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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROBERT W. PHARE and CHARLENE HOHL

Appeal 2019-006856
Application 15/268,294
Technology Center 1700

Before JEFFREY T. SMITH, JAMES C. HOUSEL, and
JEFFREY R. SNAY, *Administrative Patent Judges*.

HOUSEL, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 16–19 under 35 U.S.C. § 103 as unpatentable over Andersen (US 2011/0004332 A1, pub. Jan. 6, 2011) in view of Hudelmaier (US 2002/0169517 A1, pub. Nov. 14, 2002). We have jurisdiction under 35 U.S.C. § 6(b).

¹ 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 Command Alkon Incorporated. Appeal Brief (“Appeal Br.”) filed June 28, 2019, at iii.

We AFFIRM.²

CLAIMED SUBJECT MATTER

The invention relates to a system and process for mixing concrete having desired strength characteristics. Spec. 1, Title. More specifically, Appellant discloses a system for mixing a concrete batch to have a predetermined compressive strength, the system comprising a processor, a concrete truck, and a concrete manufacturing plant. *Id.* ¶ 8. The processor includes a transceiver to transmit/receive signals, a database having laboratory and field information, and an algorithm for calculating a water to concrete (“W/C”) ratio and comparing the ratio against information in the database. *Id.* The concrete truck includes a water input system and a transceiver to transmit/receive signals to/from the processor. *Id.* The concrete manufacturing plant comprises a plant water input system, a plant cement input system, and a transceiver to transmit/receive signals to/from the processor. *Id.*

Claim 16, reproduced below from the Claims Appendix to the Appeal Brief, is illustrative of the claimed subject matter:

16. A system for mixing a concrete batch to have a predetermined compressive strength, the system comprising:

a server that maintains a database of characteristics and properties for various families of concrete including calculated water-to-cement ratios and actual concrete strengths;

² This Decision also cites to the Specification (“Spec.”) filed September 16, 2016, the Examiner’s Answer (“Ans.”) dated July 19, 2019, and the Reply Brief (“Reply Br.”) filed September 19, 2019.

a processor programmed to calculate a W/C ratio for a concrete mixture and to compare the W/C ratio to characteristics set forth in the database;

a concrete manufacturing plant for pre-mixing constituent materials for concrete according to a formula determined to be most suitable for a construction site and to achieve a predetermined compressive strength, said plant including a water measuring device and a cement-measuring device connected to a communications device for transmitting to the processor a mass of water and cementitious material added to the concrete mixture;

a concrete truck for receiving concrete mixture mixed at the plant and having a water measuring device connected to a communications device for communicating to the processor added water amounts;

the processor being included in the server or being located at the plant or truck;

wherein the processor is programmed to calculate from the cement weight added at the plant and the added water weight measured by the water-measuring devices of the plant and of the truck a batch water-to-cement ratio, correlate the batch water-to-cement ratio to a predicted concrete strength according to the database of concrete family characteristics, and prior to pouring the concrete transmit to a driver or other person responsible for pouring the concrete a notification of the predicted concrete strength.

OPINION

We review the appealed rejection for error based upon the issues Appellant identifies, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (cited with approval in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“[I]t has long been the Board’s practice to require an applicant to identify

the alleged error in the examiner’s rejections.”). After considering the argued claim and each of Appellant’s arguments, we are not persuaded of reversible error in the appealed rejection. We offer the following for emphasis only.

Appellant does not separately argue the rejected claims, but instead focuses on the limitations of independent claim 16. Accordingly, claims 17–19 stand or fall with claim 16. 37 C.F.R. § 41.37(c)(1)(iv) (2018).

The Examiner finds that Andersen discloses a system for mixing a concrete batch to have a predetermined compressive strength substantially as recited in claim 16, except that Andersen fails to disclose the plant includes water and cement measuring devices connected to a communications device for transmitting to the processor the mass of water and cementitious material added to the concrete mixture, or that the truck includes a communications device for transmitting to the processor the amount of water added. Ans. 3–4. For these features, the Examiner finds that Hudelmaier discloses a system for mixing a concrete batch comprising a concrete processing plant having water and cement measuring devices connected to a communications device for transmitting to a processor the mass of water and cement added to the concrete mix, and a concrete truck connected to a communications device for communicating to the processor the amounts of water added. *Id.* at 4–5. The Examiner concludes that it would have been obvious to incorporate measuring and communications devices into the plant and truck of Andersen “in order to allow for continuous monitoring and control from the start through to the conclusion of the concrete manufacturing process, thereby improving the overall quality of concrete produced, as disclosed in Hudelmaier.” *Id.* at 5.

Appellant argues that the Examiner improperly interprets Hudelmaier's concrete manufacturing plant to include elements of the cement plant, the processing site, and the construction site into a single super-plant. Appeal Br. 11. Appellant asserts that Hudelmaier teaches that mixing is done using the truck at or near the construction site and away from the cement plant to specifically avoid the need for additional water being added during transport after initial mixing. *Id.* Appellant contends that neither of Hudelmaier's communication devices 8, 18 are present at the cement plant. *Id.* at 12–13. Appellant also contends that Hudelmaier only adds water at the construction site and thus does not transmit the mass of water and cement added to the concrete mix. *Id.* at 12–13.

This argument is not persuasive of reversible error because it mischaracterizes the rejection which is based on a modification to Andersen's system to include water and cement measuring devices at the plant, and communication devices at both the plant and the truck. It is well established that the obviousness inquiry does not ask "whether the references could be physically combined but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole." *In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc); *see also In re Keller*, 642 F.2d 413, 425 (CCPA 1981) ("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 those references would have suggested to those of ordinary skill in the art.").

With regard to the water and cement measuring devices, Andersen already teaches that the particular amounts of water and cement are mixed in

order to provide desired W/C ratios, thereby suggesting that Andersen's plant must have water and cement measuring devices. Further, the Examiner finds, and Appellant does not dispute, that Andersen teaches a server with a database storing "fingerprints" charts for various concrete families including W/C ratios and actual concrete strengths, as well as a processor programmed to calculate a W/C ratio for a concrete mixture and to compare the W/C ratio to characteristics in the database. The rejection relies on Hudelmaier merely for the teaching that it was known in the art to provide communication devices at and along the concrete manufacturing and delivery process to facilitate the monitoring and control of the concrete manufacture from at least the filling of a truck to the construction site. *See* Hudelmaier ¶ 16. Those skilled in the art, therefore, would have recognized providing such communication devices at both the plant and the truck would have facilitated use of Andersen's "fingerprint" charts to ensure that the concrete dispensed from the truck met desired compressive strength and slump requirements. Thus, that Hudelmaier teaches a different process than Andersen is not relevant to whether or not it would have been obvious to have provided communications devices to transmit the amounts of water and cement added at Andersen's plant to the processor.

Appellant next argues that Andersen fails to teach a water measuring device on the truck. Appeal Br. 14–15. Appellant contends that because Andersen's disclosure of adding and noting an amount of water at the truck to calculate the actual total amount of water in the concrete mix is merely performed as a controlled test, it is more likely that the amount of water added is measured at the plant site, rather than using a separate measuring device on the truck. *Id.* at 15.

We disagree. As the Examiner explains, since Andersen discloses that the amount of water added at the truck is tracked, a water measuring device is associated with the truck. Ans. 7. The Examiner determines that even if this device is not physically attached to the truck such that the truck has the device, it would nonetheless have been obvious to have provided Andersen with such a configuration “as one of a finite number of possible configurations for a water measuring device associated with a truck.” *Id.* Although Appellant urges that the water measuring device could be associated with the plant or performed manually because Andersen fails to teach what or who is noting the amount of water added to the truck, Andersen’s teaching suggests that the amount of water initially added to the concrete mix must be measured and the amount of water added to the truck after the initial mix is received and prior to dispensing must also be measured. Because water is often added to the truck at or near the construction site and away from the plant, the more reasonable conclusion is that a measuring device is provided both at the plant and on the truck in order to facilitate the monitoring of the amounts of water added at each location.

Appellant next argues that Andersen provides predicted concrete strength information to the concrete designer rather than to the driver or other person responsible for pouring the concrete. Appeal Br. 16; Reply Br. 8. Appellant also contends that Andersen teaches providing a predicted concrete strength available to the designer prior to mixing the concrete ingredients and fails to teach providing this information prior to pour, but after water has been added to the already mixed batch in order to determine whether the specific batch has the requisite compressive strength. *Id.*

These arguments are not persuasive of reversible error because they mischaracterize Andersen's teachings and the implications which an ordinary artisan would draw therefrom. As the Examiner finds, Andersen teaches notifying "a technician, operator, engineer or other person for the purpose of making or otherwise using the concrete composition." Ans. 8; Andersen ¶ 88. A technician, operator, engineer, or other person using the concrete composition would reasonably include a person responsible for pouring the concrete. In addition, we note that because Andersen contemplates that water is added to the concrete mix at the truck prior to pouring, providing the final predicted concrete strength would be transmitted at that time. *See* Andersen ¶ 20.

Appellant further argues that the asserted modification of Andersen in view of Hudelmaier would impermissibly alter Andersen's manner or principle of operation. Appeal Br. 17. Appellant asserts that Andersen's principle of operation is to prepare a better-designed concrete batch from the beginning, based on an analysis of known compositions. *Id.* On the other hand, Appellant asserts that Hudelmaier is not about concrete batch composition design at all, but instead is directed to avoiding variance in amounts of added water and poor compaction at a construction site. *Id.* As such, Appellant asserts that Hudelmaier provides a specially designed truck to carry the solid components and water separately until they are mixed at or near the construction site to eliminate problems during transport and the need to add more water at the construction site. *Id.* at 18. Appellant also argues that there is no motivation to combine Andersen with Hudelmaier because the references are speaking from completely different sets of assumptions. *Id.* at 19. According to Appellant, a person would not look to

Hudelmaier to modify Andersen because Andersen assumes that cement and water will be mixed at the plant and that more water will be added to the mix in the truck, while Hudelmaier's solution obviates adding more water to the mix in the truck. *Id.* at 19–20.

Similar to Appellant's prior arguments, these arguments are not persuasive of reversible error because they mischaracterize the rejection. As explained above, Andersen is not being modified to correspond to Hudelmaier's process as Appellant suggests. *See Etter*, 756 F.2d at 859; *Keller*, 642 F.2d at 425. Instead, Andersen is being modified to include communication devices such as taught by Hudelmaier for facilitating monitoring and control of Andersen's concrete manufacturing process. As such, Andersen's principle of operation is not being modified in any way to correspond to Hudelmaier's process.

Accordingly, we sustain the Examiner's obviousness rejection of claim 16, and dependent claims 17–19, over the Andersen in view of Hudelmaier.

CONCLUSION

Upon consideration of the record and for the reasons set forth above and in the Answer, the Examiner's decision to reject claims 16–19 under 35 U.S.C. § 103 is *affirmed*.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
16–19	103	Andersen, Hudelmaier	16–19	

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TIME PERIOD FOR RESPONSE

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