UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THIERRY PASCAL and BRUNO SCHLUND

Appeal 2007-3194
Application 10/382,982
Technology Center 1700

Decided: December 28, 2007

Before BRADLEY R. GARRIS, THOMAS A. WALTZ, and
PETER F. KRATZ, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Primary Examiner's final rejection of claims 1-25, 27, 28, and 31-33. The remaining claims pending in this application are claims 26, 29, and 30. Claims 29 and 30 have been allowed by the Examiner, while claim 26 has been objected to by the Examiner as containing allowable subject matter but

depending on a rejected claim (Br. 2; Ans. 2, ¶ (3)[1]). We have jurisdiction pursuant to 35 U.S.C. § 6(b).

According to Appellants, the invention is directed to a flexible and tough composition used in the production of pipes for conveying hydrocarbons, where the composition comprises at least one vinylidene fluoride homopolymer (A) or a copolymer (A) of vinylidene fluoride with at least one other monomer, at least one fluoroelastomer (B), and optionally a plasticizer (C), in specified amounts and properties (Br. 2-3). Independent claim 1 is illustrative of the invention and a copy of this claim is reproduced below:

> 1. A flexible and tough composition comprising:
>
> - at least one vinylidene fluoride (VF2) homopolymer (A) or a copolymer (A) of VF2 and at least one other monomer copolymerizable with VF2, in which said at least one other monomer is present in an amount of between 0 and 30 parts by weight per 100 parts by weight of VF2,
> - at least one fluoroelastomer B,
> - optionally a plasticizer C,
>
> in which, on the one hand, the said composition comprises from 0.5 to 10 parts by weight of B and from 0 to 10 parts by weight of C per 100 parts by weight of A, with the additional condition that the sum of B and C is from 0.5 to 10.5 parts by weight and, on the other hand, the vinylidene fluoride homopolymer or copolymer (A) is chosen in such a way that it has a melt flow index, measured according to the ISO

[1] We refer to and cite from the "**SUPPLEMENTAL BRIEF ON APPEAL UNDER 37 C.F.R. §41.37**" dated Jan. 10, 2007, and the "**EXAMINER'S ANSWER**" dated Feb. 26, 2007.

1133 standard at 230˚C under a load of 5 kg, of less than 5 g/10 min and a critical modulus G_c, at the intersection of the melt shear moduli G' and G'' measured at 190˚C, of between 5 and 22 kPa.

The Examiner has relied on the following references as evidence of unpatentability:

Kamiya	US 5,354,811	Oct. 11, 1994
Pascal (Pascal '586)	US 6,376,586 B1	Apr. 23, 2002
Suzuki (as translated)	JP 409059469A	Mar. 4, 1997
Pascal (Pascal '855, (as translated)	WO 98/56855 A1	Dec. 17, 1998

Harper, Ed., *Handbook of Materials for Product Design,* pp. 6.7-6.10 (3d. ed., McGraw-Hill, New York, 2001).

ISSUE ON APPEAL

Claims 1-5, 8-14, 21, 27, 28, and 33 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pascal '855 in view of Harper (Ans. 4).

Claims 6, 7, 15-20, and 22-25 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pascal '855 in view of Harper and Suzuki (Ans. 6).

Claims 31 and 32 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pascal '855 in view of Harper, Suzuki, and Kamiya (Ans. 7).[2]

Claims 1-5, 8-14, and 21 stand rejected under the judicially created doctrine of obviousness-type double patenting over claims 1-3 of Pascal '586 alone or in view of Harper (Ans. 7).

Appellants contend that Pascal '855 discloses examples of acrylic elastomers, a silicone elastomer, and NBR rubber, but does not disclose or

[2] We note that the Examiner has withdrawn the three rejections based on Johnson, US 5,109,071, as the primary reference (Ans. 3, ¶ (6)).

suggest any fluoroelastomer (Br. 12). Appellants contend that the mere disclosure of a broad chemical genus such as "elastomers" does not render obvious every species encompassed therein (*id.*).

Appellants contend that there is no motivation from Harper to use fluoroelastomers as the elastomer of Pascal '855, since nothing suggests that fluoroelastomers would give better results than acrylics or silicones, which are also oil-resistant with desirable physical properties (Br. 13; Reply Br. 1-2). Appellants also contend that Harper makes no suggestion regarding the amount of fluoroelastomer (Br. 13).

With regard to Suzuki and Kamiya, Appellants contend that merely because the Examiner asserts that such monomers exist does not provide motivation to modify Pascal '855 (Br. 15; Reply Br. 3). Appellants further contend that Kamiya does not disclose all fluoroelastomers as equivalents, regardless of the composition, and teaches use of much larger amounts (Br. 15).

Appellants also present arguments regarding the amounts recited in claims 4 and 9-11 (Br. 14). Therefore, we select claim 1 as representative of the rejected claims and also separately consider claims 4 and 9-11.

With regard to the obviousness-type double patenting rejection, Appellants contend that Pascal '586 corresponds to Pascal '855, and thus the same arguments apply to this rejection (Br. 16-17).

The Examiner contends that Pascal ('855 or '586) discloses every limitation of the claims on appeal, differing only by disclosing "elastomer B" which is generic in scope to "fluoroelastomers" as required by the claims

on appeal (Ans. 5 and 8).[3] The Examiner contends that this generic disclosure would have rendered the fluoroelastomer species obvious (Ans. 8), but further cites Harper as evidence that fluorocarbon rubbers (i.e., elastomers) were known to provide exceptionally good resistance to oils and solvents that would attack most all rubbers, which is the environment of the composition taught by Pascal '855 and '586 (Ans. 5-6 and 9).

The Examiner contends that Suzuki and Kamiya were merely applied to show the use of well-known fluoroelastomers in blends with fluorine-containing resins for uses similar to those taught by Pascal '855 or '586 (Ans. 6-7 and 10-11). The Examiner further contends that the amount of each component was disclosed by Pascal '855 and '586 (Ans. 10).

Accordingly, the dispositive issue presented from the record in this appeal is as follows: (1) Has the Examiner identified sufficient reasoning to support the combination of references and render obvious the use of a fluoroelastomer as the elastomer in the composition of Pascal '855 or in the claimed composition of Pascal '586?

We determine that the Examiner has established a prima facie case of obviousness in view of the reference evidence, which prima facie case has not been adequately rebutted by Appellants' arguments. Therefore, we AFFIRM all grounds of rejection presented in this appeal essentially for the reasons stated in the Answer, as well as those reasons set forth below.

---

[3] We employ terms such as "discloses" in our combined discussion of the § 103(a) rejections and the obviousness-type double patenting rejection. However, it should be understood that it is claims 1-3 of Pascal '586 that form the basis for the claimed composition for which the proposed modification involving a fluoroelastomer species pertains with regard to the obviousness-type double patenting rejection.

OPINION

We determine the following Factual Findings (FF) from the record in this appeal:

(1) Pascal '855 discloses a flexible, tough composition for use in the transportation of gases and hydrocarbons in the oil and gas industries comprising at least one homopolymer of vinylidene fluoride (VF2) or a copolymer of VF2 and at least one other monomer (A) in an amount of between 0 to 20 parts by weight per hundred of VF2 (pbw), where the other monomer is preferably a fluoridated monomer, at least one elastomer B, at least one plasticizer C, and where the amounts of A, B, and C, as well as the melt flow index and critical modulus overlap the claimed amounts and properties (Ans. 4-5; Pascal '855, 2:8-10; 5:1-7:2);[4]

(2) Pascal discloses the use of an elastomer B generically, with preferred elastomers of acrylics, silicones, MBS and NBR, while teaching that the composition is used to make materials for contact with "especially aggressive substances" such as hydrocarbons, strong acids, and solvents (Ans. 5; Pascal '855, 5:9; 7:5-9:7; 1015-24; 14:Table 2);

(3) Harper discloses that the polar fluorine atom in fluorocarbon rubber (fluoroelastomers) "provides exceptionally good resistance to oils and solvents that would attack most all other rubbers" (Ans. 5; Harper:6.9);

[4] As correctly noted by Appellants (Br. 16), Pascal '855 corresponds to Pascal '586. Therefore, we do not repeat the corresponding factual findings from Pascal '586.

(4) Suzuki discloses a fluorine-containing resin composition for use in sheathing wires where conventional fluoroelastomers are used comprising vinylidene fluoride (VF2), hexafluoropropylene (HFP), and tetrafluoroethylene (TFE) (Ans. 6; Suzuki:4 (claim 1); ¶¶ [0001], [0003], [0009], and [0011]); and

(5) Kamayi discloses a thermoplastic elastomer composition including conventional fluoroelastomers which are suitable to be crosslinked and mixed with a thermoplastic fluoropolymer (Ans. 7; Kamiya, Abstract; col. 3, ll. 8-14; col. 3, l. 65-col. 4, l. 9).

Under 35 U.S.C. § 103, the factual inquiry into obviousness requires a determination of: (1) the scope and content of the prior art; (2) the differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) secondary considerations. *See Graham v. John Deere Co. of Kansas City,* 383 U.S. 1, 17-18 (1966). "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex, Inc.,* 127 S. Ct. 1727, 1740 (2007). "[W]hen a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields no more than one would expect from such an arrangement, the combination is obvious." *KSR,* 127 S. Ct. at 1741, *quoting Sakraida v. AG Pro, Inc.,* 425 U.S. 273, 282 (1976). An obviousness rejection of the claims was affirmed in light of the prior art teaching that "hydrated zeolites will work" in detergent formulations, even though the "inventors selected the zeolites of the claims from among thousands of compounds." *In re Corkill,* 771 F.2d 1496, 1500 (Fed. Cir. 1985). The analysis supporting obviousness should include "some articulated reasoning

with some rational underpinning to support the legal conclusion of obviousness." *KSR,* 127 S. Ct. at 1741.

Applying the preceding legal principles to the factual findings in the record of this appeal, we determine that the Examiner has properly identified factual findings and reasoning for combining the references as proposed, thus establishing a prima facie case of obviousness which Appellants have not adequately rebutted by their arguments. As shown by FF (1) listed above, and not disputed by Appellants, Pascal '855 discloses every limitation of claim 1 on appeal, differing only in the generic teaching of an "elastomer B" instead of the specific type of elastomer ("fluoroelastomer B") required by claim 1 on appeal. We determine that selection of a specific type of elastomer meeting the requirements set forth by Pascal '855 would have been well within the ordinary skill of the art. *See In re Corkill,* 771 F.2d at 1500. Furthermore, as shown by FF (3) listed above, we determine that Harper teaches that fluoroelastomers as a class provide exceptionally good resistance to oils and solvents that would attack most all other rubbers. As shown by FF (1) and (2) listed above, we determine that the composition disclosed by Pascal '855 is used to make materials that require resistance to oils and solvents that are of an "especially aggressive" nature, i.e., ones such as hydrocarbons and acids that would attack most all rubbers. Therefore, we also agree with the Examiner that it would have been obvious to one of ordinary skill in this art to have used the fluoroelastomers taught by Harper for their known benefit in place of the elastomer in the composition of Pascal '855, for use in making materials exposed to especially aggressive oils and solvents. We note that Appellants have not alleged nor shown any comparison establishing unexpected results.

With regard to the rejections applying Suzuki and Kamiya, we determine that the Examiner has established that the fluoroelastomers disclosed by these references were conventional in the art, and known to be used with similar homopolyers and copolymers to those recited in claim 1 on appeal (Ans. 6-7 and 11; *see* FF (4) and (5) listed above). Accordingly, in view of the teachings of Harper directed to fluoroelastomers as a class, we determine that it would have been obvious to use the conventional fluoroelastomers taught by Suzuki and Kamiya with a reasonable expectation of success in producing a material resistant to oils and solvents.

With regard to claims 4 and 9-11, we determine that Pascal '855 teaches amounts of "elastomer B" within these claimed ranges (Ans. 10; *see* FF (1) listed above). We determine that the amount of fluoroelastomer, if used as "elastomer B" in the composition of Pascal '855, necessary to produce the desired properties would have been well within the ordinary skill in this art.

For the foregoing reasons and those stated in the Answer, we affirm all grounds of rejection presented in this appeal. The decision of the Examiner 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)(1)(iv) (2004).

AFFIRMED

tf/clj

MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201