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BEFORE THE PATENT TRIAL AND APPEAL
BOARD

Ex parte PIERRE MOULINIE, VERA BUCHHOLZ, ECKHARD WENZ
and DIETER WITTMANN

Appeal 2011-012394
Application 12/338,270
Technology Center 1700

Before ANDREW H. METZ, RICHARD TORCZON, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

METZ, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1 through 21, which are all the claims remaining in the application. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM.

THE INVENTION

Appellants disclose a molding composition useful for the production of shaped articles or moldings. Appellants' composition comprises a mixture of at least one aromatic polycarbonate, at least one polyalkylene terephthalate, at least one rubber-modified graft polymer and at least one salt of phosphinic acid. Useful aromatic polycarbonates may be prepared by known processes. Sp., page 6, line 18 through page 7, line 12. Useful polyalkylene terephthalates may be prepared by known methods. *Id.* at page 10, lines 1 through 3. Useful rubber-modified graft polymers include at least one vinyl monomer and a graft base chosen from diene rubbers, EPDM rubbers, acrylate, polyurethane, silicone, silicone/acrylate, chloroprene and ethylene/vinyl acetate rubbers. *Id.* at page 11, lines 15 through 20. The phosphinic acid salt is a salt of the free acid with any desired metal cation and mixtures of salts may be employed. *Id.* at page 14, lines 21 through 27. In a preferred embodiment, the average particle size d_{50} of the phosphinic acid salt is less than 80 μm , preferably less than 60 μm and between 10 and 55 μm . *Id.* at page 15, lines 13 through 17. The molding compositions may contain other optional additives. *Id.* at pages 16 and 17. The thermoplastic molding compositions may be prepared by mixing the various components

in a known manner and subjecting them to melt compounding and melt extrusion. The compositions may be used for the production of shaped articles. *Id.* at pages 17 and 18.

Claim 1 is believed to be adequately representative of the appealed subject matter and is reproduced below for a more facile understanding of the claimed invention.

1. A composition comprising

- A) 41 to 97 parts by wt., in each case based on the sum of the parts by weight of components A+B+C+D, of at least one aromatic polycarbonate,
- B) 2 to 19 parts by wt., in each case based on the sum of the parts by weight of components A+B+C+D, of at least one polyalkylene terephthalate,
- C) 0.5 to 15 parts by wt., in each case based on the sum of the parts by weight of components A+B+C+D, of at least one rubber-modified graft polymer,
- D) 0.5 to 25 parts by wt., in each case based on the sum of the parts by weight of components A+B+C+D, of at least one salt of a phosphinic acid.

The references of record which are being relied on by the Examiner as evidence of obviousness are:

Wittmann et al. (Wittmann)	4,866,123	Sept. 12, 1989
Klatt et al. (Klatt)	US 6,503,969 B1	Jan. 07, 2003
Hoerold et al. (Hoerold)	US 2004/0049063 A1	Mar. 11, 2004
Costanzi et al. (Costanzi)	US 2007/0082995 A1	Apr. 12, 2007

THE REJECTIONS

Claims 1 through 13 and 15 through 21 stand rejected under 35 U.S.C. § 103(a) as the claimed subject matter would have been obvious from the disclosure of Wittmann considered with Klatt.¹

Claim 14 stands rejected under 35 U.S.C. § 103(a) as the claimed subject matter would have been obvious from the disclosure of Wittmann considered with Klatt in further view of Hoerold.

Claim 14 stands rejected under 35 U.S.C. § 103(a) as the claimed subject matter would have been obvious from the disclosure of Wittmann considered with Klatt in further view of Costanzi.

Claims 1 through 21 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1 through 3, 5, 7 through 9, 13, 15 and 17 through 21 of co-pending U.S. Application Number 12/338,115.

Claims 1 through 7 and 11 through 20 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1 through 3, 5, 6, 12, 16 through 18, and 20 through 22 of co-pending U.S. Application Number 12/338,416.

Claims 1 through 21 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over

¹ We consider the Examiner's omission of claim 15 from his statement of the rejection to be inadvertent. At page 5 of the Final Rejection and again on page 6 of his Answer the Examiner has set forth his explanation for why he found claim 15 to be unpatentable from the combined references. Thus, Appellants at least had notice that the Examiner considered claim 15 to be unpatentable for the reasons set forth in the Final Rejection and the Answer.

claims 1 through 7, 10, 12, and 14 through 19 of co-pending U.S. Application Number 12/338,026.

OPINION

Appellants' invention is directed to a composition that is a blend of thermoplastic polymers known as engineering plastics in combination with a salt of a phosphinic acid. Appellants disclose that each of the polymers used in their composition is well known in the art and each is prepared by methods also well known in the art. Appellants also disclose that their compositions are prepared by mixing the ingredients in a known manner. Appellants disclose in their Specification several representative prior patents and publications that show various combinations of the polymers herein claimed and their use as thermoplastic molding compositions. Appellants' claims require the various components that make up the composition be present in wide ranges of addition in weight percent based on the total weight of the composition.

We find Wittmann to be evidence that it was well-known in the art at the time Appellants made their invention that molding compositions comprising at least one aromatic polycarbonate, at least one polyalkylene terephthalate and at least one rubber-modified graft polymer were well known in the art. We also find that Wittmann discloses ranges of addition for their respective components that overlap the claimed ranges for component "A" (41 to 97 percent claimed; Wittmann 10 to 95 percent disclosed); "B" (2 to 19 percent claimed; Wittmann 5 to 90 percent disclosed); "C" (0.5 to 15 percent claimed; Wittmann 1 to 70 percent disclosed), respectively. We further find that Wittmann provides for the

inclusion of other “standard additives” to their molding composition, including flameproofing agents, in amounts less than 30 percent by weight. Column 6, lines 53 through 57 and 65 through 68. Wittmann discloses their compositions may be prepared by mixing the various components together at elevated temperatures in standard mixing machines and are described as being useful for the production of molded articles. Column 7, lines 1 through 28. Thus, Wittmann describes the claimed molding composition except for component “D” of claim 1, the metal salt of phosphinic acid.

The Examiner has relied on Klatt as evidence that the claimed metal salts of phosphinic acid (component “D” in claim 1) were well known fireproofing agents for thermoplastic polymer blends at the time Appellants made their invention. The Examiner observes that Klatt discloses that the phosphinic acid salts are useful in polyalkylene terephthalate blends with “fully aromatic polyesters” and that Klatt discloses that “polyesters” include polycarbonates. Column 4, line 59 through column 5, line 5.

We find from the combined disclosures of Wittmann and Klatt that it would have been obvious to the hypothetical person of ordinary skill in the art at the time Appellants made their invention to have included as the flameproofing agent provided for in the well-known blend of thermoplastic polymers described by Wittmann the well-known metal salts of phosphinic acid described as useful flameproofing agents by Klatt. Accordingly, we find that claims 1 through 13 and 16 through 21 are unpatentable because the subject matter claimed would have been obvious in the sense of the statute.

Appellants’ argument that Wittmann fails to disclose or suggest any particular flameproofing agent and thus fails to provide any reason for

selecting the claimed flameproofing agents evidences a misunderstanding of the inquiry here under 35 U.S.C. § 103(a). The question to be answered is not what the references disclose individually or whether the references could be physically combined but rather the question is whether the subject matter claimed by Appellants would have been rendered obvious to the hypothetical person of ordinary skill in the art at the time Appellants made their invention considering the teachings of the prior art as a whole. Thus, the question to be answered here is what would the combined disclosure of Wittmann and Klatt have suggested to a person of ordinary skill in the art at the time Appellants made their invention.

We are satisfied that Wittmann is evidence that establishes at the time Appellants made their invention flameproofing agents were known to be useful additives for molding compositions comprising blends of aromatic polycarbonates, polyalkylene terephthalates and rubber-modified graft polymers. We are also satisfied that Klatt discloses that salts of phosphinic acid as claimed were well-known flameproofing agents and were known to be useful in thermoplastic polymer blends useful for molding compositions comprising aromatic polycarbonates and polyalkylene terephthalates.

We find Klatt's disclosure at column 4, line 59 through column 5, line 5 to be clear and unequivocal. Specifically, the disclosed metal salts of phosphinic acid are useful in blends of thermoplastic ester molding compositions comprising blends of polyalkylene terephthalates and aromatic polycarbonates. Accordingly, we reject Appellants' argument that Klatt does not disclose as component A of their composition a mixture of polyalkylene terephthalate and aromatic polycarbonate. Appellants' suggestion that

Klatt's clear disclosure is diminished because Klatt does not exemplify mixtures in their examples demonstrates a misunderstanding of the law. Exemplification is not required for purposes of establishing obviousness, rather what is required is a suggestion in the combined prior art to prepare molding compositions as claimed.

We find Wittmann, which suggests that Appellants' components "A" through "C" in amounts that at least overlap the amounts claimed make improved thermoplastic molding compositions that may be improved by the incorporation therein of a flameproofing agent, when considered with Klatt, which teaches Appellants' particularly claimed flameproofing agent to be known as such and for use in thermoplastic molding compositions comprising mixtures of terephthalates and carbonates, would have rendered the claimed subject obvious at the time Appellants made their invention.

We have not overlooked Appellants' argument that the disclosure at column 2, lines 4 and 5 of Klatt somehow teaches away from using the phosphinic acid salts disclosed as useful flameproofing agents but find it to be unpersuasive. The cited passage relates to a discussion of flame retardant systems known in the prior art and their respective drawbacks. Nowhere in their Brief do Appellants explain how this discussion diminishes or teaches away from the clear disclosure from column 1, lines 11 through 38 by Klatt that phosphinic acid salts as described by Klatt and claimed by Appellants are useful as flame retardants in polyester molding compositions. Appellants' argument that the amount of terephthalate component exemplified by each of Wittmann and Klatt teaches away from the claimed compositions ignores the fact that the claimed ranges are included by the

disclosure of the ranges in Wittmann. Further, exemplification is not required to support a holding of obviousness.

The subject matter of claim 20 requires separate consideration from the other claims in the Examiner's rejection because Appellants have argued that the claim language used to define the compositions of claim 20 mandates that we reverse the rejection of claim 20. Specifically, Appellants argue that the use of the transitional phrase "consisting essentially of" in claim 20 rather than "comprising" as used in claims 1 through 19 excludes Klatt from consideration in our obviousness determination because Klatt requires a nitrogen compound which materially affects the flame retardant properties of their thermoplastic composition. We disagree.

Appellants disclose at page 16 and 17 of their Specification that their composition may contain as optional ingredients one or more thermoplastic vinyl copolymers (page 16, lines 3 through 22) and a commercially available additive such as

Flameproofing [agents,] synergists, antidripping agents (for example compounds of the substance classes of fluorinated polyolefins, of silicones and aramid fibers), lubricants and mould release agents (for example pentaerythritol tetrastearate), nucleating agents, stabilizers, antistatics (for example conductive carbon blacks, carbon fibres, carbon nanotubes and organic antistatics such as polyalkylene ethers, alkylsulfonates or polyamide-containing polymers) acids, fillers and reinforcing substances (for example glass fibres or carbon fibres, mica, kaolin, talc, CaCO₃ and glass flakes) and dyestuffs and pigments.

Page 16, line 23 through page 17, line 5. It is against this disclosure we interpret the phrase "consisting essentially of" in Appellants' claim 20.

We find Appellants' Specification indicates the claimed composition can contain any number of well-known commercial additives and there is no evidence that the presence of any of these "other additives" materially affects the basic and novel characteristic of the claimed invention.

Compositions including any of these variously described additives still would be expected to be useful thermoplastic molding compositions useful for the production of shaped articles. Klatt's compositions have the same basic and novel characteristics (thermoplastic polymer blends having improved flameproofing or fire retarding properties) as well as additional properties imparted, improved or enhanced by the attendant function of each of the respective additives added to the thermoplastic blend. Based on the voluminous number of "additives" generically described by Appellants as suitable for inclusion in their composition we find that Appellants' claims cannot be construed as excluding the nitrogen compound disclosed by Klatt as suitable for combining with the disclosed metal salts of phosphinic acid. In the alternative, nothing in Klatt's disclosure of using the phosphinic acid salts in combination with the disclosed nitrogen containing flame retardant synergist compounds diminishes the disclosure in Klatt that the phosphinic acid salts are themselves useful flame retardant agents.

Appellants have conceded that adding the nitrogen compounds disclosed by Klatt to Klatt's thermoplastic molding composition confers flame resistance to the thermoplastic molding compositions. Bf., page 13. Thus, the basis for Appellants' argument that the nitrogen compounds "materially affect" the compositions of Klatt described by Klatt as

possessing “good mechanical and flame retardant properties” (column 14, lines 20 through 22) is not clear on this record.

Accordingly, we shall affirm the Examiner’s rejection of claims 1 through 13 and 15 through 21 under 35 U.S.C. § 103(a) as the claimed subject matter would have been obvious from the disclosure of Wittmann considered with Klatt.

THE REJECTION OF CLAIM 14

Claim 14 depends directly from claim 1 and differs from claim 1 by requiring a particular particle size for the phosphinic acid salt, component “D”. Specifically, claim 14 requires that the average particle size “ d_{50} ” is not more than 80 μm (microns). The Examiner has rejected claim 14 over two, separate reference combinations. The first, Wittmann considered with Klatt in further view of Hoerold; and, the second, Wittmann considered with Klatt in further view of Costanzi.

We shall affirm the Examiner’s rejection of claim 14 over the combination of Wittmann considered with Klatt in further view of Costanzi because we find the subject matter would have been obvious from that combination. We rely here in part on our rationale as set forth above for affirming the rejection of claim 1 over Wittmann considered with Klatt. We also find Costanzi’s disclosure that using calcium phosphinate, a compound included in the composition of Appellants’ claim 1, and having a d_{50} less than 40 microns, improves the salts’ flame retardant effect and Costanzi’s disclosure exemplifying a commercially available calcium hypophosphite having a d_{50} lower than 10 microns suggests the particle size claimed by Appellants in claim 14. We find that the combination of references suggests

using the specific fireproofing agent of Klatt as the fireproofing agent generically taught by Wittmann and that using such agents having a particle size d_{50} less than 40 microns would have been expected to improve the flame retardant properties of the composition.

In their attempt to rebut the Examiner's conclusion that the claimed subject matter would have been obvious Appellants repeat the arguments they made with respect to the rejection as it is founded on Wittmann and Klatt as applied to claim 1. Additionally, Appellants urge that Costanzi is directed to polycarbonate compositions and does not teach or suggest thermoplastic polymer blends as claimed. Thus, Appellants argue that even if combined, the combination of references would not have led to a composition as claimed with a low concentration of polyalkylene terephthalate. We reject Appellants' arguments over the combination of Wittmann and Klatt here for reasons set forth fully above with respect to claim 1. We also reject Appellants' argument concerning Costanzi because it addresses the disclosure of Costanzi alone instead of considering what Costanzi considered with Wittmann and Klatt teaches or fairly suggests. Moreover, while Costanzi does not teach or suggest blends including terephthalates, Costanzi discloses that phosphinic acid salts as claimed by Appellants in claim 14 exhibit improved flame retardant effectiveness in thermoplastic blends of polycarbonates when their average particle size d_{50} is below 40 microns. The major thermoplastic polymer component in Costanzi is an aromatic polycarbonate just as in Appellants' claimed composition. Therefore, we find Wittmann suggests a thermoplastic moulding composition as claimed including a flameproofing agent and Klatt

discloses Appellants' specifically claimed phosphinic acid salts to be well known flameproofing agents in polycarbonate blends as claimed. We find Costanzi's disclosure, considered in the context of what Wittmann and Klatt teach or suggest would have suggested to the routineer in this art that the effectiveness of Klatt's flameproofing agents would be improved in aromatic polycarbonate blends by using salts having an average particle size less than 40 microns. Accordingly, we shall affirm the Examiner's rejection of claim 14 as being unpatentable from the disclosure of Wittmann considered with Klatt and in further view of Costanzi. In light of our affirmance of the rejection of claim 14 over the above noted reference combination we find it unnecessary to reach the Examiner's alternative rejection.

On pages 19 and 20 of Appellant's Brief, under the heading "Provisional Non-Statutory Obviousness-Type Double Patenting Rejections", Appellants request that each of the three rejections be "held in abeyance until the final disposition" of the three applications over which the rejections are proffered. Thus, Appellants have made no argument on the merits of the rejections, which we treat as a concession of the validity of the Examiner's rejections under the judicially created doctrine of obviousness-type double patenting. Accordingly, we summarily affirm the each of the rejections on the ground of obviousness-type double patenting.

The decision of the Examiner is affirmed.

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

AFFIRMED

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