



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/144,211	09/15/2011	Massimo Pignatelli	Jindal-315	3668
146433	7590	12/23/2019	EXAMINER	
Rao DeBoer Osterrieder, PLLC 1334 Brittmoore Road Suite 2401 Houston, TX 77043			KRUER, KEVIN R	
			ART UNIT	PAPER NUMBER
			3649	
			MAIL DATE	DELIVERY MODE
			12/23/2019	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* MASSIMO PIGNATELLI and STEPHANE PIRE

---

Appeal 2019-001171  
Application 13/144,211  
Technology Center 3600

---

Before DANIEL S. SONG, STEFAN STAICOVICI, and  
LEE L. STEPINA, *Administrative Patent Judges*.

STEPINA, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–8, 10–13, and 15–21.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

---

<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Jindal Films Americas LLC. Br. 3.

<sup>2</sup> Claims 9 and 14 are cancelled. Br. 14–15 (Claims App.).

### CLAIMED SUBJECT MATTER

Appellant's disclosure is directed to a method of producing film structures that have ethylene vinyl alcohol polymer ("EVOH") and fluoropolymer in a skin layer, wherein the method uses plasma treatment followed by metallization. Spec. ¶ 1. Claim 1, reproduced below, is illustrative of the claimed subject matter.

1. A process of making multilayer polymer film, comprising:
  - (a) co-extruding a film substrate having a core layer comprising polyolefin and a skin layer comprising EVOH and at least 1 wppm of fluoropolymer, wherein the fluoropolymer is molten for the co-extruding with the EVOH;
  - (b) orienting, subsequent to the co-extruding, the film substrate in at least one of a machine direction and a transverse direction;
  - (c) treating, subsequent to the orienting, said skin layer with plasma; and
  - (d) metallizing, subsequent to the treating, said film substrate with one or more metals,whereby, the multilayer polymer film produced by the process has water vapor and oxygen transmission rates lower than the co-extruded, oriented, metallized multilayer polymer film with the fluoropolymer but without the treating.

Br. 13 (Claims App.).

### REFERENCES

The prior art relied upon by the Examiner is:

<b>Name</b>	<b>Reference</b>	<b>Date</b>
Gold	US 4,434,259	Feb. 28, 1984
Priester	US 5,707,569	Jan. 13, 1998
Touhsaent	US 5,827,615	Oct. 27, 1998
Blemborg	US 6,500,514 B1	Dec. 31, 2002
Peet	US 6,632,383 B1	Oct. 14, 2003
Korowicki	US 2006/0159860 A1	July 20, 2006
Amos	US 7,375,157 B2	May 20, 2008

### EVIDENCE

The evidence relied upon by Appellant is:

<b>Name</b>	<b>Reference</b>	<b>Date</b>
Dupont	Teflon® Finishes in the Chemical Processing Industry	NA

### REJECTIONS

- I. Claims 1–8, 10–13, 15, 19, and 20 are rejected under 35 U.S.C. § 103(a) as unpatentable over Touhsaent, Peet, and Korowicki.<sup>3</sup>
- II. Claims 16–18 are rejected under 35 U.S.C. § 103(a) as unpatentable over Touhsaent, Peet, Korowicki, and Amos.
- III. Claim 21 is rejected under 35 U.S.C. § 103(a) as unpatentable over Touhsaent, Peet, Korowicki, and Blemborg.

---

<sup>3</sup> The Examiner relies on Priester as evidence the fluoropolymer disclosed by Peet (hexafluoropropylene) “is known to be molten or fluid at the processing [temperature] of polyolefins” and on Gold as evidence “that metallized films applied to smooth (e.g. uniformly gauged) films are known in the art to exhibit improved gloss properties compared to metallized layers applied to rough surfaces.” Final Act. 3; *see also* Ans. 4. Appellant does not contest these findings. *See* Br. 7–11.

OPINION

*Rejection I–Touhsaent, Peet, and Korowicki*

Appellant argues for the patentability of the claims subject to the first ground of rejection, i.e., claims 1–8, 10–13, 15, 19, and 20, as a group. Br. 7–11. We select claim 1 as representative of the group, and claims 2–8, 10–13, 15, 19, and 20 stand or fall with claim 1.

The Examiner finds that Touhsaent discloses many of the steps recited in claim 1, including treating a skin layer that includes EVOH, but does not disclose (i) that the skin layer includes fluoropolymer and (ii) that the treatment comprises plasma treatment. Final Act. 2–3.

Addressing the first of these deficiencies, the Examiner finds that Peet discloses that “the addition of a fluoropolymer provides a more uniform distribution of polymer flow through a die.” *Id.* at 2 (citing Peet, Abstract). Based on this finding, the Examiner reasons that it would have been obvious to a person of ordinary skill in the art to incorporate fluoropolymer in the EVOH layer of Touhsaent “to ease processing and obtain a more uniformly gauged film.” *Id.* at 3.

Addressing the second deficiency, the Examiner finds that Korowicki discloses “a method of improving the OTR [oxygen transmission rate] and WVTR [water vapor transmission rate] of a metallized film wherein a film is subjected to plasma treatment in a metallization chamber.” *Id.* (citing Korowicki ¶¶ 11, 17). The Examiner determines that it would have been obvious to a person of ordinary skill in the art “to utilize the plasma treatment method of Korowicki on the films of Touhsaent in order to improve the OTR properties of the film.” *Id.*

*Peet*

Appellant argues that Peet's reason for using fluoropolymer is different from Appellant's reason. Br. 8. Appellant also argues that Peet teaches providing fluoropolymer only on the *inside* of a film, not on a skin layer (the outermost layer). *Id.* Based on these contentions, Appellant asserts "a person of ordinary skill would not look to Peet as analogous art due to the varied usage of fluoropolymer in the film structure and the different purpose achieved by the present invention relative to Peet." *Id.*

Appellant also refers to Dupont as evidence that "an ordinarily skilled artisan knows that adding fluoropolymer deteriorates oxygen transmission rate ('OTR') and water[-]vapor transmission rate ('WVTR') and that correction is had by increasing film thickness."<sup>4</sup> Br. 9. Based on the disclosure in Dupont, Appellant argues, "[i]f anything, an ordinarily skilled artisan would think that Touhsaent in view of Peet would mean adding fluoropolymer to the core as a processing aid has a side effect of decreasing the film's barrier properties, something that Appellant does not claim." *Id.*

In response, the Examiner states that, even assuming for the sake of argument that Peet's reason for adding fluoropolymer is different from Appellant's, the Examiner's stated reason for modifying the film of Touhsaent to incorporate fluoropolymer as taught by Peet (improved gauge uniformity) is supported by rational underpinnings. Ans. 7. In other words, according to the Examiner, the fact that Appellant's reason and the Examiner's reason for adding fluoropolymer are different does not identify error in the Examiner's rejection. In any event, the Examiner also finds that "both Peet and Appellant add fluoropolymer to an EVOH composition in an

---

<sup>4</sup> Appellant does not cite to any particular part of Dupont.

attempt to reduce surface imperfections resulting during processing through a die.” *Id.* (citing Peet, Abstract).

As for Appellant’s contention that Peet discloses fluoropolymer in an inside layer, but not on a skin layer, the Examiner finds that “Peet teaches the fluoropolymer is added *at least to* the base layer,” which, according to the Examiner, means that Peet may provide fluoropolymer in other layers, such as a skin layer, as well. Ans. 8 (emphasis added).

Regarding Appellant’s allegation that a person of ordinary skill in the art would think “adding fluoropolymer to the core as a processing aid has a side effect of decreasing the film’s barrier properties,” (Br. 9), the Examiner reiterates that Korowicki is relied upon to teach applying plasma to improve the barrier properties of the skin layer. Ans. 9. According to the Examiner, Appellant’s comparison of the barrier properties a film that contains fluoropolymer to the barrier properties of a film that does not contain fluoropolymer does not address the rejection because Peet is relied on to teach the addition of fluoropolymer for purposes of improved *uniformity* (not improved barrier properties), and Korowicki is relied upon to teach improved barrier properties resulting from plasma treatment of the skin layer.

Additionally, despite the Examiner’s reliance on Peet to disclose fluoropolymer in a skin layer, the Examiner states, “Touhsaent does teach a five-layer embodiment wherein *a fluoropolymer is added to the EVOH layer* to avoid dye build up (col 11, lines 1+).” *Id.* at 7 (emphasis added). Thus, the Examiner finds that Touhsaent discloses fluoropolymer in its skin layer.<sup>5</sup>

---

<sup>5</sup> In the Final Office Action, the Examiner found that Touhsaent does not disclose fluoropolymer in its “composition.” Final Act. 2. In the Answer,

The Examiner has the better position with respect to the proposed combination of the teachings of Touhsaent and Peet.

First, we agree with the Examiner that it is not necessary for the Examiner's reason to modify Touhsaent to include fluoropolymer be the same as the reason disclosed in Appellant's Specification. "[N]either the particular motivation nor the avowed purpose of the [Appellant] controls" in an obviousness analysis. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007). The Examiner's rationale for modifying the EVOH layer in Touhsaent to include fluoropolymer for the purpose of easing processing and improving gauge uniformity is supported by the explicit disclosure in Peet. Peet, Abstract, 1:35–46. We also agree with the Examiner that the benefit disclosed in Peet, namely, to "provide[] a more uniform distribution of polymer flow through a die," is not unlike the benefit Appellant discloses related to the addition of fluoropolymer. "Fluoropolymer may be added to the skin layer as processing aid to allow trim recycling and/or improve the metal appearance in the metallization by reducing die lines and scratches." Spec. ¶ 4.

Next, we agree with the Examiner that Peet discloses incorporating fluoropolymer into more than just the base layer of a film. "*At least* the base layer of the coextruded polymeric film contains a fluoropolymer." Peet, Abstract (emphasis added). "The fluoropolymer may be added to *at least* the base layer. Preferably, the fluoropolymer is included in the base layer." *Id.* 3:41–42 (emphasis added). Thus, Peet suggests, if not discloses, adding fluoropolymer to a skin layer. In any event, even if Peet did not discuss

---

the Examiner does not explain why, in view of the finding that Touhsaent discloses this material, the rejection need rely on Peet. *See* Ans. 7–10.

adding fluoropolymer to layers aside from the base layer, the Examiner's reasoning for including fluoropolymer in the skin layer of Touhsaent still applies. Specifically, the Examiner's reasoning that the addition of fluoropolymer would improve the uniformity of Touhsaent's EVOH layer ("in order to ease processing and obtain a more uniformly gauged film") does not rely on any disclosure in Peet of adding fluoropolymer to a *skin layer*. Final Act. 3. Thus, Appellant's argument that Peet discloses adding fluoropolymer to a base layer (rather than a skin layer) does not address the Examiner's statement of the rejection of claim 1.

Finally, regarding Appellant's discussion of Dupont and the possible effect of degrading<sup>6</sup> a film's barrier properties by adding fluoropolymer (Br. 9), we agree with the Examiner that the rejection relies on Peet to teach the addition of fluoropolymer based on the benefits it provides during processing (e.g., ease of processing and enhanced gauge uniformity), not for benefits related to improved barrier properties. *See* Final Act. 3. As discussed above, the Examiner's proposed combination of the teachings of Touhsaent and Peet is supported by rational underpinnings. The rejection of claim 1 relies on Korowicki and its disclosure of plasma processing to

---

<sup>6</sup> To the extent Appellant relies on Dupont to teach away from the addition of fluoropolymer to the skin layer in Touhsaent, we agree with the Examiner's finding (Ans. 7) that Touhsaent already discloses a fluoropolymer added to an EVOH skin layer. Specifically, Example 2 of Touhsaent (hereinafter "Example 2") discloses "a surface skin layer of a polymer blend of about 99 wt. % of a copolymer . . . about 52 mol % of vinyl alcohol (EVOH) and about 1 wt. % of a fluoropolymer . . . to prevent melt disturbance from dye build up." Touhsaent 11:7–11 (emphasis added). *See also* Peet 2:46–48 ("U.S. Pat. No. 5,827,615 to Touhsaent, et al. discloses a metallized film substrate in which about 1 wt % of a fluoropolymer is used in a surface skin layer.").

Appeal 2019-001171  
Application 13/144,211

address the requirement in claim 1 that the film have water vapor and oxygen transmission rates lower than the same film with fluoropolymer, but without plasma treating. *See id.* Appellant provides no specific citation to any part of Dupont indicating that a person of ordinary skill in the art would have been led away from the use of fluoropolymer, in the film of Touhsaent, as proposed by the Examiner. Indeed, rather than support Appellant's argument, Dupont appears to support *the use of fluoropolymer* and to address how to remedy its permeation-related deficiencies, without commenting on its use in thin films used for food packages (such as disclosed by Touhsaent). "This technical bulleting . . . deals with the effects of permeation in the context of the harsh chemical environment to which coated parts are exposed (and not, for example, to the common thin plastic wraps used in the food packaging industry)." Dupont 1, col. 1, ll. 11–17. "Fluoropolymers have outstanding chemical resistance. When integrated into a well-designed and properly applied coating system, Teflon® coatings from DuPont provide a superior alternative to any of the competitive coatings . . . These new coatings clearly demonstrate that *the effects of permeation can be managed.*" *Id.* at 11, col. 1, ll. 14–21 (emphasis added).

*Korowicki*

Appellant argues "Korowicki provides no teaching or suggestion to more than cure the detrimental effects to barrier transmission rates wrought by processing aids, e.g., a fluoropolymer, as is the case in Appellant's claimed invention." Br. 9. Appellant also contends "results, such as those shown in [Appellant's] Table 1, are counter-intuitive and unexpected, and, for that reason, also overcome obviousness." *Id.* at 10; *see also* Spec. ¶ 46 (including what, although unlabeled, appears to be "Table 1" because it is the only table in Appellant's Specification). Appellant further contends

[b]eyond surface cleaning, however, fluoropolymer is still in [Korowicki's] film, and Korowicki's plasma-treating does not teach anything about the bulk character of Appellant's dissimilar EVOH/fluoropolymer blend, much less "whereby, the multilayer polymer film produced by the process has water vapor and oxygen transmission rates lower than the co-extruded, oriented, metallized multilayer polymer film with the fluoropolymer but without the treating."

*Id.*

In response, the Examiner finds that the teachings of Korowicki regarding plasma treatment are presented as being generally applicable to all films, and Appellant provides no object evidence or technical argument suggesting why Korowicki's teachings would not be applicable to fluoropolymer containing films or why one of ordinary skill in the art would not have had a reasonable expectation of success when applying Korowicki's general teachings to a fluoropolymer containing film. Ans. 9–10.

The Examiner has the better position on this point. Korowicki discloses "[a] plasma treated metallized plastic film is provided with super high barrier properties at substantially low cost." Korowicki, Abstract. Korowicki teaches that polymer films suitable for metallization can be treated to enhance moisture and gas barrier properties. *Id.* ¶¶ 5, 11, 16–17. Korowicki explains that such treatments include corona,<sup>7</sup> flame, chemical, and plasma treatments, and Korowicki's disclosure focuses on plasma treatment performed inside a metallization apparatus. *Id.* Thus, a preponderance of the evidence supports the Examiner's finding that

---

<sup>7</sup> Touhsaent discloses treating skin layers with corona discharge. Touhsaent 11:25–26.

Korowicki teaches the general application of plasma treatment to films containing polymers to enhance moisture and gas barrier properties. The teachings of Korowicki undermine Appellant's assertion (Br. 9–10 (citing Table 1)) that it was counterintuitive that plasma treatment of fluoropolymer would result in reduced water vapor and oxygen transmission. Rather, Korowicki explicitly discloses that plasma treatment reduces water vapor and oxygen transmission. Korowicki ¶¶ 11, 16–17, 37–39. Thus, Appellant's Table 1 merely discloses, in numerical format, the same improvement disclosed by Korowicki, i.e., an improvement in barrier properties as a result of plasma treatment. Further, we agree with the Examiner that a person of ordinary skill in the art would have had a reasonable expectation of success in applying Korowicki's general teaching to films containing fluoropolymers, which are a type of polymer. In this regard, Appellant provides no explanation as to why Korowicki's method, which is disclosed as applying to various polymers, would not be expected to work in a similar manner with fluoropolymer.

We have considered all of Appellant's arguments in support of the patentability of claim 1, but find them unavailing. Accordingly, we sustain the rejection of claim 1. Claims 2–8, 10–13, 15, 19, and 20 fall with claim 1.

*Rejections II and III— Touhsaent, Peet, Korowicki, Amos, and Blemberg*

Appellant does not make arguments for the patentability of claims 16–18 and 21 aside from those discussed above regarding claim 1. *See* Br. 7–11. Accordingly, for the same reasons, we sustain the rejection of claims 16–18 and 21 (Rejections II and III).

CONCLUSION

The Examiner's rejections are affirmed.

DECISION SUMMARY

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1-8, 10-13, 15, 19, 20	103(a)	Touhsaent, Peet, Korowicki	1-8, 10-13, 15, 19, 20	
16-18	103(a)	Touhsaent, Peet, Korowicki, Amos	16-18	
21	103(a)	Touhsaent, Peet, Korowicki, Blemberg	21	
<b>Overall Outcome</b>			1-8, 10-13, 15-21	

TIME PERIOD FOR RESPONSE

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

AFFIRMED