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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HANS-PETER EISELE

Appeal 2014-005931
Application 12/784,265
Technology Center 3700

Before LINDA E. HORNER, BRANDON J. WARNER, and
LEE L. STEPINA, *Administrative Patent Judges*.

STEPINA, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Hans-Peter Eisele (“Appellant”) appeals under 35 U.S.C. § 134 from the Examiner’s decision to reject claims 1–4 and 7–14.¹ We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ An oral hearing was conducted on October 21, 2016.

CLAIMED SUBJECT MATTER

The claims are directed to an endoscope with an eye-piece tiltable via a metal bellows. Spec. 1 (Title). Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. An endoscope, comprising:
 - a shaft, which in its distal end area comprises a lens system for receiving an endoscopic image;
 - an endoscope head, which includes a first head section, which is connected with the shaft, as well as a second head section, which comprises an eyepiece, such that the second head section is tiltable connected with the first head section; and
 - an image conductor, which is flexible at least in sections, for transmitting the image recorded by the lens system to the eye-piece;
 - wherein the image conductor is enclosed by protective tube that continues from the shaft as far as the second head section, and is flexibly tiltable at least in sections;
 - wherein the protective tube is surrounded by a metal bellows in the area of a curvature section; and
 - wherein the metal bellows is connected in a steam-tight manner in its distal end area with an exterior housing of the first head section.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Ehmsen	US 5,377,668	Jan. 3, 1995
Rutherford	US 7,487,563 B2	Feb. 10, 2009
Francois	US 2003/0149338 A1	Aug. 7, 2003
Schwartz	US 2007/0074720 A1	Apr. 5, 2007
Renner	US 2007/0276186 A1	Nov. 29, 2007

REJECTIONS

(I) Claims 1–4, 7–9, and 11 are rejected under 35 U.S.C. § 103(a) as unpatentable over Kiedrowski, Renner, and Francois.³

(II) Claims 10 and 13 are rejected under 35 U.S.C. § 103(a) as unpatentable over Kiedrowski, Renner, Francois, and Ehmsen.⁴

(III) Claim 12 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kiedrowski, Renner, Francois, and Rutherford.

(IV) Claim 14 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kiedrowski, Renner, Francois, and Schwartz.

OPINION

Rejection (I)

The Examiner finds that Kiedrowski discloses most of the elements recited in claim 1, including a protective tube and metal bellows, but does not disclose that the protective tube is located in a bending section and is flexibly tiltable in sections. Final Act. 2–3. Nonetheless, the Examiner finds that Renner discloses these features, and the Examiner reasons that it would have been obvious “to utilize the protective tube of Renner with the endoscope of Kiedrowski in order to protect the image carrying system from

² Our references to the text of Kiedrowski are to an English-language, machine-translation of this reference made of record on May 23, 2012.

³ Although the heading for this rejection lists only claim 1, the discussion after the heading indicates that the rejection applies to claims 1–4, 7–9, and 11. See Final Act. 2–4.

⁴ The heading for this rejection lists only claim 10, but the body of the rejection also addresses claim 13. See Final Act. 4–5.

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being damaged by the bending portion from all sides equally.” Final Act. 3 (citing Renner ¶ 62). Thus, the Examiner’s proposed combination of Kiedrowski and Renner provides a protective tube around the image conductor 11 in the area of bending, which is also the area surrounded by metal bellows 23 of Kiedrowski. *See* Kiedrowski, Fig. 1.

Appellant contends that one benefit of the arrangement recited in claim 1 is that the bellows limits the bending range of the protective tube and the image guide, thereby preventing damage to the image guide. Appeal Br. 5–6. Appellant argues that Kiedrowski limits bending range via components other than a bellows, and, in any event, the image guide taught by Kiedrowski does not need protection from excessive bending. Appeal Br. 7–8. Appellant also contends that the Examiner’s proposed modification to Kiedrowski would make Kiedrowski’s device unnecessarily stiffer, and there is no indication that bellows 23 of Kiedrowski would provide anything other than a protective effect, i.e., there is no need to protect image conductor 11 from bellows 23. Appeal Br. 7–10.

In response, the Examiner notes that claim 1 does not recite any particular flexibility requirements for the protective tube or any protective effect of the bellows against over-bending. *See* Ans. 2–3. As for whether there would be any benefit to adding the protective tube in the area of bending (surrounded by bellows 23) in Kiedrowski, the Examiner states, “Renner teaches that the passage through which the image guide passes is free from projections to prevent damage to the image guide, and also the image guide is surrounded by a protective tube to offer *additional* protection against the image carrying system being damaged by the joint (paragraph [0062]).” Ans. 4–5. The Examiner also emphasizes that the rejection of claim 1 does not rely on any finding that the bellows in Kiedrowski “actively

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damages the image guide,” and instead, the Examiner’s rationale for modifying Kiedrowski is based on providing additional protection. Ans. 4–5.

In the Reply Brief, Appellant reiterates the argument that there would have been no reason to modify Kiedrowski as proposed by the Examiner. Reply Br. 2–3. In this regard, Appellant states, “Renner’s tube would be difficult to install inside the metal bellows of Kiedrowski and would provide no benefit - it would actually degrade the performance of the Kiedrowski system.” Reply Br. 2.

We do not agree with Appellant’s arguments regarding the Examiner’s proposed combination of Kiedrowski and Renner. The Examiner’s rationale for including protective tubing in bending area 5 of Kiedrowski, surrounded by bellows 23, to provide additional protection to image conductor 11 (*see* Final Act. 3; *see also* Ans. 4–6), does not require an explicit teaching that an unsolved problem exists in Kiedrowski, such as, for example, that bellows 23 damages image conductor 11. Rather, the Examiner’s rationale provides an improvement to Kiedrowski’s device. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (“if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”). Although Appellant asserts that protective tube 56 would be unsuitable for use in bending area 5 of Kiedrowski and would require increasing the size of bellows 23 of Kiedrowski (Appeal Br. 9), Appellant provides no persuasive technical argument or evidence that the Examiner’s proposed modification would have been beyond the capabilities of a person of ordinary skill in the art. Further, as the Examiner indicated (Ans. 4–5),

Renner takes measures to ensure that passage 54, in which image carrying system 28 is disposed, is free of projections, and “[a]s a result, damage to the image carrying system **28** by the inner side of the joint **32** is prevented.”

Renner ¶ 62. Notwithstanding the projection-free arrangement of passage 54, Renner states, “[i]n addition, the protective tube **56** offers additional protection against the image carrying system **28** being damaged by the joint **32**.” Renner ¶ 62. Accordingly, Renner provides protective tube 56 as supplemental protection for image carrying system 28, despite the apparent lack of any particular problem indicating a need for such protection. Thus, the Examiner’s rationale for modifying Kiedrowski, to include protective tubing in bending area 5 (the same way Renner teaches providing additional protection in a corresponding area) is supported by rational underpinnings.

The Examiner also finds that Kiedrowski does not disclose a “metal bellows . . . connected in a steam-tight manner with the first head section, though Kiedrowski does teach being gas-tight in a proximal end portion.” Final Act. 3 (citing Kiedrowski ¶ 31). The Examiner relies on Francois to teach an endoscope with a bellows connected at each end via a steam-tight connection, namely, soldering, and the Examiner determines that it would have been obvious to use the soldered connection taught by Francois to provide a leak-proof seal that can withstand high pressures. Final Act. 3 (citing Francois ¶ 77).

Appellant asserts that bellows 10 of Francois are pressurized from the inside and “[t]he fact that the Francois bellows are soldered to retain an internal hydraulic pressure does not imply that they are steam-tight. The Francois bellows are designed to withstand internal pressure, not seal an interior region from ambient steam.” Appeal Br. 10.

In response, the Examiner, quoting paragraph 31 of Kiedrowski, finds that Kiedrowski teaches a steam-tight connection for a bellows made by soldering, and notes that Renner is relied upon for teaching soldering *both* ends of the bellows. Ans. 6.

Discussing an embodiment in which bellows 23 may replace an external structure 18, 19, 20, Kiedrowski states, “[t]he bellows [23] would then connect to a gas-tight at its proximal end with the end piece 15, for example, by soldering. Just as he would connect gas-tight at its proximal end portion with the cladding tube 8.” Kiedrowski ¶ 31.⁵ Thus, Kiedrowski discloses making a gas-tight connection via soldering. Similarly, Francois teaches providing a leakproof connection for a bellows via soldering. Francois ¶ 77. Regarding the ability of a soldered connection to seal against steam, Appellant’s Specification states, “[t]o achieve a steam-tight connection between the metal bellows and the housing, a cylindrical distal end section of the metal bellows can be inserted in a corresponding borehole of the housing and connected in insulated manner with the housing, for instance through cementing, welding, or soldering.” Spec. ¶ 28. Appellant does not provide any persuasive evidence or technical reasoning as to why the soldered connection in the Examiner’s proposed combination of Kiedrowski and Francois would not be steam-tight. Accordingly, we do not agree with Appellant’s argument on this point.

Appellant also asserts that “Francois is completely unrelated to the claimed device or the other two references, [and] a person having ordinary

⁵ Paragraphs 22 and 23 of Kiedrowski also indicate that connections between protective tube 8, transition piece 22, and bellows 23, as well as transition piece 24, are gas-tight and made via soldering.

skill would see no reason to combine it with the other two to attempt to construct the device of claim 1.” Appeal Br. 10.

To the extent Appellant asserts that Francois is non-analogous art, we disagree. Our reviewing court has set forth a two-prong test for determining whether a prior art reference is analogous: (1) whether the reference is from the same field of endeavor as the claimed invention, and (2) even if the reference is not within the same field of endeavor, whether the reference is reasonably pertinent to the particular problem with which the inventor is involved. *In re Klein*, 647 F.3d 1343 (Fed. Cir. 2011). Appellant’s argument is not persuasive because, as noted by the Examiner (Ans. 7), both Appellant’s claimed invention and Francois relate to the field of endoscopes (*see, e.g.*, Francois ¶ 1).

To the extent Appellant asserts that the Examiner has not provided an adequate rationale for combining Kiedrowski and Francois, Appellant has provided no persuasive explanation as to why the Examiner’s reasoning to modify Kiedrowski, “to provide a leakproof seal that can withstand high pressures” (Final Act. 3), would be insufficient.

We have considered all of Appellant’s arguments for the patentability of claim 1, but we find them to be unpersuasive. Accordingly, we sustain the Examiner’s rejection of claim 1 as unpatentable over Kiedrowski, Renner, and Francois. Appellant makes no separate arguments for the patentability of any of claims 2–4, 7–9, and 11 (Appeal Br. 11–12), and these claims fall with claim 1, from which they depend.

Rejections (II)–(IV)

Appellant relies on the above-noted arguments for Rejection (I) to address Rejections (II)–(IV). Appeal Br. 12–14. For the same reasons discussed above for Rejection (I), we sustain Rejections (II)–(IV).

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DECISION

The Examiner's decision to reject claims 1–4 and 7–14 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