

The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MAKOTO TSURUTA
and
ATSUSHI YAMADA

Appeal No. 2003-0895
Application No. 09/549,703

HEARD: October 8, 2003

Before KIMLIN, PAK and OWENS, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 8, 10, 15 and 16. Claim 8 is illustrative:

8. A pneumatic radial tire comprising; [sic, :] a carcass toroidally extending between a pair of bead portions and comprised of at least one rubberized ply containing a plurality of cords arranged substantially in a radial direction, a belt arranged at an outside of the carcass in the radial direction and comprised of at least two belt layers containing plural cords embedded therein, the cords of said belt layers being crossed with each other with respect to an equatorial plane of the tire, a belt reinforcing member arranged inside the belt in the radial

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direction and comprised of at least one belt reinforcing layer and a tread rubber arranged outside the belt in the radial direction, a widthwise outer end of a belt reinforcing layer having a widest width among the belt reinforcing layers is located outward from a widthwise outer end of a belt layer having a widest width in a widthwise direction of the tire, and wherein when a maximum width of the carcass is L, the widthwise outer end of the widest-width belt reinforcing layer is located between a point P separated outward from the equatorial plane S by 0.375 times of L in the widthwise direction and a point Q separated outward from the equatorial plane S by 0.45 times of L in the widthwise direction, and said at least one belt reinforcing layer comprises a reinforcing element embedded therein and extending in a circumferential direction while having a wave or zigzag form.

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

Iwata et al. (Iwata)	4,702,293	Oct. 27, 1987
Kohno et al. (Kohno)	5,054,532	Oct. 8, 1991

Appellants' claimed invention is directed to a pneumatic radial tire comprising at least two belt layers and a belt reinforcing member which, in turn, comprises at least one belt reinforcing layer and a tread rubber arranged outside the belt in the radial direction. The widthwise outer end of a belt reinforcing layer having a widest width among the belt reinforcing layers is located outward from a widthwise outer end of a belt layer having a widest width in a widthwise direction of the tire. Also, the belt reinforcing layer comprises a reinforcing element embedded therein and extending in a circumferential direction while having a wave or zigzag form. According to appellants, the

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combination of the relative widths of the belt reinforcing member and the wave or zigzag shaped reinforcing elements results in a prevention of "the separation failure in the vicinity of the widthwise outer end of the widest-width belt reinforcing layer" (page 8 of principal brief, first paragraph). Also, appellants maintain that:

The wave or zigzag reinforcing elements, which are capable of stretching in the circumferential direction, are used in the belt reinforcing layer that is wider than the belt layer, so that it is possible to deform the widthwise outer end portion of the belt reinforcing layer in a stretching direction against dragging at the ground contact region" (id.).

Appealed claims 8, 10, 15 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Iwata in view of Kohno.

We have thoroughly reviewed the respective positions advanced by appellants and the examiner. In so doing, we concur with appellants that the prior art cited by the examiner fails to establish a prima facie case of obviousness for the claimed subject matter. Accordingly, we will not sustain the examiner's rejection for essentially those reasons expressed by appellants in the principal and reply briefs on appeal.

There is no dispute that Iwata, like appellants, discloses a pneumatic radial tire having the presently claimed relationship

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between the widths of the widest belt and belt reinforcing layers. Iwata does not disclose the wave or zigzag form of the belt reinforcing layer. For this feature, the examiner relies upon Kohno as evidence that "it is well known and conventional in the tire industry to impart a wavy or undulating pattern to a circumferential belt ply in order to eliminate the suppression of the belt in the circumferential direction during vulcanization and allow for elongation of the reinforcing elements throughout the vulcanization process" (page 4 of Answer, first paragraph). As a result, the examiner concludes that "it would have been obvious to one of ordinary skill in the art at the time of the invention to impart a wavy or undulating pattern to the circumferential belt reinforcing layer of Iwata, in view of Kohno, for the benefits detailed above" (id.).

The flaw in the examiner's position is that Kohno provides a teaching away for utilizing a wavy or undulating pattern in the belt reinforcing layer when the belt reinforcing layer is wider than the belt layer. As argued by appellants,

Kohno et al. specifically teaches that it is important for the width of the crown reinforcing layer to be narrower than the width of the cross belt layer as seen from the description at column 5, line 34 to column 6, line 42, and Fig. 4 of the reference (e.g., the width of the crown reinforcing layer should be narrower to minimize strain at the end the [sic] of the

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cross belt layers and to prevent heat build-up at the ends of the cross belt layers).

(Sentence bridging pages 16 and 17 of principal brief). In particular, Kohno discloses that "[a]s the width of the crown reinforcing layer **2** becomes wide, the heat build-up increases, which is disadvantageous in the prevention of separation failure at the end of the cross belt layer **2**" (column 6, lines 17-20).

In response to appellants' "teaching away" argument, the examiner contends that "Kohno provides a general teaching as to the benefits of imparting a wavy or undulating pattern to a belt reinforcing element, in particular a circumferential belt reinforcing element" (page 8 of Answer). According to the examiner, one of ordinary skill in the art would have understood that "the benefits of a wavy or undulating pattern are not restricted to a belt reinforcing layer that is narrower than an adjacent crossed belt layer but in fact would be expected to be achieved in a variety of belt components having a variety of widths" (*id.*).

The examiner's position lacks factual support, i.e., the examiner cites no passage in Kohno that can be reasonably interpreted as a general teaching of using a wavy or undulating pattern in the reinforcing layer, nor has the examiner cited other prior art for this general proposition. Indeed, the

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portion of Kohno cited by the examiner, column 1, lines 27-45,
reads as follows:

On the other hand, the separation failure can be avoided by using a cord strip having a cord angle of 0° instead of the limit block because the cut free end of the cord is not formed in case of using the strip. However, when using such a strip, the enlargement of the belt in circumferential direction is suppressed in a vulcanizer for green tire, which causes the serious difficulty in the manufacture of tires. Moreover, the twisting of the cord used as a reinforcing element for the strip having a cord angle of 0° is possible to have a structure that it easily elongates only at the initial curing stage and provides a given rigidity after curing. In such a cord, however, the twisting pitch becomes short, which is disadvantageous in view of the productivity, and the cord strength is lowered due to the twisting, so that it is obliged to increase the end count in the strip considering a fear of so-called cut burst in the tire, resulting in the increase of tire weight. Furthermore, it is impossible to use a monofilament as a cord material.

Manifestly, Kohno provides no such general teaching in the passage cited by the examiner, nor, from our review, anywhere else. Accordingly, since the examiner has cited no evidence that one of ordinary skill in the art recognizes the benefits of a wavy or undulating pattern in a belt reinforcing layer, regardless of the relative widths of the belt and reinforcing layers, the examiner has failed to establish a prima facie case of obviousness.

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In conclusion, based on the foregoing, we are constrained to reverse the examiner's rejection.

REVERSED

EDWARD C. KIMLIN)	
Administrative Patent Judge)	
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CHUNG K. PAK)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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TERRY J. OWENS)	
Administrative Patent Judge)	

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