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.
13/852,236	03/28/2013	David L. BONGIOVANNI	150050	4539

26285 7590 02/04/2019

K&L GATES LLP-Pittsburgh
210 SIXTH AVENUE
PITTSBURGH, PA 15222-2613

EXAMINER
POOS, MADISON LYNN

ART UNIT	PAPER NUMBER
3733	

NOTIFICATION DATE	DELIVERY MODE
02/04/2019	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):

USpatentmail@klgates.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAVID L. BONGIOVANNI

Appeal 2018-005700
Application 13/852,236
Technology Center 3700

Before EDWARD A. BROWN, MICHAEL L. HOELTER, and ANNETTE R. REIMERS, *Administrative Patent Judges*.

BROWN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant[1] seeks review under 35 U.S.C. § 134 of the Examiner's decision, as set forth in the Final Office Action dated January 3, 2017 ("Final Act."), rejecting claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

---

[1] Hutchinson, S.A. ("Appellant") is the applicant, according to 37 C.F.R. § 1.46, and is identified as the real party in interest. Br. 3.

CLAIMED SUBJECT MATTER

Claims 1 and 10 are independent claims. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A system, comprising:
>
> a liquid container, wherein the liquid container comprises a wall which defines an interior volume of the liquid container; and
>
> an energy absorbing system positioned within the interior volume of the liquid container, wherein:
>
> the energy absorbing system is configured such that if an object passes through the wall of the liquid container and impacts the energy absorbing system, an amount of energy absorbed by the energy absorbing system is at least 18% greater than an amount of energy absorbed by the wall of the liquid container; and
>
> the energy absorbing system comprises one or more energy absorbing members, wherein at least one of the one or more energy absorbing members comprises a metal and has a Brinell hardness of at least 150.

Br. 23 (Claims App.).

REJECTIONS

The Final Office Action includes the following rejections under 35 U.S.C. § 103(a):

I. Claims 1–4 and 6–9 are rejected as unpatentable over Rea (US 2010/0045017 A1, published Feb. 25, 2010), Sane (US 2010/0282062 A1, published Nov. 11, 2010), and Imholt (US 8,091,464 B1, issued Jan. 10, 2012).

II. Claim 5 is rejected as unpatentable over Rea, Sane, Imholt, and Baker (US 3,698,587, issued Oct. 17, 1972).

III. Claims 10–13 and 15–20 are rejected as unpatentable over Rea and Sane.

IV. Claim 14 is rejected as unpatentable over Rea, Sane, and Baker.

ANALYSIS

Rejection I—Claims 1–4 and 6–9

As for claim 1, the Examiner finds that Rea discloses a liquid container comprising a wall which defines an interior volume of the liquid container, and a system (baffle 13) positioned within the interior volume of the liquid container. Final Act. 2 (citing Rea, Fig. 1). The Examiner finds that Rea does not disclose that the system is an energy absorbing system, as claimed. *Id.* at 2–3. The Examiner finds that Sane discloses an armor architecture 10 that includes a series of laminate non-explosive reactive armor panels 12, armor plate 14, flyer plate 16, and reinforcing layer 17. *Id.* at 3. The Examiner also finds that, in Sane, as a slug or fragments impact and penetrate armor plate 14, it disperses and absorbs energy, and reinforcing layer 17 absorbs and dissipates more of the remaining kinetic energy in the primary slug and any fragments. *Id.* at 3 (citing Sane ¶¶ 34–35); *see also* Sane Figs. 3, 7. The Examiner finds that Imholt discloses inner armor layers 32b and 32c, which may be made of a relatively softer material, for example, a non-ferrous alloy having a Brinell hardness in the range of approximately 10 to 180 HB. *Id.* at 3 (citing Imholt 3:50–53). The Examiner concludes that it would have been obvious to replace Rea's baffle with the armor architecture of Sane and to use the material of Imholt "to provide a tank that has increased strength and is more capable of withstanding explosions or other trauma." *Id.* at 4 (citing (Rea, abstract).

Appellant contends that an ordinary artisan would not have modified the system of Rea, as suggested by the Examiner, because Rea is focused on having, inside tank 1, lightweight components that have little energy absorbing capability relative to the outer walls of the container. Br. 13–14. Appellant also contends that Sane discloses that armor architecture 10 is positioned exterior to a vehicle body panel 5. *Id.* at 14. As such, Appellant contends, the Examiner has not articulated a rational reason why an ordinary artisan would have positioned Sane's armor architecture 10 within the interior volume of the liquid container of Rea. *Id.* at 14–15, 18.

The Examiner responds that Appellant's argument concerning the location of Sane's architecture 10 is faulty because the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Ans. 11. The Examiner asserts that all of the claimed elements were known in the prior art and one skilled in the art could have combined the elements by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results. *Id.* at 12.

We agree with Appellant that the Examiner has not articulated an adequate reason with a rationale underpinning to modify the system of Rea as proposed. Rea is concerned with "tanks which are more capable of withstanding explosions or other trauma" (Rea Abstract), whereas Sane is concerned with "high-energy ballistic projectiles" (Sane Abstract), and Imholt with "a penetrator generated by an explosively formed penetrator" (Imholt Abstract; *see also id.* Figs. 2–3). Rea discloses that "[i]t would [] be beneficial to have a tank which has a both strong and *light weight* construction" and "[p]referably, the tank [] ha[s] relatively *thin* walls." Rea

¶ 3; emphasis added. As noted by the Examiner, Rea discloses that the baffle preferably is formed of the *same sheet material* as the tank. Ans. 11; *see* Rea ¶ 62. The Examiner's proposed replacement of Rea's baffles with the armor architecture of Sane including multiple panels, plates or layers, is inconsistent with Rea's teaching of a light-weight construction. And even if Rea's baffles were modified to be made of a material that absorbs more energy than the exterior walls of its container, it is not apparent how this modification would reduce the entry of projectiles through the exterior walls of Rea's storage tank.

As for the limitation "an amount of energy absorbed by the energy absorbing system is at least 18% greater than an amount of energy absorbed by the wall of the liquid container," the Examiner states, "[t]he formula from the application is a function of the hardness and the diameter size of the projectile and having a larger Brinell hardness would create a container that is more impact resistant." Ans. 11. We understand the Examiner is referring to formula (1) disclosed in Appellant's Specification, which is described as "the . . . residual velocity equation to determine the deceleration of the object (e.g., projectile, shrapnel, etc.) as it passes through energy absorbing member." Spec. ¶ 30. This formula indicates that increasing the Brinell hardness number (BHN) associated with energy absorbing member 18 will reduce the residual velocity (v_r) of an object. *Id.* Although Imholt discloses inner armor layers that may be made of a metal having a Brinell hardness of approximately 10 to 180 HB, the Examiner does not direct us to any teaching, in Imholt, that a metal having a Brinell hardness of at least 150 would affect the residual velocity (v_r) of an object as shown in Appellant's formula (1), and that increasing the Brinell hardness would increase that

effect. Accordingly, the Examiner has not provided sufficient evidence and technical reasoning in support of the modification. Nor has the Examiner adequately explained how replacing Rea's interiorly-located baffles by making them more resistant to projectiles, as proposed, would "provide a tank that has increased strength and is more capable of withstanding explosions or other trauma."

Thus, we do not sustain the rejection of claim 1 and dependent claims 2–4 and 6–9 as unpatentable over Rea, Sane, Imholt.

Rejection II–Claim 5

The Examiner's reliance on Baker for disclosing a self-sealing material in rejecting dependent claim 5 does not cure the deficiencies in the rejection of parent claim 1. *See* Final Act. 5–6. Hence, we do not sustain the rejection of claim 5 as unpatentable over Rea, Sane, Imholt, and Baker.

Rejection III–Claims 10–13 and 15–20

Independent claim 10 is similar to claim 1 but does not require that at least one of the one or more energy absorbing members comprises a metal and has a Brinell hardness of at least 150, as recited in claim 1. Br. 23–24 (Claims App.). For claim 10, the Examiner makes the same findings with respect to Rea and Sane, and concludes that it would have been obvious to modify the system of Rea based on the teachings of Sane for the same reason discussed for claim 1. *See* Final Act. 6–8. Accordingly, the Examiner has not provided sufficient evidence and technical reasoning for the proposed modification of Rea for the reasons discussed above. Hence,

we do not sustain the rejection of claim 10, and of claims 11–13 and 15–20 depending therefrom, as unpatentable over Rea and Sane.

Rejection IV–Claim 14

The Examiner's reliance on Baker for disclosing a self-sealing material in rejecting dependent claim 14 does not cure the deficiencies in the rejection of parent claim 10. *See* Final Act. 10. Hence, we do not sustain the rejection of claim 14 as unpatentable over Rea, Sane, and Baker.

DECISION

We reverse the rejections of claims 1–20.

REVERSED