

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COSTCO WHOLESALE CORPORATION,
Petitioner,

v.

ROBERT BOSCH LLC,
Patent Owner.

Case IPR2016-00036
Patent 6,944,905

SECOND DECLARATION OF DR. GREGORY W. DAVIS

Costco Exhibit 1102, 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. 6,944,905 (the “’905 Patent”), which I understand was submitted as Exhibit 1007 to Costco Wholesale Corporation’s Petition for *Inter Partes* Review of U.S. Patent No. 6,944,905 (Paper No. 1) (the “Petition”).

2. I understand that *inter partes* review was instituted on the ground of whether claims 13, 17, and 18 of the ’905 Patent would have been obvious under 35 U.S.C. § 103(a) in view of GB 2,106,775 to Prohaska (Ex. 1003; “Prohaska”) and DE 1,028,896 to Hoyler (Ex. 1004; “Hoyler”). *See* Institution Decision (Paper No. 16) (the “Decision”).

3. I have reviewed the Decision (as well as institution decisions in the parallel proceedings for *inter partes* review in which I have submitted declarations), 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 ’905 Patent, any differences between the claimed subject matter and the prior art patents and printed publications identified in my first declaration (Ex. 1007 ¶¶ 2–3), and the level of ordinary skill in the art of the ’905 Patent as of not later than May 29,

2000, which I understand is the filing date of the German application to which the '905 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 my earlier declaration. *See* Ex. 1007 ¶¶ 4–12. A current 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, and the '905 Patent Acknowledges that the Prior Art Recognized That Wind-Lift in Flat-Spring Wipers Can Be Addressed by Adding a Spoiler

7. In my earlier declaration, I discussed Prohaska and Hoyler, and expressed my opinion that claims 13, 17, and 18 of the '905 Patent would have been obvious to a person of ordinary skill in the art over the combination of Hoyler

and Prohaska. *See* Ex. 1007 ¶¶ 17, 26–27, 33–58.

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* Ex. 1007 ¶ 27. The '905 Patent describes the problem of “airflow-induced tendency . . . to lift up . . .” the wiper from the windshield. '905 Patent, 1:28–30. DE 19736368 to Merkel (Exs. 1011, 1012; “Merkel”),¹ published February 25, 1999, discloses a wiper having a flat-spring support element, a wiper strip, and a triangular spoiler for counteracting the “liftoff tendency,” and the '905 Patent expressly acknowledges this disclosure. Merkel, 2:62–3:29, 3:31–38, 3:54–4:9, figs. 1, 3, 4; '905 Patent, 1:6–40.

9. Thus, Bosch’s position that “wind liftoff” was not a “recognized problem” in flat-spring wipers (Response, 10; Ex. 2003 ¶¶ 59–60, 65) is contrary to the '905 Patent’s own teachings.

10. Furthermore, U.S. Patent No. 3,418,679 to Barth et al. (Exs. 1016, 2009; “Barth”), granted in 1966, teaches that the “airflow induced tendency . . . to lift up” referred to in the '905 Patent is caused by the point-down triangular shape of a wiper’s rubber wiper strip:

¹ U.S. Patent No. 6,292,974 (Ex. 1012) is the U.S. counterpart to DE 19736368, and citations to “Merkel” herein are made to the U.S. patent.

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

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