Trials@uspto.gov
Tel: 571-272-7822

Paper 26
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORP.,
Petitioner,

v.

SIGNAL IP, INC.,
Patent Owner.

Case IPR2016-00292
Patent 6,012,007

Before MEREDITH C. PETRAVICK, JEREMY M. PLENZLER, and JAMES A. TARTAL, *Administrative Patent Judges*.

PLENZLER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Toyota Motor Corp. ("Petitioner") filed a corrected Petition to institute an *inter partes* review of claims 17 and 21 ("the challenged claims") of U.S. Patent No. 6,012,007 (Ex. 1001, "the '007 patent"). Paper 7 ("Pet."). In our Decision on Institution, we instituted trial to review the patentability of claims 17 and 21 based on anticipation by Schousek[1]. Paper 16 ("Decision to Institute" or "Dec.").

Subsequent to institution, Signal IP, Inc. ("Patent Owner") filed a Patent Owner Response. Paper 19 ("PO Resp."). Petitioner filed a Reply to the Patent Owner Response. Paper 21 ("Pet. Reply"). Petitioner provides testimony from Scott Andrews. Ex. 1007 ("the Andrews Declaration").

An oral hearing was held on February 16, 2017, and a transcript of the hearing is included in the record. Paper 25 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has failed to show, by a preponderance of the evidence, that claims 17 and 21 of the '007 patent are unpatentable.

B. Related Proceedings

Petitioner and Patent Owner indicate that the '007 patent is the subject of a number of co-pending federal district court cases, including: *Signal IP, Inc. v. Toyota Motor North America, Inc.*, No. 2:15-cv-05162 (C.D. Cal.) ("the related litigation"). Pet. 1–2; Paper 3, 2–3.

[1] U.S. Pat. No. 5,474,327; issued Dec. 12, 1995 (Ex. 1002, "Schousek").

The ’007 patent is also the subject of IPR2016-00366, and was the subject of IPR2015-01004, which was terminated prior to issuance of a final written decision (IPR2015-01004, Paper 29). We issued a final written decision in IPR2016-00366 concurrently with this decision.

C. The ’007 Patent

The ’007 patent is directed to “an airbag system having seat pressure detectors [mounted] in the seat” and its method of operation. Ex. 1001, 1:10–12. The ’007 patent explains that one “object of the invention [is] to discriminate in a [supplemental inflatable restraint] system between large and small seat occupants for a determination of whether an airbag deployment should be permitted” and “[a]nother object in such a system is to maintain reliable operation in spite of dynamic variations in sensed pressures.” *Id.* at 1:52–57.

The ’007 patent describes “seat sensing system 14 [as] inhibit[ing] air bag deployment when a seat is empty or occupied by a small child, while allowing deployment when the occupant is large.” *Id.* at 2:55–58. An example is provided where the system is tuned to always inhibit airbag deployment for occupants weighing less than 66 pounds, and always allow deployment for occupants exceeding 105 pounds. *Id.* at 2:58–61. The seat occupant sensing system includes a microprocessor and sensors mounted in a seat monitored by the microprocessor to determine whether to inhibit airbag deployment. *Id.* at 2:61–3:7.

The sensors are periodically sampled and decision measures are computed. *Id.* at 3:39–43. Decision measure computations include, for example, “calculating total force and its threshold, sensor load ratings and measure, long term average of sensor readings and its threshold.” *Id.* at

3:49–52. A "main decision algorithm" is illustrated in Figure 9 of the '007 patent, reproduced below.

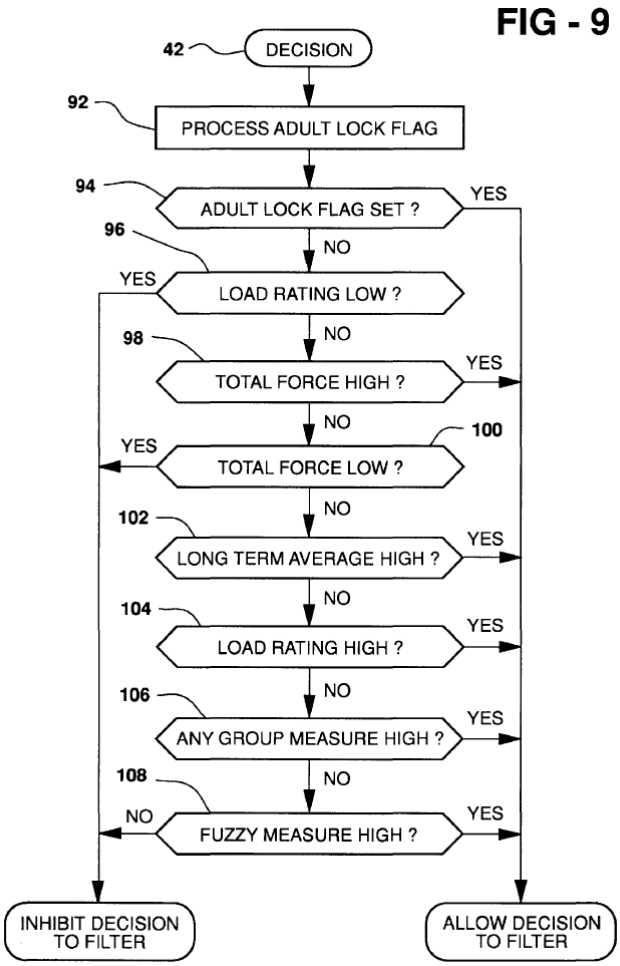

Figure 9 is a flow chart illustrating the determination of an airbag deployment decision. The '007 patent explains that "this algorithm will result in an allow or an inhibit decision, but this decision is preliminary, subject to subsequent filtering to obtain a final consent to deployment." *Id.* at 4:59–61. As shown in Figure 9, a decision to allow airbag deployment occurs when an "Adult Lock Flag" has been set at step 94 or when the total force is above a threshold ("Total Force High") at step 98. Step 98 provides

an "allow" decision for airbag deployment when the total force is above a threshold, with no further evaluation required. *Id.* at 5:1–2.

Although the decisions noted above are "preliminary," these decisions are described as "preliminary" because a "final judgment of whether to consent to deployment is made in the decision filter." *Id.* at 5:8–9. The decision filter counts allow and inhibit decisions to determine whether final consent for deployment is granted. *Id.* at 5:8–24. None of these decisions are decisions to deploy the airbag. Rather, they are decisions to determine whether deployment is allowed, should the circumstances for deployment arise (e.g., a collision).

D. Illustrative Claim

As noted above, Petitioner challenges claims 17 and 21. Claim 17 is independent, with claim 21 depending therefrom. Claims 17 and 21 are reproduced below:

> 17. In a vehicle restraint system having a controller for deploying air bags, means for inhibiting and allowing deployment according to whether a seat is occupied by a person of at least a minimum weight comprising:
>
> seat sensors responding to the weight of an occupant to produce sensor outputs;
>
> a microprocessor coupled to the sensor outputs and programmed to inhibit and allow deployment according to sensor response and particularly programmed to
>
> determine measures represented by individual sensor outputs and calculate from the sensor outputs a relative weight parameter,
>
> establish a first threshold of the relative weight parameter,
>
> allow deployment when the relative weight parameter is above the first threshold,

establish a lock threshold above the first threshold,

set a lock flag when the relative weight parameter is above the lock threshold and deployment has been allowed for a given time,

establish an unlock threshold at a level indicative of an empty seat,

clear the flag when the relative weight parameter is below the unlock threshold for a time, and

allow deployment while the lock flag is set.

Ex. 1001, 7:51–8:8.

21. Means for inhibiting and allowing deployment as defined in claim 17 wherein the relative weight parameter is the total force detected by all the sensors.

Id. at 8:30–32.

II. ANALYSIS

A. Claim Construction

There is no dispute that the ’007 patent is expired. *See, e.g.*, Pet. 7. “[T]he Board’s review of the claims of an expired patent is similar to that of a district court’s review.” *In re Rambus, Inc.*, 694 F.3d 42, 46 (Fed. Cir. 2012). Specifically, because the expired claims of the patent are not subject to amendment, we apply the principle set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)), that “words of a claim ‘are generally given their ordinary and customary meaning,’” as understood by a person of ordinary skill in the art in question at the time of the invention. “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim

language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

In our Decision to Institute, we noted that a district court issued a claim construction order, in a case involving the '007 patent, that determined the "relative weight parameter" recited in claim 17 was indefinite. Dec. 6 (citing Ex. 1006, 60–63). Based on the particular circumstances of this case, however, the grounds of unpatentability asserted by Petitioner to the challenged claims may be applied, despite the issue of indefiniteness, because dependent claim 21 makes clear that the "relative weight parameter" at least includes the "total force." Pet. 9; *see Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy."). Accordingly, in each of its challenges, Petitioner contends that Schousek's total weight (i.e. force) parameter corresponds to the recited "relative weight parameter." Pet. 20, 25–26, 40. We are apprised of no reason to change our determination that the "relative weight parameter" recited in claim 17 includes a parameter representing a total weight of an occupant.

The dispositive issue now before us is whether the "allow deployment when the relative weight parameter is above the first threshold" limitation recited in claim 17 requires that a decision to "allow deployment" is *always* made "when the relative weight parameter is above the first threshold," or if the claim language only requires that a decision to "allow deployment" is made in some circumstances, but *not always*, "when the relative weight parameter is above the first threshold."

Patent Owner contends that the claim requires that the decision to "allow deployment" is *always* made "when the relative weight parameter is above the first threshold." PO Resp. 15 ("According to the claim, when the relative weight parameter is above the first threshold, deployment ***is allowed***. No other requirements need be met."). Petitioner disagrees. *See* Pet. 22 ("there is nothing about claims 17 and 21 that would exclude conditioning an airbag 'allow' or enablement decision on factors in addition to the total measured weight on the seat"); Pet. Reply 6–8. For the reasons set forth below, we determine that the claim requires the decision to "allow deployment" is *always* made "when the relative weight parameter is above the first threshold."

Looking to the written description, we note that the '007 patent only describes an "allow deployment" decision *always* being made when the total force ("the relative weight parameter") is above a "high" threshold ("the first threshold") with no further requirements. *See* Ex. 1001, 5:1–2, Fig. 9. Indeed, there is no dispute that the Specification of the '007 patent fails to describe any scenario where the determination of the total force being above the threshold (the "high" threshold) does not *always* result in the "allow deployment" decision. We appreciate that the '007 patent explains that the "allow deployment" decision in Figure 9 is only a "preliminary" decision subject to further filtering. Ex. 1001, 4:58–61. Nevertheless, that decision is an "allow deployment" decision independent of any further determinations. The subsequent filtering is counting "allow deployment" decisions and "inhibit deployment" decisions, and does not impose further requirements on making those decisions. *Id.* at 5:8–24.

In addition to the "allow deployment when the relative weight parameter is above the first threshold" limitation, claim 17 further requires, *inter alia*: (1) "a lock threshold above the first threshold," (2) "set[ting] a lock flag when the relative weight parameter is above the lock threshold and deployment has been allowed for a given time," and (3) "allow[ing] deployment while the lock flag is set." Under Petitioner's proposed reading of the claim noted above (*see* Pet. 22), "allow[ing] deployment while the lock flag is set" necessarily means "allow[ing] deployment when the relative weight parameter is above the first threshold" because the claim specifically requires that the "lock threshold [is] above the first threshold." Accordingly, reading the claim to only require a decision to "allow deployment" in some circumstances, but *not always*, "when the relative weight parameter is above the first threshold," has no effect on what falls within the scope of the claim because that limitation would always be met when the further requirement to "allow deployment while the lock is set" is met. We determine, therefore, that Petitioner's proposed reading of the claim language at issue would render the "allow deployment when the relative weight parameter is above the first threshold" limitation superfluous, which counsels against that reading. *See Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) (discussing the claim construction principle that meaning should be given to all of a claim's terms).

Taking the circumstances discussed above into consideration, we determine that the phrase "allow deployment when the relative weight parameter is above the first threshold" requires that an "allow deployment" decision is *always* made "when the relative weight parameter is above the

first threshold." That reading of the claim gives meaning to all limitations recited in the claim and is in line with the Specification of the '007 patent.

B. Anticipation by Schousek

Petitioner contends that claims 17 and 21 are anticipated by Schousek. Pet. 4–5, 12–30.

Schousek is directed to an airbag restraint system, and describes sensors located beneath a seat cover used to determine a total weight parameter in its airbag restraint system. Ex. 1002, Abstract, 4:51–60. Schousek describes a "minimum threshold" corresponding to a minimum weight of an occupied infant seat and a "maximum . . . threshold" corresponding to a maximum weight of an occupied infant seat. *Id.* at 2:31–34. Schousek explains that "[i]f the total weight parameter is greater than the maximum infant seat weight . . . a decision is made to allow deployment," and "if the total weight parameter is less than the minimum weight threshold for an occupied infant seat . . . a decision is made to inhibit deployment." *Id.* at 5:32–39. Schousek further explains that if the total weight parameter is between the minimum and maximum weight thresholds, airbag deployment is still allowed if the center of weight distribution is not forward of a reference line. *Id.* at 5:42–50.

Figure 5A of Schousek, reproduced below, illustrates the subsequent conditions required for an allow deployment decision when the total weight parameter is between the minimum and maximum weight thresholds.

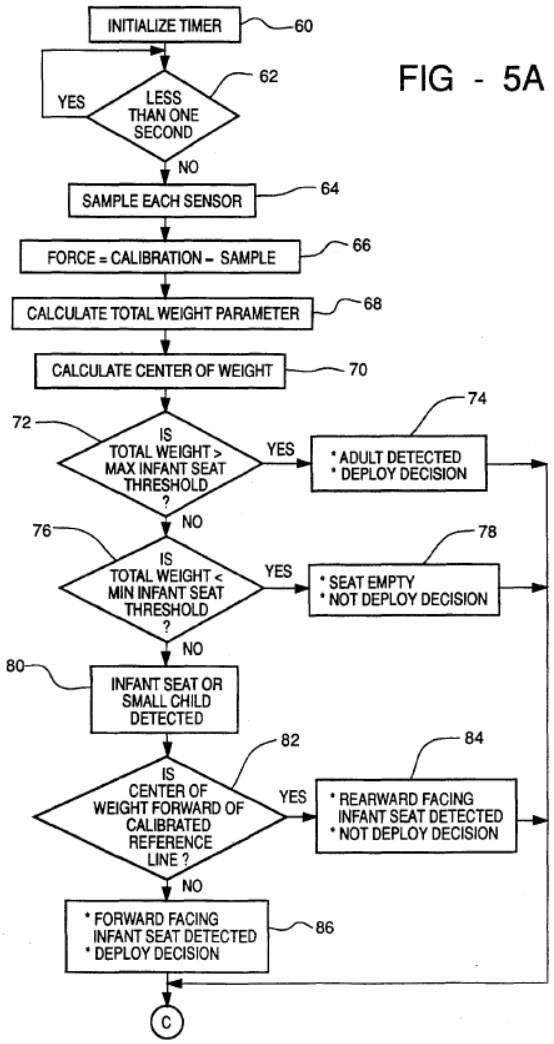

FIG - 5A

Figure 5A of Schousek is a flow chart illustrating the determination of an airbag deployment decision. As seen at step 72, when the total weight parameter is between the minimum and maximum weight thresholds a subsequent determination is required at step 82, sometimes resulting in an allow deployment decision (step 86) and other times a decision not to allow deployment (step 84). Ex. 1002, 5:32–50.

Although, as noted above, Schousek explains that "[i]f the total weight parameter is greater than the maximum infant seat weight . . . a decision is made to allow deployment," Petitioner does not cite Schousek's

"maximum" threshold as corresponding to the "first threshold" in claim 17. *See* Pet. 22–23, 27 (citing Schousek's "maximum" threshold as corresponding to the "lock threshold" in claim 17). Rather, Petitioner cites Schousek's "minimum" threshold as corresponding to the "first threshold" in claim 17. *Id.* at 21–22, 26. As explained above, we determine that claim 17 requires that an "allow deployment" decision is *always* made "when the relative weight parameter is above the first threshold." It is clear that an allow deployment decision is not *always* made in Schousek when the total weight parameter (the relative weight parameter) is above the minimum weight threshold (the first threshold), and Petitioner does not contend otherwise. *See id.* at 21–23, 26–27.

Accordingly, Petitioner has failed to establish by a preponderance of evidence that claims 17 and 21 are anticipated by Schousek.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has failed to establish unpatentability of claims 17 and 21 of the '007 patent.

IV. ORDER

For the reasons given, it is

ORDERED that Petitioner has failed to establish unpatentability of claims 17 and 21 of U.S. Patent No. 6,012,007; and

FURTHER ORDERED that parties to the proceeding seeking judicial review of this Final Written Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

PETITIONER:

John Flock
George E. Badenoch
Andrews Kurth Kenyon LLP
johnflock@andrewskurthkenyon.com
georgebadenoch@andrewskurthkenyon.com

PATENT OWNER:

Tarek N. Fahmi
Holly J. Atkinson
Jason A. LaBerteaux
Ascenda Law Group, PC
tarek.fahmi@ascendalaw.com
holly.atkinson@ascendalaw.com
jason.laberteaux@ascendalaw.com