

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2

4 BEFORE THE BOARD OF PATENT APPEALS
5 AND INTERFERENCES
6

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8 *Ex parte* AKIRA KURAMORI and MITSURU NAITO
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11 Appeal 2008-4536
12 Application 10/529,495
13 Technology Center 3600
14

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16 Decided: December 04, 2008
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19 *Before:* WILLIAM F. PATE, III, JENNIFER D. BAHR, and
20 FRED A. SILVERBERG, *Administrative Patent Judges.*

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22 SILVERBERG, *Administrative Patent Judge.*

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24 DECISION ON APPEAL
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27 STATEMENT OF THE CASE

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29 Appellants appeal under 35 U.S.C. § 134 (2002) from a Final Office
30 Action of claims 1, 9, 13 and 14. We have jurisdiction under 35 U.S.C.
31 § 6(b) (2002).

32 SUMMARY OF DECISION

33 We AFFIRM.

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THE INVENTION

2 The Appellants' claimed invention is directed to a tire and wheel
3 assembly having a run-flat support inserted into a cavity section of a
4 pneumatic tire. Claim 1, reproduced below, is representative of the subject
5 matter on appeal.

1. A tire/wheel assembly having a run-flat support inserted into a cavity section of a pneumatic tire coaxially with a rim, wherein
an outer peripheral surface of the run-flat support is coated with a resin layer,
and
microcapsules containing a lubricant are mixed in the resin layer.

THE REJECTION

16 The Examiner relies upon the following as evidence of
17 unpatentability:

18 Peterson US 3,809,442 May 7, 1974
19 Gerloff US 4,694,873 Sep. 22, 1987

21 The following rejection is before us for review:

22 Claims 1, 9, 13 and 14 are rejected under 35 U.S.C. § 103(a) (2004) as
23 being unpatentable over Gerloff in view of Peterson.

ISSUES

26 The issues before us are whether the Appellants have shown that the
27 Examiner erred in rejecting claims 1, 9, 13 and 14 over Gerloff in view of
28 Peterson. These issues turn on whether: (1) the Examiner has failed to

1 articulate a reason with rational underpinning to combine the teachings of
2 Gerloff and Peterson; and (2) Peterson is non-analogous art.

3

4 **FINDINGS OF FACT**

5 We find that the following enumerated findings are supported by at
6 least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d
7 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for
8 proceedings before the Office).

- 9 1. The Appellants' Specification discloses a tire/wheel assembly
10 having a pneumatic tire 2, a run-flat support 3 inserted into a cavity
11 section of the pneumatic tire coaxially with a rim 1, an outer
12 peripheral surface of the run-flat support being coated with a resin
13 layer 8, an inner surface of the tire being movable relative to and
14 coming into contact with the outer peripheral surface of the run-flat
15 support (Spec. p. 0027), and wherein microcapsules 9 containing a
16 lubricant are mixed in the resin layer 8 (Spec. p. 0032, ll. 1 and 2)
17 (Fig. 3).
- 18 2. The Appellants' Specification further discloses that the run-flat
19 support 3 is metal (Spec. p. 0025, l. 2).
- 20 3. The Appellants' Specification still further discloses that the resin
21 layer 8 has two convex portions (4a) (Spec. p. 0025, l. 4).
- 22 4. The Appellants' Specification still further discloses that as the
23 resin layer is worn away during run-flat driving the lubricant is
24 dispensed to suppress wear of the resin layer and the inner surface
25 of the tire that contacts the resin layer during the run-flat driving
26 (Spec. p. 0020, ll. 1-7 and p. 0032, ll. 2-5).

- 1 5. Gerloff discloses a tire/wheel assembly for a vehicle having a
2 pneumatic tire 1, a run-flat support 17 inserted into a cavity section
3 of the pneumatic tire coaxially with a rim, wherein an outer
4 peripheral surface of the run-flat support is coated with a resin
5 layer 12 (friction strip) (Figs. 9 and 10).
6 6. Gerloff further discloses that during an emergency operation the
7 inner wall of the tire moves relative to the friction strip 12 from a
8 position spaced from the friction strip to a position in contact with
9 the friction strip 12 (Figs. 10 and 11) (col. 4, ll. 43-46).
10 7. Gerloff still further discloses that the run-flat support 17, which is
11 part of the wheel rim assembly, is preferably metal (col. 3, ll. 10
12 and 18; col. 4, l. 51; and Figs. 9 and 10).
13 8. Gerloff still further discloses that the resin layer 12 is made of
14 polytetrafluoroethylene (PTFE) or any other suitable material (col.
15 4, ll. 59-60).
16 9. Peterson discloses a vehicle (snowmobile) 10 having a metal slide
17 rail 18 surfaced by an elongated strip 21 of self-lubricating
18 isocyanurate-lubricant bearing material which moves relative to
19 and rides along the cleats 13 of the endless belt 22 (col. 2, ll. 52-
20 57) (Fig. 2).
21 10. Peterson further discloses that the lubricant is a resin containing
22 microcapsules, which more effectively distributes the lubricant
23 throughout the strip 21 (col. 5, ll. 6-45, in particular, l. 26).
24 11. Peterson still further discloses that the isocyanurate-lubricant
25 surfaces are long wearing (col. 2, l. 12).
26

1 PRINCIPLES OF LAW

2 Appellants have the burden on appeal to the Board to demonstrate
3 error in the Examiner’s position. *See In re Kahn*, 441 F.3d 977, 985-86
4 (Fed. Cir. 2006) (“On appeal to the Board, an applicant can overcome a
5 rejection [under § 103] by showing insufficient evidence of *prima facie*
6 obviousness or by rebutting the *prima facie* case with evidence of secondary
7 indicia of nonobviousness.”) (quoting *In re Rouffet*, 149 F.3d 1350, 1355
8 (Fed. Cir. 1998)).

9 “Section 103 forbids issuance of a patent when ‘the differences
10 between the subject matter sought to be patented and the prior art are such
11 that the subject matter as a whole would have been obvious at the time the
12 invention was made to a person having ordinary skill in the art to which said
13 subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727,
14 1734 (2007). The question of obviousness is resolved on the basis of
15 underlying factual determinations including (1) the scope and content of the
16 prior art, (2) any differences between the claimed subject matter and the
17 prior art, (3) the level of skill in the art, and (4) where in evidence, so-called
18 secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18
19 (1966). *See also KSR*, 127 S. Ct. at 1734 (“While the sequence of these
20 questions might be reordered in any particular case, the [*Graham*] factors
21 continue to define the inquiry that controls.”)

22 In *KSR*, the Supreme Court emphasized “the need for caution in
23 granting a patent based on the combination of elements found in the prior
24 art,” *id.* at 1739, and discussed circumstances in which a patent might be
25 determined to be obvious. In particular, the Supreme Court emphasized that
26 “the principles laid down in *Graham* reaffirmed the ‘functional approach’ of

1 *Hotchkiss*, 11 How. 248.” *KSR*, 127 S. Ct. at 1739 (citing *Graham*, 383
2 U.S. at 12), and reaffirmed principles based on its precedent that “[t]he
3 combination of familiar elements according to known methods is likely to be
4 obvious when it does no more than yield predictable results.” *Id.* The Court
5 explained:

6 When a work is available in one field of endeavor,
7 design incentives and other market forces can
8 prompt variations of it, either in the same field or a
9 different one. If a person of ordinary skill can
10 implement a predictable variation, § 103 likely
11 bars its patentability. For the same reason, if a
12 technique has been used to improve one device,
13 and a person of ordinary skill in the art would
14 recognize that it would improve similar devices in
15 the same way, using the technique is obvious
16 unless its actual application is beyond his or her
17 skill.

18 *Id.* at 1740. The operative question in this “functional approach” is thus
19 “whether the improvement is more than the predictable use of prior art
20 elements according to their established functions.” *Id.*

21 The Supreme Court stated that there are “[t]hree cases decided after
22 *Graham* [that] illustrate the application of this doctrine.” *Id.* at 1739. “In
23 *United States v. Adams*, ... [t]he Court recognized that when a patent claims
24 a structure already known in the prior art that is altered by the mere
25 substitution of one element for another known in the field, the combination
26 must do more than yield a predictable result.” *Id.* at 1739-40. “*Sakraida*
27 and *Anderson’s-Black Rock* are illustrative – a court must ask whether the
28 improvement is more than the predictable use of prior art elements according
29 to their established function.” *Id.* at 1740.

1 The Supreme Court stated that “[f]ollowing these principles may be
2 more difficult in other cases than it is here because the claimed subject
3 matter may involve more than the simple substitution of one known element
4 for another or the mere application of a known technique to a piece of prior
5 art ready for the improvement.” *Id.* The Court explained:

6 Often, it will be necessary for a court to look to
7 interrelated teachings of multiple patents; the
8 effects of demands known to the design
9 community or present in the marketplace; and the
10 background knowledge possessed by a person
11 having ordinary skill in the art, all in order to
12 determine whether there was an apparent reason to
13 combine the known elements in the fashion
14 claimed by the patent at issue.

15 *Id.* at 1740-41. The Court noted that “[t]o facilitate review, this analysis
16 should be made explicit.” *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (Fed.
17 Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by
18 mere conclusory statements; instead, there must be some articulated
19 reasoning with some rational underpinning to support the legal conclusion of
20 obviousness”). However, “the analysis need not seek out precise teachings
21 directed to the specific subject matter of the challenged claim, for a court
22 can take account of the inferences and creative steps that a person of
23 ordinary skill in the art would employ.” *Id.*

24 The Federal Circuit recently concluded that it would have been
25 obvious to combine (1) a mechanical device for actuating a phonograph to
26 play back sounds associated with a letter in a word on a puzzle piece with
27 (2) an electronic, processor-driven device capable of playing the sound
28 associated with a first letter of a word in a book. *Leapfrog Ent., Inc. v.*
29 *Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) (“[a]ccommodating

1 a prior art mechanical device that accomplishes [a desired] goal to modern
2 electronics would have been reasonably obvious to one of ordinary skill in
3 designing children's learning devices"). In reaching that conclusion, the
4 Federal Circuit recognized that "[a]n obviousness determination is not the
5 result of a rigid formula disassociated from the consideration of the facts of a
6 case. Indeed, the common sense of those skilled in the art demonstrates why
7 some combinations would have been obvious where others would not." *Id.*
8 at 1161 (citing *KSR*, 127 S.Ct. 1727, 1739 ("The combination of familiar
9 elements according to known methods is likely to be obvious when it does
10 no more than yield predictable results.")). The Federal Circuit relied in part
11 on the fact that Leapfrog had presented no evidence that the inclusion of a
12 reader in the combined device was "uniquely challenging or difficult for one
13 of ordinary skill in the art" or "represented an unobvious step over the prior
14 art." *Id.* (citing *KSR*, 127 S.Ct. at 1740-41).

15 The analogous-art test requires that the Board show that a reference is
16 either in the field of the applicant's endeavor or is reasonably pertinent to the
17 problem with which the inventor was concerned in order to rely on that
18 reference as a basis for rejection. References are selected as being
19 reasonably pertinent to the problem based on the judgment of a person
20 having ordinary skill in the art. *In re Kahn*, 441 F.3d 977, 986-87 (Fed. Cir.
21 2006).

22
23 ANALYSIS

24 Appellants argue claims 1, 9, 13 and 14 as a group. As such, we
25 select claim 1 as representative of the group, and claims 9, 13 and 14 will
26 stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

1 Gerloff discloses a tire/wheel assembly having a pneumatic tire 1, a
2 metallic run-flat support 17 (Fact 7) inserted into a cavity section of the
3 pneumatic tire coaxially with a rim, an outer peripheral surface of the run-
4 flat support is coated with a resin layer (friction strip) 12 (Fact 5); an inner
5 wall of the tire being movable relative to the friction strip 12 (Fact 6); and
6 wherein the resin layer 12 is made of PTFE or any other suitable material
7 (col. 4, ll. 59-60) (Fact 8). Gerloff differs from the claimed subject matter in
8 that it does not disclose the use of lubricant containing microcapsules in the
9 resin layer. Peterson teaches using a self-lubricating isocyanurate-lubricant
10 bearing material (Fact 9) containing microcapsules (Fact 10) on one (metal)
11 element of two relatively moving elements (13, and 18/21) to more
12 effectively distribute the lubricant throughout the strip 21 (Fact 10) and to
13 provide the one element with a long wearing surface (Fact 11). We
14 conclude that to combine the teachings of Gerloff and Peterson, as set forth
15 by the Examiner (Ans. 3, and Final 2 and 3), by substituting a self-
16 lubricating material having microcapsules formed therein for the PTFE
17 friction strip would have been obvious at the time the invention was made to
18 a person having ordinary skill in the art as a simple substitution of one
19 known element for another to obtain a predictable result. Alternatively, in
20 *KSR* the Supreme Court held that if a technique has been used to improve
21 one device and a person of ordinary skill in the art would recognize that it
22 would predictably improve similar devices in the same way, using the
23 technique is obvious. *See KSR* at 1740.

24 Appellants argue that the detailed workings of a snowmobile are not
25 generally known to designers in the tire/wheel industry and that “common
26 sense” leads to the conclusion that a designer of the present invention would

1 not be aware of lubricants used on conveyor belts (Br. 6 and 7). Peterson's
2 snowmobile is a motorized vehicle wherein sliding friction of rubber-like
3 materials is a significant operational problem. Thus, the friction reducing
4 techniques taught therein are reasonably pertinent to the problem Appellants
5 are concerned with.

6 Appellants still further argue that the problem they are addressing is
7 reducing wear on the resin layer and not reducing friction as stated by the
8 Examiner (Ans. 5) (Reply Br. 1). We find that the problem addressed by
9 Peterson is providing a long wearing surface (Fact 11), which is the same
10 problem as addressed by Appellants. Further, as Appellants' resin layer 8
11 and Peterson's strip 21 have increased lubrication on the surfaces due to
12 microcapsules, they both also solve the problem of reducing friction and
13 friction induced wear. Therefore, we find that Peterson is analogous art.
14

15 CONCLUSION OF LAW

16 We conclude that the Appellants have not shown that the Examiner
17 erred in rejecting claims 1, 9, 13 and 14 under 35 U.S.C. § 103(a) as being
18 unpatentable over Gerloff in view of Peterson, (1) as the Examiner has
19 articulated a reason with rational underpinning to combine the teachings of
20 Gerloff and Peterson; and (2) Peterson is analogous art.

21 22 DECISION

23 The decision of the Examiner to reject claims 1, 9, 13 and 14 over
24 Gerloff in view of Peterson is affirmed.

25 No time period for taking any subsequent action in connection with
26 this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2007).

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Application 10/529,495

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2 AFFIRMED

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4 JRG

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