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Paper 13
Date: December 14, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VOLKSWAGEN GROUP OF AMERICA, INC.,
Petitioner,

v.

SCRAMOGE TECHNOLOGY LTD.,
Patent Owner.

IPR2022-01309
Patent 10,193,392 B2

Before BRIAN J. MCNAMARA, KRISTINA M. KALAN, and MICHELLE N. WORMMEESTER, *Administrative Patent Judges.*

KALAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314
Granting Motion for Joinder
35 U.S.C. § 315(c)

I. INTRODUCTION

Volkswagen Group of America, Inc. ("Petitioner") filed a petition (Paper 2, "Petition" or "Pet.") to institute an *inter partes* review ("IPR") of claims 1–8 of U.S. Patent No. 10,193,392 B2 (Ex. 1001, "the '392 patent"). 35 U.S.C. § 311. Petitioner also filed a Motion For Joinder with *Apple Inc. v. Scramoge Technology Ltd.*, IPR2022-00529 ("the Apple IPR"). Paper 7 ("Motion" or "Mot."). Petitioner states that its "Petition tracks the Apple IPR petition in all material respects" and "challenges the same claims, on the same grounds, and relies on the same prior art as instituted in the Apple IPR." Mot. 1. Scramoge Technology Ltd. ("Patent Owner") did not file a preliminary response to Petitioner's Petition or an opposition to the Motion.

A decision to institute under § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018). In addition, per Board practice, if the Board institutes trial, it will institute "on all of the challenged claims and on all grounds of unpatentability asserted for each claim." *See* 37 C.F.R. § 42.108(a).

Having considered the arguments and the associated evidence presented in the Petition and the Motion, for the reasons described below, we institute *inter partes* review and grant Petitioner's Motion.

II. REAL PARTIES IN INTEREST

Petitioner identifies itself (Volkswagen Group of America, Inc.) as the real party-in-interest. Pet. 114. Petitioner states that Volkswagen Group of America, Inc. "is a 100% owned subsidiary of Volkswagen AG." *Id.* Patent Owner identifies itself (Scramoge Technology Ltd.) as the sole real party-in-interest. Paper 3, 2.

III. RELATED MATTERS

The parties identify a number of district court proceedings as related matters, including: *Scramoge Technology Ltd. v. Apple Inc.*, No. 6-21-cv-01071 (W.D. Tex.) and *Scramoge Technology Ltd. v. Volkswagen AG*, No. 2:22-cv-10730 (E.D. Mich.). Pet. 114; Paper 3, 3.

IV. THE '392 PATENT

The '392 patent is titled "Wireless Power Transfer Device and Wireless Power Transfer System" and is directed to "wireless power transfer technology." Ex. 1001, codes (54), (57), 1:19–20. A wireless power transfer system disclosed in the '392 patent includes "a receiving part for receiving power from a transmitting part, wherein the transmitting part comprises: a power conversion part comprising a full bridge inverter" and "a control part for controlling the power conversion part using a pulse width modulation (PWM) control signal." *Id.*, code (57). The disclosed wireless power transfer device can minimize current wasted or consumed, enhance a wireless power transfer efficiency, improve a harmonic distortion ratio, and provide a duty ratio that is capable of minimizing the harmonic components. *Id.* at 2:38–62.

Figure 8 of the '392 patent is reproduced below.

FIG. 8

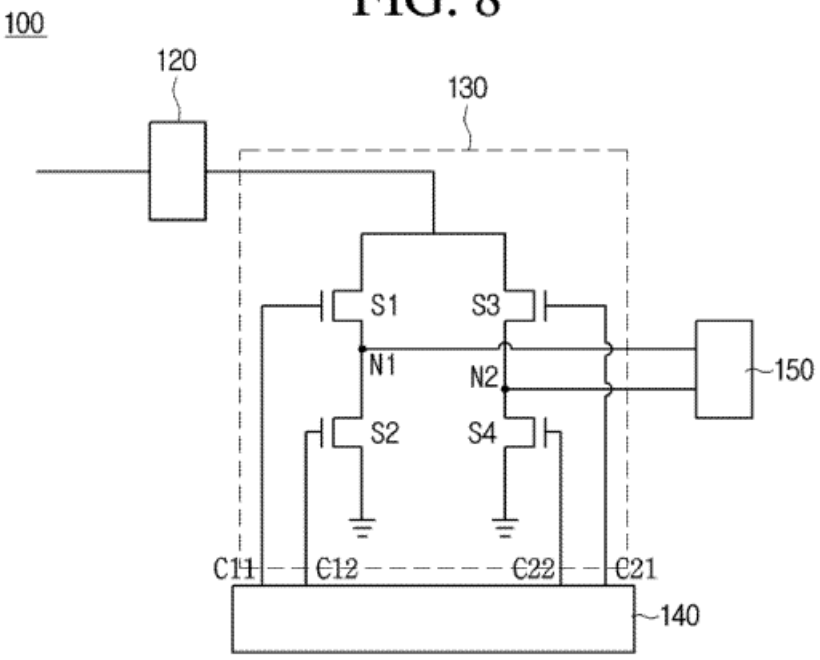


Figure 8 of the '392 patent illustrates a connection relationship and an operation method of power conversion part 130. *Id.* at 12:9–13. As shown in Figure 8, power conversion part 130 converts power provided from converter 120 into an AC power based on an AC power control signal provided from control part 140. *Id.* at 12:14–17. Power conversion part 130 includes first to fourth switching elements S1, S2, S3 and S4, which each conduct when a first to a fourth AC power control signals C11, C12, C21 and C22 provided from the control part 140 are in a high level, and are open when in a low level. *Id.* at 12:19–24. First switching element S1 is connected between a first node N1 and converter 120, and controlled by a first AC power control signal C11 of control part 140. *Id.* at 12:25–27. Second switching element S2 is connected between the first node N1 and a ground and is controlled by a second AC power control signal C12 of control part 140. *Id.* at 12:28–30. Third switching element S3 is connected between the second node N2 and converter 120, and is controlled by a third

AC power control signal C21 of control part 140. *Id.* at 12:31–34. Fourth switching element S4 is connected between the second node N2 and ground, and is controlled by a fourth AC power control signal C22 of control part 140. *Id.* at 12:34–37.

Figure 12 of the ’392 patent is reproduced below.

FIG. 12

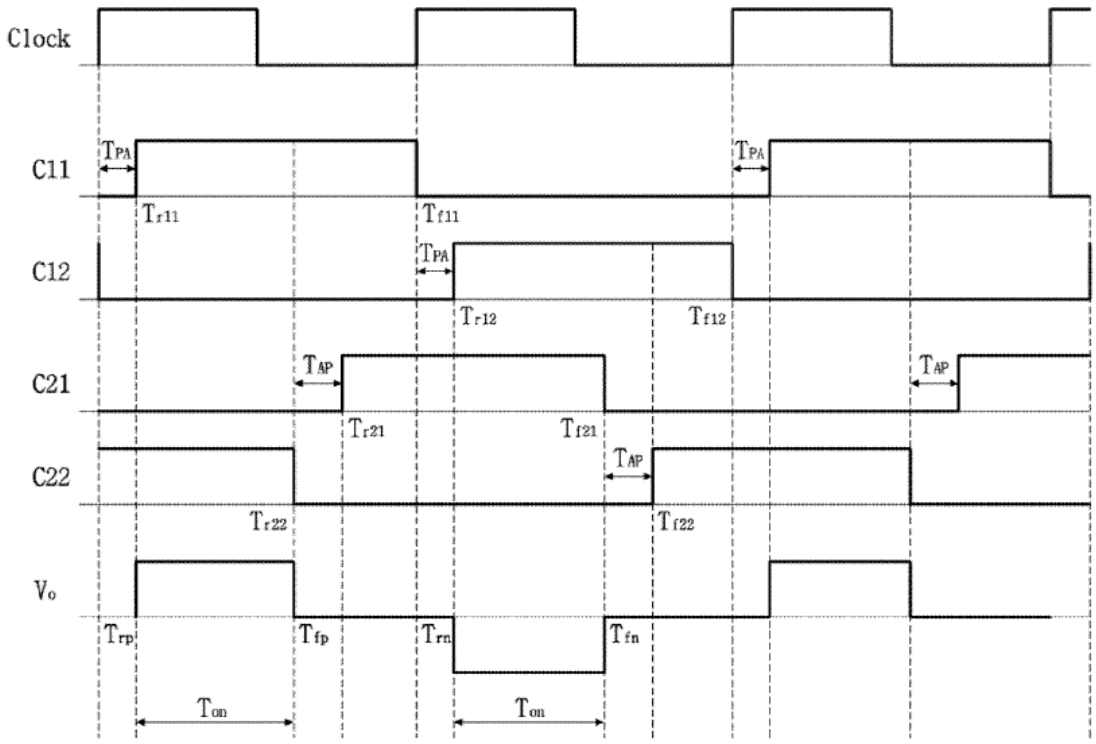


Figure 12 of the ’392 patent illustrates waveform diagrams to control a duty ratio of an AC voltage by controlling a blank interval. *Id.* at 5:29–31. In particular, Figure 12 illustrates waveform diagrams of the first to fourth AC power control signals that are PWM signals to generate an AC power having an AC voltage of 50% duty ratio. *Id.* at 13:53–56. As shown in Figure 12, a duty ratio of the first to fourth AC power control signals C11, C12, C21 and C22 that are PWM signals provided from the control part 140 may be changed. *Id.* at 13:31–49. For example, rising times Tr11, Tr12, Tr21, and

Tr22, and falling times Tf11, Tf12, Tf21, and Tf22 of high levels of the first to fourth AC power control signals C11, C12, C21 and C22 that are PWM signals provided from control part 140 may be changed. *Id.* In response to the first to fourth AC power control signals C11, C12, C21 and C22 that are changed, conduction times of the first to fourth switching elements S1, S2, S3 and S4 are changed, and resultantly, a duty ratio Ton of the AC voltage Vo of the AC power supplied to the transmitting antenna system 102 may be changed. *Id.*; *see also id.* at 14:65–15:8 (explaining that a "high level overlapping interval of the first and fourth AC power control signals C11 and C22 is a power transfer interval, which may be defined as a duty ratio (Ton)," such that the "duty ratio (Ton) is an interval where a power may be transferred for a cycle, the maximum being set 50%"; in addition, "an overlapped high level interval of the second and third AC power control signals C12 and C21 is a power transfer available interval, which may be defined as a duty ratio (Ton)"). This enables receiving part 200 to receive a constant power by differing a duty ratio Ton of the AC voltage Vo of the AC power depending on a status of the receiving part 200, for example, a charging status and/or a receiving status. *Id.* at 13:31–49.

V. ILLUSTRATIVE CLAIM

Claim 1, the only independent claim in the '392 patent, is reproduced below.

> 1. [1.0] A transmitter for generating a wireless power transmitted to a receiver, the transmitter comprising:
>
> [1.1] a control part for generating first to fourth AC power control signals; and
>
> [1.2] a power conversion part for generating an AC power including a positive polarity output voltage and a negative polarity output voltage in response to the first to fourth AC power

> control signals, [1.3.0] wherein the power conversion part includes:
>
> [1.3.1] a first switching element connected between a first node and a second node and controlled in response to the first AC power control signal;
>
> [1.3.2] a second switching element connected between the second node and a ground and controlled in response to the second AC power control signal;
>
> [1.3.3] a third switching element connected between the first node and a third node and controlled in response to the third AC power control signal; and
>
> [1.3.4] a fourth switching element connected between the third node and the ground and controlled in response to the fourth AC power control signal,
>
> [1.7] wherein when the first and fourth switching elements are turned on in response to the first and fourth AC power control signals, the positive polarity output voltage is generated, and [1.8] when the second and third switching elements are turned on in response to the second and third AC power control signals, the negative polarity output voltage is generated,
>
> [1.9] wherein a duty ratio of the positive polarity output voltage is determined by a falling time of the fourth AC power control signal, and
>
> [1.10] wherein a duty ratio of the negative polarity output voltage is determined by a falling time of the third AC power control signal.

Ex. 1001, 20:9–42 (bracketed designations added by Petitioner (*see* Pet. 19–46)).

VI. ASSERTED GROUNDS

Petitioner asserts the following grounds of unpatentability.

Claims Challenged	Reference(s)	Basis[1]
1, 6	Hui[2] (Embodiment of Figs. 1a and 5b)	§ 103
2–4	Hui (Embodiment of Figs. 1a and 5b), Taylor[3]	§ 103
1, 5, 7, 8	Hui (Embodiment of Figs. 1b and 2a)	§ 103

In support of its unpatentability arguments, Petitioner relies on the declaration of Shukri J. Souri, Ph.D. Ex. 1003.

VII. DECISION ON INSTITUTION

The Petition in this proceeding asserts substantially the same grounds of unpatentability as those upon which we instituted review in the Apple IPR. Mot. 1; Pet. 15–16.

Having already considered the merits of those challenges and the evidence in the Apple IPR and having determined that the threshold for institution of *inter partes* review has been met, we determine that the Petition here also presents a reasonable likelihood of prevailing on the challenges to at least one claim.

We find that the merits of the Petition warrant institution.

VIII. MOTION FOR JOINDER

Petitioner moves to join the Petition to the Apple IPR. *See generally* Motion. Petitioner represents that "Apple Inc. ('Apple'), and Patent Owner, Scramoge Technology Limited ('Patent Owner') do not oppose Petitioner's

[1] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), amended 35 U.S.C. § 103. Because the '392 patent has an effective filing date after the effective date of the applicable AIA amendments, we refer to the AIA version of § 103.
[2] US 2011/0199045 A1, published August 18, 2011 (Ex. 1005).
[3] US 10,250,083 B2, issued April 2, 2019 (Ex. 1011).

request for joinder if Petitioner agrees to an 'understudy' role without independent participation." Mot. 1. Patent Owner did not file an opposition to Petitioner's Motion. Thus, Petitioner's Motion stands unopposed.

A motion for joinder should (1) set forth reasons why joinder is appropriate; (2) identify any new grounds of unpatentability asserted in the petition; (3) explain what impact (if any) joinder would have on the trial schedule for the existing review; and (4) address specifically how briefing and discovery may be simplified. *Samsung Elecs., Co. v. Raytheon Co.*, IPR2016-00962, Paper 12 at 5 (PTAB Aug. 24, 2016) (citing *Kyocera Corp. v. Softview LLC*, IPR2013-00004, Paper 15 at 4 (PTAB Apr. 24, 2013)).

Petitioner contends that joinder is appropriate because its Petition challenges the same claims of the same patent on the same grounds as those before us in the Apple IPR. Mot. 6–7. Petitioner emphasizes that its Petition presents no new grounds and in substance is identical to the petition in the Apple IPR. Mot. 1, 7–9. Petitioner states that its Petition relies on testimony that "explicitly agrees with the facts, analysis, and conclusions of the expert declaration in the Apple IPR and does not contain any new opinions not included in the Apple IPR expert declaration," and as "a condition of joinder, Petitioner agrees to proceed based on Apple's expert declaration and petition." *Id.* at 8, 7 n.2 ("Petitioner agrees to abide by Apple's declaration if joinder is granted."). Petitioner also contends that the trial schedule in the Apple IPR will not be compromised because Petitioner consents to the trial schedule set in the Apple IPR. *Id.* at 9.

Petitioner states that it will assume an "understudy role" in briefing and discovery for as long as Apple participates in the proceeding. *Id.* at 1–2, 10–11. Petitioner agrees that, except for issues that do not involve Apple, all of Petitioner's filings will be consolidated with those of Apple. *Id*. at 3, 10.

Petitioner states that it "shall not seek to cross-examine or defend the cross-examination of any witness, unless the topic of cross-examination concerns issues solely involving Petitioner" and it "shall not seek discovery from Patent Owner on issues not solely involving Petitioner." *Id.* at 10. Petitioner also agrees that it "shall not present any argument or make any presentation at the oral hearing unless an issue solely involves Petitioner, or when addressing Board-approved motions that do not affect Apple, or its respective position." *Id.* Petitioner further asserts that joinder will not prejudice Patent Owner. *Id.* at 12.

Having considered the issues, we agree with Petitioner that joinder will promote efficiency, because joinder will reduce the number of parallel challenges to the '392 patent. *Id.* at 2. We also find that, because Petitioner will participate in an "understudy role," joinder will simplify the schedule and eliminate the likelihood of duplicative efforts without prejudice to Patent Owner. *Id.* at 10–12.

Petitioner notes that the "only substantive differences between the Petition and the Apple IPR petition are to (i) identify contrary positions that Patent Owner has taken in district court proceedings and (ii) note that certain claim language is indefinite." Mot. 1. Specifically, Petitioner argues that claim 1's limitation of "a control part for generating first to fourth AC power control signals" is indefinite, and that in claim 1's "final two 'wherein' clauses, determining a duty ratio requires the ability to control/alter that duty ratio." *Id.* at 1, 7; Pet. 1, 17, 74 n.3. Petitioner also references positions that Patent Owner has allegedly taken in district court litigation. Mot. 1, 7; Pet. 1, 17, 39, 46, 93–94, 100. A motion for joinder is not an appropriate method for introducing these issues into a proceeding. Further, as noted above, Petitioner has agreed to an understudy role in the Apple IPR if this Motion is

granted. Mot. 10. As a result, we do not consider these issues to be part of the Apple IPR.

Petitioner further requests that its Exhibit 1009 (regarding "infringement allegations against Petitioner in *Scramoge Technology Limited v. Volkswagen Group of America, Inc.*, 2-22-cv-10730 (E.D. Mich.)") and Exhibit 1010 (regarding "claim construction briefing in *Scramoge Technology Limited v. Apple Inc.*, 6-21-cv-01071 (W.D. Tex.)") be included in the Apple IPR. *Id.* at 2. We do not grant this request, but permit the parties to the Apple IPR to file these exhibits in the Apple IPR if they so choose.

IX. CONCLUSION

For the reasons discussed above, we find that Petitioner has demonstrated a reasonable likelihood that it will succeed on its challenge to the patentability on all grounds set forth in the Petition. We also find that Petitioner has presented adequate reasoning and evidence to support its Motion for Joinder.

X. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of the '392 patent is hereby instituted, commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

FURTHER ORDERED that the trial is authorized on all grounds set forth in the Petition;

FURTHER ORDERED that Petitioner's Motion for Joinder with IPR2022-00529 is granted, and Petitioner is hereby joined as a petitioner in IPR2022-00529;

FURTHER ORDERED that there are no changes to the grounds on which trial in IPR2022-00529 was instituted, and no other grounds are added in IPR2022-00529;

FURTHER ORDERED that the Scheduling Order entered in IPR2022-00529, including any schedule changes agreed to by the parties in that proceeding pursuant to the Scheduling Order, shall govern the trial schedule in IPR2022-00529;

FURTHER ORDERED that Petitioner's role in IPR2022-00529 shall be limited as stated by Petitioner in the Motion for Joinder unless and until Apple Inc. is terminated from that proceeding;

FURTHER ORDERED that the case caption in IPR2022-00529 shall be changed to reflect joinder of Volkswagen Group of America, Inc. as a petitioner in accordance with the attached example;

FURTHER ORDERED that a copy of this Decision be entered into the record of IPR2022-00529; and

FURTHER ORDERED that all further filings shall be made in IPR2022-00529.

For PETITIONER:

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[Sample Case Caption]

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE, INC. and
VOLKSWAGEN GROUP OF AMERICA, INC.,
Petitioner,

v.

SCRAMOGE TECHNOLOGY LTD,
Patent Owner.

IPR2022-00529*
Patent 10,193,392 B2

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* Volkswagen Group of America, Inc., which filed a petition in IPR2022-01309, has been joined as a party to this proceeding.