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| IBM Corporation - Endicott Drafting Center<br>1701 North Street<br>Building 256-3<br>Endicott, NY 13760 |             |                      | CONNOLLY, MARK A    |                  |
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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* ALESSANDRA ASARO,  
MARCO GIANFICO, ROBERTO RAGUSA,  
and MARCO VETTORI

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Appeal 2019-001521  
Application 14/936,730  
Technology Center 2100

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Before KALYAN K. DESHPANDE, CHARLES J. BOUDREAU, and  
SHARON FENICK, *Administrative Patent Judges*.

DESHPANDE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–3, 6–10, 13–17, and 20, which are all of the pending claims. We have jurisdiction under 35 U.S.C. § 6(b)(1).

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. Appellant identifies International Business Machines Corporation as the real party in interest. Appeal Br. 3.

## CLAIMED SUBJECT MATTER

Appellant's invention "relates generally to the field of movement detection, and more particularly to detecting a moving device on a floor." Spec. ¶ 1.

Claims 1, 8, and 15 are independent. Claim 1, reproduced below, is illustrative of the subject matter on appeal (emphasis added):

1. A method comprising:

retrieving, by one or more processors, a plurality of pressure readings from a matrix of pressure sensors;

identifying, by the one or more processors, a movement within the matrix of pressure sensors based, at least in part, on the plurality of pressure readings;

determining, by the one or more processors, that the movement is characteristic of a movement assisting device based, at least in part, on *a first set of one or more neighboring pressure sensors being activated and a second set of one or more neighboring pressure sensors are deactivated, wherein the first set of one or more neighboring pressure sensors are adjacent to the second set of one or more neighboring pressure sensors*; and

in response to the determination that the movement is characteristic of a movement assisting device, enabling, by the one or more processors, a voice recognition system for receiving speech commands to operate a device.

Appeal Br. 20 (Claims App.).

## REJECTIONS

The Examiner rejects claims 1, 3, 6–8, 10, 13–15, 17, and 20 under 35 U.S.C. § 103 as being unpatentable over Rao<sup>2</sup> in view of Brendley.<sup>3</sup> Final Act. 2–3.

The Examiner rejects claims 2, 9, and 16 under 35 U.S.C. § 103 as being unpatentable over Rao in view of Brendley and Snyder.<sup>4</sup> Final Act. 3–4.

## OPINION

The Examiner relies on Brendley for the following limitation of independent claim 1:

determining, by the one or more processors, that the movement is characteristic of a movement assisting device based, at least in part, on a first set of one or more neighboring pressure sensors being activated and a second set of one or more neighboring pressure sensors are deactivated, wherein the first set of one or more neighboring pressure sensors are adjacent to the second set of one or more neighboring pressure sensors

Final Act. 2–3. The Examiner finds that “Brendley teaches a mat comprising a matrix of sensors which is able to classify and identify objects such as wheelchairs by observing both a footprint and floor pressure patterns which is implied to include movement patterns.” *Id.* at 2 (citing Brendley

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<sup>2</sup> Venkat Rao, *Elevator with Voice Recognition and Wheelchair Detection*, *Assistive Technology Blog* (Mar. 14, 2011), <http://assistivetechologyblog.com/2011/03/elevator-with-voice-recognition-and.html> (accessed Aug. 14, 2017) (“Rao”).

<sup>3</sup> US 2006/0171570 A1 (Aug. 3, 2006) (“Brendley”).

<sup>4</sup> US 2007/0229470 A1 (Oct. 4, 2007) (“Snyder”).

¶¶ 18, 89). The Examiner further finds that, “as illustrated [by Brendley] with respect to a footfall pattern, the recognized motion is determined based on the activation and deactivation [of] neighboring sensors.” *Id.* at 3 (citing Brendley Fig. 18, ¶ 133).

Appellant argues that neither of the applied references teach this limitation, and in particular that “Brendley does not teach or suggest determining movement of a movement assisting device based on adjacent sets of sensors being *activated and deactivated*.” *Id.* at 13 (some emphases omitted); *see also id.* at 10–11. Rather, according to Appellant, “Brendley teaches that objects are identified based on the size of an area of contact for an object.” *Id.* at 13 (emphasis omitted) (citing Brendley Fig. 18, ¶¶ 18, 133, 153).

We agree with the Examiner that Figure 18 of Brendley, which diagrams “time sensor analysis to form a footfall image” or “footprint,” indicates that, “[o]ver multiple frames, the sensor array reports which sensors were activated and deactivated.” Brendley Fig. 18, ¶ 68; Ans. 4. For example, Frame 4 shows three activated sensors and deactivation of two sensors that were previously activated in Frame 3. *See* Brendley Fig. 18. We further agree with the Examiner that the determination of a footprint of a wheelchair would be based on the activation and deactivation of adjacent pressure sensors. *See* Ans. 4. As the Examiner points out, the footprint “is the culmination of multiple frames taken over a time period in response to object movement, wherein adjacent sensors activate and deactivate over said time period as they interact with the object.” *Id.*

Appellant further argues that, because Figure 18 of Brendley shows a space or blank spot in the footfall image due to the foot arch, Brendley

teaches “non-adjacency” and “fails to teach or suggest the activation of *adjacent* sensors.” Appeal Br. 14 (emphasis added). We are not persuaded by this argument. As discussed above, we agree with the Examiner that the determination of a footprint of a wheelchair would be based on the activation and deactivation of adjacent pressure sensors. *See* Ans. 4. That is, we agree with the Examiner that when a wheelchair is used its “interaction with the sensor mat would include adjacent sensors activating and deactivating as each wheel rolls along the mat.” *Id.*; *see also id.* at 5–6 (Examiner illustrating possible frames and footprint of a wheel according to the footprint technique shown in Brendley Fig. 18).

Finally, Appellant argues that detecting a wheeled object using the footprint technique shown in Figure 18 of Brendley “would result in a bizarre situation where wheels would need to have ‘blank spots for the foot arch.’” Appeal Br. 15 (citing Brendley ¶ 133). Otherwise, according to Appellant, “[c]ompletely removing . . . the identification of gaps in a heel to toe movement” would render Brendley inoperable for its intended purpose. *Id.*; *see* Reply Br. 4–5.

We are not persuaded by Appellant’s argument. The Examiner does not rely on Brendley for the blank spots due to the arch of a *foot* shown in Figure 18. Rather, the Examiner relies on Brendley’s teaching of identifying *wheelchairs* using footprint and floor pressure patterns, and cites Figure 18 of Brendley to support the finding that Brendley identifies objects (including pedestrians and wheelchairs) based on footprint and floor pressure patterns as determined by the activation and deactivation of neighboring sensors. Final Act. 2–3; *see* Brendley ¶ 18. We agree with the Examiner that Brendley identifies a wheelchair “based on its footprint and its floor pressure

pattern (i.e. its rolling pattern which is the wheelchair equivalent of the [Figure 18] example footfall pattern or gait used to identify pedestrians).”  
Final Act. 3.

Furthermore, Appellant has not proffered any portion of Brendley, or anything else in the record, that discourages, criticizes, or otherwise discredits using Brendley’s footprint technique to detect a wheeled object. In fact, Brendley expressly teaches that the mat “can count, classify and identify objects, such as . . . wheelchairs” based on “footprint and floor/wall pressure patterns,” and that wheels may be classified by their “signature[.]” footprint of “long thin tracks.” Brendley ¶¶ 18, 150, 153. As the Examiner explains, detecting a wheeled object using Brendley’s footprint technique would result in adjacent sensors activating and deactivating to form a footprint of “long thin tracks.” *See* Ans. 4–6, 8.

Accordingly, we sustain the Examiner’s rejection of independent claim 1 and independent claims 8 and 15 having similar limitations, as well as dependent claims 3, 6, 7, 10, 13, 14, 17, and 20 not separately argued by Appellant, under 35 U.S.C. § 103(a) as being unpatentable over Rao and Brendley. For the same reasons, we sustain the Examiner’s rejection of dependent claims 2, 9, and 16 not separately argued by Appellant under 35 U.S.C. § 103 as being unpatentable over Rao in view of Brendley and Snyder.

CONCLUSION

The Examiner's rejection of claims 1-3, 6-10, 13-17, and 20 under 35 U.S.C. § 103 is affirmed.

DECISION SUMMARY

In summary:

| <b>Claims Rejected</b>       | <b>35 U.S.C. §</b> | <b>Reference(s)</b>   | <b>Affirmed</b>              | <b>Reversed</b> |
|------------------------------|--------------------|-----------------------|------------------------------|-----------------|
| 1, 3, 6-8, 10, 13-15, 17, 20 | 103                | Rao, Brendley         | 1, 3, 6-8, 10, 13-15, 17, 20 |                 |
| 2, 9, 16                     | 103                | Rao, Brendley, Snyder | 2, 9, 16                     |                 |
| <b>Overall Outcome</b>       |                    |                       | <b>1-3, 6-10, 13-17, 20</b>  |                 |

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)(1)(iv).

AFFIRMED