UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KIYOSHI UEYOKO, ROBERT JOHN BOEHLEFELD,
MAURE ELLEN KNAVISH, and LARRY LEE MERSHON

Appeal 2011-006116
Application 11/592,893
Technology Center 1700

Before HUBERT C. LORIN, CATHERINE Q. TIMM, and
DEBORAH KATZ, *Administrative Patent Judges*.

KATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

The rejection of claims 1 and 3-17 under 35 U.S.C. § 134 was brought by the named inventors and the real party-in-interest, Goodyear Tire & Rubber Company. (App. Br. 3.) Claims 2 and 18 were previously cancelled. (*Id.*) We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

The Examiner maintained the following rejections:

- Claims 1, 3, 5-7, 10-14, and 18 under 35 U.S.C. § 103(a) over Iwata[1], Ueyoko[2], and Reuter[3];
- Claims 4, 8, 9, 15, and 17 under 35 U.S.C. § 103(a) over Iwata, Ueyoko, Reuter, and Fritsch[4]; and
- Claim 16 under 35 U.S.C. § 103(a) over Iwata, Ueyoko, Reuter, Fritsch, and Suzuki[5].

Appellants do not argue for the separate patentability of claims 1, 3, 5-7, 10-14, and 18 under 35 U.S.C. § 103(a) over Iwata, Ueyoko, and Reuter. We focus on claim 1 in our review. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Appellants' claim 1 recites:

> A pneumatic tire having a carcass and a belt reinforcing structure, the belt reinforcing structure comprising:
> a composite belt structure of cord reinforced layers including a radially inner layer of cord having an angular orientation of 5 degrees or less with the circumferential direction,
> and a radially outer layer of cord having an angular orientation of 5 degrees or less with the circumferential

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[1] U.S. Patent No. 4,702,293, issued October 27, 1987.
[2] U.S. Patent No. 6,116,311, issued September 12, 2000.
[3] U.S. Patent No. 6,799,618 B2, issued October 5, 2004.
[4] U.S. Patent No. 6,601,378 B1, issued August 5, 2003.
[5] U.S. Patent No. 4,161,203, issued July 17, 1979.

direction, wherein the radially outer layer has a width greater than the radially inner layer,

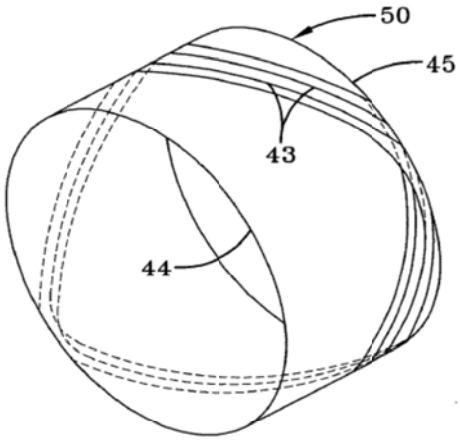
and a zigzag belt reinforcing structure forming two layers of cords, the cords inclined at 5 to 30 degrees relative to the centerplane of the tire extending in alternation to turnaround points at each lateral edge,

wherein the zigzag belt structure is arranged between the radially inner layer and the radially outer layer, and wherein the radially inner layer is wider than said zigzag belt reinforcing structure,

and further comprising a second radially inner layer having an angular orientation of 5 degrees or less with the circumferential direction located radially inwards of said zigzag belt reinforcing structure.

(App. Br. 8, Claims App'x.)

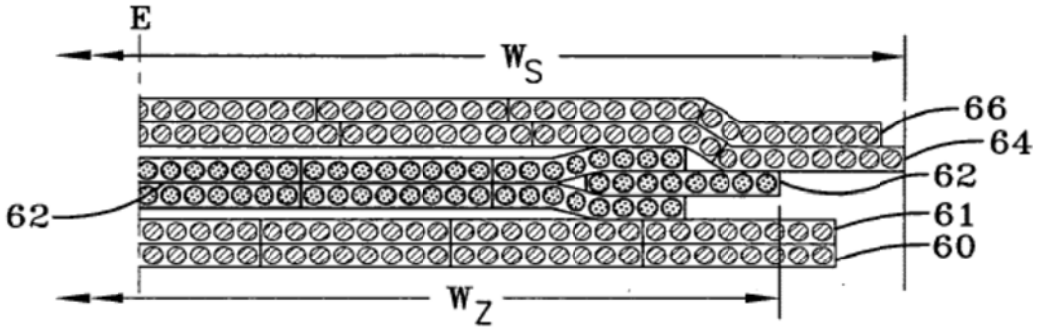
Figure 2 of Appellant's specification depicts a zig-zag reinforcing structure and is reproduced below.



FIG–2

Figure 2 depicts the zig-zag structure 50 with a rubberized strip of one or more cords 43[6], which are wound in a generally circumferential direction, but inclined to some extent so that they extend between the lateral edges 44 and 45, forming a zig-zag path. (Spec. ¶ [0015].)

Figure 4 of Appellants' specification depicts an embodiment of the claimed tire and is reproduced below.



FIG–4

Figure 4 depicts two inner spirally wound layers 60 and 61, an inner zigzag layer structure 62, and two radially outer spirally wound belt layers 64 and 66. (Spec. ¶ [0021].) As depicted, the outer spirally wound layers 64 and 66 are wider than the inner spirally wound layers 60 and 61.[7] (*Id.*)

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[6] Appellants' specification indicates that the one or more cords are element 46, while the rubberized strip is element 43. (Spec. ¶ [0015].) No element 46 is apparent in Figure 2, but element 43 seems to indicate chord structures. Accordingly, we assume that element 43 indicates chords and not the rubberized strip, which has no number in the figure, but is likely the structure on which the cords are wound.

[7] We note that though Appellants reference Figures 5 and 6 as support for claim 1 in the Summary of Claimed Subject Matter (App. Br. 3), the inner spirally wound layers are depicted as being wider than the outer spirally wound layers in those figures (*see, e.g.*, Spec. ¶ [0025]), in contrast to the limitations of claim 1.

Iwata teaches a pneumatic tire with multiple layers of cords and plies. (Iwata, col. 1, l. 62, through col. 2, l. 12; *see* Ans. 3-4.) Figure 1 of Iwata is reproduced below.

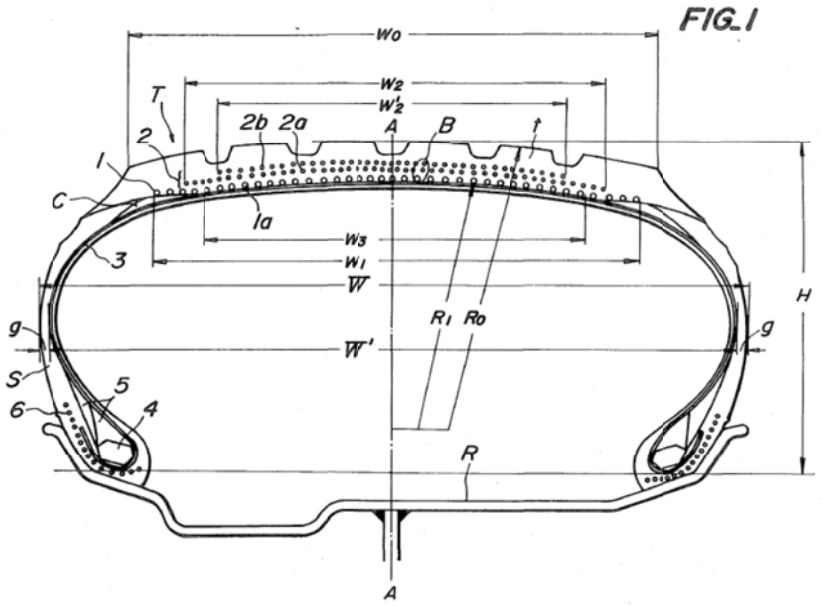

Figure 1 depicts a sectional view of a tire with a carcass 3, and a composite belt B. Belt B includes two layers:

- a layer identified as layer 1and referred to as the "second belt layer," which comprises steel cords 1a and is "substantially parallel to the equatorial plane of the tire," that is, zero degrees (Iwata, col. 53-58); and
- a layer identified as layer 2 and referred to as the "first belt layer," which comprises two cord plies containing steel cords 2a and 2b and is "arranged at an inclination angle of 20^{o} with respect to the equatorial plane of the tire . . . (*id.*, col. 3, ll. 58-62).

Ueyoko teaches a pneumatic tire with a reinforcing belt ("breaker") 7 located radially outside of the band 9 and carcass 6 of the tire (Ueyoko, col. 2, ll. 48-52 and col. 3, ll. 12-13). The breaker 7 is a double-layered cord

structure wound multiple times in a zig-zag pattern. (Ueyoko, col.3, ll. 12-13 and 21-25, col. 4, ll. 9-18; *see* Ans. 4.) Figure 2 is reproduced below.

Fig.2

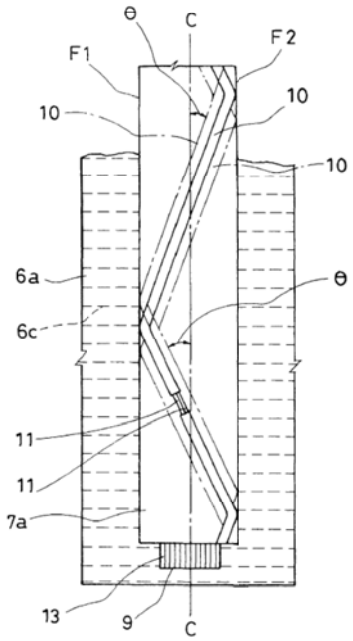

Figure 2 depicts the zig-zag pattern of the wound tape 10 forming the breaker 7. Ueyoko teaches that the zig-zag pattern improves durability by avoiding breaker edge loosening. (Ueyoko, col. 3, ll. 26-27.)

The Examiner concluded that it would have been obvious to those of skill in the art to have substituted "layer 2" of Iwata with a zig-zag layer as taught in Ueyoko. (Ans. 8.) The substitution would have eliminated cut ends and, thus, avoided belt separation. (*Id*.)

Reuter teaches pneumatic tires with a reinforcing member disposed radially outwardly of a belt assembly. (Reuter, col. 1, ll. 13-23.) The reinforcing member, or "overlay ply," has cords "oriented at small angles with respect to the mid-circumferential plane of the tire" and has a width

"about equal to the widest of the belt plies." (*Id.*) The Examiner concluded that those of skill in the art would have considered it obvious to use the overlay ply of Reuter as a radially outer layer because it would improve high speed tire durability, as taught in Reuter. (Ans. 4.)

In summary, the Examiner concluded that those of skill in the art would have found it obvious to modify the pneumatic tire of Iwata by substituting "layer 2" with the zig-zag belt of Ueyoko and by adding the overlay ply of Reuter as the radially outer layer. (Ans. 7-8.)

Appellants argue first that Iwata fails to teach the claim limitations of a radially outer layer having cords with an angular orientation of 5 degrees or less and of being wider than the radially inner layer. (App. Br. 5-6.) According to Appellants "layer 2" of Iwata is the radially outer layer and it had cords arranged at an inclination angle of 20^{o} with respect to the equatorial plane. (App. Br. 5-6.) Further according to Appellants, Iwata teaches that this radially outer layer of Iwata is narrower than the radially inner layer (layer 1). (*Id.*)

The Examiner's conclusion about the modification of the tire of Iwata by adding the overlay ply of Reuter is reasonable. Thus, it is reasonable that those of skill in the art would have considered a pneumatic tire with a radially outer layer having cords of angular orientation of 5 degrees or less and being wider than a radially inner layer to have been obvious. Appellant has not directed us to persuasive evidence that such a modification would have been beyond the skill of those in the art.

Appellants also argue that Ueyoko teaches that the zigzag belt must be wider than the low angle spiral band, citing Figure 1 and claim 1 of Ueyoko. (App. Br. 6.) Appellants assert that these disclosures put Ueyoko in direct

conflict with the teaching of Iwata and Appellants' claims and teach away from them. (App. Br. 6.) We agree with the Examiner that Ueyoko does not limit the zig-zag belt to the arrangement in Figure 1 or the embodiment of claim 1.

> What a reference teaches or suggests must be examined in the context of the knowledge, skill, and reasoning ability of a skilled artisan. What a reference teaches a person of ordinary skill is not . . . limited to what a reference specifically 'talks about' or what is specifically 'mentioned' or 'written' in the reference. Under the proper legal standard, a reference will teach away when it suggests that the developments flowing from its disclosures are unlikely to produce the objective of the applicant's invention.

Syntex (U.S.A.) LLC v. Apotex, Inc. 407 F.3d 1371, 1380 (Fed. Cir. 2005). Appellants do not point to, and we do not find, specific language in Ueyoko that would discourage one from having a zig-zag layer that is narrower than the other layers of the tire. While Ueyoko discloses a width preference of 0.8 to 1.0 times the tread width, which results in a preference for a breaker (zig-zag layer) that is the same or smaller in width than the band 9 (Ueyoke, col. 2, ll. 56-57 and col. 3, ll. 18-19), the preference is merely that, a preference. Preferred embodiments do not constitute a teaching away from a broader disclosure. *In re Susi*, 440 F.2d 442, 446 n.3 (CCPA 1971).

Appellants put forth the same arguments against the rejections of claims 4, 8, 9, 15, and 16 that they asserted against the rejection of claim 1. (App. Br. 7.) As discussed above, these arguments are not persuasive. Though Appellants assert that "there is no teaching in any of the cited references to support the selective combination of elements from the references in the manner proposed as obvious" (App. Br. 7), this statement is

not sufficiently specific to direct us to an error in the Examiner's *prima facie case* for obviousness.

ORDER

Upon consideration of the record and for the reasons given,

the rejection of claims 1, 3, 5-7, 10-14, and 18 under 35 U.S.C. § 103(a) over Iwata, Ueyoko, and Reuter is sustained;

the rejection of claims 4, 8, 9, 15, and 17 under 35 U.S.C. § 103(a) over Iwata, Ueyoko, Reuter, and Fritsch is sustained; and

the rejection of claim 16 under 35 U.S.C. § 103(a) over Iwata, Ueyoko, Reuter, Fritsch, and Suzuki is sustained.

Therefore, we affirm the decision of the Examiner.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136.

AFFIRMED

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