2002.

⁶ We note that the following components recited in claim 1 are optional, as they can be present in amounts as low as 0% by weight: ZrO₂, B₂O₃, and SrO. Fujiwara is cited by the Examiner as suggesting that ZrO₂ and SrO not be included in a glass composition (Final Act. 3–4). As these are only optional components in claim 1 (i.e. their weight percent can be zero), we need not, and do not, further address Fujiwara or its teachings.

The Examiner further finds that Sekine teaches a glass composition comprising many of the same components as the claimed composition in largely overlapping ranges, including 10–20% by weight of CaO (Final Act. 3, citing Sekine, Abstract). The Examiner also finds that Sekine teaches that the use of CaO in an amount from 10–20% by weight optimizes the melting properties of the glass composition while avoiding the problems of devitrification (*id.*, citing Sekine, ¶ 45). The Examiner determines that it would have been obvious to lower the amount of CaO in Ino’s composition to the range recited in Sekine to produce a glass composition with good melting properties (Final Act. 3).

Finally, the Examiner finds that Naka teaches that SnO₂ is present in its composition in an amount as little as 0.05%, which the Examiner construes as falling within the limitation “substantially not contained,” and also that SnO₂ can be completely excluded in favor of a chloride, either of which can be used as a fining agent to remove bubbles during glass formation (Final Act. 4, citing Naka, ¶¶ 25, 26). Thus, the Examiner concludes it would have been obvious to either use SnO₂ in an “insubstantial amount” (i.e. as little as 0.05%), or use chlorides instead as fining agents in Ino’s composition.

Having reviewed the arguments and evidence provided in the Appeal Brief and the Reply Brief, and the Examiner’s findings as set forth in the Final Action and the Answer, we determine that Appellants have not demonstrated reversible error in the rejection, essentially for the reasons set forth by the Examiner in the Final Action and the Answer. We add the following for emphasis.

Appellants do not directly contest the Examiner’s findings which support the obviousness rejection (*see*, generally, Appeal Br. 6–16). Instead,

Appellants appear to generally argue that the combination of the various components in the claimed amounts produces a composition with particular properties (*id.*; see also Reply Br. 1). Appellants' arguments are not persuasive.

“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). In this instance, the Examiner has explained, based on the teachings in Sekine, why a person of skill in the art would have been motivated to modify Ino's composition to reduce the concentration of CaO from 20–30 wt% to 10–20 wt%. With this modification, the composition of Ino would have the same components as the claimed composition, in amounts which overlaps the claimed ranges. A prima facie case of obviousness exists in situations where the claimed ranges overlap the ranges disclosed by the prior art. See *In re Geisler*, 116 F.3d 1465, 1469 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990). Appellants may rebut the prima facie case by demonstrating “that the particular range is *critical*, generally by showing that the claimed range achieves unexpected results relative to the prior art range.” *Woodruff*, 919 F.2d at 1578 (citations omitted).

In this instance, although Appellants contend that the claimed compositions have “a useful and previously unknown combination of properties” (Reply Br. 1, emphasis in original), they have not provided persuasive evidence of unexpected results relative the prior art range. Appellants have not argued any data which purports to demonstrate the specific improvements in properties obtained using the claimed components in

the claimed ranges. Moreover, to the extent Appellants argue there is no reasonable expectation of success in the Examiner's proposed combination,⁷ this argument is not persuasive. Absolute predictability that the substitution will be successful is not required. *See In re O'Farrell* 853 F.2d 894, 903–904 (Fed. Cir. 1988). The Examiner finds that Sekine explicitly explains why a concentration of CaO from 10–20% is desirable, which is sufficient to provide a person of skill in the art that modifying Ino's composition from having 20–30% CaO to having 10–20% CaO with a reasonable expectation of success.

CONCLUSION

The rejection is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1) (iv).

AFFIRMED

⁷ In the Reply Brief, Appellants state that “the suggested modifications have not been accompanied by a reasoned technical statement tending to support the implicit assumption that the individual compositional alterations in the presence of different compositional elements and amounts may be made with necessarily equivalent outcomes and without negative effects on the simultaneously present properties discovered to be possessed by Appellants' glass composition.” Reply Br. 2.