Paper No. 36

UNITED STATES PATENT AND TRADEMARK OFFICE

_____

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

_____

Ex parte GIULIANO CECCHIN and ENEA GARAGNANI

_____

Appeal No. 1998-1909
Application 08/437,489

_____

HEARD: FEBRUARY 7, 2001

_____

Before GARRIS, OWENS and DELMENDO, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 1, 2, 4 and 5, which are all of the claims remaining in the application.

THE INVENTION

The appellants claim a thermoplastic elastomeric composition formed by dynamically crosslinking a recited crystalline polymer of propylene and an amorphous, unsaturated elastomeric olefin polymer. Claim 1 is illustrative:

1. A thermoplastic elastomeric composition consisting essentially of:

A) from 10 to 80% by weight of at least one crystalline polymer of propylene containing from 0.05 to 15% in moles of ethylenic unsaturation and having an isotactic index greater than 70%, or a mixture of the above polymer with a saturated thermoplastic olefin polymer in quantities lower than or equal to 80% by weight of (A);

B) from 20 to 90% by weight of an amorphous, unsaturated elastomeric olefin polymer;

said composition having been dynamically cross-linked with a cross-linking agent comprising a free radical generator, and wherein said ethylenic unsaturation is incorporated into said crystalline polymer by reacting propylene with at least one diene selected from the group consisting of 1,3-butadiene, isoprene, 1,3-pentadiene, 1,4-hexadiene, dicyclopentadiene and 2-ethylidene-5-norbornene.

THE REFERENCES

Fischer	3,806,558	Apr. 23, 1974
Cecchin et al. (Cecchin) (European patent application)	0 171 025	Feb. 12, 1986

THE REJECTION

Claims 1, 2, 4 and 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cecchin in view of Fischer.

OPINION

We reverse the aforementioned rejection. We need to address only claim 1, which is the sole independent claim.

Cecchin discloses a copolymer of propylene and butadiene having an aggregate 1,3-butadiene content of from 0.1 to 15 wt% and an isotacticity index higher than 80% (page 3, lines 19-24; page 4, lines 27-28). This copolymer is comparable to the appellants' claim 1 component A. Cecchin does not disclose the appellants' claim 1 component B or dynamic crosslinking.

Fischer discloses thermoplastic elastomeric dynamically partially cured blends of an essentially amorphous monoolefin copolymer rubber, such as ethylene-propylene copolymer (EPM) rubber or ethylene-propylene-non-conjugated diene terpolymer (EPDM) rubber, with a polyolefin resin such as polypropylene or polyethylene (col. 1, lines 13-20; col. 2, lines 25-28). The dynamic partial curing takes place in the presence of a curative such as a peroxide. *See id.* Thus, Fischer discloses the appellants' claim 1 component B and dynamic curing, but does not disclose component A.

The examiner argues that Cecchin suggests that the appellants' claim 1 component A can be used as a compatibilizer for Fischer's polypropylene and EPDM rubber (answer, page 5). Cecchin discloses that the copolymer can be used as a compatibilizer for polypropylene and the other materials disclosed therein, one class of which is unsaturated polymers (page 7, lines 18-19; page 9, line 27 - page 10, line 5). The appellants' claim 1, however, requires that components A and B are dynamically crosslinked, and the examiner has not explained why, even if Cecchin would have fairly suggested, to one of ordinary skill in the art, using the appellants' component A as a compatibilizer for polypropylene and EPDM rubber, the reference would have fairly suggested, to such a person, crosslinking the appellants' component A and EPDM rubber in Fischer's process.

The examiner argues that it would have been *prima facie* obvious to one of ordinary skill in the art to use Fischer's components with Cecchin's copolymer because Cecchin's disclosure embraces use of such components (answer, page 5). The disclosure in Cecchin relied upon by the examiner appears to be the teaching that the disclosed copolymers can be co-vulcanized with other unsaturated polymers (page 7, lines 18-19). The examiner, however, has not established 1) that "other unsaturated polymers"

would have fairly suggested the appellants' component B to one of ordinary skill in the art, and 2) either that the disclosures of co-vulcanization and dynamic crosslinking would have fairly suggested, to one of ordinary skill in the art, dynamically crosslinking Cecchin's copolymer with the other saturated polymers, or that a co-vulcanized material is the same or substantially the same as one which has been dynamically crosslinked.

The examiner argues that it would have been *prima facie* obvious to one of ordinary skill in the art to substitute Cecchin's copolymer for Fischer's polypropylene because the higher unsaturated content would cause the compression set of the product to be enhanced (answer, page 5). The portion of Fischer relied upon by the examiner in support of this argument (col. 7, lines 25-31), however, says nothing about the effect of unsaturated content on compression set.

For the above reasons, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the invention recited in any of the appellants' claims.

DECISION

The rejection of claims 1, 2, 4 and 5 under 35 U.S.C. § 103 over Cecchin in view of Fischer is reversed.

REVERSED

BRADLEY R. GARRIS Administrative Patent Judge	)	
TERRY J. OWENS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
ROMULO H. DELMENDO Administrative Patent Judge	)	

TJO/ki

Joanne L. Horn
P. O. Box 15439
Wilmington, DE 19850-5439