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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER DENDIS, LIXIN CHEN, and
LARS DAVID MORAVY

Appeal 2015-002067
Application 11/874,450
Technology Center 3600

Before CHARLES N. GREENHUT, ANNETTE R. REIMERS, and
LISA M. GUIJT, *Administrative Patent Judges*.

REIMERS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Christopher Dendis et al. (Appellants) appeal under 35 U.S.C. § 134(a) from the Examiner's decision to reject under 35 U.S.C. § 103(a) claims 1–11 as unpatentable over McAfee (US 4,162,859; iss. July 31, 1979) and Corain (US 4,957,403; iss. Sept. 18, 1990). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

CLAIMED SUBJECT MATTER

The claimed subject matter relates to “a ball stud that will not fail or loosen easily under the application of repetitive side loading on the ball portion of the ball stud.” Spec. para. 6, Figs. 3, 4. Claims 1 and 6 are independent.

Claim 1 is illustrative of the claimed subject matter and recites:

1. A vehicle ball joint's ball stud system wherein a ball stud is securable to a mount having two tapered portions, the ball stud system comprising:

a ball stud having a ball portion, shoulder portion and pin portion, wherein the pin portion is at least partially threaded;

a selectively removable tapered washer that is in contact with and fits around the pin portion, and is supported on the shoulder portion of the ball stud, and is capable of fitting within a first tapered portion of a mount;

a tapered nut that is capable of fitting into a second tapered portion of a mount and threadingly engages threads on said pin portion to secure said ball stud to the mount.

ANALYSIS

Claims 1–3, 6, 8, and 11

Appellants argue claims 1–3, 6, 8, and 11 as a group. Appeal Br. 11–12. We select claim 1 as representative of the group. Claims 2, 3, 6, 8, and 11 stand or fall with claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv). We address claims 4, 5, 7, 9, and 10 separately below.

Claim 1 recites “the ball stud system comprising: a ball stud having a ball portion, shoulder portion and pin portion.” Appeal Br. 23, Claims App. Appellants contend that “[t]he elements in the final Office action are not distinct from one another as required.” Appeal Br. 11. In particular, Appellants contend that “the pin portion cannot be the same element as the

shoulder portion.” Appeal Br. 11; *see also* Reply Br. 5–6. According to Appellants, the Examiner finds that “the pin portion is element 23 of McAfee (a frustoconical joint portion) and the shoulder portion (labeled S in the final Office action) is also this same frustoconical joint portion.” *Id.*; *see also* Reply Br. 5–6. Appellants further contend that “element 23 (frustoconical joint portion) [of McAfee] does not meet the features of the claimed pin portion, namely that a portion of it is threaded. In McAfee a separated element 26 (threaded end portion) comprises threads and is different from element 23.” *Id.*; *see also* Reply Br. 6.

In response to Appellants’ arguments, the Examiner finds:

McAfee discloses a ball stud (19, 28, 23, S, 26) that has a ball portion (19), a pin portion (constituted by frustoconical joint portion 23 and inclusive of threaded end portion 26, shoulder portion S and offset 28), and a shoulder portion (S, constituted by the outer tapering surface of the frustoconical joint portion 23). . . . [T]he pin portion is inclusive of the shoulder portion S as well as the threaded end portion 26 and the offset portion 28. This interpretation of the various structures that define the pin portion as a whole is no different than that applied by Appellants for the various disclosed structures that define the ball stud as a whole. Nothing in the language of claim 1 defines nor otherwise requires that the “shoulder portion” . . . cannot also be an inclusive part of the “pin portion”. Note that if the “pin portion” has a “shoulder portion” and the ball stud has that “pin portion”, then the ball stud also has that “shoulder portion”.

Ans. 9; *see also* Final Act. 2–3; Ans. 4–6; the Examiner’s annotated version of Figure 9 of McAfee at Final Act. 3, Ans. 6. Under the broadest reasonable interpretation, the Examiner’s findings are reasonably supported. Appellants do not provide persuasive evidence or argument apprising us of Examiner error.

Appellants contend that “the references to McAfee and Corain are not properly combinable due to being in different areas of art. McAfee is within the vehicle arts, as is [Appellants’] invention.” Appeal Br. 11–12.

Appellants further contend that “[o]ne of ordinary skill in the vehicle arts would not be familiar with the type of construction shown in Corain, which is from the textile manufacturing arts.” *Id.* at 12.

The two separate tests for determining whether a prior art reference is analogous are: (1) whether the art is from the same field of endeavor, regardless of the problem addressed; and (2) if the reference is not within the inventor’s field of endeavor, whether the reference is reasonably pertinent to the particular problem with which the inventor is involved. *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004) (citing *In re Deminski*, 796 F.2d 436, 442 (Fed.Cir.1986) and *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979)).

In response to Appellants’ argument, the Examiner finds:

[T]he problem being solved relates to threaded fasteners as a whole. One of ordinary skill in the art seeking to improve on the mounting of the ball stud would have turned to threaded fasteners per se for possible solutions and that is where [Corain] were found, i.e., in Class 411. Thus, McAfee discloses a ball stud system with a particular threaded fastener arrangement and [Corain] teach an alternative threaded fastener arrangement involving a tapered nut which is received onto a tapered portion. Further, the teaching for this arrangement is stated by [Corain] as being to provide absolute safety [sic] from slackening or misalignment. See Col. 1, first paragraph.

Ans. 9–10. In other words, the Examiner finds that Corain is reasonably pertinent to the particular problem with which Appellants are involved.

Appellants do not provide persuasive evidence or argument apprising us of error in the Examiner’s findings.

Accordingly, for the foregoing reasons, we sustain the Examiner's rejection of claim 1 as unpatentable over McAfee and Corain. We further sustain the Examiner's rejection of claims 2, 3, 6, 8, and 11, which fall with claim 1.

Claim 4

Appellants present arguments similar to those discussed above regarding the Examiner erroneously reading both the claimed pin portion and shoulder portion on the same structure in McAfee and Corain being non-analogous art. *See* Appeal Br. 13–14. As discussed above, these arguments are not persuasive.

Appellants further contend that “[c]laim 4 . . . requires slots in the tapered nut. Nowhere in McAfee or Corain are nuts with slots shown or disclosed.” *Id.* at 13.

In response to Appellants' argument, the Examiner finds:

McAfee, in Fig. 9, clearly show slots (unnumbered) in nut 25 receiving cotter pin 27. In particular, one can readily see a sectioned part of the nut 25 threaded on the threaded end portion 26. One can also see a cotter pin 27 extending through the threaded end portion 26 and a line indicative of the upper end of the nut 25 and that portion is not cross-hatched (because it was not sectioned in the view of Fig. 9). It is well-understood that in order for a cotter pin to secure a nut in place, it must extend through not only the pin shank, but also the nut itself. This is done via slots to either side of the central shank opening of the nut. Fig. 9 clearly illustrates and conveys this to one of ordinary skill in the art and Appellants have failed to explain why the slots through which the cotter pin 27 extends are not, in fact, slots.

Ans. 10. The Examiner's findings are reasonable and based on rational underpinnings. Appellants do not apprise us of Examiner error.

Accordingly, for the foregoing reasons, we sustain the Examiner's rejection of claim 4 as unpatentable over McAfee and Corain.

Claim 5

Appellants correctly contend:

Claim 5 . . . requires that the tapered nut protrudes from the outer surface of the mount. The final Office action states that it would have been obvious to one of ordinary skill in the art to provide the joint of McAfee with a tapered nut protruding from the outer surface of the mount in order to prevent any interference of the adjacent ball joint structure and mount to prevent damage to the ball joint. [Appellants] believe[] this logic is flawed. As the remainder of the ball joint structure is on the opposite side of the mount from the tapered nut, whether the nut protrudes or not has no effect on whether this ball joint structure can be damaged. Thus, there is no reason to combine the references in the manner suggested by the final Office action.

Appeal Br. 15; *see also* Reply Br. 6; Final Act. 4; Ans. 7. The Examiner does not address Appellants' contention in the Answer. *See* Ans. 10.

Accordingly, we do not sustain the Examiner's rejection of claim 5 as unpatentable over McAfee and Corain.

Claim 7

Claim 7 recites "the shoulder portion has a support surface that supports the washer." Appeal Br. 24, Claims App. The Examiner finds that "McAfee discloses (Figs. 1, 9) that the shoulder portion (S) has a support surface (constituted by the upper transverse surface where the threaded end portion 26 meets the shoulder portion S) that supports the washer [31]." Ans. 8; *see also* Final Act. 5; Reply Br. 6. Upon review of Figure 9 of McAfee, the area where threaded end portion 26 meets the outer tapering surface of frustoconical joint portion 23 (i.e., the shoulder portion S) does not support sleeve (washer) 31 of McAfee.

Accordingly, we do not sustain the Examiner's rejection of claim 7 as unpatentable over McAfee and Corain.

Claim 9

Claim 9 recites "the pin portion has a generally constant outer diameter." Appeal Br. 25, Claims App. As discussed above, the Examiner finds that the pin portion of McAfee is "constituted by frustoconical joint portion 23 and inclusive of threaded end portion 26, shoulder portion S and offset 28." *See* Ans. 9; *see also id.* at 4.

Appellants contend that "McAfee discloses a ball stud with a portion [23] above the ball that is tapered instead." Appeal Br. 19.

A skilled artisan would not consider "frustoconical joint portion 23 [with] threaded end portion 26, shoulder portion S and offset 28" to have a generally constant outer diameter.

Accordingly, we do not sustain the Examiner's rejection of claim 9 as unpatentable over McAfee and Corain.

Claim 10

Claim 10 recites "the shoulder portion has a generally constant outer diameter." Appeal Br. 25, Claims App. Appellants contend that "McAfee discloses a ball stud with a portion [23] above the ball that is tapered instead." Appeal Br. 20.

We acknowledge the Examiner's position that the term "generally" is a broad term. Ans. 11. However, we disagree with the Examiner that "the outer *tapering* surface of the frustoconical joint portion 23" has a generally constant outer diameter. *See* Ans. 9 (emphasis added); *see also id.* at 11; Appeal Br. 20.

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Accordingly, we do not sustain the Examiner's rejection of claim 10 as unpatentable over McAfee and Corain.

DECISION

We AFFIRM the decision of the Examiner to reject claims 1–4, 6, 8, and 11 as unpatentable over McAfee and Corain.

We REVERSE the decision of the Examiner to reject claims 5, 7, 9, and 10 as unpatentable over McAfee and Corain.

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

AFFIRMED-IN-PART