

1 UNITED STATES PATENT AND TRADEMARK OFFICE

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3
4 BEFORE THE BOARD OF PATENT APPEALS
5 AND INTERFERENCES
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8 *Ex parte* PAUL ANTHONY THOMAS and PAUL ROBERTS
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11 Appeal 2008-0173
12 Application 10/759,523
13 Technology Center 3600
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16 Decided: April 17, 2008
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19 *Before* WILLIAM F. PATE, III, TERRY J. OWENS and MURRIEL E.
20 CRAWFORD, *Administrative Patent Judges*.
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22 PATE, III, *Administrative Patent Judge*.
23

24 DECISION ON APPEAL
25

26 STATEMENT OF CASE

27 The Appellants appeal under 35 U.S.C. § 134 (2002) from a Final
28 Rejection of claims 1, 4-19 and 21. Claims 2, 3 and 20 have been cancelled.
29 We have jurisdiction under 35 U.S.C. § 6(b) (2002).

30 The Appellants claim a disc brake assembly including a pad spring
31 having a laterally and downwardly extending lug. The lug includes an upper

1 surface with a rounded edge that reduces the tendency of the pad spring to
2 indent into the pad retainer (i.e. wedge into the pad retainer) which can
3 impede movement of the brake pad and diminish braking performance.

4 Independent claim 1 reads as follows:

- 5 1. A disc brake assembly comprising:
6 a brake caliper having an outboard side;
7 a brake pad;
8 a pad spring including a spring planar region, wherein the
9 pad spring is substantially elongate and defines a longitudinal
10 direction; and
11 a pad retainer including a retainer planar region
12 positioned at a first radius to restrain radial movement of the
13 brake pad, wherein the pad retainer is secured to the outboard
14 side of the brake caliper at a second radius that is less than the
15 first radius, the pad retainer further including a crook at an end
16 of the retainer planar region,
17 wherein the spring planar region engages the pad
18 retainer, thereby defining an engaging region of the spring
19 planar region, and
20 wherein a lateral edge region of the engaging region
21 adjacent to the outboard side of the brake caliper is defined by a
22 laterally and downwardly extending lug having an upper
23 surface, wherein the upper surface defines a rounded edge.
24

25 Independent claim 13 also recites a disc brake assembly including a
26 pad retainer and a pad spring having a laterally and downwardly extending
27 lug that incorporates an upper surface with a rounded edge. Independent
28 claim 21 recites a method of making a disc brake assembly including a pad
29 spring with a laterally and downwardly extending lug having an upper
30 surface with a rounded edge.

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

2 Heinz 4,049,087 Sep. 20, 1977

3 Forni EP 0 703 378 A1 Mar. 27 1996

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5 The Examiner rejected claims 1, 4-19 and 21 under 35 U.S.C.

6 § 103(a) as unpatentable over Forni in view of Heinz.

7 We REVERSE.

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9 ISSUE

10 The sole issue raised in the present appeal is whether the Appellants
11 have shown that the Examiner erred in rejecting claims 1, 4-19 and 21 as
12 unpatentable over Forni in view of Heinz.

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14 PRINCIPLES OF LAW

15 “Section 103 forbids issuance of a patent when ‘the differences
16 between the subject matter sought to be patented and the prior art are such
17 that the subject matter as a whole would have been obvious at the time the
18 invention was made to a person having ordinary skill in the art to which said
19 subject matter pertains.’” *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727,
20 1734 (2007). The question of obviousness is resolved on the basis of
21 underlying factual determinations including (1) the scope and content of the
22 prior art, (2) any differences between the claimed subject matter and the
23 prior art, (3) the level of skill in the art, and (4) where in evidence, so-called
24 secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18

1 (1966). In *KSR*, the Court explained that “it will be necessary for a court to
2 look to interrelated teachings of multiple patents; the effects of demands
3 known to the design community or present in the marketplace; and the
4 background knowledge possessed by a person having ordinary skill in the
5 art, all in order to determine whether there was an apparent reason to
6 combine the known elements in the fashion claimed by the patent at issue.”
7 *Id.* at 1740-41. The Court noted that “[t]o facilitate review, this analysis
8 should be made explicit,” but “the analysis need not seek out precise
9 teachings directed to the specific subject matter of the challenged claim” *Id.*
10 at 1741, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

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ANALYSIS

13 The Examiner rejected all of the pending claims as unpatentable over
14 Forni in view of Heinz (Ans. 3). Forni discloses each and every limitation
15 of these claims except for the “laterally and downwardly extending lug
16 having an upper surface, wherein the upper surface defines a rounded edge”
17 (Ans. 3). The Examiner relies on Heinz to cure this deficiency of Forni.
18 Heinz discloses a friction pad assembly including a leaf spring (i.e., pad
19 spring) with lateral and downwardly extending legs 5, 6 (i.e., lugs), the legs
20 having a rounded edge (Heinz: Figs 1-3A; Col. 3, l. 5-Col. 4, l. 9). The
21 Examiner states that it would be desirable to provide the legs of Heinz to the
22 spring of Forni to facilitate attachment of the pad spring and to improve
23 security and retention of the pad spring on the brake pad as taught by Heinz
24 (Ans. 3-4; Heinz: Col. 2, ll. 9-22; Col. 5, ll. 32-43). Thus, the Examiner

1 argues that it would have been obvious to one of ordinary skill in the art to
2 provide the legs of Heinz on the spring of Forni and that these claims are
3 unpatentable (Ans. 6).

4 With respect to claims 1, 4-12 and 14-19, the Appellants argue that
5 one of ordinary skill would not be motivated to modify the pad spring of
6 Forni to include the legs disclosed in Heinz. In particular, the Appellants
7 argue in the Appeal Brief that Forni already provides a mechanism for
8 retaining the spring and that material and manufacturing cost would be
9 increased if such legs are provided (Appeal Br. 5 and 6). The Appellants
10 also argue that the number of parts would undesirably increase if such legs
11 are provided in order to accommodate the thicknesses of different backplates
12 (Appeal Br. 6). The Appellants further argue that the potential for cracking
13 of the legs exists due to the large angles in which the legs are bent in Heinz
14 (Appeal Br. 6). We do not find these arguments of the Appellants
15 persuasive for the reasons clearly set forth by the Examiner in his Answer
16 (Ans. 5 and 6). In the Reply Brief, the Appellants also provide counter
17 arguments to the Examiner's Answer, but we find these counter arguments
18 unpersuasive as well (Reply Br. 2 and 3).

19 However, the Appellants further argue in the Reply Brief that in the
20 braking arrangement of Heinz, the relationship of the pad spring with the
21 caliper and the brake pad is reversed as compared to the pad spring of Forni
22 (Reply Br. 2). More specifically, the Appellants note that in Heinz, the
23 central portion of the pad spring is held fixed to the backplate via the legs 5,
24 6 while the distal ends 3 of the pad spring engage a caliper member 12 to

1 bias that brake pad (Heinz: Fig. 7; Reply Br. 2). This is opposite to the pad
2 spring of Forni in which the distal ends of the pad spring 18 are held fixed to
3 the backplate 10 and in which the central portion of the pad spring contacts
4 the pad retainer 32 to bias the brake pad (Forni: Fig. 1; Reply Br. 2). Thus,
5 the Appellants contend that if the legs of Heinz were provided on the pad
6 spring of Forni and used to further secure the pad spring as suggested by the
7 Examiner, both the distal ends and the central portion of the pad spring
8 would be fixed to the backplate, thereby preventing flexing of the pad spring
9 and preventing proper functioning thereof (Reply Br. 2 and 3). Hence, the
10 Appellants argue that one of ordinary skill would not be motivated to
11 provide the legs of Heinz on the pad spring of Forni (Reply 3).

12 We are persuaded by the above argument and agree with the
13 Appellants that one of ordinary skill would not combine Forni and Heinz in
14 the manner suggested by the Examiner because such a combination will
15 result in an inoperable pad spring. Therefore, the Appellants have shown
16 that the Examiner erred in rejecting independent claim 1 as well as claims
17 4-12 and 14-19 ultimately depending from claim 1.

18 The Appellants do not provide detailed arguments regarding
19 patentability of independent claims 13 and 21, but instead, rely on the
20 arguments presented relative to independent claim 1 (Appeal Br. 7). Like
21 claim 1, the independent claims 13 and 21 both recite a laterally and
22 downwardly extending lug having an upper surface, wherein the upper
23 surface defines a round edge. These claims stand rejected based on the same
24 combination of Forni and Heinz discussed *supra* relative to independent

1 claim 1. Therefore, for the same reason discussed relative to claim 1, the
2 Appellants have shown that the Examiner erred in rejecting in independent
3 claims 13 and 21 as well.

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5 CONCLUSIONS

6 The Appellants have shown that the Examiner has erred in rejecting
7 claims 1, 4-19 and 21 as unpatentable over Forni in view of Heinz.

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9 ORDER

10 The Examiner's rejection of claims 1, 4-19 and 21 is REVERSED.

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12 REVERSED

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17 JRG

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