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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ULRICH BLEY, RAINER HAGEL, JULIA HAVLIK, ALEKSEJ HOSCHENKO, and PETER SIMON LECHNER

Appeal 2019-006641
Application 11/916,346
Technology Center 1700

Before N. WHITNEY WILSON, BRIAN D. RANGE, and MERRELL C. CASHION, JR., *Administrative Patent Judges*.

WILSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's September 17, 2018 decision to reject claims 5, 7, 9, 11, 13, 15, 17, 23–34, 39–44, and 46–57 ("Non-Final Act."). We have jurisdiction under 35 U.S.C. § 6(b).

We affirm in part.

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[1] We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Ruag Ammotec GmbH (Appeal Br. 1).

CLAIMED SUBJECT MATTER

Appellant's disclosure is directed to a pyrotechnic agent containing at least one azotetrazolate, selected from the group consisting of aminoguanidine-5,5'-azotetrazolate (AGATZ) and guanidine-5,5'-azotetrazolate (GATZ) (Abstract, Spec. 2). The azotetrazole is mixed with at least one additional additive, as specified in the claim. Among other properties, the claimed pyrotechnic agent has a deflagration temperature[2] in a range from 165°C to 195°C. Claim 5, reproduced below, from the Claims Appendix, is illustrative of the claimed subject matter:

> 5. A pyrotechnic agent consisting essentially of 20 to 50 wt.% of at least one azotetrazolate component selected from the group consisting of aminoguanidine-5,5'-azotetrazolate (AGATZ) and guanidine-5,5'-azotetrazolate (GATZ), and 50 to 80 wt.% of at least one additive selected from the group consisting of ammonium picrate, aminoguanidinium picrate, guanidinium picrate, aminoguanidinium styphnate, guanidinium styphnate, nitroguanidine, nitroaminoguanidine, nitrotriazolone, derivatives of tetrazole and/or its salts, nitraminotetrazole and/or its salts, aminoguanidine nitrate, diaminoguanidine nitrate, triaminoguanidine nitrate, guanidine nitrate, dicyandiamidine nitrate, diaminoguanidine azotetrazolate, nitrates of alkali and/or alkaline-earth metals and/or of ammonium, perchlorates of alkali and/or alkaline-earth metals and/or of ammonium, peroxides of alkali and/or alkaline-earth metals and/or of zinc, aluminium, titanium, titanium hydride, boron, boron hydride, zirconium, zirconium hydride, silicon, graphite, activated charcoal, carbon black,

[2] Appellant states that "deflagration temperature" is the temperature at which the degradation of a substance begins as a chemical chain reaction, while the ignition temperature is the lowest temperature at which a combustible substance when heated takes fire in air and continues to burn (Appeal Br. 10).

cellulose and/or its derivatives, polyvinylbutyrals, polynitropolyphenylene, polynitrophenyl ether, plexigum, polyvinyl acetate and copolymers, hexogen, octogen, nitrocellulose, ferrocene and/or its derivatives, acetonylacetates, salicylates, carbonates, melamine, silicates, silica gels, and boron nitride, wherein a deflagration temperature of the pyrotechnic agent is in a range from 165°C to 195°C.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Williams et al.	US 6,620,266 B1	September 16, 2003
Lundstrom et al.	US 5,962,808	October 5, 1999

REJECTIONS

1. Claims 5, 7, 9, 11, 13, 15, 17, 23–34, 39–44, and 46–57 are rejected under 35 U.S.C. §103(a) as unpatentable over Williams and Lundstrom.

2. Claims 46–52 are rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement on the grounds that the claimed absence of a coating or nitro complex is not supported by the Specification.

DISCUSSION

Rejection 1. The Examiner finds that Williams discloses a gas generant composition that can include 15–95% of fuel such as diguanidinium 5,5'-azotetrazolate and 20–85% of an oxidizer, such as an alkali metal or alkali earth metal nitrates (Non-Final Act. 2–3). The Examiner further finds that Lundstrom discloses a gas generating composition for use in air bags that includes, *inter alia*, guanidinium picrate

in an amount from 5–70% (Non-Final Act. 3). The Examiner determines that it would have been obvious to use the additives disclosed by Lundstrom in Williams's composition because Williams suggests that various additives may be used and Lundstrom teaches that these additives improve the performance of a gas generating composition (*id.*). The Examiner further determines that it would have been obvious to vary parameters such as amounts in order to achieve the claimed properties (*id.*).

Appellant makes several arguments seeking reversal of the rejection.

First, Appellant argues that Williams requires the use of a silicone coating over its granules, which takes its composition outside of the scope of both claim 1 (which recites the transition phrase "consisting of") and claim 28 (which recites the transition phrase "consisting of") because neither claim recites the presence of a silicone coating (Appeal Br. 4–5, 11–13). The Examiner does not dispute that Williams teaches that its composition is ultimately coated in silicone, which is plainly taught by the reference (Ans. 7; Williams, 1:60–63, 3:53–60). However, as explained by the Examiner, Williams teaches that its compositions are made into granules prior to being coated with silicone (3:53–60). Thus, Williams teaches the production of granules without a silicone coating. Moreover, Williams teaches that all components which make up the gas generating composition are mixed together to form granules prior to being coated (*id*.).

Accordingly, if the teachings of Lundstrom were to have been combined as set forth in the rejection, the gas generating composition—which would contain the azotetrazolate component and the additive—would be created before being subjected to the coating process, which would meet both the claims using the "consisting essentially of" transition phrase and the

"consisting of" transition phrase, regardless of whether the silicone coating described by Williams would affect the basic and novel characteristics of the claimed invention.[3]

Appellant further argues that, because the embodiment relied on by the Examiner is an intermediate component, it must anticipate the claims in order to render them unpatentable (Appeal Br. 5). This argument is not persuasive. Williams discloses that its gas generating compositions are prepared by combining all of the components to produce granules, which are subsequently coated with silicone (Williams 3:53–60). Thus, if the teachings of Lundstrom were combined with those of Williams, the components identified in the claims would be combined into granules without the silicone coating. Moreover, Appellant offers no persuasive legal support for the proposition that an intermediate component is proper prior art for an anticipation analysis but not for an obviousness analysis. *See, e.g., Cohesive Technologies, Inc. v. Waters Corp.*, 543 F.3d 1351, 1363–64 (Fed. Cir. 2008) (explaining that while tests for anticipation and obviousness are different, "prior art references that anticipate a claim will usually render that claim obvious").

[3] Appellant argues that the silicone coating affects the basic and novel characteristics of invention (*see*, Appeal Br. 5). We are somewhat skeptical that a component which provides "improved burn characteristics, and/or relatively more gas upon combustion" affects a pyrotechnic agent's basic and novel characteristics. We also question whether the "consists of" claim language would exclude a composition where a "pyrotechnic agent" meeting the claim 5's recitations must exclude any kind of coating or outer packaging. But we need not decide these issues because, as discussed, *supra*, the combined teachings of Williams and Lundstrom disclose an intermediate component which contains only the elements set forth in the claims.

In addition, Appellant argues that Williams does not have any disclosure about the deflagration temperatures of its compositions, much less how that value might be affected by varying the relative amounts of the components of the composition (Appeal Br. 6). Therefore, according to Appellant, the deflagration temperature of the composition cannot be considered a result effective variable which could be optimized by a person of skill in the art (Appeal Br. 6–7).

This argument is not persuasive because the Examiner is not relying on a result-effective variable argument (Ans. 8). Instead, the rejection states that the claimed amounts of the components would have been obvious and, therefore, the resulting deflagration temperature would have been present in the resulting composition (Ans. 9–10). That is, the Examiner determines that the combined teachings of the cited art result in a pyrotechnic agent that is identical or substantially identical to the claimed pyrotechnic agent and that one skilled in the art would have reasonably expected the claimed and prior art pyrotechnic agents to have the same or similar properties. *See In re Best*, 562 F.2d 1252, 1256 (CCPA 1977) (where "the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product."). That the ranges of the amounts of the components only overlap with the claimed ranges, rather than mirroring them exactly, does not change the determination that the claimed ranges would have been obvious, rendering the claimed deflagration temperature (which is a property resulting from the specific composition) obvious as well. *See In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003) ("In cases

involving overlapping ranges, we and our predecessor court have consistently held that even a slight overlap in range establishes a prima facie case of obviousness.)

Appellant also argues that a person of skill in the art would have had no reason to combine the teachings of Williams and Lundstrom (Appeal Br. 9–10). In particular, Appellant argues that, because neither reference is concerned with deflagration temperatures, a person of skill in the art interested in deflagration properties would not have looked to either reference (Appeal Br. 10). This argument is not persuasive, because it does not dispute the Examiner's rationale for combining the references, which is not related to the deflagration properties of the compositions described in the references. It is well established that the reason to combine the references need not be the same motivation driving the inventors. *See, e.g., In re Lintner*, 458 F.2d 1013, 1016 (CCPA 1972).

Appellants makes additional arguments regarding certain specific claims separately. We address those claims in turn.

Claim 28. Claim 28 is essentially identical to claim 5, except that it uses the "consisting of" transition phrase instead of "consisting essentially of." Thus, the claim excludes any composition containing components not specifically identified in the claim. Appellant makes several arguments pertaining to this claim. First, as was done in connection with claim 5, Appellant argues that the presence of the silicone coating as described in Williams requires reversal of the rejection of claim 28 (Appeal Br. 11–12). This argument is not persuasive for the same reasons as discussed above in connection with claim 5 (i.e., the silicone coating in Williams is only applied to an already formed granule, which, when

combined with the teachings of Lundstrom, would contain only the components set forth in the claim).

Second, Appellant argues that Lundstrom requires the use of a coordination complex oxidizer, and that a person of skill in the art would not have used part of Lundstrom's composition without using this component as well (which would take it outside the scope of claim 28) (Appeal Br. 12–13). This argument is persuasive. Lundstrom discloses that its composition improves the performance of a gas generating composition, but necessarily includes both the coordination complex oxidizer and the non-azide fuel (Lundstrom, 2:34–43). The Examiner has not proffered an explanation of why a person of skill in the art would have selected only one of Lundstrom's components to combine with the composition of Williams.

Accordingly, we reverse the obviousness rejection of claim 28, and the claims which depend from it: claims 29–34, 39–43, 46, 47.

Claims 53 and 54. Claims 53 and 54 recite the pyrotechnic agent according to claim 5, but made using a particular process. Appellant argues that the pyrotechnic agents of these claims would be expected to be structurally different from the combined prior art because they would not be coated in silicone (Appeal Br. 14–15). These arguments are not persuasive, for the reasons described above in connection with claim 5 (namely that the combined art teaches non-coated granules).

Claim 55. Claim 55 recites that the azotetrazolate compound is aminoguanidine-5-5'-azotetrazolate (AGATZ). Appellant argues that this compound is not disclosed by either Williams or Lundstrom and, therefore, would not have been obvious in view of the art (Appeal Br. 16). In response, the Examiner finds that both Williams and Lundstrom teach that

derivatives of tetrazoles and aminotetrazoles may be used and, therefore, that the use of AGATZ would have been obvious (Ans. 10, citing Williams, 2:48–65 and Lundstrom 4:1–35). Appellant's argument is persuasive. While the Examiner is correct that both references broadly teach the use of "derivatives" of aminotetrazoles, there is nothing in the art which specifically suggests the use of AGATZ, or even that AGATZ was a compound known to have useful properties in this field.

Accordingly, we reverse the rejection of claim 55.

Claims 56 and 57. Claims 56 and 57 recites specific combinations of components. Appellant argues that the art does not suggest using these specific combinations, even if they are individually mentioned in the art (Appeal Br. 16). This argument is not persuasive because, as noted by the Examiner (Ans. 10–11), each of the components recited those claims is recited in the art. Thus, it would have been obvious to pick them, absent some showing of unexpected results. Therefore, we sustain the rejection of claims 56 and 57.

Rejection 2. The Examiner finds that these claims do not meet the written description requirement because these claim each recite the absence of a coating or nitro complex, which is a negative limitation for which there is no basis in the Specification (Non-Final Act. 6). Appellant argues that these claims are inferentially described in the Specification because the long list of possible additives for use in the disclosed compositions does not include either a coating or a nitro complex (Appeal Br. 17–19). We agree with Appellant that, essentially for the reasons set forth in the Appeal Brief, a person of ordinary skill in the art would have understood that Appellant

was in possession of a composition which did not included a coating or the presence of a nitro compound. Accordingly, we reverse these rejections.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
5, 7, 9, 11, 13, 15, 17, 23–34, 39–44, 46–57	103(a)	Williams, Lundstrom	5, 7, 9, 11, 13, 15, 17, 23–27, 44, 48–54, 56, 57	28–34, 39–43, 46, 47, 55
46–52	112, first paragraph	Written description		46–52
Overall Outcome			5, 7, 9, 11, 13, 15, 17, 23–27, 44, 48–54, 56, 57	28–34, 39–43, 46, 47, 55

TIME PERIOD FOR RESPONSE

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 IN PART