

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COSTCO WHOLESALE CORPORATION,
Petitioner,

v.

ROBERT BOSCH LLC,
Patent Owner.

Case IPR2016-00038
Patent 6,292,974

SECOND DECLARATION OF DR. GREGORY W. DAVIS

Costco Exhibit 1101, p. 1

I. INTRODUCTION

I, Dr. Gregory W. Davis, hereby declare the following:

1. I previously prepared a declaration in support of the unpatentability of U.S. Patent No. 6,292,974 (the “’974 Patent”), which I understand was submitted as Exhibit 1008 to Costco Wholesale Corporation’s Petition for *Inter Partes* Review of U.S. Patent No. 6,292,974 (Paper No. 1) (the “Petition”).

2. I understand that *inter partes* review was instituted on claims 1, 2, and 8 of the ’974 Patent on the following grounds:

- Obviousness under 35 U.S.C. § 103(a) over U.S. Patent No. 3,192,551 to Appel (Ex. 1005; “Appel”) and GB 2,106,775 to Prohaska (Ex. 1004; “Prohaska”)
- Obviousness under 35 U.S.C. § 103(a) over DE 1,028,896 to Hoyler (Ex. 1006; “Hoyler”) and Prohaska

See Institution Decision (Paper No. 16) (the “Decision”).

3. I have reviewed the Board’s Institution Decision (Paper No. 16) (the “Decision”), Patent Owner’s Response to the Petition (Paper No. 28) (the “Response”), as well as the Exhibits to that Response, including the Declaration of Dr. Dubowsky (Ex. 2003).

4. In performing my analysis I have considered the claims of the ’974 Patent, any differences between the claimed subject matter and the prior art patents

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and printed publications identified in my first declaration (Ex. 1008 ¶¶ 2–3), and the level of ordinary skill in the art of the '974 Patent as of not later than August 21, 1997, which I understand is the filing date of the German application to which the '974 Patent claims priority.

5. Furthermore, in forming my opinions, I considered and relied upon the contents of the patents and printed publications discussed below. In interpreting and explaining the contents of these patents and printed publications, I relied on my educational background, industry work experience, and teaching experience as set forth in an appendix to my earlier declaration. *See* Ex. 1008 ¶¶ 4–12, p. 27 (App'x A). An updated version of my *curriculum vitae* is attached hereto as Appendix A. Even under Patent Owner and Patent Owner's expert's definition, I believe I qualify as a person of ordinary skill in the art.

II. ANALYSIS AND OPINIONS

6. I have the following comments in response to Dr. Dubowsky's declaration (Ex. 2003) and Patent Owner's Response.

A. A Person of Ordinary Skill in the Art Would Have Understood that Wind-Lift is Created by the Inverted Triangular Profile of a Wiper Strip Common to Flat-Spring and Conventional Wipers

7. In my earlier declaration, I discussed the teachings of Appel, Prohaska, and Hoyler, and expressed my opinion that claims 1, 2, and 8 of the '974 Patent would have been obvious to a person of ordinary skill in the art over the

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combinations of either (a) Appel and Prohaska or (b) Hoyler and Prohaska. *See* Ex. 1008 ¶¶ 17, 37–63.

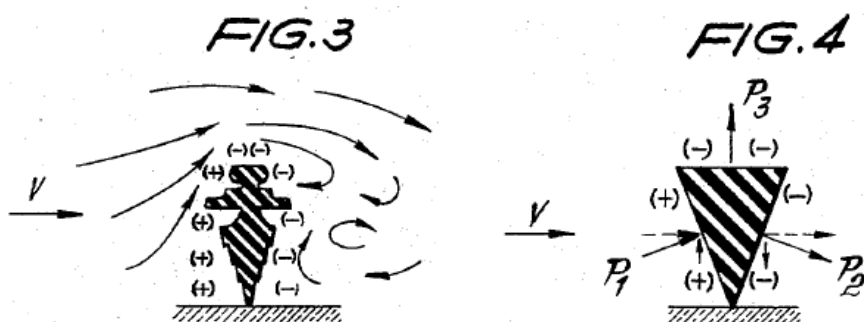
8. As I discussed in my first declaration, wind-lift poses the same problem for flat-spring wipers as it does for conventional ones. *See id.* ¶ 27. The '974 Patent describes the problem of “liftoff tendency” as resulting from overpressure on the “front” side of the wiper (i.e., the side “exposed to the wind”) and negative pressure on the back side of the wiper. '974 Patent, 1:7–10, 25–34, 34–40, 64–67. U.S. Patent No. 3,418,679 to Barth et al. (Exs. 1007, 2009; “Barth”), granted in 1966, teaches that the “liftoff tendency” referred to in the '974 Patent is caused by the point-down triangular shape of a wiper’s rubber wiper strip:

FIGS. 3 and 4 respectively illustrates the theory of air flow and lift-off forces as it pertains to the prior-art;

* * *

Discussing now these figures in detail, it will be seen that FIG. 3 shows the air flow and the static pressure conditions with respect to a wiper having the customary so-called “pine tree” profile. It is clearly evident that in the direction of air flow-impingement *a zone of static overpressure is generated on that lateral side of the blade which faces the air flow*, whereas *a zone of static underpressure is present on the lateral side facing away from the air flow* as well as on the back of the blade which is located remote from the windshield. The arrows indicating air flow clearly show how the forces generated in this construction tend to lift the blade away from the windshield.

This is shown in still more detail in FIG. 4 where for purposes of simplicity the profile, which has been identified in FIG. 3 as a “pine tree” profile has been shown as a triangle standing on edge with its base remote from the windshield. It is evident from FIG. 4 how the lift-off forces act against the lateral faces of the blade. The zone of static overpressure located on the lateral side onto which the air flow impinges results in an upwardly directed pressure P_1 , while the zone of underpressure on the other lateral side of the blade results in a downwardly directed pressure P_2 of approximately the same magnitude. A third force, the lift-off force P_3 , acts on the back of the blade. For the purposes of the present consideration only the vertical components of the forces P_1 and P_2 are of importance and a consideration of these vertical components readily establishes that they negate one another. Thus, the force acting to lift the wiper away from the Windshield is the force P_3 acting on the back of the wiper.



Barth, 2:52–53, 4:8–39 (emphasis added). Barth not only describes the underpressure and overpressure affecting wipers in a manner that is essentially identical to the '974 Patent, it specifically describes the “lift-off force” as resulting from the wiper strip’s “pine tree” or “inverted triangle” profile.

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