UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte DALE I HANER, ABHAY K. DESHPANDE, JUSTIN A MEHAFFY,
and GEORGE A. LOCKO

Appeal No. 2006-2538
Application No. 10/140,692

ON BRIEF

Before ADAMS, GRIMES, and LEBOVITZ, Administrative Patent Judges.

GRIMES, Administrative Patent Judge.

DECISION ON APPEAL

This appeal involves claims to a hot melt adhesive comprising a modified rosin-terpene, which the examiner has rejected as obvious. We have jurisdiction under 35 U.S.C. § 134. We reverse.

Background

"Hot melt adhesives are widely used for various commercial applications. . . . Such hot melt adhesives are applied to a substrate while in [their] molten state and cooled to harden the adhesive layer." Specification, page 1. "Most commercially available hot melt adhesives require temperatures of 350°F (177°C) or greater . . . to achieve a satisfactory application viscosity. While adhesive formulations that can be

applied at temperatures below 300°F (149°C) can be prepared using low molecular weight components or a high wax content, application viscosity and adhesive properties suffer." Id.

The specification discloses "a hot melt adhesive comprising an adhesive polymer and a tackifier. Tackifiers required for use in the practice of the invention are modified rosin[ ] terpenes, preferably phenolic modified rosin-terpenes." Page 2.

"Rosin is mainly a mixture of C_{20}, tricyclic fused-ring, monocarboxylic acids, typified by pimaric and abietic acids, which are commonly referred to as 'resin acids.'" Page 4. "Terpenes are cyclic, unsaturated, C_{10} hydrocarbons obtained from the Kraft process for making paper, turpentines and citrus oils. Examples of terpene compounds include alpha-pinene, beta-pinene, d-limonene, . . . and the like." Page 5.

The specification includes a working example describing preparation of a phenol modified rosin-terpene. Pages 18-19. The exemplary procedure involves dissolving phenol in a xylene solvent, then adding a catalyst and a mixture of a terpene and a rosin, also dissolved in xylene.

According to the specification, the modified rosin-terpenes can be mixed with "[a]ny base polymer suitable for use in formulating hot melt adhesives, as are well known to those skilled in the art. . . . Such polymers include amorphous polyolefins, ethylene-containing polymers and rubbery block copolymers." Page 9.

The resulting hot melt adhesives are said to be "particularly useful in case sealing applications where exceptionally high heat resistance in addition to cold resistance is important, i.e., in hot filled packaging applications; e.g. sealing and closing operations for cartons, cases, or trays used in packaging molten cheese, yogurt or

freshly baked goods which are subsequently subjected to refrigeration or freezing, and for corrugated cases." Page 15.

Discussion

1. Claims

Claims 1-16 and 21-24 are pending and on appeal. Claim 1 is representative and reads as follows:

1. A hot melt adhesive comprising an adhesive polymer and a modified rosin-terpene, and having a viscosity of less than about 3000 cps at 150°C.

"[A] claim preamble has the import that the claim as a whole suggests for it. In other words, when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects." Bell Commc'ns Research Inc. v. Vitalink Commc'ns Corp., 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995).

The preamble of claim 1 states that the claimed composition is a "hot melt adhesive." The phrase "hot melt adhesive" itself implies that the composition is solid at room temperature and melts when heated. The specification states that hot melt adhesives are applied melted and harden on cooling to provide an adhesive layer. Page 1. We interpret the preamble of claim 1 to limit the claimed composition to one having the properties disclosed for hot melt adhesives: the claimed composition is solid at room temperature, melts when heated, and cools to form an adhesive layer.

Claim 1 also requires that the composition comprise an adhesive polymer and "a modified rosin-terpene," and that it has a viscosity of less than 3000 cps at 150°C.

2. Obviousness

The examiner rejected claims 1-16 and 21-24 under 35 U.S.C. § 103 as obvious in view of Mehaffy[1] and Takigawa.[2] The examiner separately rejected claims 1-16 and 21-24 under 35 U.S.C. § 103 as obvious in view of either Paul[3] or Haner,[4] combined with Takigawa. Both rejections rely on the same rationale, so we will consider them together.

The examiner cited the primary references (Mehaffy, Paul, and Haner) for their disclosure of hot melt adhesives comprising an adhesive polymer and a tackifier; the examiner noted that each of the references discloses that the tackifier could be a phenolic modified terpene or a phenolic modified rosin, or (according to Paul and Haner) a mixture of the two. See the Examiner's Answer, pages 3 and 5.

The examiner acknowledged that none of the primary references teach a modified rosin-terpene, but cited Takigawa as suggesting this limitation. The examiner noted that "Takigawa teaches an adhesive comprising a phenolic modified rosin-terpene tackifier, which results in excellent balance among various properties including adhesiveness, holding powder [sic, power] and tack, and excellent warpage resistance (see abstract)." Examiner's Answer, page 3. The examiner concluded that

> it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to have employed a phenolic modified rosin-terpene tackifier, as taught by Takigawa, in the adhesive of Mehaffy, for the purpose of improving balance among adhesiveness, tackiness, and warpage resistance.

[1] Mehaffy et al., U.S. Patent 6,117,945, issued Sept. 12, 2000
[2] Takigawa et al., JP 07-082541, published March 28, 1995
[3] Paul et al., U.S. Patent 5,685,758, issued Nov. 11, 1997
[4] Haner et al., U.S. Patent 6,593,407, issued July 15, 2003 (application filed Feb. 6, 2001)

Id., page 4. See also page 6 (same reasoning relied on for combining Takigawa with Paul or Haner).

Appellants argue that Takigawa's adhesive is a solution acrylic adhesive, which has properties that differ from those of the claimed hot melt adhesive. See the Appeal Brief, pages 5-6. Appellants argue that "[t]here is no teaching in the references of record that hot melt adhesives are prone to warpage and, as such, no motivation to improve the balance among adhesiveness[,] tackiness and warpage resistance by combining the Mehaffy and Takigawa references." Id., page 6. See also page 12 (same argument with respect to the combination of Takigawa with Paul or Haner).

"[T]he Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. '[The Examiner] can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.'" In re Fritch, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (citations omitted). "When determining the patentability of a claimed invention which combines two known elements, 'the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" In re Beattie, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992).

In this case, we agree with Appellants that the examiner has not adequately explained how the cited references would have suggested the claimed composition to a person of ordinary skill in the art. The claimed composition is a hot melt adhesive comprising an adhesive polymer and a modified rosin-terpene.

The primary references cited by the examiner all disclose hot melt adhesives comprising an adhesive polymer and a tackifier. Haner, the closest prior art, teaches a "hot melt adhesive comprising an adhesive polymer, a modified rosin and/or modified terpene" preferably phenolic-modified rosin and phenolic-modified terpene. Col. 2, lines 42-58. Neither Haner nor the other primary references teach a modified rosin-terpene.

Takigawa discloses a phenol-modified rosin-terpene, produced by a process similar to the working example in the instant specification: dissolving phenol in a solvent, adding an acid catalyst and a mixture of a terpene and a rosin. Compare ¶ [0006] of Takigawa with pages 18-19 of the instant specification. Takigawa teaches using the phenol-modified rosin-terpene as a tackifier in "acrylic pressure sensitivity type adhesives." ¶ [0013]. The adhesive formulation is disclosed to be useful for making "pressure sensitive adhesive tape or an acrylic pressure sensitivity type adhesives constituent useful to manufacture of sheets" (¶ [0001]) or double-faced tape (¶ [0003]).

In that context, Takigawa teaches that using phenol-modified rosin-terpene as a tackifier produced "an excellent balance among various properties including adhesiveness, holding powder [sic] and tack, and especially excellent warpage resistance as compared with such a composition containing a combination of a rosin phenol resin with a terpene phenol resin as the tackifying resin." Abstract.

The problem with the examiner's rejection is that none of the cited references teach that the properties conferred on double-faced tape by the use of a phenol-modified rosin-terpene would also be conferred on the hot melt adhesives taught by the primary references. Nor do any of the references teach that the hot melt adhesives taught by the primary references were in need of improved balance among properties

such as adhesiveness, holding power and warpage resistance. Thus, as Appellants have argued, the disclosure by Takigawa that using a phenol-modified rosin-terpene as a tackifier improves such properties in double-faced tape would not necessarily have led those skilled in the art to expect that using phenol-modified rosin-terpene as a tackifier in a hot melt adhesive.

Different adhesives are used for different purposes and require different properties. A hot melt adhesive must achieve a satisfactory viscosity at an elevated temperature and harden to form an adhesive layer when it cools. Specification, page 1. Double-faced adhesive tape is not heated prior to use and cooled after application; the adhesive in double-faced tape therefore has different properties than a hot melt adhesive. The evidence of record does not support the examiner's position that those skilled in the art would have been motivated to use a phenol-modified rosin-terpene as a tackifier in a hot melt adhesive based on Takigawa's teaching that its use in double-faced tape conferred an advantageous balance of properties.

Summary

The examiner has not adequately shown that a person of ordinary skill in the art would have been motivated to combine the modified rosin-terpene taught by Takigawa to be useful in double-faced tape with the hot melt adhesive taught by the other references. We therefore reverse the rejections on appeal.

REVERSED

DONALD E. ADAMS Administrative Patent Judge	)	
ERIC B. GRIMES Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
RICHARD M. LEBOVITZ Administrative Patent Judge	)	

EBG/lbg