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PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER
MINNEAPOLIS, MN 55402-2100

EXAMINER	
JANGBAHADUR, LAKERAM	

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte IAN ROBERT COOPER

Appeal 2015-006504
Application 13/144,904
Technology Center 2400

Before MAHSHID D. SAADAT, KAMRAN JIVANI, and STEVEN M. AMUNDSON, *Administrative Patent Judges*.

AMUNDSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant[1] seeks our review under 35 U.S.C. § 134(a) from a final rejection of claims 1–12, i.e., all pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

[1] According to Appellant, the real party in interest is British Telecommunications Public Limited Company. App. Br. 2.

STATEMENT OF THE CASE

The Invention

According to the Specification, the "invention relates to telecommunications systems and in particular to the management of network equipment interfacing between a network and individual customer premises systems." Spec. 1:8–10.[2] In an embodiment of the invention, a "network distribution point" incorporates a "dynamic line management system for processing data relating to the capabilities" of each of several "digital subscriber loops, and generat[es] a profile of each digital subscriber loop . . . to allow control of the transmission of data to the individual termination points." *Id.* 4:6–13.

Exemplary Claim

Independent claim 1 exemplifies the subject matter of the claims under consideration and reads as follows:

> 1. A network distribution point for operation as a node in a telecommunications system intermediate between and interfacing with a remote access server and a plurality of individual termination points served from the remote access server by respective digital subscriber loops, the network distribution point comprising:
>
> a digital subscriber loop access multiplexer [DSLAM] providing a plurality of digital subscriber lines interfacing with the plurality of individual termination points, and providing a multiplexed digital subscriber line connected to the remote access server; and

[2] This decision uses the following abbreviations: "Spec." for the Specification, filed July 15, 2011; "Final Act." for the Final Office Action, mailed August 6, 2014; "App. Br." for the Appeal Brief, filed January 28, 2015; "Ans." for the Examiner's Answer, mailed April 20, 2015; and "Reply Br." for the Reply Brief, filed June 19, 2015.

> a dynamic line management system for processing data relating to capabilities of each of the digital subscriber loops, and generating a profile of each digital subscriber loop and used for setting a rate profile to allow control of transmission of data to the individual termination points.

App. Br. 26 (Claims App.).

The Prior Art Supporting the Rejections on Appeal

Nugent	US 2003/0236760 A1	Dec. 25, 2003
Cherkassky	US 7,013,244 B2	Mar. 14, 2006
Brown et al. ("Brown")	US 7,058,122 B2	June 6, 2006
Duan et al. ("Duan")	US 2006/0224532 A1	Oct. 5, 2006
Pickering et al. ("Pickering '559")	US 2009/0103559 A1	Apr. 23, 2009
Pickering et al. ("Pickering '647")	US 2009/0262647 A1	Oct. 22, 2009
Everett et al. ("Everett")	US 2010/0293274 A1	Nov. 18, 2010

The Rejections on Appeal

Claims 1–3 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pickering '647 and Everett. Final Act. 8–10; App. Br. 9–10.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Pickering '647, Everett, and Duan. Final Act. 13–14; App. Br. 9–10.

Claim 5 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Pickering '647, Everett, and Brown. Final Act. 14; App. Br. 9–10.

Claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pickering '559 and Everett. Final Act. 11–13; App. Br. 9–10.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Pickering '559, Everett, and Nugent. Final Act. 15; App. Br. 9–10.

Claim 9 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Pickering '559, Everett, Nugent, and Duan. Final Act. 15–16; App. Br. 9–10.

Claims 10 and 11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Pickering '559, Everett, Nugent, and Cherkassky. Final Act. 16–18; App. Br. 9–10.

Claim 12 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Pickering '559, Everett, and Brown. Final Act. 18; App. Br. 9–10.

ANALYSIS

We have reviewed the rejection of claims 1–12 in light of Appellant's arguments that the Examiner erred. For the reasons explained below, we disagree with Appellant's assertions regarding error by the Examiner.

The Rejection of Claim 1 Under 35 U.S.C. § 103(a)

THE DISCLOSURE OF EVERY LIMITATION IN CLAIM 1

Appellant argues that the Examiner erred in rejecting claim 1 because "neither Pickering '647 nor Everett discloses or suggests a network distribution point comprising both a DSLAM and a dynamic line management system" as recited in claim 1. App. Br. 9. According to Appellant, "both Pickering '647 and Everett lack a dynamic line management device *comprising part of* the network distribution point as claimed." *Id.* at 11. Appellant asserts that both references "disclose the same type of system architecture" where "a single management device controls a plurality of DSLAMs from a remote, management layer

configuration" unlike claim 1. *Id.* at 13. Appellant also asserts that Pickering '647 discloses a single management device that "is remote from the DSLAMs" and "interfaces only with the DSLAMs and the Interface device" for the broadband remote access server (BRAS). Reply Br. 5.

The Examiner finds, however, that Pickering '647 discloses a "network distribution point" comprising a DSLAM as recited in claim 1. Final Act. 8–9; Ans. 2–3, 15–16. In addition, the Examiner finds that Everett discloses a "dynamic line management system" as recited in claim 1. Final Act. 4, 9; Ans. 3, 16. To reject claim 1, the Examiner relies on the Pickering-Everett combination, reasoning that the combination "would natural[ly] lead to a network distribution point . . . intermediate between and interfacing with a remote access server and a plurality of individual termination points, the network distribution point comprising a digital subscriber loop access multiplexer (DSLAM) and a dynamic line management system." Ans. 16; *see id.* at 17.

We agree with the Examiner that the combination of Pickering '647 and Everett teaches the claimed subject matter. Final Act. 8–9; Ans. 2–3, 15–16. Appellant attacks the references individually, e.g., asserting that each does not disclose or suggest a "network distribution point" comprising a DSLAM and a dynamic line management system. App. Br. 9–13; Reply Br. 4–5; *see* Final Act. 6. Where a rejection rests on a combination of references, however, an appellant cannot establish nonobviousness by attacking the references individually. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

Appellant contends that combining Pickering's management device with just one of Pickering's several DSLAMs "results in all but one of the

DSLAMs being uncontrolled and therefore inoperative . . . ." App. Br. 13. In response, the Examiner explains that the rejection rests on "combining the functionality" of various components disclosed in the references to "operate as a node." Ans. 17. "Combining the teachings of references does not involve an ability to combine their specific structures." *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973). Moreover, obviousness does not depend on "whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference." *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Consequently, Appellant's contention does not establish Examiner error.

Appellant argues that locating a management device "in a control layer" according to Pickering '647 and Everett instead of a "network distribution point" according to claim 1 "obviates many of the improvements associated with the invention . . . ." Reply Br. 5. But claim 1 does not specify operation at any particular layer. App. Br. 26 (Claims App.). Appellant's argument is not commensurate in scope with claim 1.

MOTIVATION TO COMBINE

The Examiner determines that the motivation to combine Pickering '647 and Everett "is found in the Everett reference itself." Ans. 18. The Examiner reasons that "[i]t would have been obvious to improve" a distribution point according to Pickering '647 to include the limitations taught by Everett because that would provide the distribution point with "the enhanced capability . . . of monitoring the DLM profile and transition the connection from its current DLM profile to a more stable DLM profile, to maintain the stability level of the line" or transition "to a less

stable profile [to] improve bandwidth, thus maximizing the data rate." *Id.* at 18–19 (citing Everett ¶¶ 9–12).

Appellant asserts that "[t]he Examiner erred in rejecting claim 1 by not providing a sufficient rationale to support" the Pickering-Everett combination. App. Br. 14. Appellant further asserts that the "stability policies and levels" the Examiner relies on "have no relation to the features of Everett that the Examiner suggests [in] combining with Pickering '647 and are different from that which the Application discloses as a goal . . . ." *Id.*

We are not persuaded by Appellant's assertions. Everett discloses a method that "permits different stability policies (each of which corresponds to or specifies a stability level) to be applied to different data connections to reflect the different possible uses for the connection which may place different values on the relative merits of line stability, bandwidth and latency." Everett ¶ 10. Everett teaches that "different users may well have very different tolerances to stability levels" and that one user "may well be less tolerant to errors . . . and thus would prefer generally to achieve a greater stability at the risk of perhaps having a slightly lower maximum bandwidth" while another user may "prefer to have a slightly less stable connection but one which . . . can achieve high throughputs." *Id.* ¶ 11.

Thus, the Examiner has articulated some reasoning with a rational underpinning for why a person of ordinary skill in the art at the time of the invention would have combined Pickering '647 and Everett, including identifying an advantage achieved with the combination. Ans. 18–19; *see* Final Act. 10. "[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for

combining" references. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007). The Specification explains that the invention "selects the optimum rate profile for each line" by maximizing the line's data rate while maintaining the line's stability. Spec. 1:18–22. As the Examiner notes, Everett addresses the same need. Ans. 18–19 (citing Everett ¶¶ 9–12).

CLAIM 1'S PREAMBLE

The Examiner finds that Pickering '647 satisfies claim 1's preamble. Final Act. 2–3, 8; Ans. 2, 15. In the Answer, the Examiner also states that the preamble "has not been given patentable weight . . . ." *Id.* at 18.

In the Reply Brief, Appellant argues that the "Examiner erred by introducing a new rejection in the Answer without following the requisite procedure" and failed to provide a "complete explanation supporting the [new] rejection." Reply Br. 6. Appellant also argues that "it is improper to give no patentable weight to" to claim 1's preamble because it "recites limitations of the claim" and "give[s] life, meaning, and vitality" to the claim by laying out "the structural arrangement between the various components" in the claim's body. *Id.* at 6–7 (emphasis omitted).

The Examiner's statement regarding the patentable weight given to the preamble notwithstanding, we agree with the Examiner's finding that Pickering '647 satisfies claim 1's preamble. Final Act. 2–3, 8 (citing Pickering '647 ¶¶ 17–18, Fig. 1); Ans. 2, 15 (citing Pickering '647 ¶¶ 17–18, Fig. 1). In Pickering '647, a DSLAM interfaces with a broadband remote access server (BRAS) and a plurality of individual customer premises equipment. Final Act. 2–3, 8; Ans. 2, 15; *see, e.g.*, Pickering '647 Fig. 1. Appellant has not identified error in the Examiner's finding. App. Br. 10–13; Reply Br. 4–5.

SUMMARY FOR CLAIM 1

For the reasons discussed above, Appellant's arguments have not persuaded us that the Examiner erred in rejecting claim 1 for obviousness based on Pickering '647 and Everett. Hence, we sustain the rejection.

The Rejection of Claim 6 Under 35 U.S.C. § 103(a)

THE DISCLOSURE OF EVERY LIMITATION IN CLAIM 6

Appellant argues that the Examiner erred in rejecting claim 6 because Pickering '559 and Everett fail to disclose or suggest "a dynamic line management system associated with" a "common distribution point" as recited in claim 6. App. Br. 17–19; Reply Br. 8–10. Appellant contends that Pickering '559 "discloses the same type of system architecture" as Pickering '647 and Everett with a management device separate from a DSLAM. App. Br. 17–18. Appellant also contends that claim 6 requires "more than a mere coupling in which management device 100 is coupled to several or all the DSLAMs 20" as in the references. *Id.* at 18; Reply Br. 9.

The Examiner finds, however, that Pickering '559 discloses a "common distribution point" as recited in claim 6 that includes a DSLAM and a management device. Final Act. 11–12; Ans. 5–6, 23–24. In addition, the Examiner finds that Everett discloses a "dynamic line management system" as recited in claim 6. Final Act. 12; Ans. 6, 24–25. To reject claim 6, the Examiner relies on the Pickering-Everett combination, reasoning that the combination "would natural[ly] lead to a method of controlling transmission of data to individual network terminations" according to claim 6. Ans. 25; *see id.* at 25–26.

We agree with the Examiner that the combination of Pickering '559 and Everett teaches the claimed subject matter. Final Act. 11–12; Ans. 5–6,

23–25. As with claim 1, Appellant attacks the references individually. App. Br. 17–19; Reply Br. 8–10. Where a rejection rests on a combination of references, however, an appellant cannot establish nonobviousness by attacking the references individually. *See Merck*, 800 F.2d at 1097.

MOTIVATION TO COMBINE

The Examiner determines that the motivation to combine Pickering '559 and Everett "is found in the Everett reference itself." Ans. 26. The Examiner reasons that "[i]t would have been obvious to improve" a distribution point according to Pickering '559 to include the limitations taught by Everett because that would provide the distribution point with "the enhanced capability . . . of monitoring the DLM profile and transition the connection from its current DLM profile to a more stable DLM profile, to maintain the stability level of the line" or transition "to a less stable profile [to] improve bandwidth, thus maximizing the data rate." *Id.* (citing Everett ¶¶ 9–12).

Appellant asserts that "[t]he Examiner erred in rejecting claim 6 by not providing a sufficient rationale to support" the Pickering-Everett combination. App. Br. 19. Appellant further asserts that the "stability policies and levels" the Examiner relies on "have no relation to the features of Everett that the Examiner suggests [in] combining with Pickering '647 [sic] and are different from that which the Application discloses as a goal . . . ." *Id.*

We are not persuaded by Appellant's assertions. As discussed above, Everett discloses a method that "permits different stability policies (each of which corresponds to or specifies a stability level) to be applied to different data connections to reflect the different possible uses for the connection

which may place different values on the relative merits of line stability, bandwidth and latency." Everett ¶ 10. Everett teaches that "different users may well have very different tolerances to stability levels" and that one user "may well be less tolerant to errors . . . and thus would prefer generally to achieve a greater stability at the risk of perhaps having a slightly lower maximum bandwidth" while another user may "prefer to have a slightly less stable connection but one which . . . can achieve high throughputs." *Id.* ¶ 11.

Thus, the Examiner has articulated some reasoning with a rational underpinning for why a person of ordinary skill in the art at the time of the invention would have combined Pickering '559 and Everett, including identifying an advantage achieved with the combination. Ans. 26–27; *see* Final Act. 12–13.

SUMMARY FOR CLAIM 6

For the reasons discussed above, Appellant's arguments have not persuaded us that the Examiner erred in rejecting claim 6 for obviousness based on Pickering '559 and Everett. Hence, we sustain the rejection.

The Rejection of Claim 8 Under 35 U.S.C. § 103(a)

The Examiner finds that Nugent discloses an "artificial neural network" according to claim 8. Final Act. 15; Ans. 9, 28. The Examiner determines that the motivation to combine Nugent with Pickering '559 and Everett "is found in the Nugent reference itself." *Id.* at 29. The Examiner reasons that "[i]t would have been obvious to improve" a method according to the Pickering-Everett combination to include the limitations taught by Nugent because that would provide a "network distribution point with the

enhanced capability so as to design the network without relying on computer simulations for training . . . ." *Id.* (citing Nugent ¶ 19).

Appellant disputes that Nugent discloses an "artificial neural network" according to claim 8. App. Br. 20–21. In various places, however, Nugent discusses artificial neural networks. *See, e.g.*, Nugent ¶¶ 3–9, 45, 61–73, 110–11. Nugent describes artificial neural networks as "systems composed of many nonlinear computational elements operating in parallel and arranged in patterns reminiscent of biological neural nets." *Id.* ¶ 5. Nugent teaches that the computational elements "are typically adapted during use to improve performance." *Id.* Moreover, Appellant does not address the Examiner's finding that Nugent discloses a multi-layer artificial neural network. App. Br. 20–21; *see* Final Act. 15 (citing Nugent ¶ 29); Ans. 9 (citing Nugent ¶ 29). Consequently, we agree with the Examiner's finding that Nugent discloses an "artificial neural network" according to claim 8. Final Act. 15; Ans. 9, 28.

Appellant asserts that Nugent concerns nanotechnology and "has no relation to telecommunications networks." App. Br. 21; *see* Reply Br. 11. But Nugent discloses a pattern-recognition system, e.g., a speech-recognition system, with a communication control unit that "transmits and/or receives various data . . . through a communication network," e.g., "a telecommunications network, such as a wireless communications network." Nugent ¶¶ 110–11, 115, Fig. 12.

In addition, Nugent teaches that artificial neural networks "show the greatest promise" for pattern-classification tasks, such as "automatic speaker identification, automatic speech recognition and electro-cardiogram analysis, etc." Nugent ¶¶ 4, 9; *see id.* ¶ 110. Therefore, a person of ordinary skill in

the art would have considered Nugent's teachings applicable beyond nanotechnology, e.g., to the "processing of data relating to a physical layer of a digital subscriber loop" according to claim 8.

Appellant also asserts that the Examiner does not provide a sufficient rationale to support the combination of Nugent with Pickering '559 and Everett because the Examiner's rationale "is unrelated to claim 8." App. Br. 21. As explained above, however, "any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining" references. *KSR*, 550 U.S. at 420. Here, the Examiner has articulated some reasoning with a rational underpinning for why a person of ordinary skill in the art at the time of the invention would have combined Nugent with the other references, including identifying an advantage achieved with an artificial neural network. Ans. 29 (citing Nugent ¶ 19); *see* Final Act. 15.

Accordingly, Appellant's assertions have not persuaded us that the Examiner erred in rejecting claim 8 for obviousness based on Pickering '559, Everett, and Nugent. Hence, we sustain the rejection of claim 8.

The Rejection of Claim 3 Under 35 U.S.C. § 103(a)

Appellant argues that the Examiner erred in rejecting claim 3 because "the Examiner fails to identify any disclosure of an artificial neural network in either Pickering '647 or Everett." App. Br. 15. Appellant also argues that in the Final Office Action the Examiner conceded "that the 'combination of Pickering ['559] and Everett . . . does not explicitly disclose'" an "artificial neural network" according to claim 8. *Id.* at 16 (citing Final Act. 15).

In response, the Examiner explains that the Specification provides no clear definition of "artificial neural network" and that the Examiner "rejected claim 3 in view of appellant's specification" using the broadest reasonable interpretation of "artificial neural network." Ans. 21. In addition, the Examiner notes that "the examiner rejected claim 8 further in view of Nugent . . . in order to provide a rejection using the disclosed terminology." Ans. 21.

We consider the Examiner's failure to explicitly list Nugent when rejecting claim 3 an inadvertent and harmless error. Claims 3 and 8 contain identical language relating to an "artificial neural network." App. Br. 26–27 (Claims App.). For the reasons explained above with respect to claim 8, Appellant's arguments have not persuaded us that the Examiner erred in rejecting claim 3 as unpatentable under 35 U.S.C. § 103(a). Hence, we sustain the rejection of claim 3.

The Rejection of Claim 9 Under 35 U.S.C. § 103(a)

The Examiner finds that Duan teaches an "artificial neural network [that] is a Multilayer Perceptron" as recited in claim 9. Final Act. 16; Ans. 10, 31. The Examiner determines that the motivation to combine Duan with the other references "is found in the Duan reference itself." *Id.* at 30. The Examiner reasons that "[i]t would have been obvious to improve" a method according to the combination of other references to include the limitations taught by Duan because that "would provide the functionality to improve trained neural networks and thus reach[] an optimal network model." *Id.* (citing Duan ¶ 31); *see* Final Act. 16.

Appellant argues that "none of Pickering '559, Everett or Nugent discloses an artificial neural network" and that the Examiner's rationale for

combining Duan with the other references "is not sufficient." App. Br. 22. As discussed above, however, we agree with the Examiner's finding that Nugent discloses an artificial neural network. Final Act. 15; Ans. 9, 28. Further, the Examiner has articulated some reasoning with a rational underpinning for why a person of ordinary skill in the art at the time of the invention would have combined Duan with Pickering '559, Everett, and Nugent, including identifying an advantage achieved with the combination. Ans. 30–31; *see* Final Act. 16.

Appellant also argues that Duan's examples "have no relation to telecommunications networks or systems . . . ." App. Br. 22; *see* Reply Br. 11. But Duan discloses a computer operating "in a network environment" and "connected to network devices" and further "connected to remote computers." Duan ¶ 65, Fig. 4. Duan explains that the computer may interact with "a local area network (LAN), a wide area network (WAN), and other networks" using a wide variety of network technologies, including telecommunications technologies. *Id.* ¶ 65.

In addition, Duan teaches that "[i]t is now quite widely accepted that certain aspects of adaptive competent behavior can be achieved through the use of artificial neural networks" and that artificial neural networks "may be used to great effect in standard tasks such as classification, regression or prediction." Duan ¶¶ 14–15, 17. Thus, Duan's teaching is not limited to its illustrative examples. *See id.* ¶ 96.

Accordingly, Appellant's arguments have not persuaded us that the Examiner erred in rejecting claim 9 for obviousness based on Pickering '559, Everett, Nugent, and Duan. Hence, we sustain the rejection of claim 9.

The Rejection of Claim 4 Under 35 U.S.C. § 103(a)

The Examiner finds that Duan teaches an "artificial neural network [that] is a Multilayer Perceptron" as recited in claim 4. Final Act. 13; Ans. 7–8, 22. The Examiner determines that the motivation to combine Duan with Pickering '647 and Everett "is found in the Duan reference itself." *Id.* at 21. The Examiner reasons that "[i]t would have been obvious to improve" a distribution point to include the limitations taught by Duan because that "would provide the functionality to improve trained neural networks and thus reach[] an optimal network model." *Id.* at 21–22 (citing Duan ¶ 31); *see* Final Act. 13–14.

Appellant argues that the Examiner does not provide a sufficient rationale to support the combination of Duan with Pickering '647 and Everett. App. Br. 16–17. In particular, Appellant contends that (1) Pickering '647 and Everett do not disclose an "artificial neural network" according to claim 3 and (2) without that network "there can be no 'trained neural networks' to improve." App. Br. 16.

As with claim 3, we consider the Examiner's failure to explicitly list Nugent when rejecting claim 4 an inadvertent and harmless error. Claims 4 and 9 contain identical language relating to a "Multilayer Perceptron." App. Br. 26, 28 (Claims App.). For the reasons explained above with respect to claim 9, Appellant's assertions have not persuaded us that the Examiner erred in rejecting claim 4 under 35 U.S.C. § 103(a). Hence, we sustain the rejection of claim 4.

The Rejection of Claim 10 and 11 Under 35 U.S.C. § 103(a)

The Examiner finds that Cherkassky discloses (1) training prior to installation and (2) data analysis as a single iteration according to claim 10.

Final Act. 16–17; Ans. 10–11, 32. Further, the Examiner finds that Cherkassky discloses optimization according to claim 11. Final Act. 17; Ans. 11, 33–34. The Examiner determines that the motivation to combine Cherkassky with the other references "is found in the Cherkassky reference itself." *Id.* at 32, 34. The Examiner reasons that "[i]t would have been obvious to improve" a method according to the Pickering-Everett-Nugent combination to include the limitations taught by Cherkassky because that "would provide the functionality to support performance specifications, task specifications and enable guarantee[d] performance." *Id.* at 32, 34 (citing Cherkassky 4:6–31).

Appellant asserts that "there simply is no disclosure in Cherkassky" of the limitations in claims 10 and 11. App. Br. 23–24. Appellant does not, however, address the Examiner's findings that Cherkassky discloses (1) a "framework [that] can be used to make single iteration decisions"; (2) using sensors to take measurements subsequently processed by an estimating module; and (3) an optimization method. Final Act. 16–17 (citing Cherkassky 6:5–8, 9:52–53, 9:56–62); Ans. 11, 32–34 (citing Cherkassky 6:5–8, 9:52–53, 9:56–62).

Appellant contends that "Cherkassky teaches away from combination with neural networks" because "Cherkassky identifies many 'shortcomings' of neural networks." App. Br. 23–24. In response, the Examiner explains that although Cherkassky identifies "shortcomings" of neural networks, the Cherkassky "invention improves on these shortcomings." Ans. 32, 34. In the Reply Brief, Appellant does not address the Examiner's determination regarding Cherkassky's improvements. Reply Br. 10.

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Cherkassky refers to artificial neural networks when discussing deficiencies in the prior art that Cherkassky's invention allegedly overcomes. Cherkassky 2:1–3:49. We agree with the Examiner that the discussion of those deficiencies in connection with the invention's background would not discourage a person of ordinary skill from following the teachings in Cherkassky that the Examiner relies upon for claims 10 and 11. *See* Ans. 32–34. Consequently, Appellant's contentions have not persuaded us that Cherkassky teaches away from the subject matter of claims 10 and 11.

Accordingly, Appellant's arguments have not persuaded us that the Examiner erred in rejecting claims 10 and 11 for obviousness based on Pickering '559, Everett, Nugent, and Cherkassky. Hence, we sustain the rejection.

The Rejections of Claims 2, 5, 7, and 12 Under 35 U.S.C. § 103(a)

Claims 2 and 5 depend from claim 1, while claims 7 and 12 depend from claim 6. App. Br. 26–28 (Claims App.). Appellant does not articulate any patentability arguments for these dependent claims beyond the arguments regarding the associated independent claims. *Id.* at 15, 17, 20, 24; Reply Br. 7–8, 10. For instance, Appellant does not dispute the teachings of Brown, which the Examiner relied on when rejecting claims 5 and 12. App. Br. 17, 24; *see* Final Act. 14, 18. Because Appellant does not

argue these dependent claims separately, we sustain the rejections of claims 2, 5, 7, and 12. *See* 37 C.F.R. § 41.37(c)(1)(iv).

DECISION

We affirm the Examiner's decision to reject claims 1–12.

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

AFFIRMED