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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* STEVEN SOUNYOUNG YU and SOUNIL YU

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Appeal 2016-006064  
Application 14/318,690  
Technology Center 3600

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Before KEVIN F. TURNER, JAMES P. CALVE, and  
LEE L. STEPINA, *Administrative Patent Judges*.

STEPINA, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision to reject claims 1–5, 14–17, 20–17, and 20–36. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

### CLAIMED SUBJECT MATTER

The claims are directed to an autonomous (driverless or self-driving) vehicle for making deliveries. Spec. 1:9–10. Claim 1, reproduced below with emphasis added, is illustrative of the claimed subject matter:

1. An unmanned ground vehicle for operating on a roadway, comprising:
  - a main body;
  - a control system for autonomous driving of the vehicle on a roadway;*
  - a perception system for detecting objects in the surroundings, the perception system comprising a perception apparatus that has a sensor eye;
  - one or more cargo compartments;
  - an electric motor for propelling the vehicle, wherein the vehicle is propelled by electric motor(s) only, and if the vehicle has: (a) only a single electric motor, the rated maximum horsepower of the electric motor is less than 75 hp; or (b) multiple electric motors, the rated maximum horsepower of each electric motor is less than 60 hp;
  - wherein the vehicle's center of gravity is lower than 23 inches;
  - wherein the vehicle does not have any passenger seats;
  - wherein the vehicle has a dry weight of less than 2,000 lbs.

Appeal Br. 18 (Claims App.).

### REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

George	US 4,777,416	Oct. 11, 1988
Gordon	US 6,170,242 B1	Jan. 9, 2001
Trefz	US 2003/0056481 A1	Mar. 27, 2003
Angott	US 2006/0059880 A1	Mar. 23, 2006
Phillips	US 2008/0086241 A1	Apr. 10, 2008
Gimvang	US 2009/0111910 A1	Apr. 30, 2009

Scherbring	US 8,528,685 B2	Sept. 10, 2013
Sasahara	US 8,579,055 B2	Nov. 12, 2013
Einecke	US 2014/0032033 A1	Jan. 30, 2014
Elder	US 2014/0080670 A1	Mar. 20, 2014

<http://alpha-pink-omega.blogspot.com/2011/05/riddle-me-this.html>  
("Riddle Me This") (last visited Dec. 5, 2017).

### REJECTIONS

(I) Claims 1–3, 5, 20, and 23 are rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, and Elder.

(II) Claim 4 is rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, and Trefz.

(III) Claims 14 and 29 are rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, and Riddle Me This.

(IV) Claim 15 is rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, and George.

(V) Claims 16 and 17 are rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, and Einecke.

(VI) Claims 21 and 25 are rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, and Scherbring.<sup>1</sup>

(VII) Claims 22 and 24 are rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, Scherbring, and Sasahara.

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<sup>1</sup> In the Final Action, the heading for Rejection (VI) lists claims 21 and 24, and the heading for Rejection (VII) lists claims 22 and 25. *See* Final Act. 8–9. Based on the discussion in the bodies of these rejections, it appears that Rejection (VI) is directed to claims 21 and 25, and Rejection (VII) is directed to claims 22 and 24. *See id.*

(VIII) Claims 26 and 27 are rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, Trefz, and Einecke.

(IX) Claim 28 is rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, Riddle Me This, and Einecke.

(X) Claims 30 and 31 are rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, Einecke, and Gimvang.

(XI) Claims 32–36 are rejected under 35 U.S.C. § 103(a) as unpatentable over Angott, Gordon, Elder, and Phillips.

#### OPINION

##### *Rejection (I); claims 1–3, 5, 20, and 23*

###### *Claim 1*

The Examiner finds that Angott discloses all of the features recited in claim 1, including a control system for autonomous driving of the vehicle on a roadway. Final Act. 3–5.<sup>2</sup> Specifically, the Examiner finds that Angott’s controller 54 meets the “control system” limitation in claim 1. *Id.* at 3–4. The Examiner determines that Angott’s disclosure that its vehicle can be used “as [a] vacuum cleaner, sweeper, or scrubber, polisher, sander or buffer, beach cleaner, ice groomer or line painter” supports the finding that Angott’s vehicle “is capable of being operated on a paved roadway.” *Id.* at 12. Thus, according to the Examiner, Angott’s controller satisfies the control system requirement in claim 1, despite the fact that Angott emphasizes the use of its vehicle as a lawn mower. *Id.* at 12.

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<sup>2</sup> Although the heading for this rejection lists 35 U.S.C. § 103 as the basis for the rejection of claim 1 (Final Act. 3), this rejection relies on Gordon and Elder only as evidence of what Angott inherently teaches and does not proposed to modify the teachings of Angott (*see id.* at 5).

Appellants argue that the control system limitation in claim 1 is not met by a controller for a *lawn mower* such as the one disclosed by Angott. *See* Appeal Br. 5–8. Appellants quote a portion of the Specification as support for an interpretation of claim 1 excluding the controller disclosed in Angott. *Id.* at 5 (quoting Spec. 6:22–7:2).<sup>3</sup> In this regard, Appellants contend that the sensor system provided by Angott is inadequate for operation of Angott’s vehicle on a roadway, as evidenced by an article<sup>4</sup> Appellants provided the Examiner in an Information Disclosure Statement (IDS), and, based on being intended for use on a roadway, the vehicle recited in claim 1 is capable of keeping pace with traffic. *See* Appeal Br. 6–8. Appellants also assert that Angott’s disclosure of operation as a line painter and sweeper does not support the Examiner’s findings regarding the capabilities of Angott’s vehicle because painting and sweeping functions may take place on sports fields rather than on roadways. *Id.* at 8–9.

In response, the Examiner finds that the lawn mower disclosed in Angott is capable of traveling on a roadway and keeping pace with traffic. Ans. 2. The Examiner also finds that the sensors on Angott’s vehicle are adequate for operation of the vehicle on a roadway, and the disclosure in Angott of implementation of the vehicle as, for example, a sweeper and line painter, support a finding that Angott’s vehicle is capable of operating on a variety of surfaces, including a roadway. Ans. 2–3.

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<sup>3</sup> Neither Appellants nor the Examiner propose to interpret claim 1 under 35 U.S.C. § 112, sixth paragraph.

<sup>4</sup> Leonard, John et al., “A Perception-Driven Autonomous Urban Vehicle,” *Journal of Field Robotics*, 1–48 (2008). *See* Information Disclosure Statement filed on Jan. 6, 2015.

In reply, Appellants assert that the phrase “traveling on a roadway” merely “encompasses passive movements,” whereas the phrase “driving on a roadway has a narrower meaning that is limited to an active process (e.g., constantly scanning the environment ahead and reacting to it.” Reply Br. 3. Appellants assert that the phrase “control system for autonomous driving of the vehicle on a roadway” requires more than the mere capability of performing this function. *Id.* at 4–5 (citing *In re Giannelli*, 739 F.3d 1375, 1379 (Fed. Cir. 2014). Appellants further assert that Angott’s vehicle is inoperable on a roadway because its scanning system is inadequate for real-world driving on roads. *See id.* 5–6.

We disagree with Appellants’ arguments because under the broadest reasonable interpretation of claim 1, consistent with the Specification, controller 54 of Angott satisfies the control system requirement. We reproduce below the portion of the Specification quoted by Appellants as support for a narrow interpretation of claim 1 in both the Appeal Brief and Reply Brief.

For operating on paved roadways, *the autonomous driving capabilities of the unmanned vehicle may include* obeying traffic signals and/or signs; obeying speed limits; making turns at intersections; observing pavement line markings and staying within travel lanes; changing lanes; avoiding other vehicles on the roadway and maintaining a safe distance with the vehicle ahead; avoiding pedestrians and stopping for pedestrians crossing the roadway or school buses; giving signals (e.g. braking light, turn signal, etc.) to other vehicles or other drivers; reducing speed for shopping centers, parking lots, downtown areas, vicinity of schools, vicinity of playgrounds, in vicinity of pedestrians, and/or residential roadways; parking in designated areas or according to parking rules or regulations; entering and exiting limited access highways (e.g. interstate highways), and/or other such capabilities.

Spec. 6:22–7:2 (emphasis added); *see also* Appeal Br. 5; Reply Br. 3–4. Thus, the unmanned vehicle described in Appellants’ Specification *may* (not must) include the capabilities listed. In other words, the limitations Appellants attempt to incorporate from the Specification are merely optional. Accordingly, Appellants’ contention that the broadest reasonable interpretation, consistent with the Specification, limits claim 1 to exclude controllers such as the one taught by Angott is unavailing.

Regarding Appellants’ assertion that Angott’s sensor system is inadequate for operation on a roadway, Angott indicates that its sensors 94 “can be adjusted to detect objects from about 2 feet to about 10 feet.”

Angott ¶ 59. Angott further states,

[s]onar sensors 94 [are able] to detect an object or person can go up to 20, 50 or 100 feet or more; however, it is not practical to project any type of sensor more than about 4-6 feet ahead of the utility vehicle 30 due to basic navigation limitations from corners, objects in front such as bushes, uneven terrain, etc.

*Id.* ¶ 61 (emphasis added). Thus, the sensors disclosed by Angott have a range of 100 feet or more. To the extent Appellants argue that the range of the sensors disclosed by Angott is only 4 to 6 feet, Appellants set forth no objective evidence or persuasive technical argument that this range is inadequate for operation of the vehicle on a roadway.

As for Appellants’ contention that the vehicle recited in claim 1 is designed to keep pace with traffic on a roadway, claim 1 does not set forth any such requirement. To the extent Appellants assert that the broadest reasonable interpretation of claim 1 requires the vehicle to operate at speeds above those disclosed in Angott, Appellants’ Specification implicitly contradicts this assertion. In particular, the Specification states, “because the vehicle is designed for traveling on conventional roadways, the vehicle is



capable of maintaining speeds to keep pace with traffic. As such, *in some cases*, the vehicle is capable of traveling at speeds faster than 25 mph.” Spec. 12:4–5 (emphasis added). Thus, the Specification implies that, in some cases, speeds of 25 mph or below are permissible for operation on a roadway.

We have considered all of Appellants’ arguments for the patentability of claim 1, but are not apprised of Examiner error. Accordingly, we sustain the rejection of claim 1 as unpatentable over Angott, Gordon, and Elder. Appellants make no separate argument for the patentability of claims 2, 3, 20, and 23 (*see* Appeal Br. 5–17), and these claims fall with claim 1.

*Claim 5*

Claim 5 depends from claim 1 and requires that “the perception apparatus can be switched from an operational mode to a protected mode.” Appeal Br. 18 (Claims App.).

The Examiner finds that Angott discloses a protected mode in which “a detection module of the control system[ ] ignores the signals from the sonar sensors (94).” Final Act. 4 (citing Angott ¶ 60).

Appellants contend that the recited protection mode requires a mode that protects the sensors from external forces such as vandalism and weather conditions. *See* Appeal Br. 9–10. Appellants further contend that merely ignoring signals does not satisfy this requirement. *Id.*

In response, the Examiner states that ignoring signals from certain structures such as walls enables the lawn mower of Angott to “be positioned in close proximity to a building or perhaps even below an[] overhang, thereby enabling the lawn mower to continue to operate safely and be effective[] in rainy conditions.” Ans. 3.

Appellants have the better position on this point. The Specification lists vandalism, weather conditions, and debris as potentially damaging external forces and then describes the “protected mode” as a mode in which the perception apparatus “is shielded or otherwise protected from these potentially damaging external forces.” Spec. 8:8–9. The portion of Angott relied upon by the Examiner in the rejection of claim 5 states, “[i]n some cases, it becomes necessary to ignore signals from the sonar sensors 94. For example, when the mower is mowing next to a wall, the subject invention can be programmed to ignore the wall as an object, allowing the mower to work properly.” Angott ¶ 60. The Examiner does not explain adequately how ignoring a signal so that Angott’s mower is allowed to work properly next to a wall amounts to switching from an operational mode to a protected mode, specifically, a mode that protects the perception apparatus from potentially damaging external forces.

In other words, the portion of Angott cited by the Examiner indicates that the signals from the sensors are *ignored*, not that the sensors themselves cease to produce signals or that the sensors are shielded from external forces in some way. Specifically, in paragraph 60 of Angott, the sensors themselves continue to be exposed and to operate as they did during normal use. To the extent the Examiner finds that providing the ability to drive Angott’s vehicle to a location *near* a wall satisfies the requirements of claim 5, the Examiner does not explain why this mode provides a protection relative to the regular operation of Angott’s vehicle. Specifically, paragraph 60 of Angott teaches that signals are ignored to allow continued operation of the vehicle *next to* a wall, not merely near a wall or underneath an overhang, which would be possible even in the normal mode of operation in Angott.

Accordingly, we do not sustain the rejection of claim 5 as unpatentable over Angott, Gordon, and Elder

*Rejection (II); claim 4*

Claim 4 depends from claim 1 and further requires the vehicle to include “an externally visible written warning notice.” Appeal Br. 18 (Claims App.). The Examiner relies on Trefz (paragraph 59) to teach this feature and reasons it would have been obvious to incorporate such a notice in the vehicle of Angott “since such a modification constitutes a safety measure for better protecting the user from sharp blades found within the compartment.” Final Act. 5–6.

Appellants argue that “[t]he Examiner fails to explain why someone reading about autonomously operating lawn mowers in Angott and seeking to improve upon them, would turn to literature about human-operated speed levers on the handlebar of a walk-behind mower.” Appeal Br. 14. Appellants also contend that the Examiner’s Answer “fails to address this question of motivation to combine.” Reply Br. 7.

We do not agree with Appellants’ arguments. The Examiner’s reasoning for adding a warning sticker to the vehicle in Angott is supported by rational underpinnings inasmuch as the purpose of a warning sticker, as disclosed by Trefz, is to warn a person of potential danger, and Angott explicitly discloses that one of its goals is to improve safety. *See* Angott ¶¶ 3, 12–13, 62. The fact that Angott is concerned with an unmanned lawnmower and Trefz discloses a human-operated lawnmower does not undermine the Examiner’s rationale because both lawnmowers are likely to be in close proximity to personnel at some time during operation. *See*

Angott ¶ 61. Accordingly, we sustain the Examiner’s rejection of claim 4 as unpatentable over Angott, Gordon, Elder, and Trefz.

*Rejection (III); claims 14 and 29*

*Claim 14*

Claim 14 depends from claim 1 and recites, “wherein at least some part of the vehicle is given a feminine color.” Appeal Br. 18 (Claims App.). The Examiner finds that Riddle Me This teaches the use of pink for the coloring of a lawn mower and reasons that it would have been obvious to modify Angott to have this color in order to promote breast cancer awareness. Final Act. 6. The Examiner also reasons that the use of such a color would have been a matter of design choice. *Id.*

Appellants assert that the use of the color pink discourages the perpetration of vandalism against the claimed vehicle and is therefore not merely a matter of design choice. Appeal Br. 16. Although Appellants briefly mention the Examiner’s citation to Riddle Me This, Appellants make no argument as to why the Examiner’s reasoning that the use of the color pink would promote breast cancer awareness is not adequate. *See id.*; *see also* Reply Br. 8.

The Examiner’s reasoning, based on promoting breast cancer awareness, is supported by rational underpinnings inasmuch as Riddle Me This explicitly states that the use of pink on the lawn mower serves this purpose. *See* Riddle Me This p. 1 (stating, “This would be my latest idea on how to get Breast Cancer Awareness . . . [I]astly, after I spray painted the lawn mower a lovely shade of Watermelon Pink.”).

Additionally, we agree with the Examiner that the use of pink as a color for the vehicle in Angott would have been a matter of design choice.

That Appellants assert there is some psychological effect of “feminine” colors does not negate the fact that choosing a color for a lawn mower would have been a matter of personal preference based on aesthetic considerations, particularly in light of the disclosure of a Watermelon Pink lawn mower in *Riddle Me This*. *See e.g., In re Harris*, 484 F.2d 965, 967–68 (CCPA 1973) (affirming the Board’s holding that the choice of colors for filter material would have been obvious to one of ordinary skill in the art at the time of appellant’s invention when the prior art suggests the use of a yellow filter material containing particles of a second, different color); *see also In re Cornish*, 277 F.2d 185, 189 (CCPA 1960) (stating that various colors for use with a game apparatus “are a matter of choice”). Accordingly, we sustain the rejection of claim 14 as unpatentable over Angott, Gordon, Elder, and *Riddle Me This*.

*Claim 29*

Claim 29 depends from claim 14 and recites that “the exterior of the vehicle displays an image of a female person or female character.” Appeal Br. 20 (Claims App.). The Examiner determines that the display of such an image is merely a matter of design choice and “matters relating to ornamentation only, which have no mechanical function, cannot be relied upon to patentably distinguish the claimed invention from the prior art.” Final Act. 6.

Appellants contend that “the combination of the feminine color and the image of a female person/character is designed to trigger a psychological cue that committing vandalism or violence against the vehicle is plainly a wrongful act.” Appeal Br. 17.

Appellants' arguments on this point are unavailing. Riddle Me This discloses a Watermelon Pink lawnmower on which is located an image of a ribbon as well as the words "Mowing Down Cancer." The Examiner's finding that the image has "no mechanical function" amounts to finding that the particular content of the image placed on the vehicle has no functional relationship to the underlying substrate. In other words, the content of the image on the vehicle recited in claim 29 is non-functional descriptive material. We agree with the Examiner on this point. Under these circumstances, the particular message sent by the image, explicitly, or based on psychological effect as argued by Appellants, does not impart patentability. *See In re Gulack*, 703 F.2d 1381, 1385 (Fed. Cir. 1983) (noting that when descriptive material is not functionally related to the substrate, the descriptive material will not distinguish the invention from the prior art in terms of patentability). *King Pharms., Inc. v. Eon Labs, Inc.*, 616 F.3d 1267, 1279 (Fed. Cir. 2010) ("[T]he relevant question is whether 'there exists any new and unobvious functional relationship between the printed matter and the substrate.'" (Internal citations omitted). Accordingly, we sustain the Examiner's rejection of claim 29 as unpatentable over Angott, Gordon, Elder, and Riddle Me This.

*Rejection (IV); claim 15*

Claim 15 depends from claim 1. Appeal Br. 19 (Claims App.). Appellants make no separate argument regarding claim 15, and we sustain the Examiner's rejection of claim 15 for the reasons discussed above regarding the rejection of claim 1.

*Rejection (V); claims 16 and 17*

In rejecting claims 16 and 17, the Examiner finds that Einecke discloses a lawn mower including sonar and bump detectors that operate independently of a camera system. Final Act. 8.

Appellants make no separate argument for the patentability of claim 16, but assert that the Examiner errs in rejecting claim 17 because the rejection of this claim does not account for the requirement that “the surveillance system is in operation even when the vehicle is not traveling or when the driving perception system is not active.” Appeal Br. 15.

In response, the Examiner states that

[t]he Einecke camera system not only includes mower mounted cameras, it also includes controlling functionality which allows a user to take photos of potential obstacles and send those photos to a memory within the controller such that when images captured by the cameras are compared to possible obstacles in the memory, the mower can be directed away from the obstacle. This feature, of accepting user input and “training” of the mower, constitutes a part of the camera “system” and can occur *when the vehicle is not driving and when the perception system is not active*.

Ans. 4–5 (emphases added).

Although the Examiner is correct in finding that Einecke discloses a training mode, we do not sustain the rejection of claim 17 because the Examiner’s finding regarding *when* the “training” of the mower in Einecke occurs is not supported by a preponderance of the evidence. We agree with Appellants’ that the Examiner’s finding on this point is merely speculation. Accordingly, we affirm the rejection of claim 16 over Angott, Gordon, Elder, and Einecke, and we reverse the rejection of claim 17 over these same references.

*Rejection (VI); claims 21 and 25*

Appellants make no separate argument for the patentability of claims 21 and 25. *See* Appeal Br. 9–17. Accordingly, we sustain the rejection of claims 21 and 25 for the reasons discussed above regarding the rejection of claim 1, from which claims 21 and 25 indirectly depend.

*Rejection (VII); claims 22 and 24*

Claim 22 depends from claim 21 and recites, “wherein the wheels comprise front and back wheels, and wherein the vehicle comprises an electric motor on each of the front wheels.” Appeal Br. 19 (Claims App.). Claim 24 depends from claim 23 and recites the same limitations as claim 22. *Id.* The Examiner finds that Sasahara discloses electric motors serving in rear-wheel driving assemblies and front-wheel driving assemblies and that positioning the electric motors of Angott’s vehicle on the front wheels would have been a matter of design choice based on the terrain traversed by the vehicle. *See* Final Act. 9.

Appellants argue that “[t]he Examiner fails to address the claim limitation that the electric motor is on ‘each of the front wheels,’ i.e. there is a motor for the left front wheel, and a separate motor for the right front wheel.” Appeal Br. 11.

In response, the Examiner states, “[e]ach transaxle [in Sasahara] has a traveling electric motor (*see* column 18, line 54). The Examiner maintains that Sasahara teaches a vehicle with front wheels wherein each of the front wheels has an electric motor.” Ans. 3.

Appellants reply that claims 22 and 24 require at least two motors on the front transaxle, one for each front wheel, and, in contrast, Sasahara discloses only one motor for a front transaxle. Reply Br. 7.

Sasahara states:



Any lawn mower serving as an electric zero-turn working vehicle according to embodiment 2 may be provided with drive wheels 3 serving as right and left front wheels, and may be provided with a front-wheel driving assembly that includes drive wheels 3, right and left transaxles having *respective transaxle casings incorporating respective traveling electric motors*.

Sasahara, 18:49–55 (emphasis added). Thus, Sasahara teaches respective electric motors for the right and left transaxles for the front-wheel driving assembly. Consequently, contrary to Appellants' assertion, a preponderance of the evidence supports the Examiner's finding that Sasahara provides an electric motor for each of the front wheels. We sustain the rejection of claims 22 and 24 as unpatentable over Angott, Gordon, Elder, Scherbring, and Sasahara.

*Rejections (VIII) and (IX); claims 26, 27, and 28*

*Claim 26*

Appellants make no separate argument for the patentability of claim 26 (*see* Appeal Br. 9–17), and we sustain the Examiner's rejection of this claim for the same reasons discussed above regarding the rejection of claim 4, from which claim 26 depends.

*Claims 27 and 28*

Claims 27 and 28 recite features similar to those discussed above regarding claim 17, and the Examiner again relies on Einecke to teach the features relating to a surveillance system. Final Act. 9–10. Accordingly, for the reasons discussed above regarding the rejection of claim 17, we do not sustain the rejections of claims 27 and 28.

*Rejection (X); claims 30 and 31*

*Claim 30*

The Examiner relies on Gimvang to teach “the use of an anti-graffiti surface that is applicable to a variety of public elements including buildings and railway cars.” Final Act. 11. The Examiner reasons that adding such a surface to an autonomous vehicle would have been obvious in order to prevent vandalism due to the absence of a local operator. *Id.* Examiner explains that the vehicle in Angott would benefit from the application of an anti-graffiti coating because it may be exposed in public places and might not be closely monitored. Ans. 3.

Appellants contend that Gimvang is not in the same field as lawn mowers, and the Examiner’s rationale for modifying Angott to include an anti-graffiti surface is taken from Appellants’ Specification. *See* Appeal Br. 12–13. Appellants also assert that the Examiner has not presented evidence to show that lawn mowers suffer any problem from graffiti. Reply Br. 7.

The Examiner has the better position. Gimvang discloses the use of anti-graffiti coatings on surfaces that are exposed in public places, such as the walls of buildings and railroad cars, in order to address the problem of vandalism. *See* Gimvang ¶¶ 2–4. Thus, the teachings of Gimvang are reasonably pertinent to the graffiti problem with which Appellants were concerned. *See* Spec. 11:16–21. Additionally, we agree with the Examiner that the vehicle disclosed in Angott may be exposed to the public and may not be close enough to an operator to prevent it from being defaced, and, therefore, the Examiner’s reasoning for modifying Angott is supported by rational underpinnings. Accordingly, we sustain the Examiner’s rejection of

claim 30 as unpatentable over Angott, Gordon, Elder, Einecke, and Gimvang.

*Claim 31*

Claim 31 depends from claim 17. Appeal Br. 20 (Claims App.). Thus, for the reasons discussed above regarding the rejection of claim 17, we do not sustain the rejection of claim 31.

*Rejection (XI); claims 32–36*

The Examiner relies on Phillips to teach “the use of an autonomous robot which has quick brake and speed boost capabilities that enable travel of [the] robot at speeds between 15 MPH and 50 MPH.” Final Act. 11. The Examiner reasons that it would have been obvious to modify the vehicle in Angott to include this capability because, “[i]n the case of a line painter and a sweeper, a speed boost function would enable [the] device to get out of the line of traffic quickly, thereby preventing potential accident situations.” Final Act. 11–12.

Appellants contend that there is no reason for the lawn mower in Angott to move faster than 35 mph as recited in claim 32, and Angott does not disclose that its line painter is used in traffic. Appeal Br. 14–15. Appellants also point to Angott’s teaching that operation at 3 mph is a safety feature. *Id.* at 14 (citing Angott ¶ 64). Thus, according to Appellants, the Examiner’s rationale for modifying Angott to include the limitation of claim 32 is inadequate.

Appellants’ argument is persuasive. The Examiner’s rationale for modifying Angott is contrary to Angott’s disclosure that, for safety reasons, the autonomous lawn mower operates relatively slowly. Accordingly, we do

not sustain the rejection of claim 32 and claims 33–36 depending therefrom as unpatentable over Angott, Gordon, Elder, and Phillips.

#### DECISION

(I) We affirm the rejection of claims 1–3, 5, 20, and 23 as unpatentable over Angott, Gordon, and Elder as to claims 1–3, 20, and 23. We reverse this rejection as to claim 5.

(II) We affirm the rejection of claim 4 as unpatentable over Angott, Gordon, Elder, and Trefz.

(III) We affirm the rejection of claims 14 and 29 as unpatentable over Angott, Gordon, Elder, and Riddle Me This.

(IV) We affirm the rejection of claim 15 as unpatentable over Angott, Gordon, Elder, and George.

(V) We affirm the rejection of claims 16 and 17 as unpatentable over Angott, Gordon, Elder, and Einecke as to claim 16. We reverse this rejection as to claim 17.

(VI) We affirm the rejection of claims 21 and 25 as unpatentable over Angott, Gordon, Elder, and Scherbring.

(VII) We affirm the rejection of claims 22 and 24 as unpatentable over Angott, Gordon, Elder, Scherbring, and Sasahara.

(VIII) We affirm the rejection of claims 26 and 27 as unpatentable over Angott, Gordon, Elder, Trefz, and Einecke as to claim 26. We reverse this rejection as to claim 27.

(IX) We reverse the rejection of claim 28 as unpatentable over Angott, Gordon, Elder, Riddle Me This, and Einecke.

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(X) We affirm the rejection of claims 30 and 31 as unpatentable over Angott, Gordon, Elder, Einecke, and Gimvang as to claim 30. We reverse this rejection as to claim 31.

(XI) We reverse the rejection of claims 32–36 as unpatentable over Angott, Gordon, Elder, and Phillips.

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-IN-PART