The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JUDY CHU and JAMES GREGORY GILLICK

Appeal 2007-0005
Application 10/198,489
Technology Center 1700

Decided: November 15, 2006

Before KIMLIN, PAK, and TIMM, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 21-27 and 29-38.

Claim 21 is illustrative:

21. An airspring comprising an air sleeve, said air sleeve comprising at least one reinforcement layer and a rubber cover disposed adjacent to the reinforcement layer, said reinforcement layer comprising a vulcanizable polychloroprene rubber composition and nylon textile fibers, said fibers having distributed over surface portions thereof an adhesive comprising:

(A) a resorcinol-formaldehyde resin; and

(B) a copolymer of from about 1 weight percent to about 10 weight percent 2,3-dichloro-1,3-butadiene and from about 90 weight percent to about 99 weight percent chloroprene.

The Examiner relies upon the following references as evidence of obviousness:

Iwami	US 3,525,703	Aug. 25, 1970
Atwell	US 3,713,347	Jan. 30, 1973
Warmuth	US 4,741,517	May 3, 1988
Burkley	US 5,253,850 A	Oct. 19, 1993
Fujiwara	US 5,306,369 A	Apr. 26, 1994
Fujimoto	US 5,626,953 A	May 6, 1997

Appellants' claimed invention is directed to an airspring comprising an air sleeve which, in turn, comprises a reinforcement layer and a rubber cover adjacent to the reinforcement layer. The reinforcement layer comprises a vulcanizable polychloroprene rubber composition and nylon fibers. The nylon fibers are adhered to the polychloroprene rubber composition with an adhesive comprising a resorcinol-formaldehyde resin and a copolymer of 2,3-dichloro-1,3-butadiene and chloroprene. According to Appellants' Specification, an airspring comprising an air sleeve comprising a reinforcement layer of a vulcanizable polychloroprene rubber composition and nylon textile fibers was known in the art at the time of filing the present application, as was the use of an adhesive for bonding the polychloroprene rubber and nylon fibers. The specification discloses that "air sleeves using SBR-based adhesives have shown poor adhesion between

nylon cord and polychloroprene compound at high stress" (Spec. 2, ¶ 2). The claimed adhesive is offered as an alternative to improve adhesion in air sleeves.

The appealed claims stand rejected under 35 U.S.C. § 103(a) as follows:

(a) claims 21, 22, 26, 27, and 29 over Fujiwara in view of the admitted prior art in the Specification,

(b) claims 23-25 and 30-38 over Fujiwara in view of the admitted prior art and Iwami, and

(c) claims 21-27 and 29-33 over Fujiwara in view of the admitted prior art and Atwell.

Appellants do not set forth separate arguments for the groups of claims separately rejected by the Examiner. Accordingly, the separately rejected groups of claims stand or fall together.

We have thoroughly reviewed each of Appellants' arguments for patentability. However, we are in complete agreement with the Examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of Section 103 in view of the applied prior art. Accordingly, we will sustain the Examiner's rejections for essentially those reasons expressed in the Answer, and we add the following primarily for emphasis.

There is no dispute that Fujiwara discloses rubber/textile composites that can be used for automobile tires, rubber hoses, power transmission belts,

conveyer belts, etc., comprising polyamide fibers adhered to a polychloroprene rubber composition with an adhesive comprising the presently claimed resorcinol-formaldehyde resin and a copolymer of dichlorobutadiene and chloroprene. Fujiwara, however, does not expressly disclose that the rubber/fiber composite is in the form of an airspring, or that the polyamide textile fibers are nylon. It is Appellants' contention that "[n]owhere does Fujiwara mention airsprings, nor disclose or imply the use of the composite material in airsprings" (Br. 7, ¶ 3), and that "Fujiwara teaches only that *aromatic* polyamide fibers are suitable for use with the adhesive disclosed therein . . . and says nothing about the suitability of nylon fibers with such an adhesive" (Br. 6, last ¶, emphasis added).

We are not persuaded by Appellants' arguments. Appellants' specification discloses that "[m]any adhesives known to produce very strong bonds between rubber and fabric are entirely unsuitable for many rubber fabric structures because the bonds deteriorate or the fabric ruptures when the structures are subjected to repeated flexing and elevated temperatures . . . flex-life cannot be foretold from measurements of bond strengths alone" (Spec. 1, ¶ 3). Also, the Specification relates that the adhesion of nylon cord to polychloroprene is essential for field performance of air sleeves, particularly with respect to high stress tolerance (Spec. 2, ¶ 2). Therefore, since Fujiwara teaches that the disclosed polychloroprene/polyamide fiber matrix is suitable for making automobile tires, rubber hoses, power transmission belts, and conveyor belts, which articles are subjected to high

stress and flexing, we agree with the Examiner that one of ordinary skill in the art would have had the requisite reasonable expectation that the composites of Fujiwara can be effectively used in making an air sleeve for an airspring. It is well settled that absolute predictability is not a requirement for a finding of obviousness under Section 103 but, rather, only a reasonable expectation of success. *In re O'Farrell*, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). Certainly, it cannot be gainsaid that automobile tires, power transmission belts, and conveyor belts are subjected to flexation and high stress at high temperatures.

We also agree with the Examiner that it would have been obvious for one of ordinary skill in the art to use nylon fibers instead of the aromatic polyamide fibers that are part of Fujiwara's invention. As explained by the Examiner, Fujiwara specifically discloses that "aromatic polyamide fibers are very poorly wettable to RFL solutions due to their more inactive surface than those of aliphatic polyamide fibers or polyester fibers" and that "when vulcanized composite products of aromatic fibers and rubbers produced by such known methods as above do not stand uses where large shearing force is generated between the rubber and fibers by, for example, bending, compression or elongation under high temperature conditions, since the adhesion therebetween is insufficient to lead to separation failure at interface between the fibers and rubbers" (col. 1, l. 66 through col. 2, l. 9). Hence, it can be seen that the point of Fujiwara's invention is to make adhesion improved between aromatic polyamide fibers and rubber compositions via

RFL adhesives such that it is comparable to the bond between nylon fibers and rubber. Indeed, Fujiwara discloses that Japanese Patent Laid-Open No. 59-89375, which is also cited in Appellants' Specification, discloses the use of Appellants' RFL adhesive solution, i.e., an aqueous mixture of a chloroprene/dichlorobutadiene copolymer latex and resorcinol-formaldehyde resin (See col. 1, ll. 45-49). Accordingly we are satisfied that one of ordinary skill in the art would have gleaned from Fujiwara that it was known in the art, or at least obvious, to bond nylon fibers to rubber with the presently claimed adhesive composition.

Regarding the separate rejections over the additional references, Iwami and Atwell, we concur with the reasoning set forth in the Examiner's Answer.

As a final point, we note that Appellants base no argument upon objective evidence of nonobviousness such as unexpected results, which would serve to rebut the prima facie case of obviousness established by the Examiner.

In conclusion, based on the foregoing and the reasons stated by the Examiner, the Examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (2004).

AFFIRMED

hh

THE GOODYEAR TIRE & RUBBER COMPANY
INTELLECTUAL PROPERTY DEPARTMENT 823
1144 EAST MARKET STREET
AKRON, OH 44316-0001