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BakerHostetler / Apple Inc. Washington Square, Suite 1100, 1050 Connecticut Ave, NW WASHINGTON, DC 20036-5304			HAGHANI, SHADAN E	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* YEPING SU, HSI-JUNG WU, KE ZHANG, CHRIS  
Y. CHUNG, and XIAOSONG ZHOU

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Appeal 2019-004326  
Application 14/703,366  
Technology Center 2400

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Before KEVIN F. TURNER, JAMES R. HUGHES, and  
CARL L. SILVERMAN, *Administrative Patent Judges*.

HUGHES, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Claims 1–32 are pending, stand rejected, are appealed by Appellant,  
and are the subject of our decision under 35 U.S.C. § 134(a).<sup>1</sup> *See* Final Act.  
1–2.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Apple Inc. *See* Appeal Br. 2.

<sup>2</sup> We refer to Appellant’s Specification (“Spec.”), filed May 4, 2015 (claiming benefit of US 62/047,415, filed Sept. 8, 2014); Appeal Brief (“Appeal Br.”), filed Jan. 16, 2019; and Reply Brief (“Reply Br.”), filed

### CLAIMED SUBJECT MATTER

The invention, according to Appellant, relates generally to “video streaming techniques,” and more particularly, to “the art for video streaming techniques that provide efficient switching among different coded streams of a common video sequence.” (Spec. ¶ 4). More specifically, Appellant’s claims recite distribution servers, coding servers, computer readable storage devices, and methods for coding a common video sequence multiple times. *See* Spec. ¶ 12. As explained by Appellant, “a common video sequence is coded multiple times to yield respective instances of coded video data” that may be “coded according to a set coding parameters derived from a target bit rate of a respective tier of service,” and where “[e]ach tier may be coded according to a constraint that limits a maximum coding rate of the tier to be less than a target bit rate of another predetermined tier of service.” Spec. ¶ 12; *see* Spec. ¶¶ 12, 44; Abstract. Claim 1 (directed to a method), claim 11 (directed to a distribution server), claim 18 (directed to a coding server), claim 24 (directed to a computer readable storage device), and claim 27 (directed to a method) are independent. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method, comprising:  
coding a common video sequence multiple times to yield respective instances of coded video data, each instance having video data coded according to a set of coding parameters derived from average bit rate of a respective tier of service and wherein the instantaneous coding rate of a given tier fluctuates about its average bit rate,

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May 13, 2019. We also refer to the Examiner’s Final Office Action (“Final Act.”), mailed Aug. 3, 2018; and Answer (“Ans.”) mailed Mar. 13, 2019.

wherein for the given tier, coding is constrained to limit a maximum coding rate of the tier to be less than a[n] average bit rate of another predetermined tier of service.

Appeal Br. 13 (Claims App.).

#### REFERENCES

The prior art relied upon by the Examiner is:

<b>Name</b>	<b>Reference</b>	<b>Date</b>
Chou	US 6,637,031 B1	Oct. 21, 2003
Hasek	US 2009/0083279 A1	Mar. 26, 2009
Dazzi et al. (“Dazzi”)	US 2011/0191446 A1	Aug. 4, 2011
Liao et al. (“Liao”)	US 2012/0155553 A1	June 21, 2012
Miles et al. (“Miles”)	US 2013/0268961 A1	Oct. 10, 2013
McPhillen et al. (“McPhillen”)	US 2014/0185667 A1	July 3, 2014
Lee et al. (“Lee”)	US 2016/0234116 A1	Aug. 11, 2016 <sup>3</sup>

#### REJECTIONS<sup>4</sup>

1. The Examiner rejects claims 1, 3, 4, 7, 9, 18, 20, 21, 23, 24, 31, and 32 under 35 U.S.C. § 103 as being unpatentable over McPhillen and Lee. *See* Final Act. 2–6.

2. The Examiner rejects claims 2, 5, 11–15, 17, 19, and 26 under 35 U.S.C. § 103 as being unpatentable over McPhillen, Lee, and Dazzi. *See* Final Act. 7–9.

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<sup>3</sup> Lee (US 2016/0234116 A1) was filed on Sept. 17, 2014, claiming benefit of Korean Application (KR) 10-2013-0112119, filed on Sept. 17, 2013.

<sup>4</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (2011), amended 35 U.S.C. § 103. Because the present application has an effective filing date (Sept. 8, 2014) after the AIA’s effective date for applications (March 16, 2013), this decision refers 35 U.S.C. § 103.

3. The Examiner rejects claims 6, 16, 22, and 25 under 35 U.S.C. § 103 as being unpatentable over McPhillen, Lee, Liao, and Hasek. *See* Final Act. 9–10.

4. The Examiner rejects claim 8 under 35 U.S.C. § 103 as being unpatentable over McPhillen, Lee, and Miles. *See* Final Act. 10–11.

5. The Examiner rejects claim 10 under 35 U.S.C. § 103 as being unpatentable over McPhillen, Lee, and Liao. *See* Final Act. 11–12.

6. The Examiner rejects claims 27–30 under 35 U.S.C. § 103 as being unpatentable over McPhillen, Lee, and Chou. *See* Final Act. 12–15.

#### ANALYSIS

Appellant argues independent claims 1, 11, 18, and 24, and dependent claims 2–10, 12–17, 19–13, 25, 26, and 28–30, together as a group with respect to the § 103 rejections. *See* Appeal Br. 6–12. Appellant provides nominal separate arguments with respect to independent claim 27. *See* Appeal Br. 11–12. We select independent claim 1 and independent claim 27 as representative of Appellant’s arguments with respect to claims 1–32. 37 C.F.R. § 41.37(c)(1)(iv).

#### *Obviousness Rejections of Claims 1, 11, 18, and 24*

The Examiner rejects independent claim 1 as being obvious in view of McPhillen and Lee. *See* Final Act. 2–6; Ans. 18–22. Appellant contends McPhillen and Lee do not teach the disputed features of claim 1. *See* Appeal Br. 5–11; Reply Br. 2–3. Specifically, Appellant contends that although “Lee may disclose network management techniques, Lee is otherwise unrelated to the limitations in claim 1” because “Lee does not disclose coding of video, . . . controlling network traffic between related applications,

[or] . . . a bandwidth constraint between unrelated applications.” Appeal Br. 6–7; *see* Reply Br. 2–3. Appellant also contends that Lee does not disclose “a bandwidth constraint at all,” or “rates for coding,” or “any relationship between two tiers or instances of a common video.” Appeal Br. 7. Appellant additionally contends “McPhillen does not disclose any constraints between a maximum bitrate of one representation of a video and the average bitrate of another representation of the same video.” Appeal Br. 9; *see* Reply Br. 2–3. Appellant additionally contends the Examiner-cited portions of Lee describe predicted bitrates rather than constraints, do not describe “coding rates” but instead “describe[] network channel usage constraints,” and do not “disclose a constraint that relates two tiers or instances of a common video” but instead describe “unrelated software applications” and, therefore, “Lee does not disclose a constraint between two tiers, as in the claims.” Appeal Br. 9; Reply Br. 2–3.

We adopt as our own (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken (Final Act. 2–4) and (2) the reasons set forth by the Examiner in the Examiner’s Answer (Ans. 18–22) in response to Appellant’s Appeal Brief. We concur with the findings and conclusions reached by the Examiner, and we provide the following analysis for emphasis.

Appellant’s claim 1 broadly recites a method for “coding a common video sequence multiple times to yield respective instances of coded video data” with “each instance “coded according to a set of coding parameters derived from average bit rate of a respective tier of service” and “for the given tier, coding is constrained to limit a maximum coding rate of the tier to be less than a[n] average bit rate of another predetermined tier of service”

(Appeal Br. 13 (claim App.) (claim 1))—i.e., coding a common video sequence multiple times resulting in multiple instances of coded video where each instance is coded according to a coding rate and, for a particular tier of service, an instance is coded with a maximum coding rate that is less than an average bit rate of a different, predetermined, tier of service. As explained by the Examiner, McPhillen describes coding a common video sequence multiple times, resulting in multiple versions of coded video data, each being coded according to a set of parameters and having different transmission bitrates (or tiers of service). *See* Final Act. 3 (citing McPhillen ¶ 13); Ans. 20. Appellant does not dispute these Examiner findings with respect to McPhillen. *See* Appeal Br. 6–11; Reply Br. 2–3. The Examiner also finds that McPhillen describes coding rate constraints—“McPhillen also discloses ‘coding is constrained’” in that McPhillen discloses ‘bit allocations for the frame,’” which is “an explicit constraint.” Ans. 20 (citing McPhillen ¶ 15) (emphasis omitted); *see* Ans. 21. Appellant concedes that McPhillen does describe a coding (rate) constraint, but asserts that McPhillen does not describe the coding constraint recited in claim 1 (or the other pending claims)—“such a generic statement regarding coding constraints does not meet the claimed constraint” (Reply Br. 2).

The Examiner relies on Lee to teach the tier coding rate constraints. *See* Final Act. 3–4; Ans. 18–22. As explained by the Examiner, Lee describes two different quality of service requirements (QoS) or tiers of service—QCIX and QCiy. *See* Final Act. 3–4; Ans. 21–22; Lee ¶ 144; Fig. 23. Lee also describes a “max\_rate” for QCiy and an “avg\_rate” for QCIX which are the rates at which the different tiers will be transmitted. *See* Final Act. 3–4; Ans. 21–22; Lee ¶ 144; Fig. 23.

Appellant contends (*supra*) that Lee describes predicted transmission bitrates rather than coding rate constraints, but Appellant misconstrues Lee. Lee describes that the rates in Figure 23 are part of a profile and may include “a transmission rate limit value.” Lee ¶ 144. Therefore, Lee at least suggests rate constraints for different tiers of service.

Appellant interprets Lee too narrowly, and does not address the combination of McPhillen with Lee. Appellant fails to appreciate that the combination of McPhillen and Lee at least broadly suggests coding a common video sequence multiple times resulting in multiple instances of coded video with each instance being coded according to a coding rate. The combination of McPhillen and Lee also at least suggests a coded video instance for a tier of service that is coded with a maximum coding rate less than an average bit rate of a different tier of service.

Instead, Appellant focusses on the individual teachings of McPhillen and Lee and does not address the combination of McPhillen and Lee discussed by the Examiner. *See* Ans. 19–22. Thus, Appellant does not persuasively rebut the Examiner’s findings with respect to the combination of references and improperly attacks the references individually instead of addressing the combination as a whole. The cited references must be read, not in isolation, but for what each fairly teaches in combination with the prior art as a whole. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references). Appellant’s arguments do not take into account what the combination of McPhillen and Lee would have suggested to one of ordinary skill in the art—

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; . . . Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.

*In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (citations omitted).

Accordingly, we find a preponderance of the evidence supports the Examiner’s finding that the combination of McPhillen and Lee together teaches or at least suggests “coding a common video sequence multiple times to yield respective instances of coded video data” and “for the given tier, coding is constrained to limit a maximum coding rate of the tier to be less than a[n] average bit rate of another predetermined tier of service” (Appeal Br. 13 (claim App.) (claim 1)). Thus, Appellant does not persuade us of error in the Examiner’s obviousness rejection of representative claim 1. Independent claims 11, 18, and 24 include limitations of commensurate scope. Therefore, we affirm the Examiner’s obviousness rejections of representative claim 1 and independent claims 11, 18, and 24, not separately argued with particularity (*supra*). See 37 C.F.R. § 41.37(c)(1)(iv).

#### *Obviousness Rejection of Claim 27*

The Examiner rejects claim 27 over McPhillen, Lee, and Chou. See Final Act. 12–14; Ans. 22. Appellant contends McPhillen, Lee, and Chou do not teach the disputed feature of claim 27. See Appeal Br. 11–12; Reply Br. 3. Specifically, Appellant contends that McPhillen and Lee do not teach coding rate constraints similar to claim 1 (*supra*) (see Appeal Br. 11–12), and “Chou does nothing to cure the deficiencies of McPhillen and Lee” (Appeal Br. 12). For the same reasons as claim 1 (*supra*), we conclude Appellant has not persuaded us of error in the Examiner’s obviousness

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rejection of claim 27. Therefore, we affirm the Examiner's obviousness rejection of claim 27.

*Obviousness Rejections of Dependent Claims*

Appellant does not separately argue the rejections of dependent claims 2–10, 12–17, 19–13, 25, 26, and 28–30. *See* Appeal Br. 12. For the same reasons as claim 1 (*supra*), Appellant does not persuade us of error in the Examiner's obviousness rejection of dependent claims 2–10, 12–17, 19–13, 25, 26, and 28–30, not separately argued with particularity (*supra*). *See* 37 C.F.R. § 41.37(c)(1)(iv). Therefore, we affirm the Examiner's obviousness rejections of claim 2–10, 12–17, 19–13, 25, 26, and 28–30.

CONCLUSION

Appellant has not shown that the Examiner erred in rejecting claims 1–32 under 35 U.S.C. § 103. We, therefore, sustain the Examiner's rejections of claims 1–32.

DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1, 3, 4, 7, 9, 18, 20, 21, 23, 24, 31, 32	103	McPhillen, Lee	1, 3, 4, 7, 9, 18, 20, 21, 23, 24, 31, 32	
2, 5, 11–15, 17, 19, 26	103	McPhillen, Lee, Dazzi	2, 5, 11–15, 17, 19, 26	
6, 16, 22, 25	103	McPhillen, Lee, Liao, Hasek	6, 16, 22, 25	
8	103	McPhillen, Lee, Miles	8	
10	103	McPhillen, Lee, Liao	10	
27–30	103	McPhillen, Lee, Chou	27–30	
<b>Overall Outcome</b>			<b>1–32</b>	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

**AFFIRMED**